PARE PROJECT NO. 21055.00

STORMWATER MANAGEMENT REPORT
Addendum

BASKIN REDEVELOPMENT
75 WEST MAIN STREET
CHICOPEE, MASSACHUSETTS

Assessor's Map 0173-00001

Prepared for:

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2009 Flatbush Avenue
Brooklyn, NY 11234

Prepared by:

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8 Blackstone Valley Place
Lincoln, RI 02865

December 2021

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APPENDICES

PROJECT DESCRIPTION

Introduction

Brisa Development, LLC. is proposing the redevelopment of Baskin Mills located at 75 West Main Street in the City of Chicopee, Massachusetts (site). The Baskin Redevelopment project will consist of renovating one remaining building for brewery and construction new buildings for commercial retail, athletic, and residential uses. The project site is approximately five acres and the limit of disturbance (LOD) encompasses approximately four acres. The parcel (the site) totals five acres and are located on the City Assessor's Map 0173, Lot 00001.

The proposed project includes renovating the existing building to house a brewery and construction of new buildings to include a 48,695 sf athletic facility, 3,773 sf grocery store, and 101 residentials units in a 12,560 sf seven story residential building (project). New sidewalks and revisions to the existing parking areas, drainage system, and on-site utilities are proposed to support the redevelopment.

Stormwater Management and Calculations

BETA Inc prepared a stormwater report titled, Former Uniroyal & Facemate Properties, Stormwater Management Report, dated May 2021, for ACOE Permit Review Only. This report provides a full basis for the existing stormwater modelling for the site the existing conditions. The report also considered proposed conditions of filling a portion of the land along the rear of the site and construction infiltration basins to manage stormwater runoff from the site in anticipation of future development along the front portion of the site.

The Baskin Redevelopment site development plans are proposing to fill additional land at the rear of the site and includes additional impervious areas for parking and buildings that were not accounted for in the BETA report. This Addendum provided additional stormwater modeling to describe the project. The baseline data used in the model was taken directly from the BETA report to provide consistency in comparing the results.

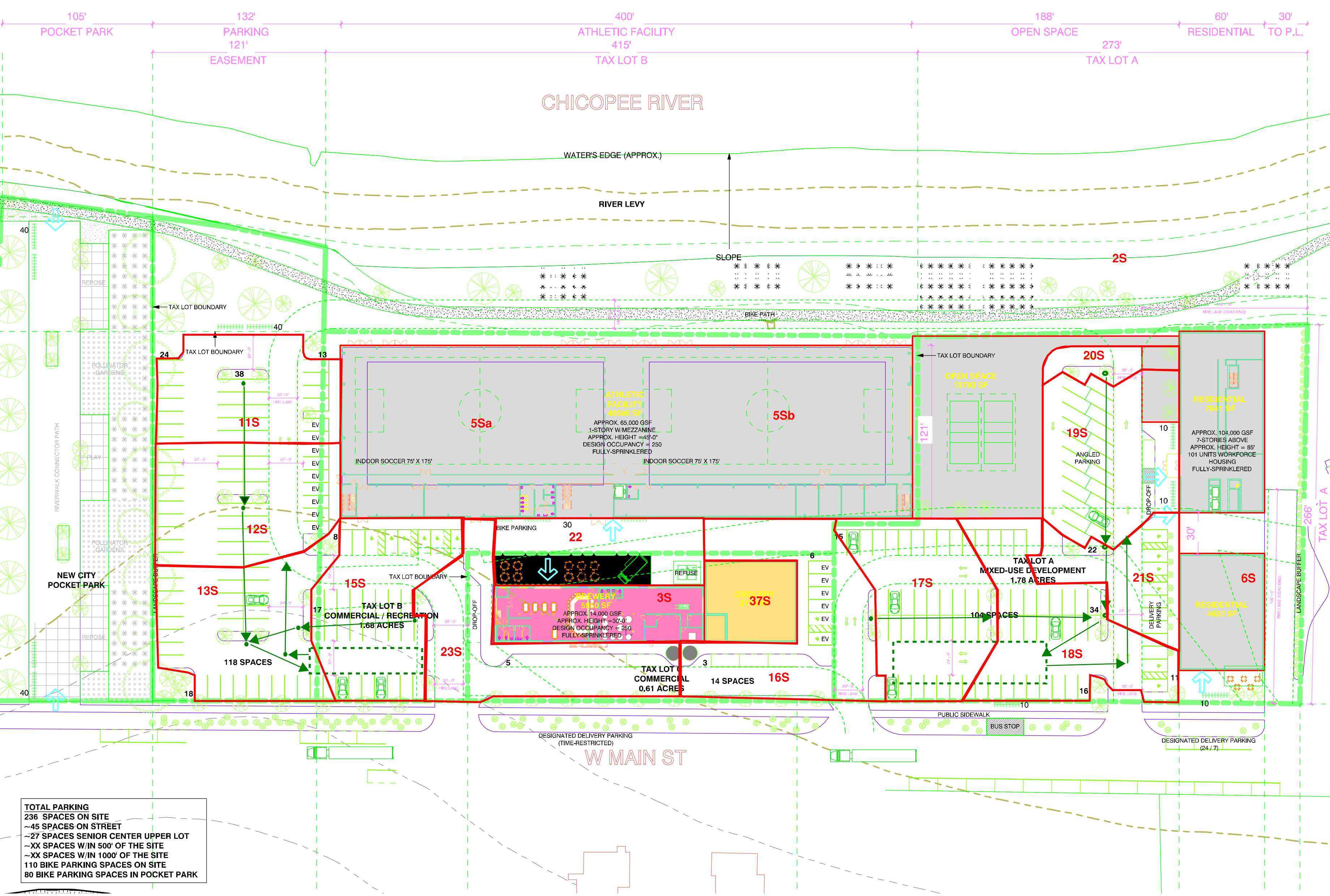
The project will discharge roof runoff directly to the municipal storm drains on the site. The proposed impervious surfaces, non-roof, will drain to tree box filters for treatment and infiltration. The drainage will overflow to a traditional pipe and manhole system to convey the runoff to a two subsurface stormwater management structures constructed of underground storage chambers. The flows are managed by a series of flow control weirs designed to attenuate peak flows and maximize infiltration within the individual structures.

The project's stormwater management results in peak flows and volumes that are less than or similar to the existing conditions modelling for the two, ten, twenty-five, and one-hundred-year events.

C:\Projects\21055 Brisa Chicopee\SWM Report\O&M Plan.docx

Appendix A

Proposed Drainage Basin Map
NRCS Soils Data



TOTAL PARKING
236 SPACES ON SITE
~45 SPACES ON STREET
~27 SPACES SENIOR CENTER UPPER LOT
~XX SPACES W/IN 500' OF THE SITE
~XX SPACES W/IN 1000' OF THE SITE
110 BIKE PARKING SPACES ON SITE
80 BIKE PARKING SPACES IN POCKET PARK

PROGRESS SET

PAUL A. CASTRUCCI ARCHITECT

179 RIVINGTON STREET
SUITE 1A
NEW YORK, NEW YORK
10002
TEL 212.254.7060
FAX 212.260.7199
email@castrucciarchitect.com

NOTES:

PROPERTY LINE
FIRE LANE
SEWER EASEMENT

NORTH:

Revision Schedule

#	Description	Date

DOB APPROVE STAMPS:

DOB JOB STICKERS:

PROJECT:

BASKIN REDEVELOPMENT

FOR:

–

Drawing Tile:

SITE PLAN

Date: 10.13.2021 | Scale: 1/32" = 1'-0"

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

Hampden County, Massachusetts, Central Part

December 19, 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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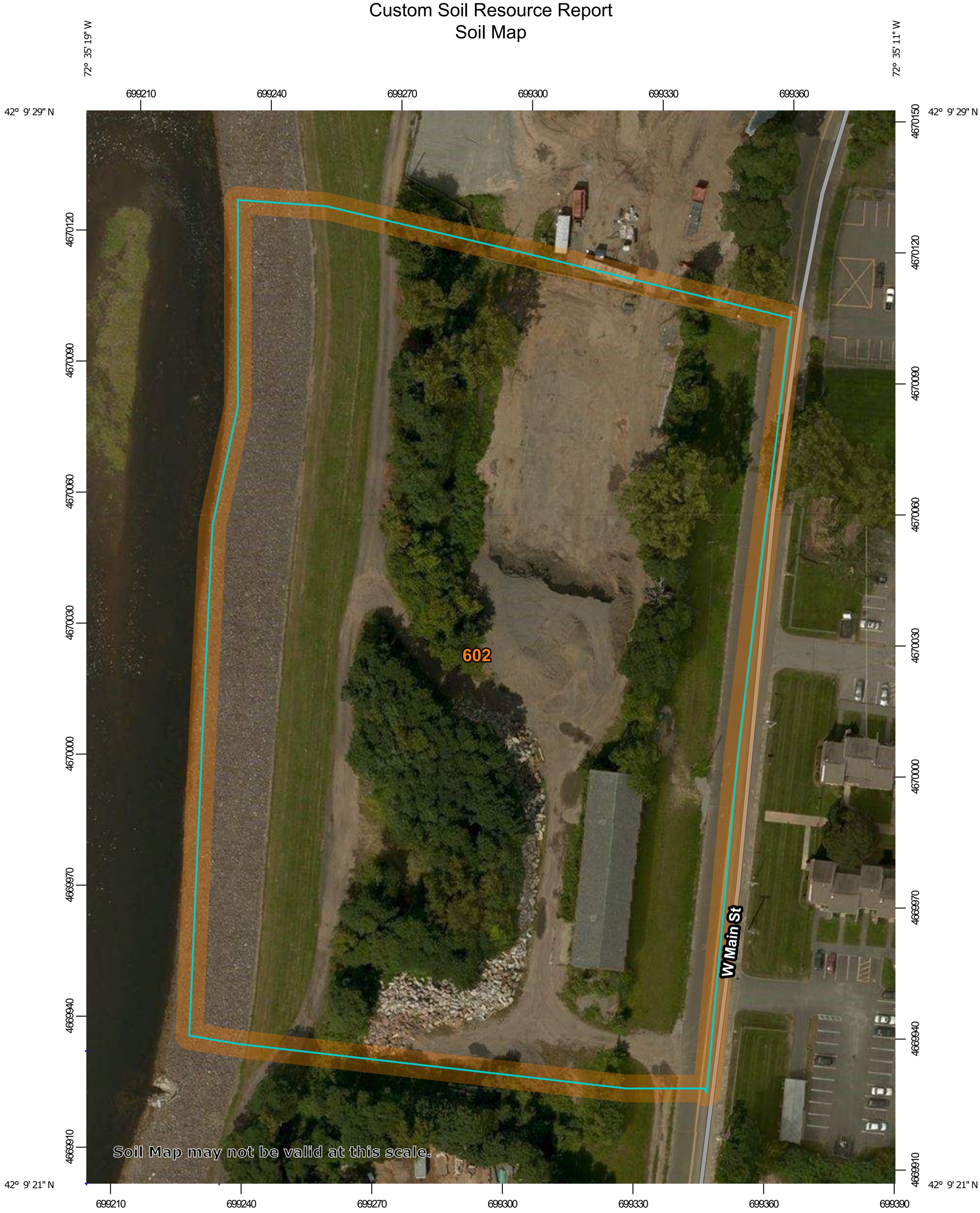
Contents

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.

Soil Map



Map Scale: 1:1,200 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0, 15, 30, 60, 90

Feet: 0, 50, 100, 200, 300

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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: Hampden County, Massachusetts, Central Part
Survey Area Data: Version 15, Sep 2, 2021

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

Date(s) aerial images were photographed: Aug 25, 2013—Sep 9, 2013

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	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
602	Urban land	5.7	100.0%
Totals for Area of Interest		**5.7**	**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.

Hampden County, Massachusetts, Central Part

602—Urban land

Map Unit Setting

National map unit symbol: 99rq
Frost-free period: 150 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Urban Land

Setting

Landform position (two-dimensional): Toeslope

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Hydrologic Soil Group and Surface Runoff

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

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

The four hydrologic soil groups are:

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

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

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

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

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

Report—Hydrologic Soil Group and Surface Runoff

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

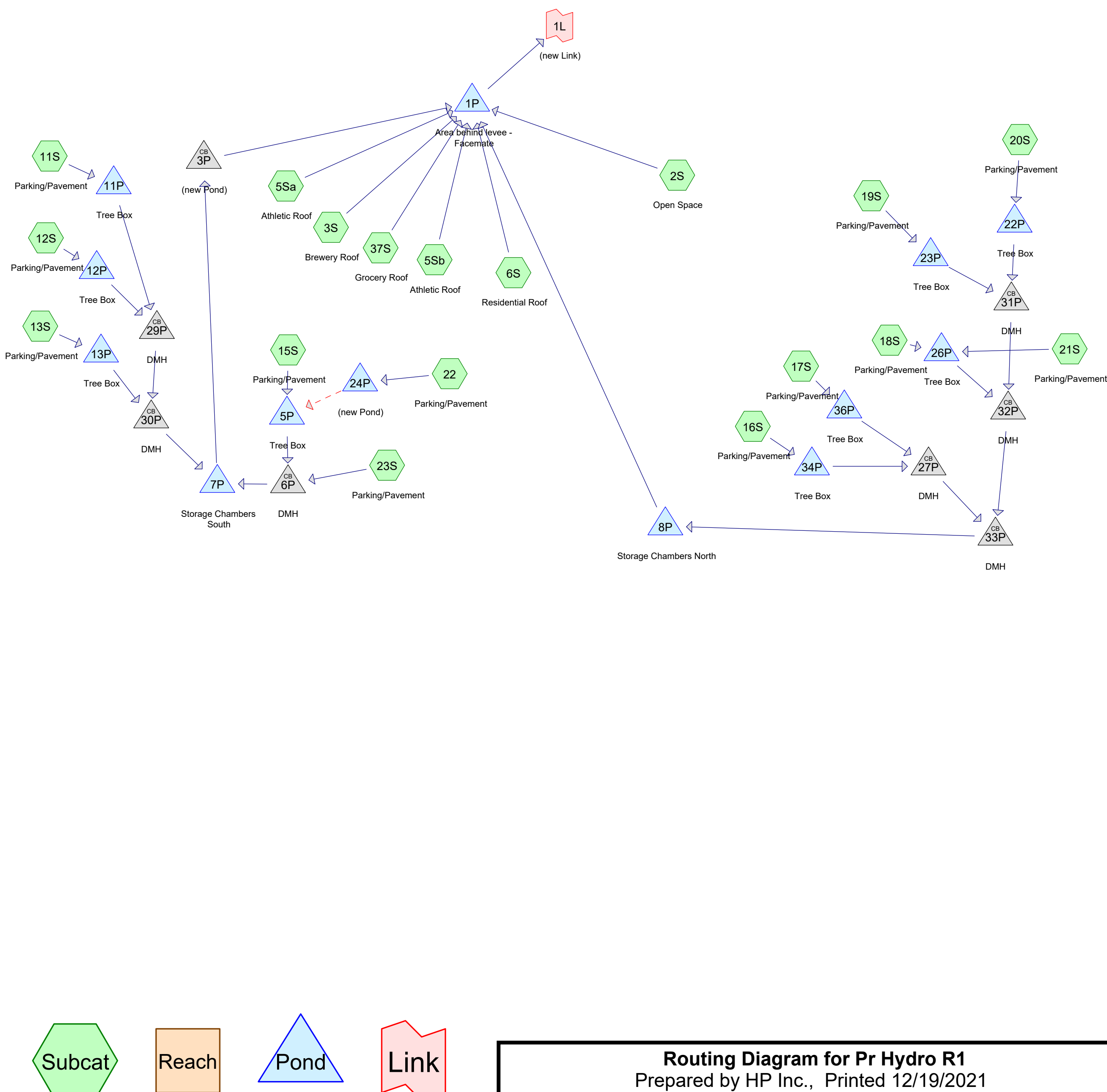
Hydrologic Soil Group and Surface Runoff–Hampden County, Massachusetts, Central Part			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
602—Urban land			
Urban land	100	Very high	—

Data Source Information

Soil Survey Area: Hampden County, Massachusetts, Central Part
Survey Area Data: Version 15, Sep 2, 2021

Appendix B

Stormwater Calculations: Proposed Hydrology
Baskins Redevelopment
2-Year Detailed Calculations
Summary Calculations: First Flush, 10-Yr, 25-Yr, 100-Yr



Routing Diagram for Pr Hydro R1
Prepared by HP Inc., Printed 12/19/2021
HydroCAD® 10.10-5a s/n 10894 © 2020 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.12	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
37,635	74	>75% Grass cover, Good, HSG C (2S)
107,821	98	Paved parking, HSG C (11S, 12S, 13S, 15S, 16S, 17S, 18S, 19S, 20S, 21S, 22, 23S)
79,355	98	Roofs, HSG D (3S, 5Sa, 5Sb, 6S, 37S)
224,811	**94**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
145,456	HSG C	2S, 11S, 12S, 13S, 15S, 16S, 17S, 18S, 19S, 20S, 21S, 22, 23S
79,355	HSG D	3S, 5Sa, 5Sb, 6S, 37S
0	Other	
224,811		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Su Nu
0	0	37,635	0	0	37,635	>75% Grass cover, Good	
0	0	107,821	0	0	107,821	Paved parking	
0	0	0	79,355	0	79,355	Roofs	
0	**0**	**145,456**	**79,355**	**0**	**224,811**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	3P	98.00	91.00	250.0	0.0280	0.013	0.0	18.0	0.0
2	5P	100.75	100.65	20.0	0.0050	0.012	0.0	12.0	0.0
3	6P	100.60	100.50	20.0	0.0050	0.012	0.0	12.0	0.0
4	7P	99.00	96.00	20.0	0.1500	0.013	0.0	18.0	0.0
5	8P	100.50	100.00	50.0	0.0100	0.013	0.0	18.0	0.0
6	11P	101.53	101.08	90.0	0.0050	0.012	0.0	12.0	0.0
7	12P	101.18	101.13	10.0	0.0050	0.012	0.0	12.0	0.0
8	13P	100.65	100.60	10.0	0.0050	0.012	0.0	12.0	0.0
9	22P	103.25	102.63	125.0	0.0050	0.012	0.0	12.0	0.0
10	23P	102.65	102.60	10.0	0.0050	0.012	0.0	12.0	0.0
11	26P	101.30	101.25	10.0	0.0050	0.012	0.0	12.0	0.0
12	27P	101.70	101.55	30.0	0.0050	0.012	0.0	12.0	0.0
13	29P	101.08	100.61	95.0	0.0049	0.012	0.0	12.0	0.0
14	30P	100.60	100.50	20.0	0.0050	0.012	0.0	18.0	0.0
15	31P	101.90	101.25	130.0	0.0050	0.013	0.0	12.0	0.0
16	32P	101.25	101.00	50.0	0.0050	0.013	0.0	18.0	0.0
17	33P	101.00	100.58	85.0	0.0049	0.013	0.0	18.0	0.0
18	34P	102.55	102.05	100.0	0.0050	0.012	0.0	12.0	0.0
19	36P	102.10	101.60	10.0	0.0500	0.012	0.0	12.0	0.0

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: Open Space Runoff Area=37,635 sf 0.00% Impervious Runoff Depth=0.99"
Flow Length=150' Tc=9.1 min CN=74 Runoff=0.84 cfs 3,090 cf

Subcatchment3S: Brewery Roof Runoff Area=5,950 sf 100.00% Impervious Runoff Depth=2.89"
Tc=6.0 min CN=98 Runoff=0.41 cfs 1,432 cf

Subcatchment5Sa: Athletic Roof Runoff Area=27,766 sf 100.00% Impervious Runoff Depth=2.89"
Tc=6.0 min CN=98 Runoff=1.93 cfs 6,682 cf

Subcatchment5Sb: Athletic Roof Runoff Area=27,766 sf 100.00% Impervious Runoff Depth=2.89"
Tc=6.0 min CN=98 Runoff=1.93 cfs 6,682 cf

Subcatchment6S: Residential Roof Runoff Area=14,100 sf 100.00% Impervious Runoff Depth=2.89"
Tc=6.0 min CN=98 Runoff=0.98 cfs 3,393 cf

Subcatchment11S: Parking/Pavement Runoff Area=9,068 sf 100.00% Impervious Runoff Depth=2.89"
Flow Length=50' Slope=0.0200 '/' Tc=6.0 min CN=98 Runoff=0.63 cfs 2,182 cf

Subcatchment12S: Parking/Pavement Runoff Area=10,485 sf 100.00% Impervious Runoff Depth=2.89"
Flow Length=50' Slope=0.0200 '/' Tc=6.0 min CN=98 Runoff=0.73 cfs 2,523 cf

Subcatchment13S: Parking/Pavement Runoff Area=10,798 sf 100.00% Impervious Runoff Depth=2.89"
Flow Length=60' Tc=6.0 min CN=98 Runoff=0.75 cfs 2,599 cf

Subcatchment15S: Parking/Pavement Runoff Area=9,945 sf 100.00% Impervious Runoff Depth=2.89"
Flow Length=50' Slope=0.0200 '/' Tc=6.0 min CN=98 Runoff=0.69 cfs 2,393 cf

Subcatchment16S: Parking/Pavement Runoff Area=11,350 sf 100.00% Impervious Runoff Depth=2.89"
Flow Length=100' Slope=0.0200 '/' Tc=6.0 min CN=98 Runoff=0.79 cfs 2,731 cf

Subcatchment17S: Parking/Pavement Runoff Area=10,465 sf 100.00% Impervious Runoff Depth=2.89"
Flow Length=70' Slope=0.0200 '/' Tc=6.0 min CN=98 Runoff=0.73 cfs 2,518 cf

Subcatchment18S: Parking/Pavement Runoff Area=10,745 sf 100.00% Impervious Runoff Depth=2.89"
Flow Length=70' Slope=0.0200 '/' Tc=6.0 min CN=98 Runoff=0.75 cfs 2,586 cf

Subcatchment19S: Parking/Pavement Runoff Area=10,400 sf 100.00% Impervious Runoff Depth=2.89"
Flow Length=100' Slope=0.0200 '/' Tc=6.0 min CN=98 Runoff=0.72 cfs 2,503 cf

Subcatchment20S: Parking/Pavement Runoff Area=1,945 sf 100.00% Impervious Runoff Depth=2.89"
Flow Length=30' Slope=0.0200 '/' Tc=6.0 min CN=98 Runoff=0.14 cfs 468 cf

Subcatchment21S: Parking/Pavement Runoff Area=5,400 sf 100.00% Impervious Runoff Depth=2.89"
Flow Length=50' Slope=0.0200 '/' Tc=6.0 min CN=98 Runoff=0.38 cfs 1,300 cf

Subcatchment22: Parking/Pavement Runoff Area=6,920 sf 100.00% Impervious Runoff Depth=2.89"
Flow Length=35' Slope=0.0200 '/' Tc=6.0 min CN=98 Runoff=0.48 cfs 1,665 cf

Subcatchment 23S: Parking/Pavement Runoff Area=10,300 sf 100.00% Impervious Runoff Depth=2.89"
Flow Length=100' Slope=0.0200 '/' Tc=6.0 min CN=98 Runoff=0.72 cfs 2,479 cf

Subcatchment 37S: Grocery Roof Runoff Area=3,773 sf 100.00% Impervious Runoff Depth=2.89"
Tc=6.0 min CN=98 Runoff=0.26 cfs 908 cf

Pond 1P: Area behind levee - Facemate Peak Elev=90.30' Storage=2,150 cf Inflow=7.48 cfs 33,532 cf
Outflow=5.30 cfs 33,532 cf

Pond 3P: (new Pond) Peak Elev=98.51' Inflow=1.27 cfs 6,416 cf
18.0" Round Culvert n=0.013 L=250.0' S=0.0280 '/' Outflow=1.27 cfs 6,416 cf

Pond 5P: Tree Box Peak Elev=101.65' Storage=19 cf Inflow=0.69 cfs 2,393 cf
Discarded=0.00 cfs 81 cf Primary=0.68 cfs 2,313 cf Outflow=0.68 cfs 2,393 cf

Pond 6P: DMH Peak Elev=101.64' Inflow=1.40 cfs 4,791 cf
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=1.40 cfs 4,791 cf

Pond 7P: Storage Chambers South Peak Elev=101.61' Storage=3,730 cf Inflow=3.49 cfs 11,565 cf
Discarded=0.09 cfs 5,149 cf Primary=1.27 cfs 6,416 cf Outflow=1.36 cfs 11,565 cf

Pond 8P: Storage Chambers North Peak Elev=101.32' Storage=4,186 cf Inflow=3.49 cfs 11,508 cf
Discarded=0.13 cfs 6,579 cf Primary=0.80 cfs 4,929 cf Outflow=0.93 cfs 11,508 cf

Pond 11P: Tree Box Peak Elev=102.13' Storage=40 cf Inflow=0.63 cfs 2,182 cf
Discarded=0.00 cfs 185 cf Primary=0.63 cfs 1,997 cf Outflow=0.63 cfs 2,182 cf

Pond 12P: Tree Box Peak Elev=102.00' Storage=40 cf Inflow=0.73 cfs 2,523 cf
Discarded=0.00 cfs 182 cf Primary=0.73 cfs 2,341 cf Outflow=0.73 cfs 2,523 cf

Pond 13P: Tree Box Peak Elev=101.65' Storage=37 cf Inflow=0.75 cfs 2,599 cf
Discarded=0.00 cfs 163 cf Primary=0.74 cfs 2,435 cf Outflow=0.74 cfs 2,599 cf

Pond 22P: Tree Box Peak Elev=103.47' Storage=19 cf Inflow=0.14 cfs 468 cf
Discarded=0.00 cfs 92 cf Primary=0.13 cfs 376 cf Outflow=0.13 cfs 468 cf

Pond 23P: Tree Box Peak Elev=103.24' Storage=16 cf Inflow=0.72 cfs 2,503 cf
Discarded=0.00 cfs 81 cf Primary=0.72 cfs 2,421 cf Outflow=0.72 cfs 2,503 cf

Pond 24P: (new Pond) Peak Elev=106.79' Storage=555 cf Inflow=0.48 cfs 1,665 cf
Discarded=0.05 cfs 1,665 cf Secondary=0.00 cfs 0 cf Outflow=0.05 cfs 1,665 cf

Pond 26P: Tree Box Peak Elev=102.33' Storage=30 cf Inflow=1.12 cfs 3,885 cf
Discarded=0.00 cfs 96 cf Primary=1.12 cfs 3,789 cf Outflow=1.12 cfs 3,885 cf

Pond 27P: DMH Peak Elev=102.48' Inflow=1.51 cfs 4,922 cf
12.0" Round Culvert n=0.012 L=30.0' S=0.0050 '/' Outflow=1.51 cfs 4,922 cf

Pond 29P: DMH Peak Elev=101.92' Inflow=1.35 cfs 4,338 cf
12.0" Round Culvert n=0.012 L=95.0' S=0.0049 '/' Outflow=1.35 cfs 4,338 cf

Pond 30P: DMH Peak Elev=101.64' Inflow=2.10 cfs 6,774 cf
18.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=2.10 cfs 6,774 cf

Pond 31P: DMH Peak Elev=102.59' Inflow=0.86 cfs 2,797 cf
12.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=0.86 cfs 2,797 cf

Pond 32P: DMH Peak Elev=102.23' Inflow=1.98 cfs 6,586 cf
18.0" Round Culvert n=0.013 L=50.0' S=0.0050 '/' Outflow=1.98 cfs 6,586 cf

Pond 33P: DMH Peak Elev=102.03' Inflow=3.49 cfs 11,508 cf
18.0" Round Culvert n=0.013 L=85.0' S=0.0049 '/' Outflow=3.49 cfs 11,508 cf

Pond 34P: Tree Box Peak Elev=103.17' Storage=36 cf Inflow=0.79 cfs 2,731 cf
Discarded=0.00 cfs 172 cf Primary=0.79 cfs 2,559 cf Outflow=0.79 cfs 2,731 cf

Pond 36P: Tree Box Peak Elev=102.74' Storage=29 cf Inflow=0.73 cfs 2,518 cf
Discarded=0.00 cfs 156 cf Primary=0.72 cfs 2,363 cf Outflow=0.73 cfs 2,518 cf

Link 1L: (new Link) Inflow=5.30 cfs 33,532 cf
Primary=5.30 cfs 33,532 cf

Total Runoff Area = 224,811 sf Runoff Volume = 48,134 cf Average Runoff Depth = 2.57"
16.74% Pervious = 37,635 sf 83.26% Impervious = 187,176 sf

Summary for Subcatchment 2S: Open Space

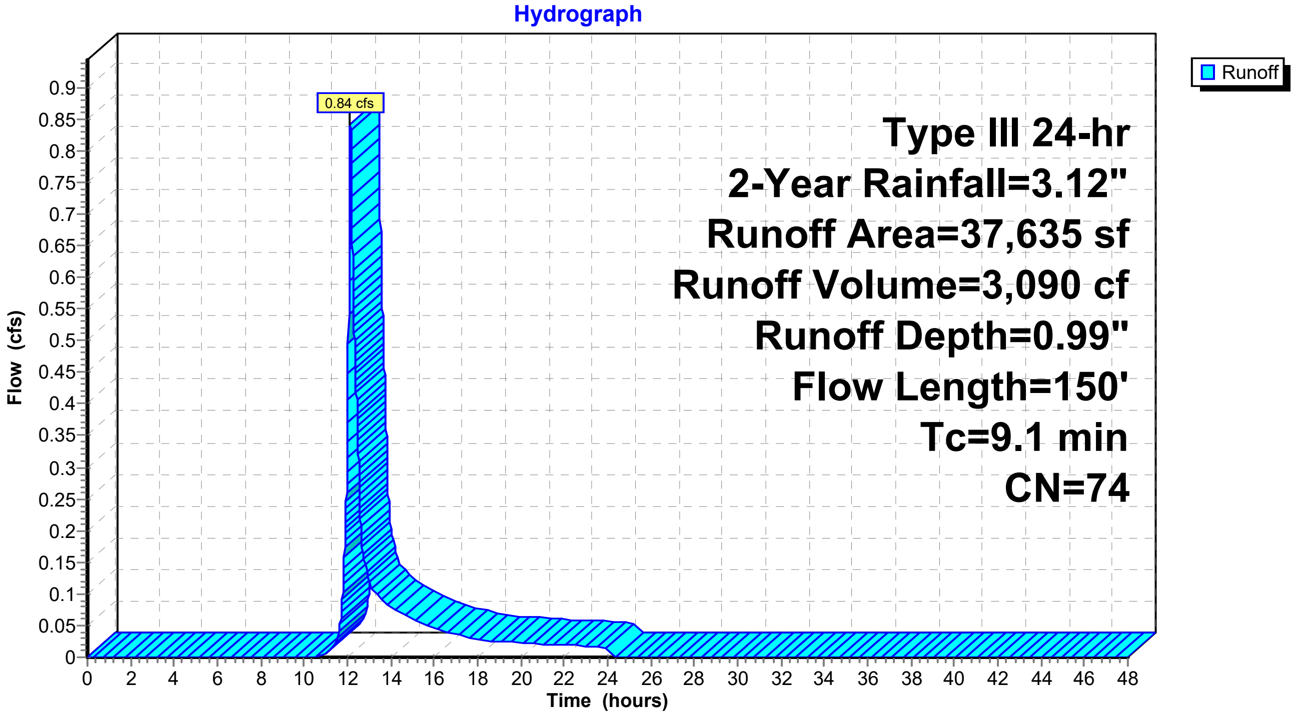
Runoff = 0.84 cfs @ 12.14 hrs, Volume= 3,090 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
37,635	74	>75% Grass cover, Good, HSG C
37,635	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow, Open Space** Grass: Dense n= 0.240 P2= 3.30"
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Open Space** Grassed Waterway Kv= 15.0 fps
0.6	50	0.0400	1.40		**Shallow Concentrated Flow, Open Space** Short Grass Pasture Kv= 7.0 fps
9.1	150	Total			

Subcatchment 2S: Open Space



Summary for Subcatchment 3S: Brewery Roof

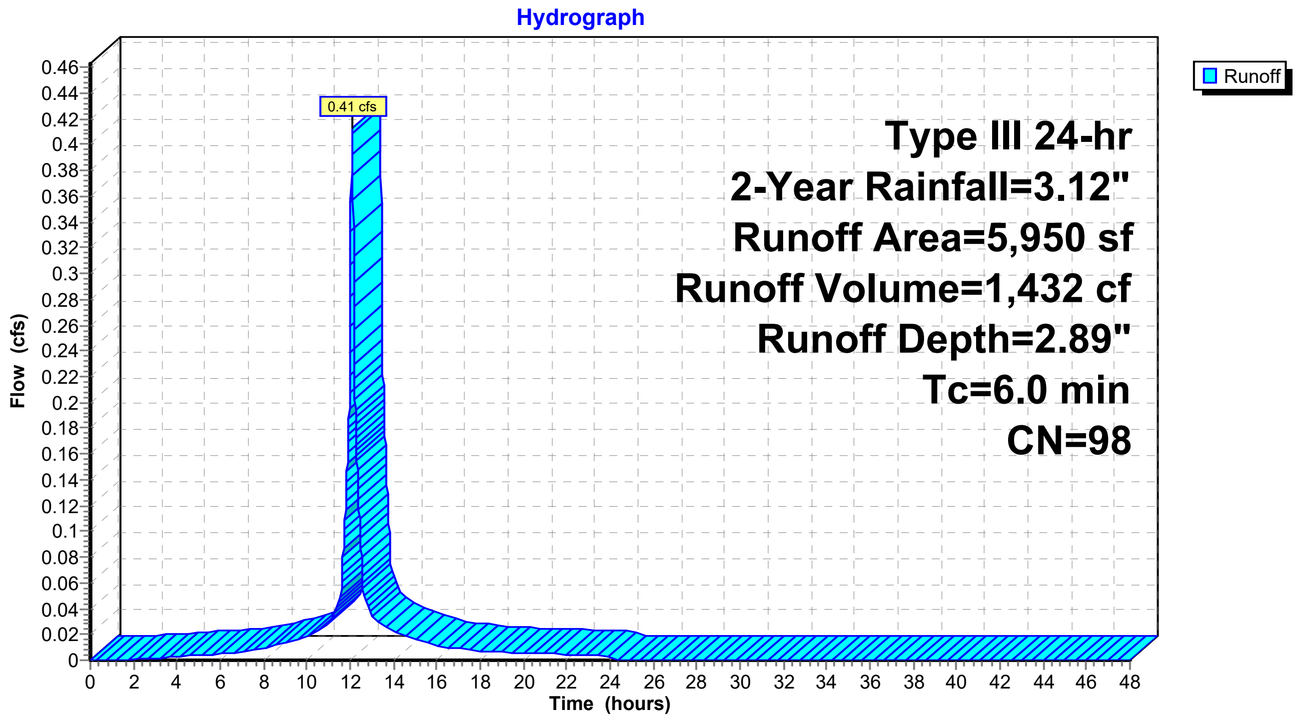
Runoff = 0.41 cfs @ 12.08 hrs, Volume= 1,432 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
5,950	98	Roofs, HSG D
5,950	98	100.00% Impervious Area

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

Subcatchment 3S: Brewery Roof



Summary for Subcatchment 5Sa: Athletic Roof

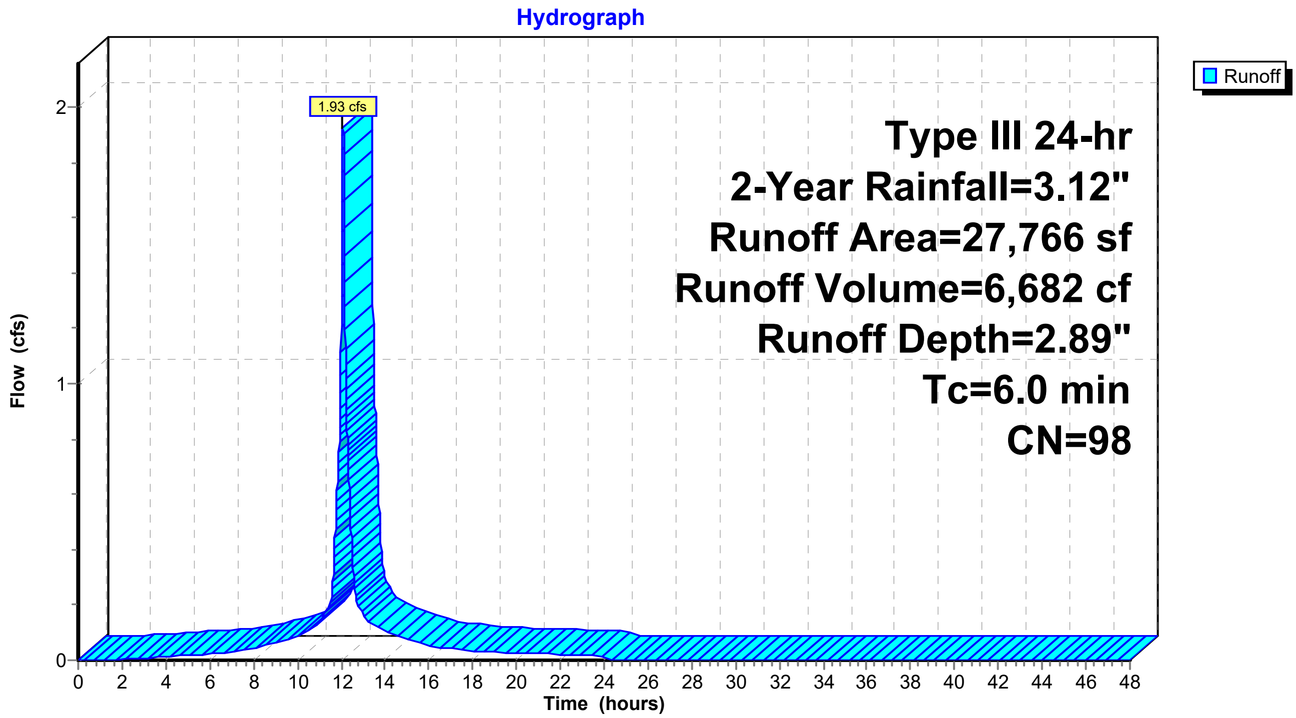
Runoff = 1.93 cfs @ 12.08 hrs, Volume= 6,682 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
27,766	98	Roofs, HSG D
27,766	98	100.00% Impervious Area

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

Subcatchment 5Sa: Athletic Roof



Summary for Subcatchment 5Sb: Athletic Roof

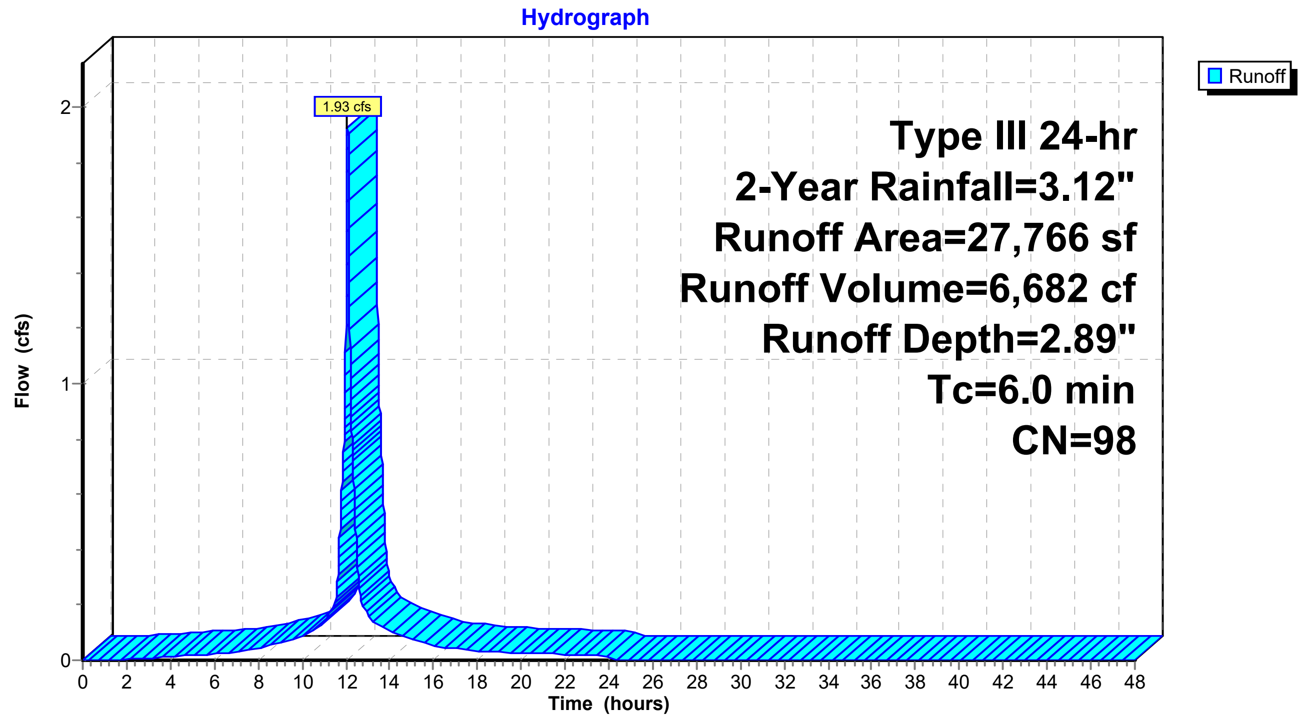
Runoff = 1.93 cfs @ 12.08 hrs, Volume= 6,682 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
27,766	98	Roofs, HSG D
27,766	98	100.00% Impervious Area

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

Subcatchment 5Sb: Athletic Roof



Summary for Subcatchment 6S: Residential Roof

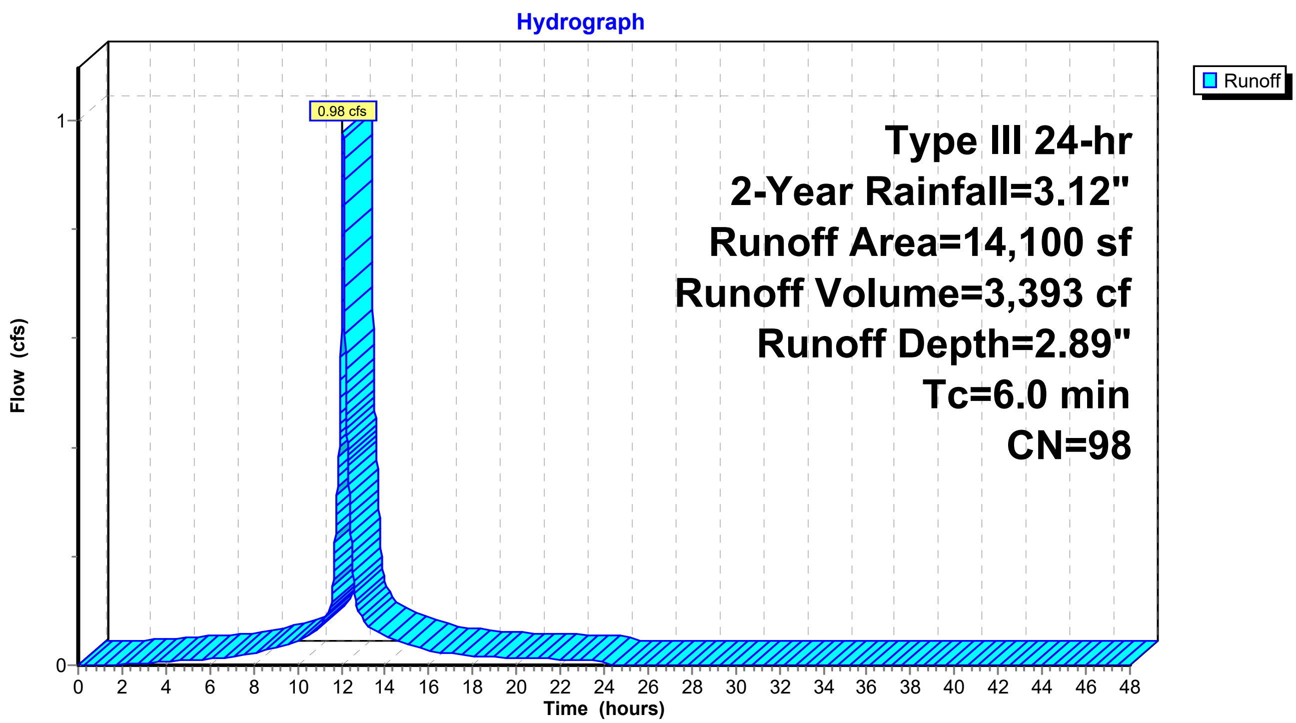
Runoff = 0.98 cfs @ 12.08 hrs, Volume= 3,393 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
14,100	98	Roofs, HSG D
14,100	98	100.00% Impervious Area

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

Subcatchment 6S: Residential Roof



Summary for Subcatchment 11S: Parking/Pavement

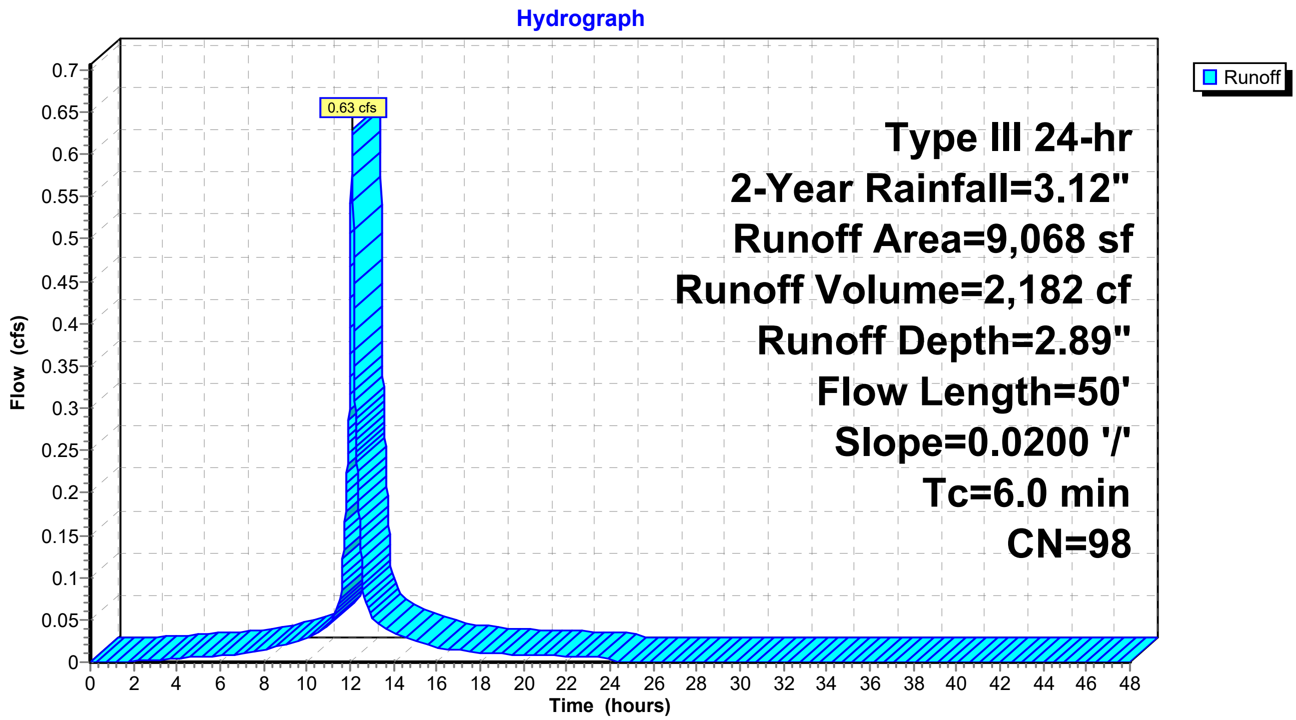
Runoff = 0.63 cfs @ 12.08 hrs, Volume= 2,182 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
9,068	98	Paved parking, HSG C
9,068	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 11S: Parking/Pavement



Summary for Subcatchment 12S: Parking/Pavement

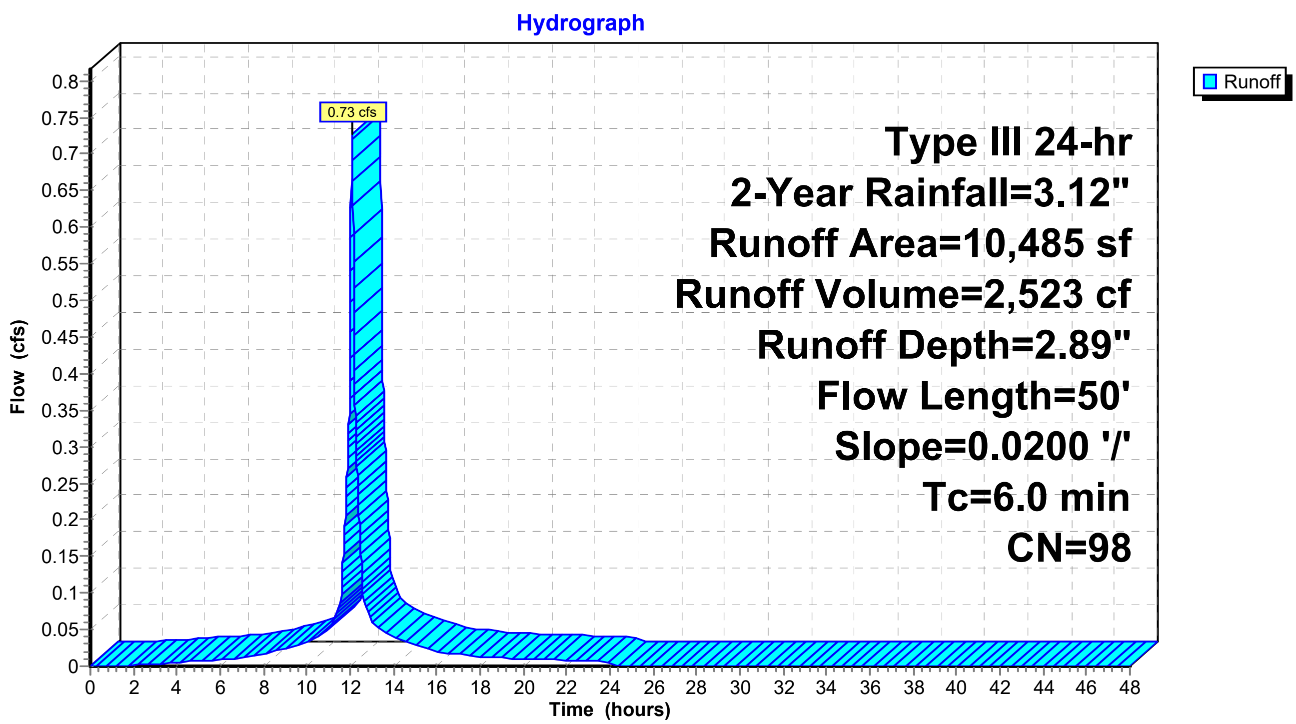
Runoff = 0.73 cfs @ 12.08 hrs, Volume= 2,523 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
10,485	98	Paved parking, HSG C
10,485	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 12S: Parking/Pavement



Summary for Subcatchment 13S: Parking/Pavement

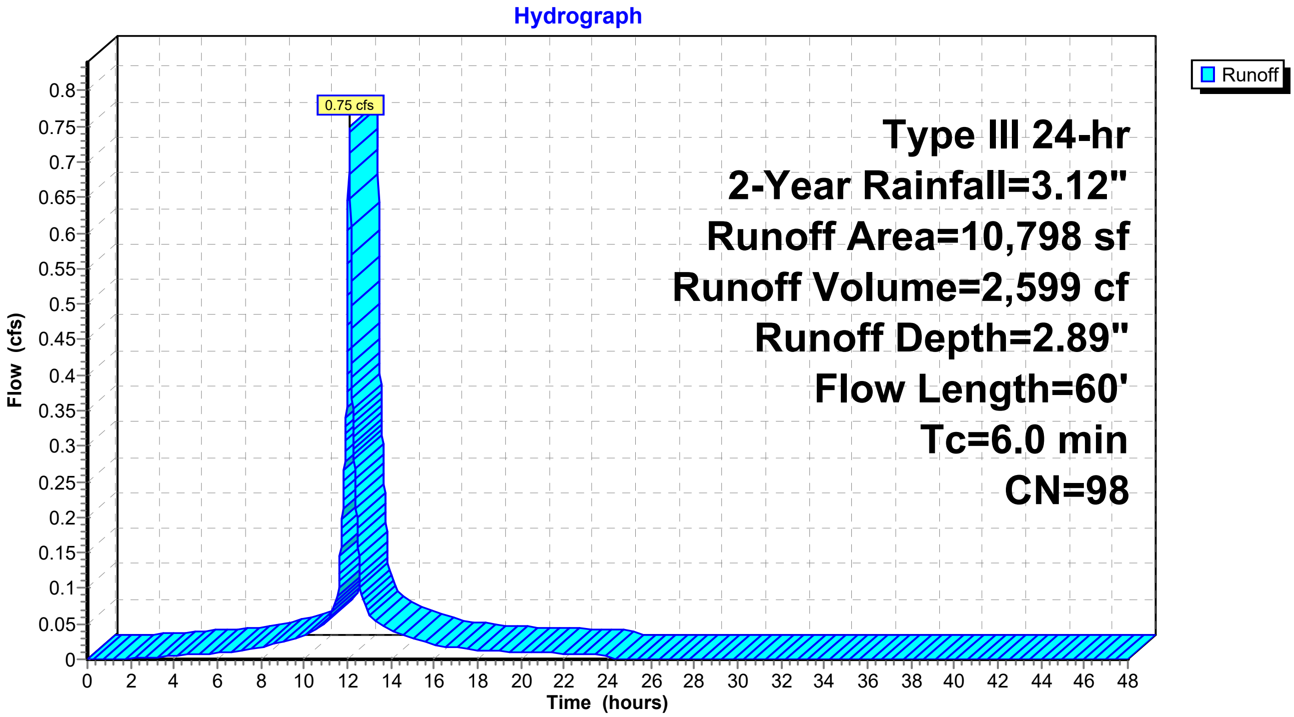
Runoff = 0.75 cfs @ 12.08 hrs, Volume= 2,599 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
10,798	98	Paved parking, HSG C
10,798	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	10	0.0050	0.04		**Sheet Flow, Landscapeing** Grass: Dense n= 0.240 P2= 3.30"
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
4.6	60	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S: Parking/Pavement



Summary for Subcatchment 15S: Parking/Pavement

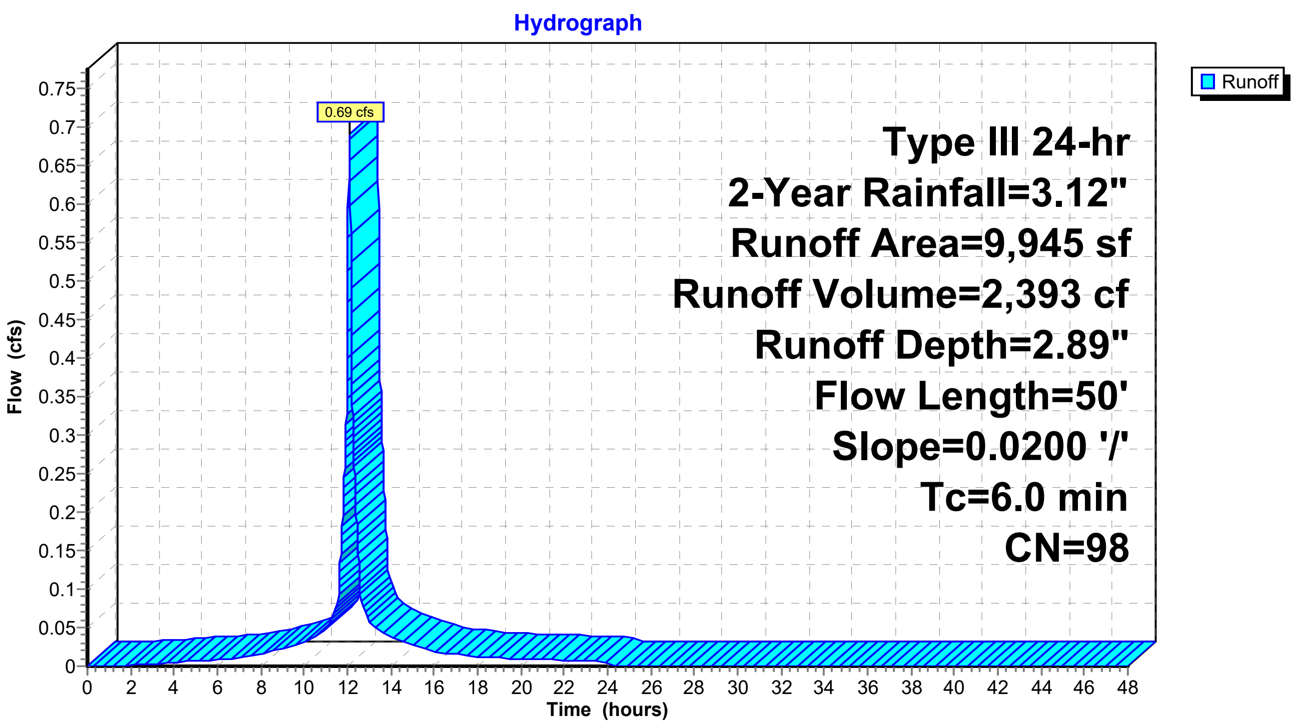
Runoff = 0.69 cfs @ 12.08 hrs, Volume= 2,393 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
9,945	98	Paved parking, HSG C
9,945	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 15S: Parking/Pavement



Summary for Subcatchment 16S: Parking/Pavement

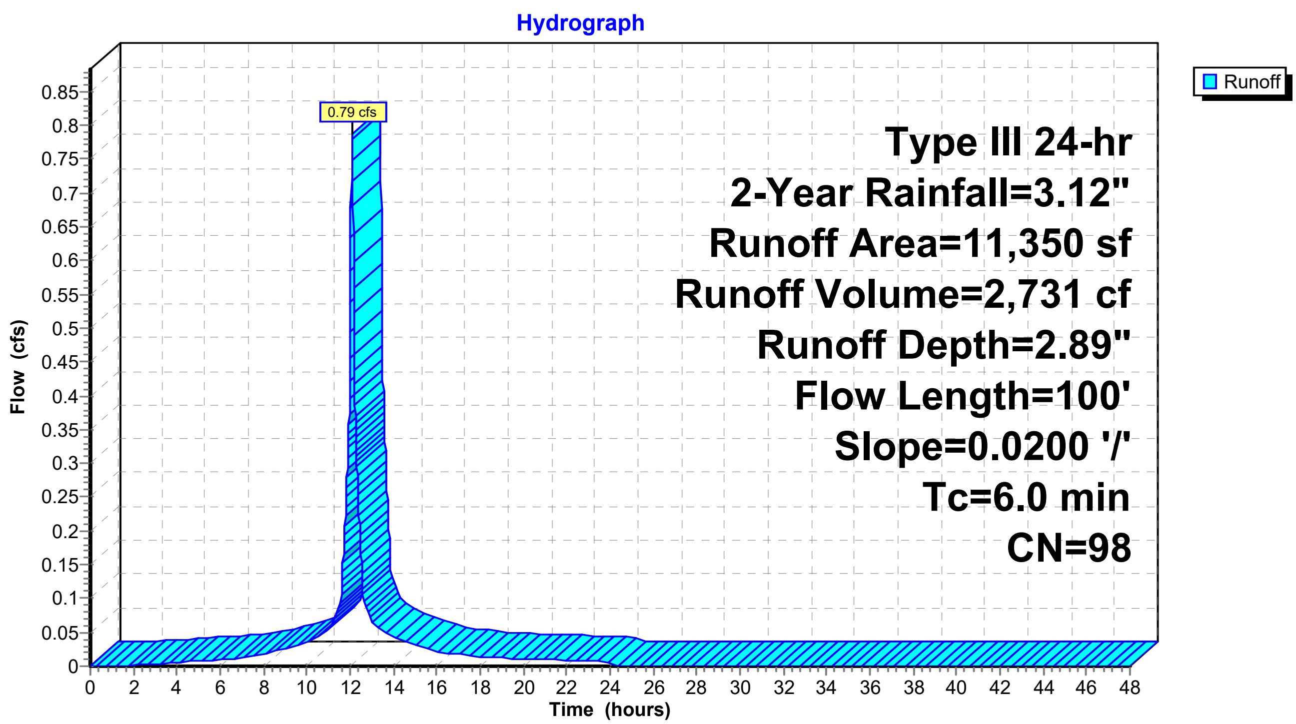
Runoff = 0.79 cfs @ 12.08 hrs, Volume= 2,731 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
11,350	98	Paved parking, HSG C
11,350	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 16S: Parking/Pavement



Summary for Subcatchment 17S: Parking/Pavement

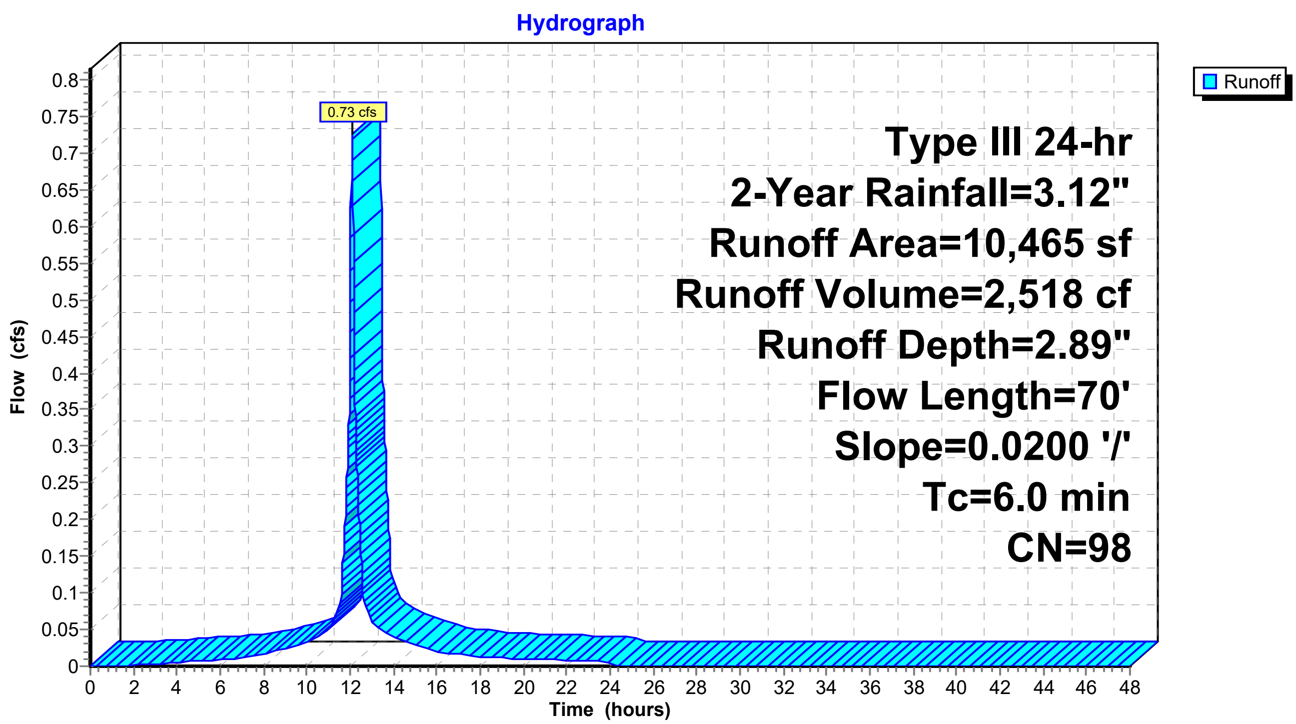
Runoff = 0.73 cfs @ 12.08 hrs, Volume= 2,518 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
10,465	98	Paved parking, HSG C
10,465	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	70	0.0200	1.30		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.9	70	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 17S: Parking/Pavement



Summary for Subcatchment 18S: Parking/Pavement

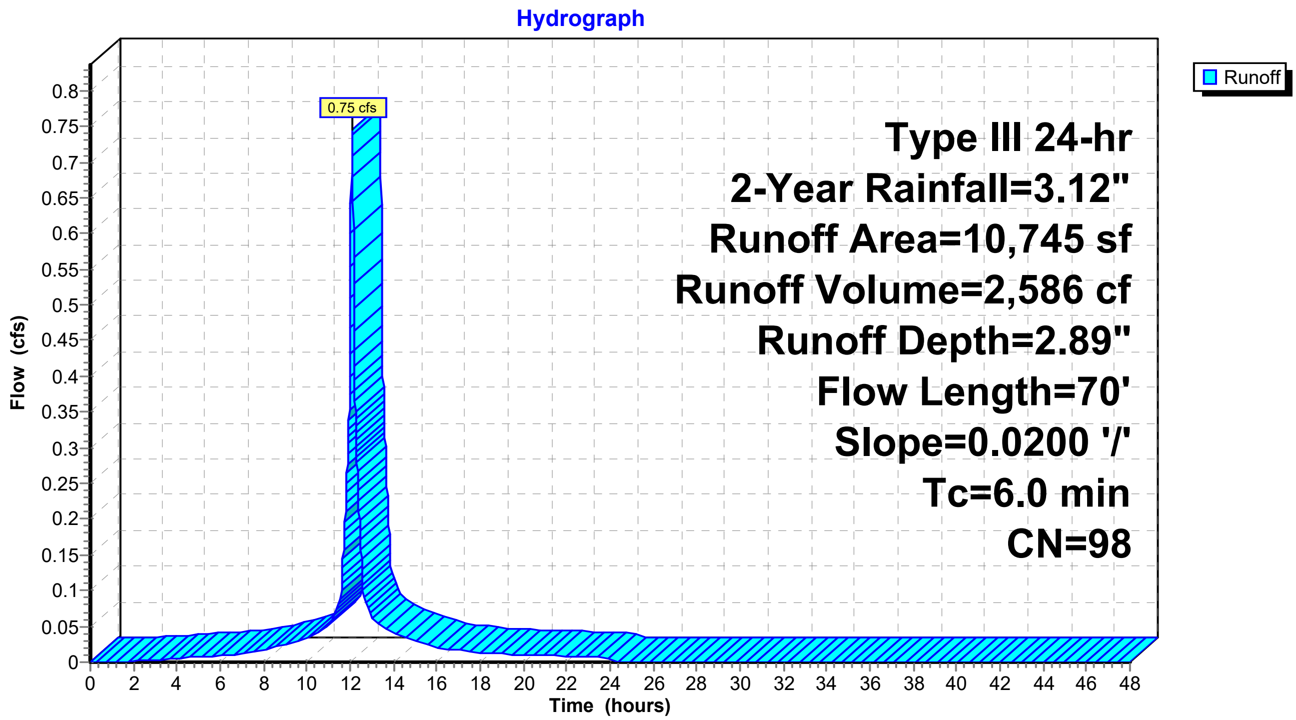
Runoff = 0.75 cfs @ 12.08 hrs, Volume= 2,586 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
10,745	98	Paved parking, HSG C
10,745	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	70	0.0200	1.30		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.9	70	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 18S: Parking/Pavement



Summary for Subcatchment 19S: Parking/Pavement

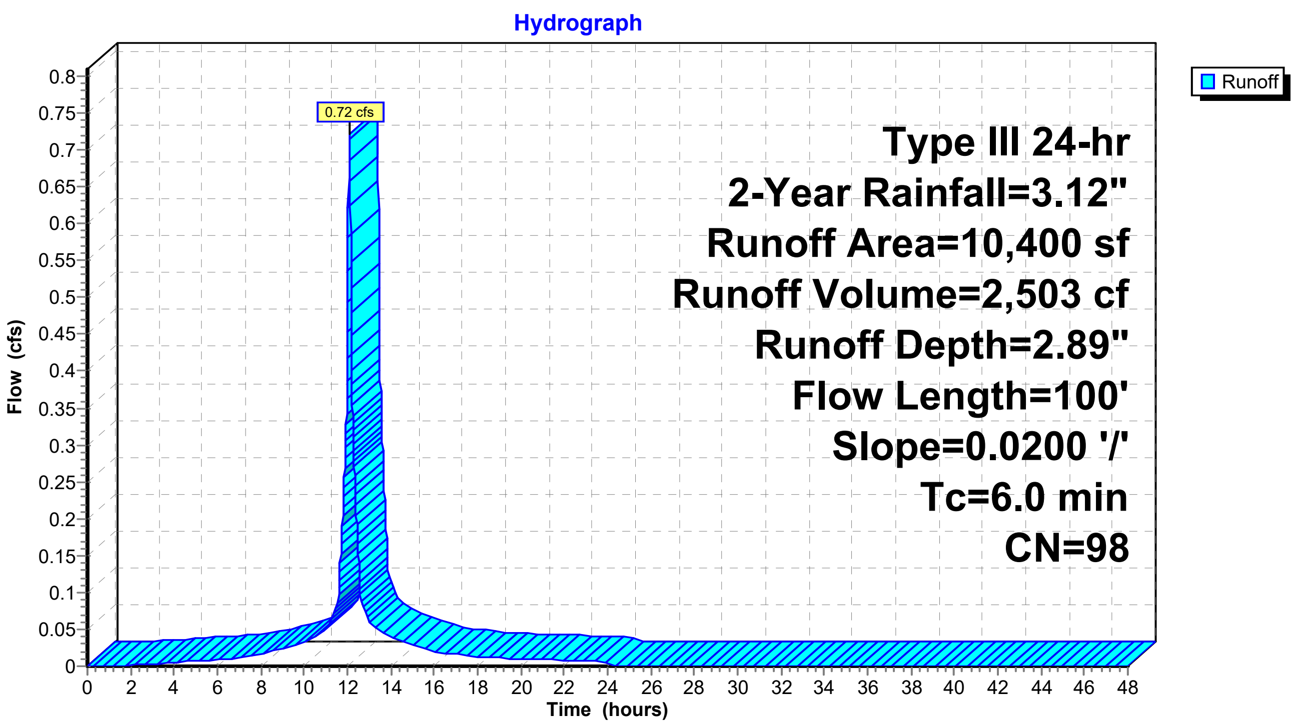
Runoff = 0.72 cfs @ 12.08 hrs, Volume= 2,503 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
10,400	98	Paved parking, HSG C
10,400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 19S: Parking/Pavement



Summary for Subcatchment 20S: Parking/Pavement

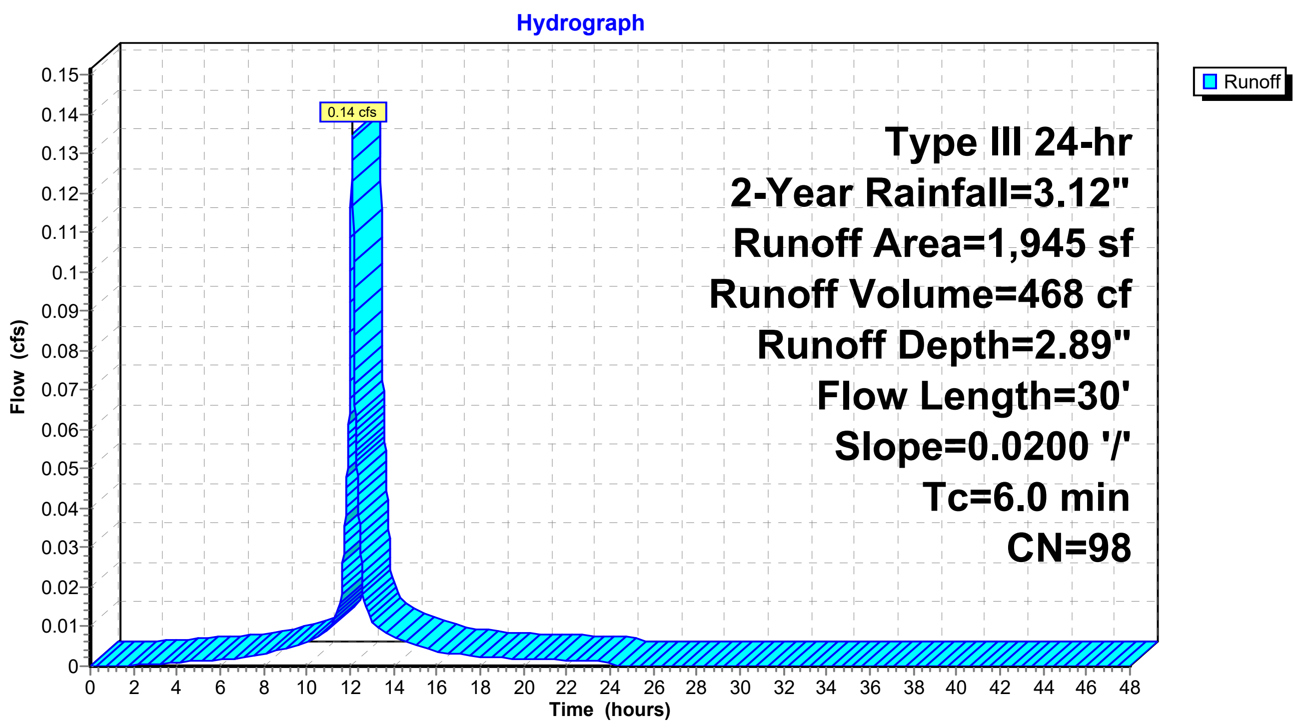
Runoff = 0.14 cfs @ 12.08 hrs, Volume= 468 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
1,945	98	Paved parking, HSG C
1,945	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	30	0.0200	1.10		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.5	30	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 20S: Parking/Pavement



Summary for Subcatchment 21S: Parking/Pavement

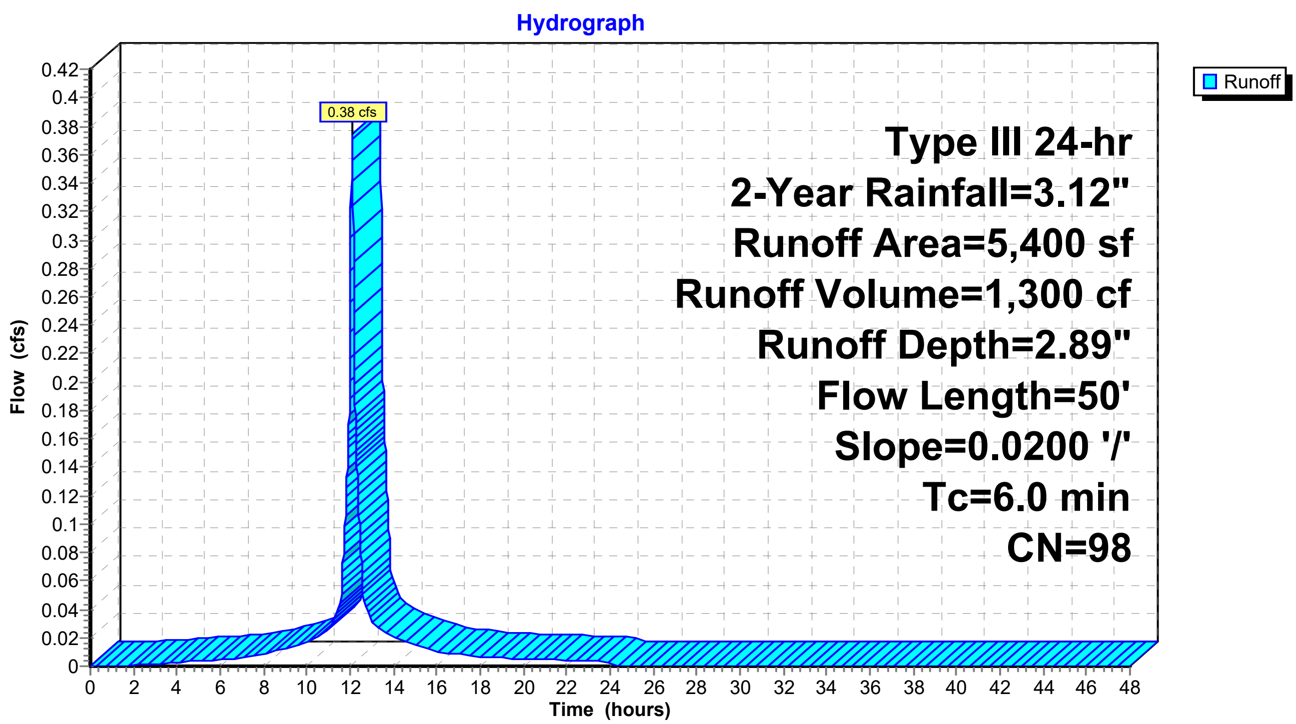
Runoff = 0.38 cfs @ 12.08 hrs, Volume= 1,300 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
5,400	98	Paved parking, HSG C
5,400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 21S: Parking/Pavement



Summary for Subcatchment 22: Parking/Pavement

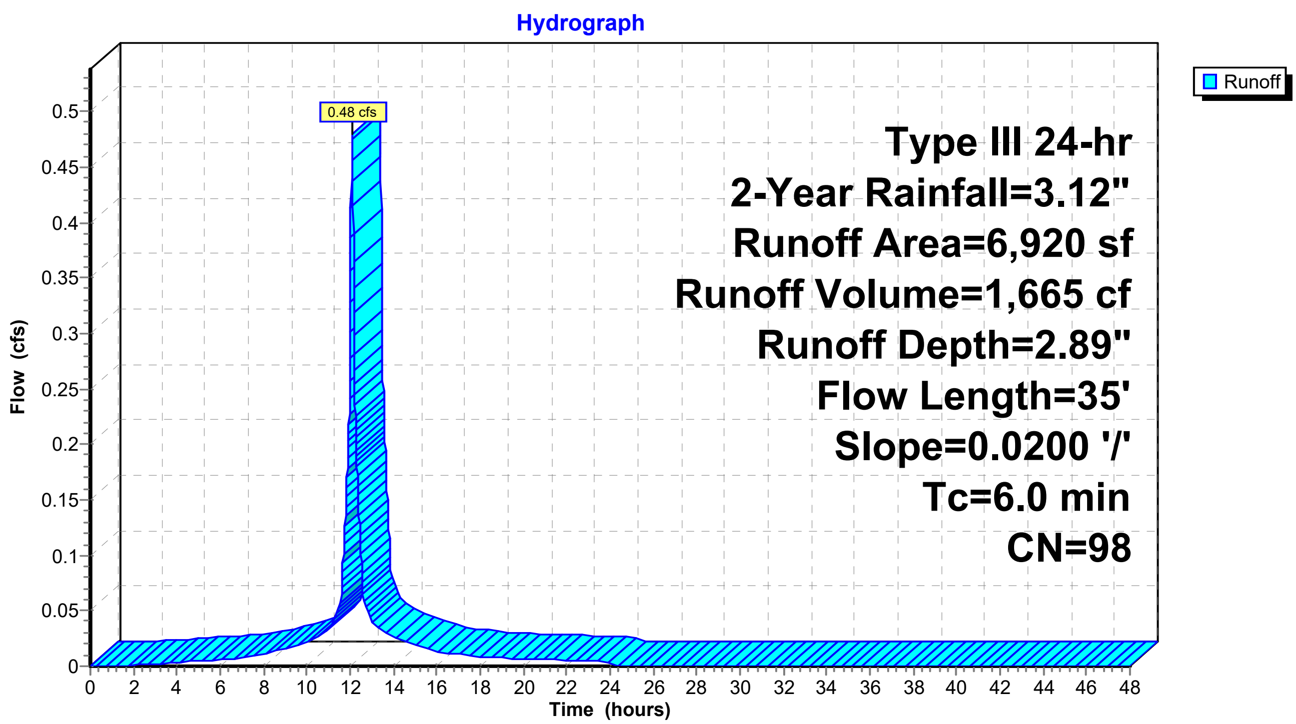
Runoff = 0.48 cfs @ 12.08 hrs, Volume= 1,665 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
6,920	98	Paved parking, HSG C
6,920	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	35	0.0200	1.13		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
0.5	35	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 22: Parking/Pavement



Summary for Subcatchment 23S: Parking/Pavement

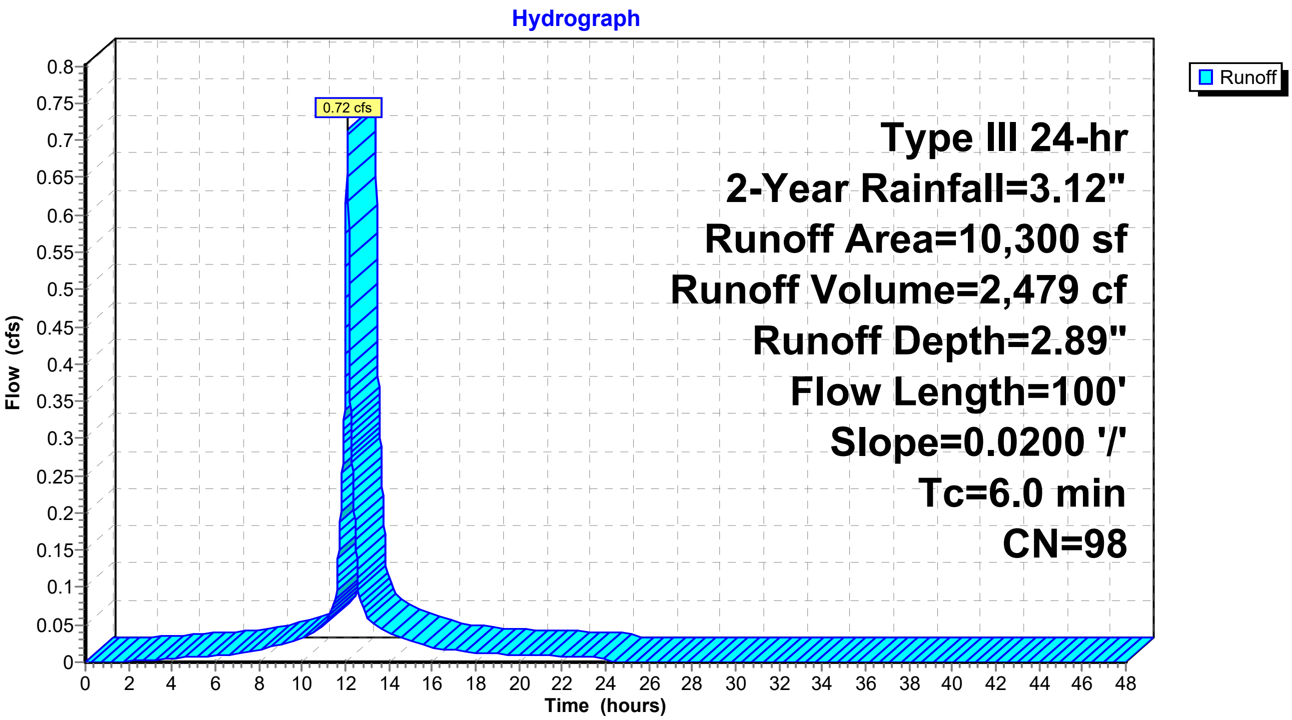
Runoff = 0.72 cfs @ 12.08 hrs, Volume= 2,479 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
10,300	98	Paved parking, HSG C
10,300	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 23S: Parking/Pavement



Summary for Subcatchment 37S: Grocery Roof

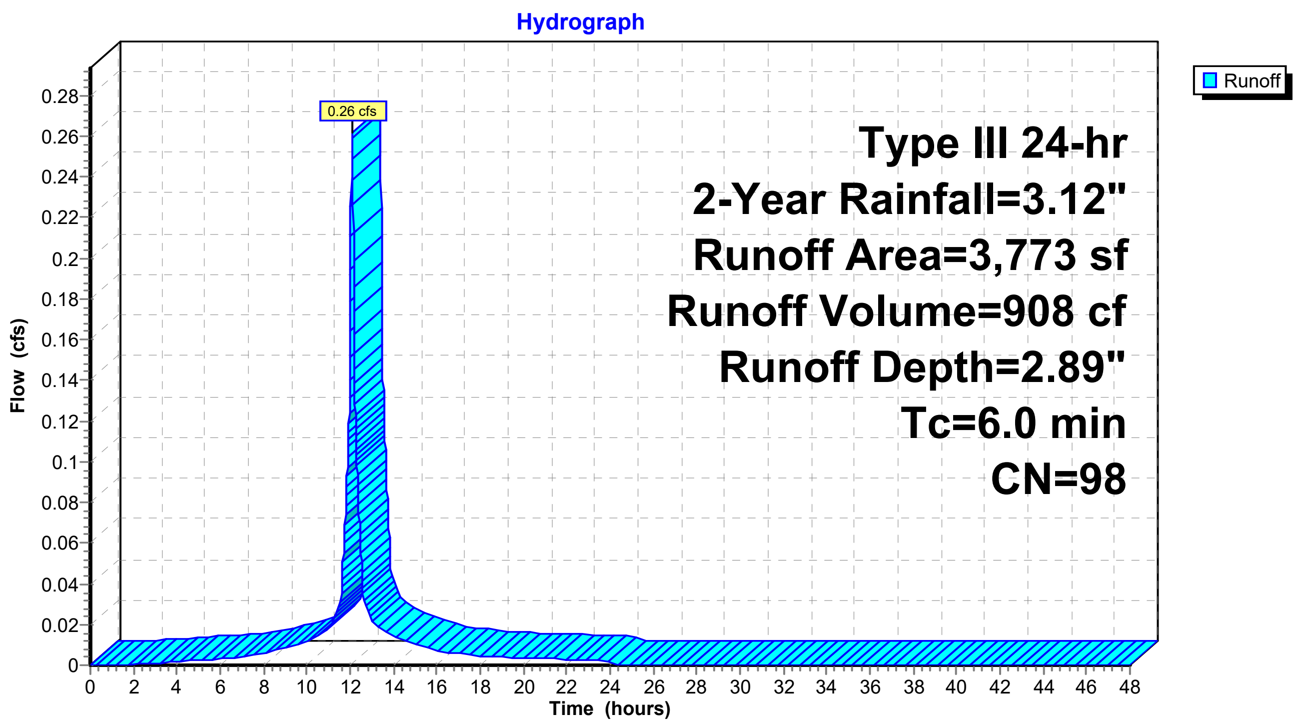
Runoff = 0.26 cfs @ 12.08 hrs, Volume= 908 cf, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
3,773	98	Roofs, HSG D
3,773	98	100.00% Impervious Area

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

Subcatchment 37S: Grocery Roof



Summary for Pond 1P: Area behind levee - Facemate

Inflow Area = 217,891 sf, 82.73% Impervious, Inflow Depth = 1.85" for 2-Year event
Inflow = 7.48 cfs @ 12.10 hrs, Volume= 33,532 cf
Outflow = 5.30 cfs @ 12.23 hrs, Volume= 33,532 cf, Atten= 29%, Lag= 7.9 min
Primary = 5.30 cfs @ 12.23 hrs, Volume= 33,532 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 90.30' @ 12.23 hrs Surf.Area= 8,072 sf Storage= 2,150 cf

Plug-Flow detention time= 5.2 min calculated for 33,532 cf (100% of inflow)
Center-of-Mass det. time= 5.0 min (784.9 - 779.9)

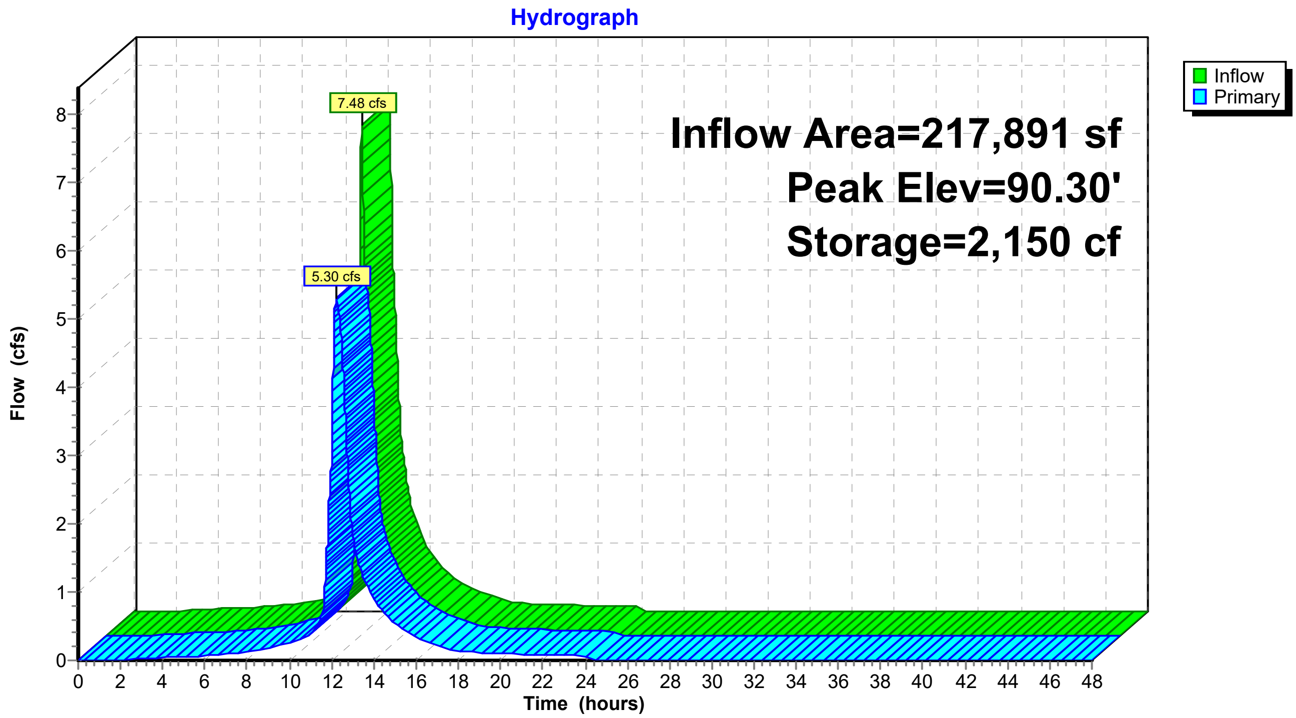
Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	90.00'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.30 cfs @ 12.23 hrs HW=90.30' TW=0.00' (Dynamic Tailwater)
—**1=Orifice/Grate** (Orifice Controls 2.65 cfs @ 2.65 fps)
—**2=Orifice/Grate** (Orifice Controls 2.65 cfs @ 2.65 fps)

Pond 1P: Area behind levee - Facemate



Summary for Pond 3P: (new Pond)

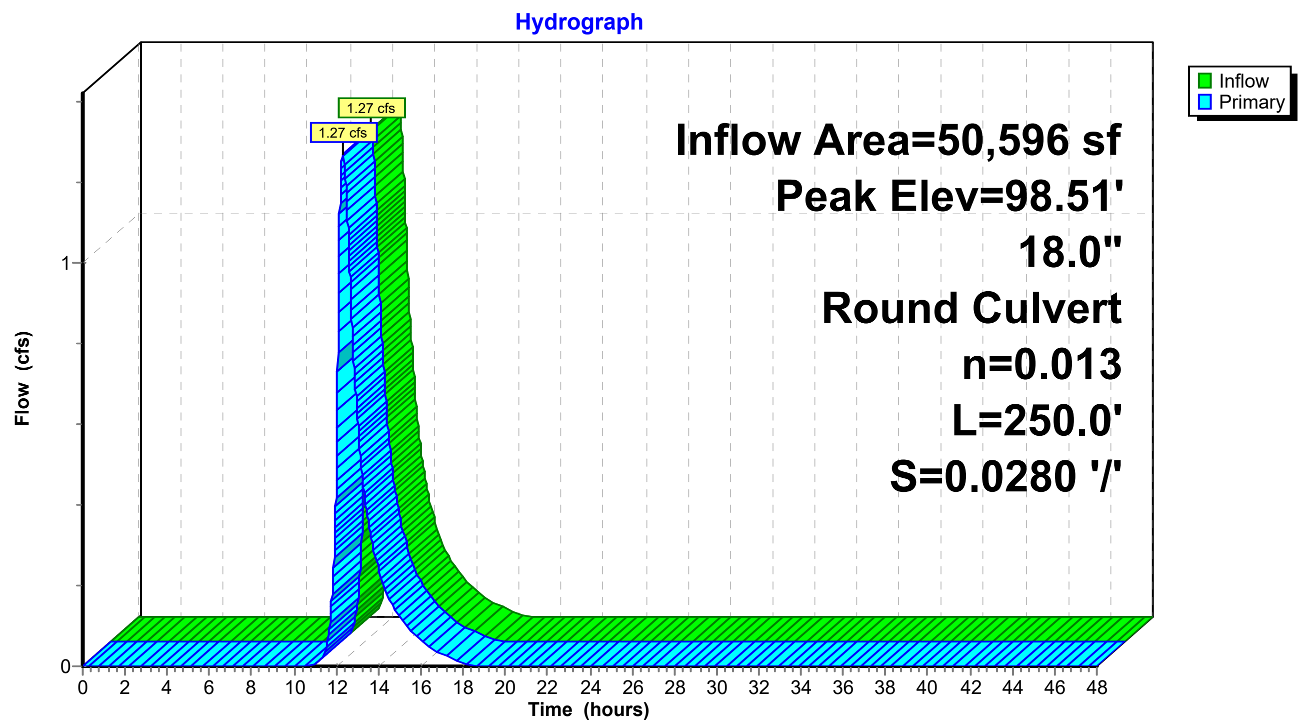
Inflow Area =	50,596 sf,100.00% Impervious,	Inflow Depth = 1.52"	for 2-Year event	
Inflow =	1.27 cfs @	12.31 hrs, Volume=	6,416 cf	
Outflow =	1.27 cfs @	12.31 hrs, Volume=	6,416 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.27 cfs @	12.31 hrs, Volume=	6,416 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 98.51' @ 12.31 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.00'	**18.0" Round Culvert** L= 250.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 98.00' / 91.00' S= 0.0280 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.27 cfs @ 12.31 hrs HW=98.51' TW=90.29' (Dynamic Tailwater)
└1=Culvert (Inlet Controls 1.27 cfs @ 2.42 fps)

Pond 3P: (new Pond)



Summary for Pond 5P: Tree Box

Inflow Area = 9,945 sf,100.00% Impervious, Inflow Depth = 2.89" for 2-Year event
Inflow = 0.69 cfs @ 12.08 hrs, Volume= 2,393 cf
Outflow = 0.68 cfs @ 12.08 hrs, Volume= 2,393 cf, Atten= 1%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.27 hrs, Volume= 81 cf
Primary = 0.68 cfs @ 12.08 hrs, Volume= 2,313 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.65' @ 12.27 hrs Surf.Area= 41 sf Storage= 19 cf

Plug-Flow detention time= 4.7 min calculated for 2,393 cf (100% of inflow)
Center-of-Mass det. time= 4.7 min (761.6 - 756.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	91 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 259 cf Overall x 35.0% Voids

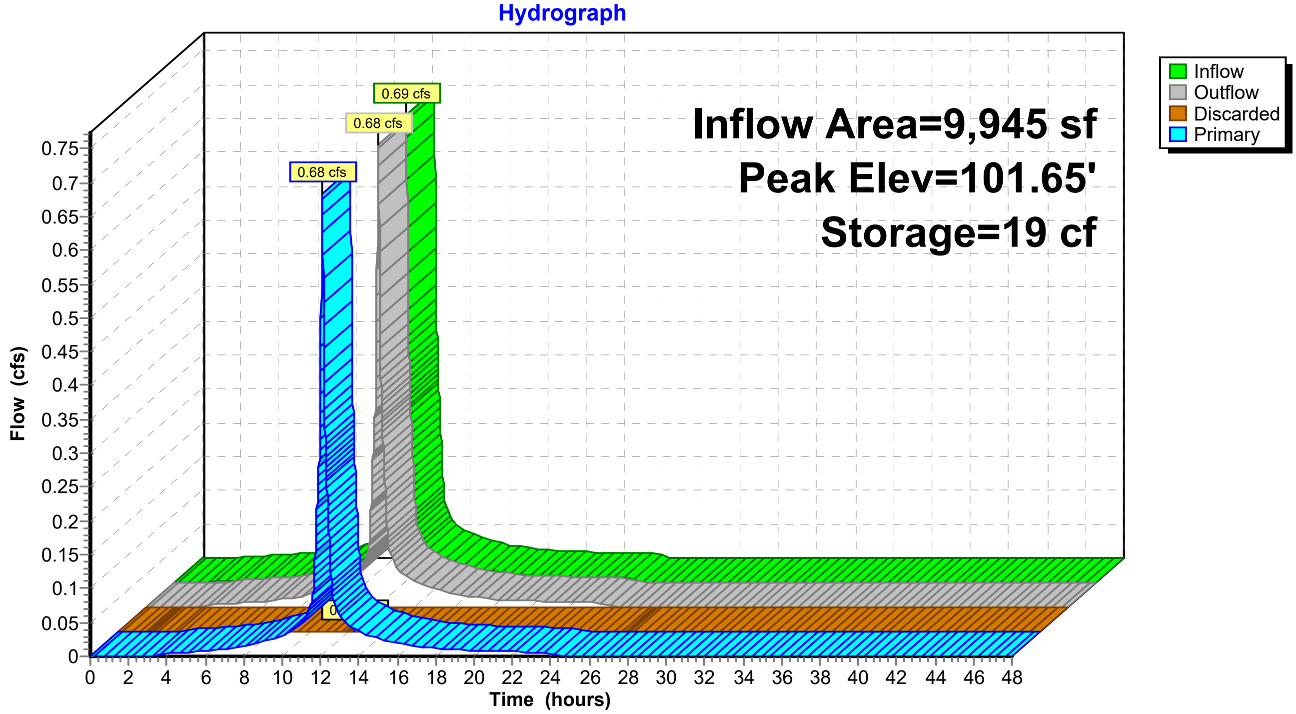
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	36	0	0
101.20	36	36	36
102.20	48	42	78
103.20	60	54	132
104.20	72	66	198
105.00	80	61	259

Device	Routing	Invert	Outlet Devices
#1	Primary	100.75'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.75' / 100.65' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.75'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.27 hrs HW=101.65' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.69 cfs @ 12.08 hrs HW=101.59' TW=101.50' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.69 cfs of 0.86 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.69 cfs @ 1.35 fps)

Pond 5P: Tree Box



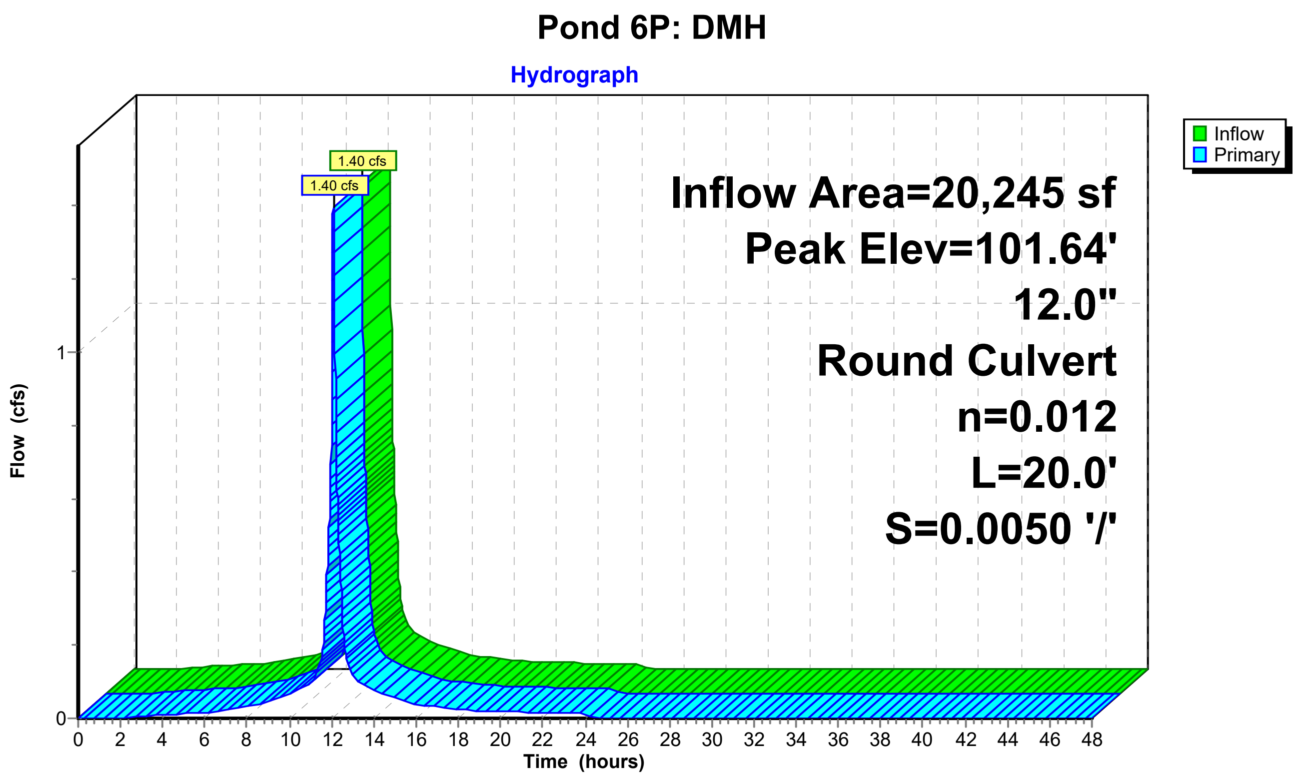
Summary for Pond 6P: DMH

Inflow Area =	20,245 sf,100.00% Impervious,	Inflow Depth = 2.84" for 2-Year event			
Inflow =	1.40 cfs @	12.08 hrs,	Volume=	4,791 cf	
Outflow =	1.40 cfs @	12.08 hrs,	Volume=	4,791 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.40 cfs @	12.08 hrs,	Volume=	4,791 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.64' @ 12.28 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.60'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.60' / 100.50' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.40 cfs @ 12.08 hrs HW=101.50' TW=101.32' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 1.40 cfs @ 2.47 fps)



Summary for Pond 7P: Storage Chambers South

Inflow Area = 50,596 sf,100.00% Impervious, Inflow Depth = 2.74" for 2-Year event
Inflow = 3.49 cfs @ 12.08 hrs, Volume= 11,565 cf
Outflow = 1.36 cfs @ 12.31 hrs, Volume= 11,565 cf, Atten= 61%, Lag= 13.3 min
Discarded = 0.09 cfs @ 12.31 hrs, Volume= 5,149 cf
Primary = 1.27 cfs @ 12.31 hrs, Volume= 6,416 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.61' @ 12.31 hrs Surf.Area= 3,348 sf Storage= 3,730 cf
Flood Elev= 106.00' Surf.Area= 3,348 sf Storage= 8,592 cf

Plug-Flow detention time= 71.4 min calculated for 11,563 cf (100% of inflow)
Center-of-Mass det. time= 71.3 min (831.5 - 760.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	3,199 cf	**53.00'W x 63.17'L x 4.00'H Field A** 13,391 cf Overall - 5,393 cf Embedded = 7,998 cf x 40.0% Voids
#2A	100.50'	5,393 cf	**Cultec R-360HD** x 144 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 144 Chambers in 9 Rows Cap Storage= +6.5 cf x 2 x 9 rows = 116.3 cf
		8,592 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	99.00'	**18.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 99.00' / 96.00' S= 0.1500 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.25 1.25 2.50 2.50 3.00 Width (feet) 0.33 0.33 0.66 0.66 2.00 2.00

Discarded OutFlow Max=0.09 cfs @ 12.31 hrs HW=101.61' (Free Discharge)
└─**2=Exfiltration** (Controls 0.09 cfs)

Primary OutFlow Max=1.27 cfs @ 12.31 hrs HW=101.61' TW=98.51' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.27 cfs of 11.62 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 1.27 cfs @ 3.46 fps)

Pond 7P: Storage Chambers South - Chamber Wizard Field A

Chamber Model = Cultec R-360HD (Cultec Recharger® 360HD)
Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf
Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap
Cap Storage= +6.5 cf x 2 x 9 rows = 116.3 cf

60.0" Wide + 9.0" Spacing = 69.0" C-C Row Spacing

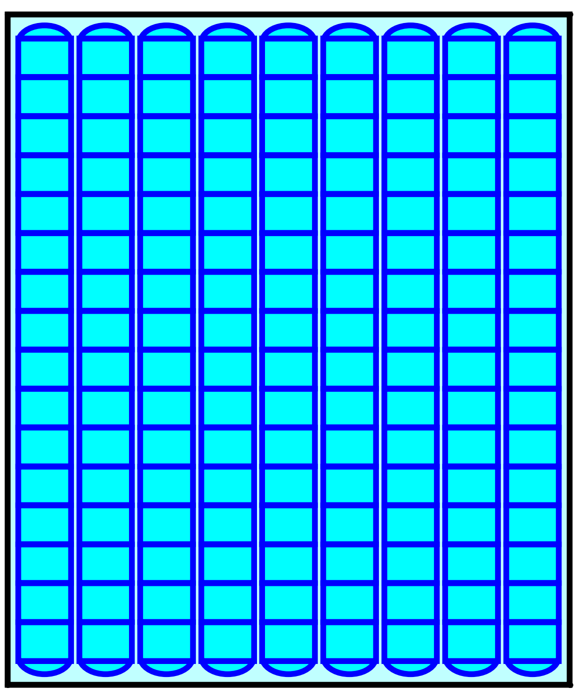
16 Chambers/Row x 3.67' Long +1.25' Cap Length x 2 = 61.17' Row Length +12.0" End Stone x 2 = 63.17' Base Length
9 Rows x 60.0" Wide + 9.0" Spacing x 8 + 12.0" Side Stone x 2 = 53.00' Base Width
6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

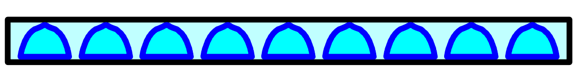
144 Chambers x 36.6 cf + 6.5 cf Cap Volume x 2 x 9 Rows = 5,393.1 cf Chamber Storage

13,391.3 cf Field - 5,393.1 cf Chambers = 7,998.2 cf Stone x 40.0% Voids = 3,199.3 cf Stone Storage

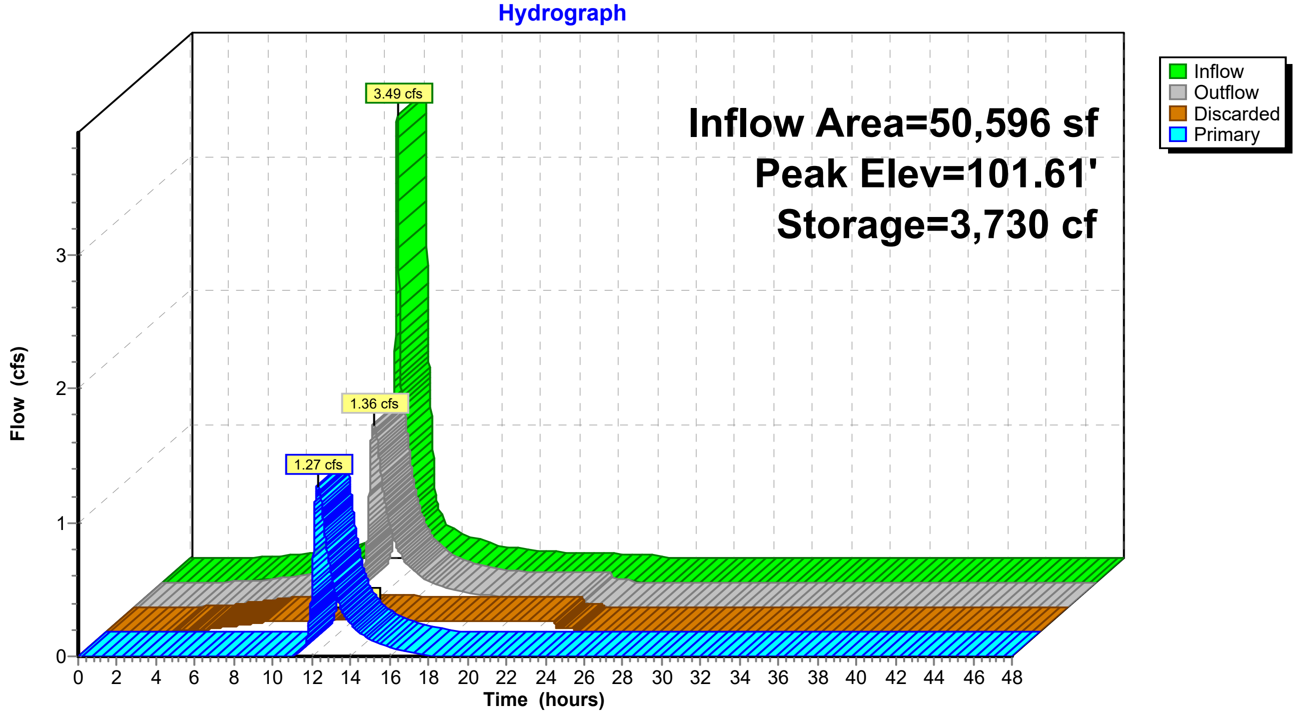
Chamber Storage + Stone Storage = 8,592.4 cf = 0.197 af
Overall Storage Efficiency = 64.2%
Overall System Size = 63.17' x 53.00' x 4.00'

144 Chambers
496.0 cy Field
296.2 cy Stone





Pond 7P: Storage Chambers South



Summary for Pond 8P: Storage Chambers North

Inflow Area = 50,305 sf,100.00% Impervious, Inflow Depth = 2.75" for 2-Year event
Inflow = 3.49 cfs @ 12.09 hrs, Volume= 11,508 cf
Outflow = 0.93 cfs @ 12.44 hrs, Volume= 11,508 cf, Atten= 73%, Lag= 21.0 min
Discarded = 0.13 cfs @ 12.44 hrs, Volume= 6,579 cf
Primary = 0.80 cfs @ 12.44 hrs, Volume= 4,929 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.32' @ 12.44 hrs Surf.Area= 4,786 sf Storage= 4,186 cf

Plug-Flow detention time= 84.8 min calculated for 11,508 cf (100% of inflow)
Center-of-Mass det. time= 84.8 min (844.4 - 759.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	4,622 cf	**116.25'W x 41.17'L x 4.00'H Field A** 19,143 cf Overall - 7,587 cf Embedded = 11,555 cf x 40.0% Voids
#2A	100.50'	7,587 cf	**Cultec R-360HD** x 200 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 200 Chambers in 20 Rows Cap Storage= +6.5 cf x 2 x 20 rows = 258.4 cf
		12,209 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.50'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.50' / 100.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.25 1.25 2.50 2.50 3.00 Width (feet) 0.33 0.33 0.66 0.66 2.00 2.00

Discarded OutFlow Max=0.13 cfs @ 12.44 hrs HW=101.32' (Free Discharge)
└─**2=Exfiltration** (Controls 0.13 cfs)

Primary OutFlow Max=0.80 cfs @ 12.44 hrs HW=101.32' TW=90.25' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.80 cfs of 2.86 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.80 cfs @ 2.97 fps)

Pond 8P: Storage Chambers North - Chamber Wizard Field A

Chamber Model = Cultec R-360HD (Cultec Recharger® 360HD)
Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf
Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap
Cap Storage= +6.5 cf x 2 x 20 rows = 258.4 cf

60.0" Wide + 9.0" Spacing = 69.0" C-C Row Spacing

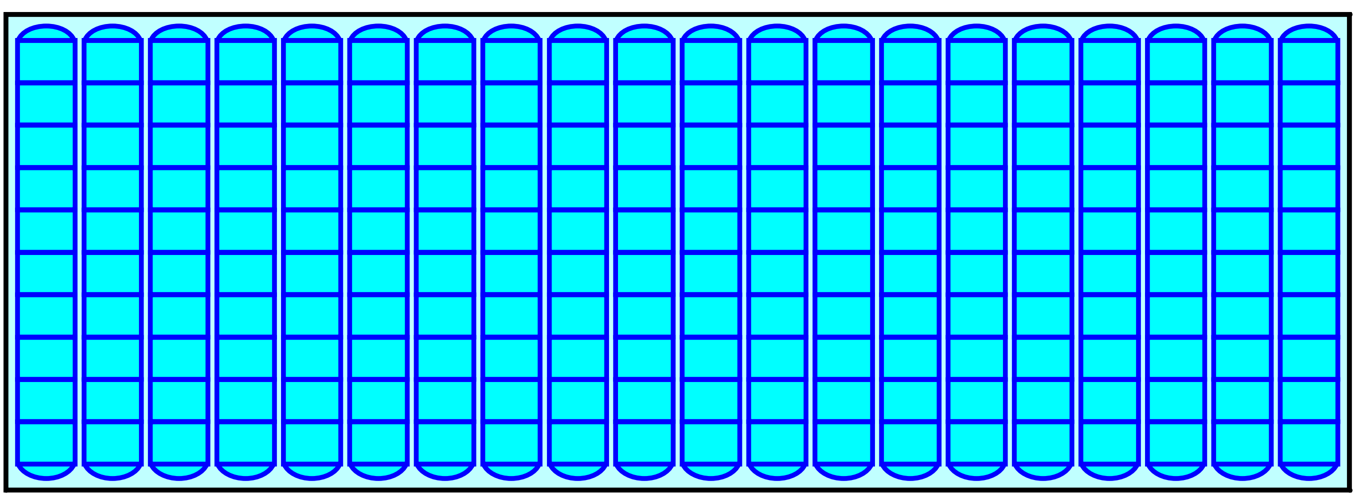
10 Chambers/Row x 3.67' Long +1.25' Cap Length x 2 = 39.17' Row Length +12.0" End Stone x 2 = 41.17' Base Length
20 Rows x 60.0" Wide + 9.0" Spacing x 19 + 12.0" Side Stone x 2 = 116.25' Base Width
6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

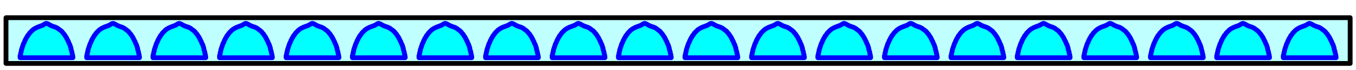
200 Chambers x 36.6 cf + 6.5 cf Cap Volume x 2 x 20 Rows = 7,587.3 cf Chamber Storage

19,142.5 cf Field - 7,587.3 cf Chambers = 11,555.2 cf Stone x 40.0% Voids = 4,622.1 cf Stone Storage

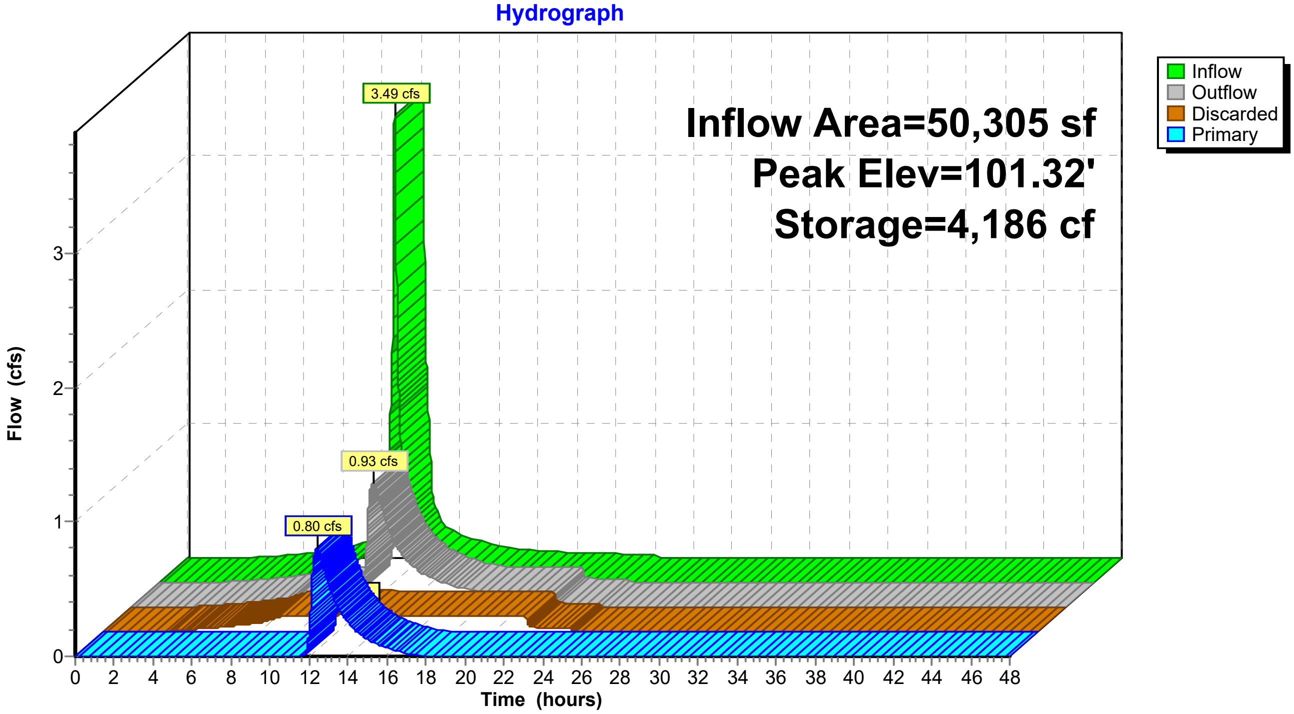
Chamber Storage + Stone Storage = 12,209.4 cf = 0.280 af
Overall Storage Efficiency = 63.8%
Overall System Size = 41.17' x 116.25' x 4.00'

200 Chambers
709.0 cy Field
428.0 cy Stone





Pond 8P: Storage Chambers North



Summary for Pond 11P: Tree Box

Inflow Area = 9,068 sf,100.00% Impervious, Inflow Depth = 2.89" for 2-Year event
Inflow = 0.63 cfs @ 12.08 hrs, Volume= 2,182 cf
Outflow = 0.63 cfs @ 12.08 hrs, Volume= 2,182 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 185 cf
Primary = 0.63 cfs @ 12.08 hrs, Volume= 1,997 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.13' @ 12.09 hrs Surf.Area= 16 sf Storage= 40 cf
Flood Elev= 105.00' Surf.Area= 8 sf Storage= 51 cf

Plug-Flow detention time= 20.3 min calculated for 2,182 cf (100% of inflow)
Center-of-Mass det. time= 20.3 min (777.3 - 756.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	51 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 146 cf Overall x 35.0% Voids

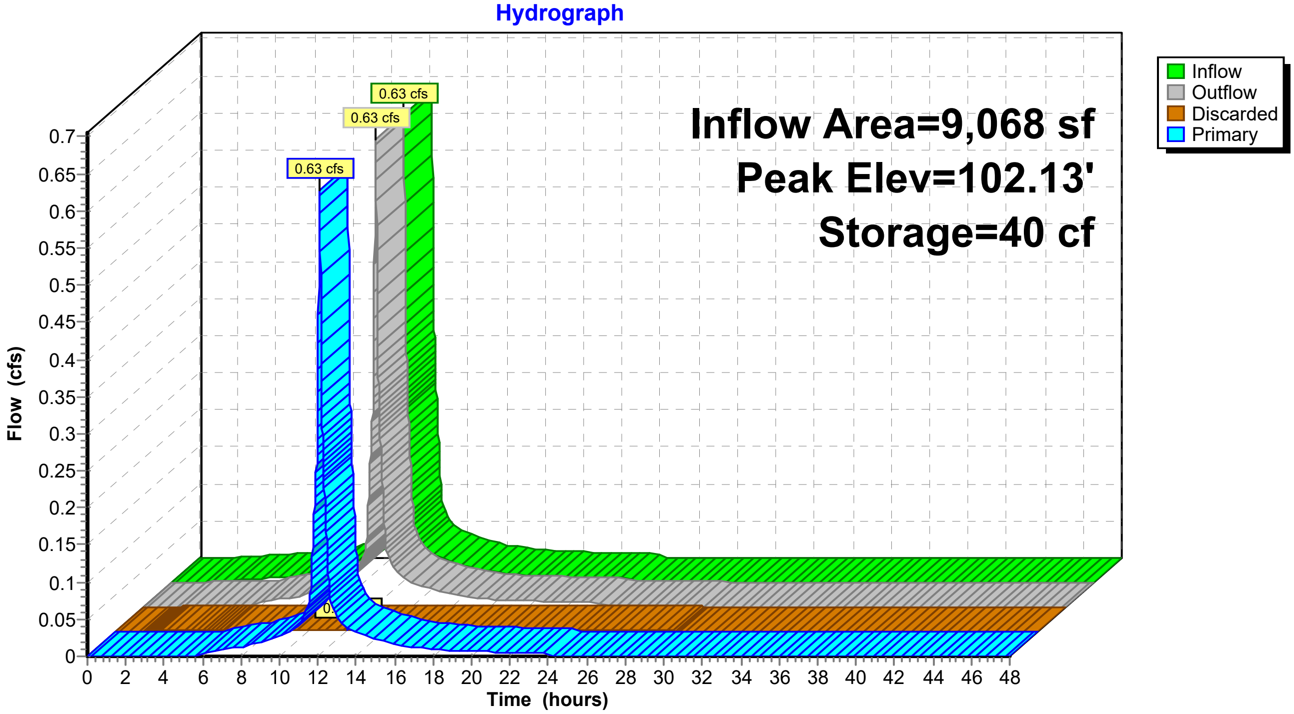
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	72	0	0
101.20	72	72	72
102.20	12	42	114
103.20	12	12	126
104.20	12	12	138
105.00	8	8	146

Device	Routing	Invert	Outlet Devices
#1	Primary	101.53'	**12.0" Round Culvert** L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.53' / 101.08' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.53'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=102.13' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.62 cfs @ 12.08 hrs HW=102.13' TW=101.91' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.62 cfs of 0.63 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.62 cfs @ 1.94 fps)

Pond 11P: Tree Box



Summary for Pond 12P: Tree Box

Inflow Area = 10,485 sf,100.00% Impervious, Inflow Depth = 2.89" for 2-Year event
Inflow = 0.73 cfs @ 12.08 hrs, Volume= 2,523 cf
Outflow = 0.73 cfs @ 12.08 hrs, Volume= 2,523 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 182 cf
Primary = 0.73 cfs @ 12.08 hrs, Volume= 2,341 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.00' @ 12.09 hrs Surf.Area= 12 sf Storage= 40 cf

Plug-Flow detention time= 16.4 min calculated for 2,523 cf (100% of inflow)
Center-of-Mass det. time= 16.4 min (773.4 - 756.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

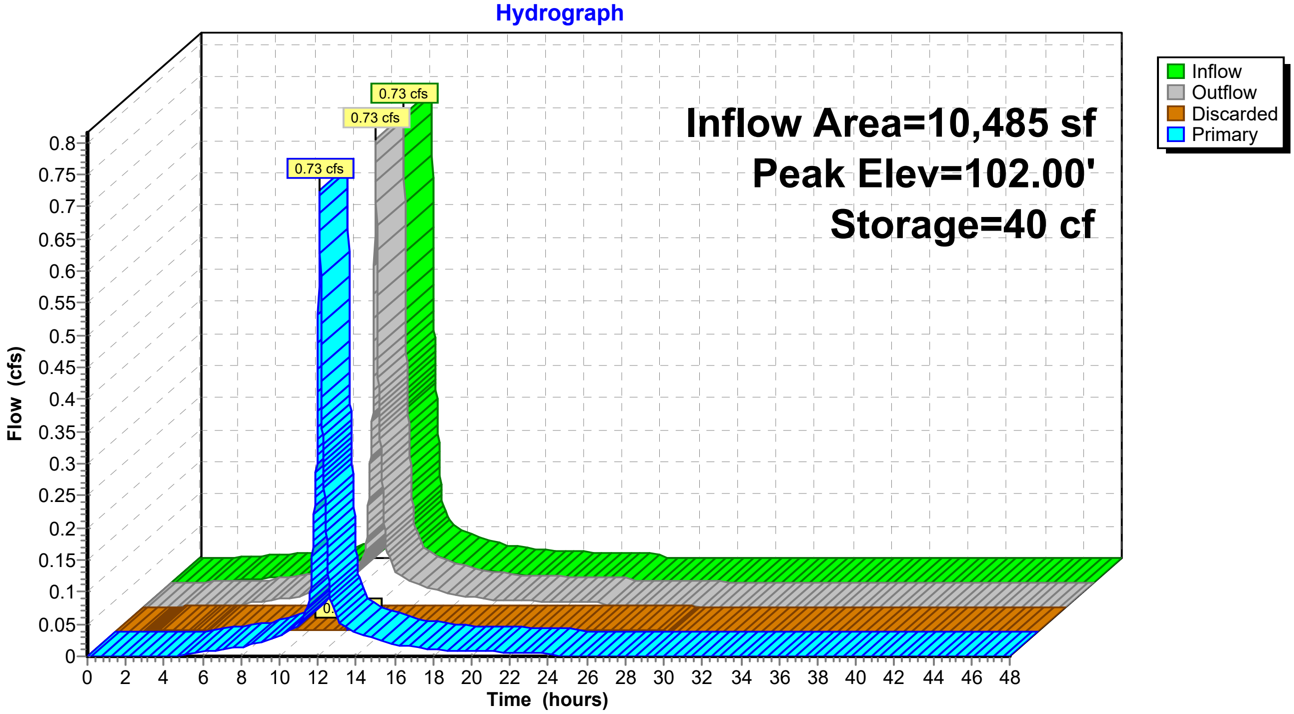
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	72	0	0
101.00	72	72	72
102.00	12	42	114
103.00	12	12	126
104.00	12	12	138
105.00	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	101.18'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.18' / 101.13' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.18'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=102.00' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.69 cfs @ 12.08 hrs HW=102.00' TW=101.91' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.69 cfs of 0.93 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.69 cfs @ 1.40 fps)

Pond 12P: Tree Box



Summary for Pond 13P: Tree Box

Inflow Area = 10,798 sf,100.00% Impervious, Inflow Depth = 2.89" for 2-Year event
Inflow = 0.75 cfs @ 12.08 hrs, Volume= 2,599 cf
Outflow = 0.74 cfs @ 12.08 hrs, Volume= 2,599 cf, Atten= 1%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.27 hrs, Volume= 163 cf
Primary = 0.74 cfs @ 12.08 hrs, Volume= 2,435 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.65' @ 12.27 hrs Surf.Area= 33 sf Storage= 37 cf

Plug-Flow detention time= 9.9 min calculated for 2,598 cf (100% of inflow)
Center-of-Mass det. time= 9.9 min (766.9 - 756.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

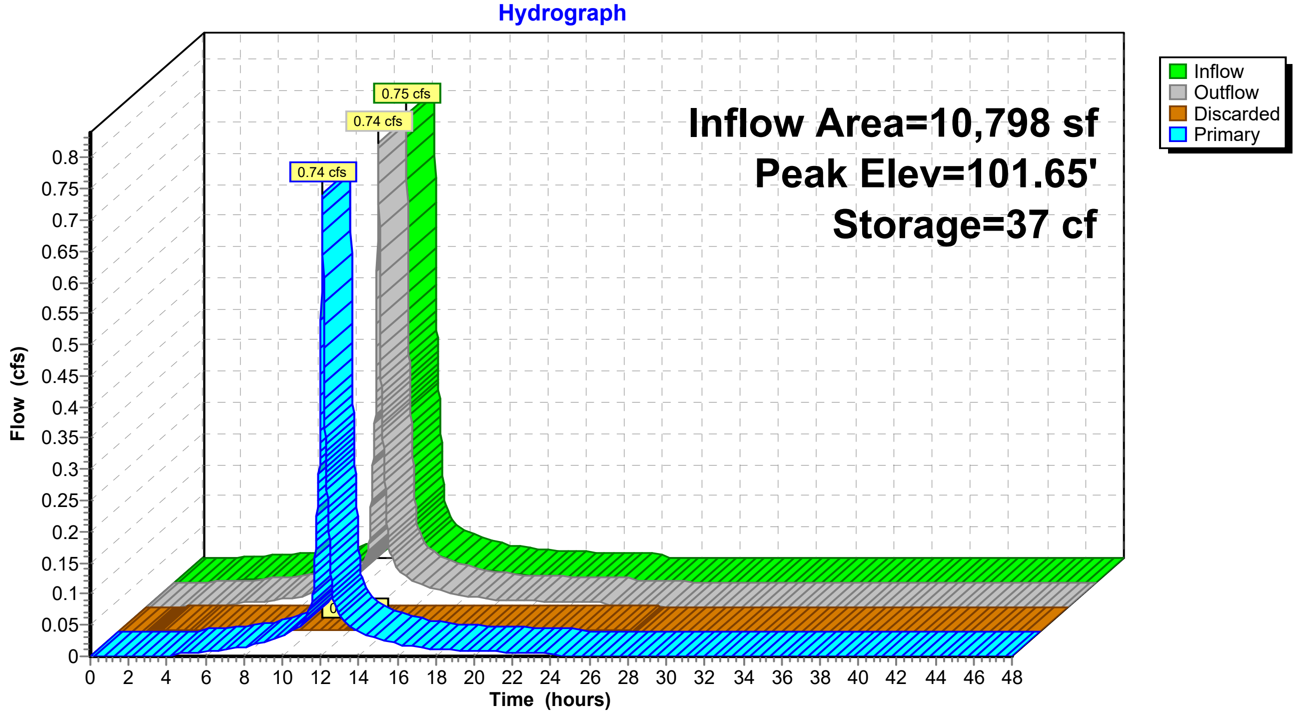
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	72	0	0
101.00	72	72	72
102.00	12	42	114
103.00	12	12	126
104.00	12	12	138
105.00	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	100.65'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.65' / 100.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.65'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.27 hrs HW=101.65' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.75 cfs @ 12.08 hrs HW=101.59' TW=101.52' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.75 cfs of 0.95 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.75 cfs @ 1.24 fps)

Pond 13P: Tree Box



Summary for Pond 22P: Tree Box

Inflow Area = 1,945 sf,100.00% Impervious, Inflow Depth = 2.89" for 2-Year event
Inflow = 0.14 cfs @ 12.08 hrs, Volume= 468 cf
Outflow = 0.13 cfs @ 12.09 hrs, Volume= 468 cf, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 92 cf
Primary = 0.13 cfs @ 12.09 hrs, Volume= 376 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.47' @ 12.09 hrs Surf.Area= 42 sf Storage= 19 cf

Plug-Flow detention time= 40.9 min calculated for 468 cf (100% of inflow)
Center-of-Mass det. time= 40.9 min (797.8 - 756.9)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	69 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 196 cf Overall x 35.0% Voids

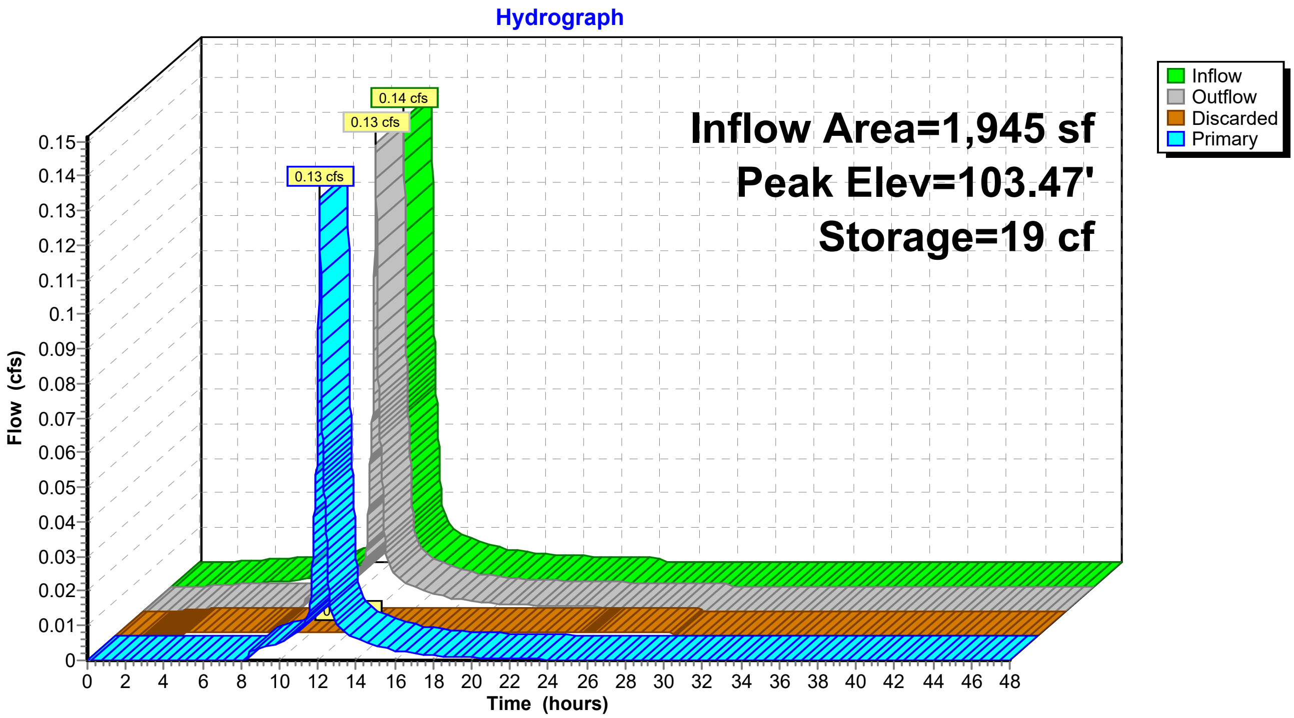
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	36	0	0
103.00	36	36	36
104.00	48	42	78
105.00	60	54	132
106.00	68	64	196

Device	Routing	Invert	Outlet Devices
#1	Primary	103.25'	**12.0" Round Culvert** L= 125.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 103.25' / 102.63' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	102.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	103.25'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=103.47' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.13 cfs @ 12.09 hrs HW=103.47' TW=102.59' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.13 cfs of 0.16 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.13 cfs @ 1.49 fps)

Pond 22P: Tree Box



Summary for Pond 23P: Tree Box

Inflow Area = 10,400 sf,100.00% Impervious, Inflow Depth = 2.89" for 2-Year event
Inflow = 0.72 cfs @ 12.08 hrs, Volume= 2,503 cf
Outflow = 0.72 cfs @ 12.09 hrs, Volume= 2,503 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 81 cf
Primary = 0.72 cfs @ 12.09 hrs, Volume= 2,421 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.24' @ 12.09 hrs Surf.Area= 39 sf Storage= 16 cf

Plug-Flow detention time= 5.0 min calculated for 2,503 cf (100% of inflow)
Center-of-Mass det. time= 5.0 min (761.9 - 756.9)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	69 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 196 cf Overall x 35.0% Voids

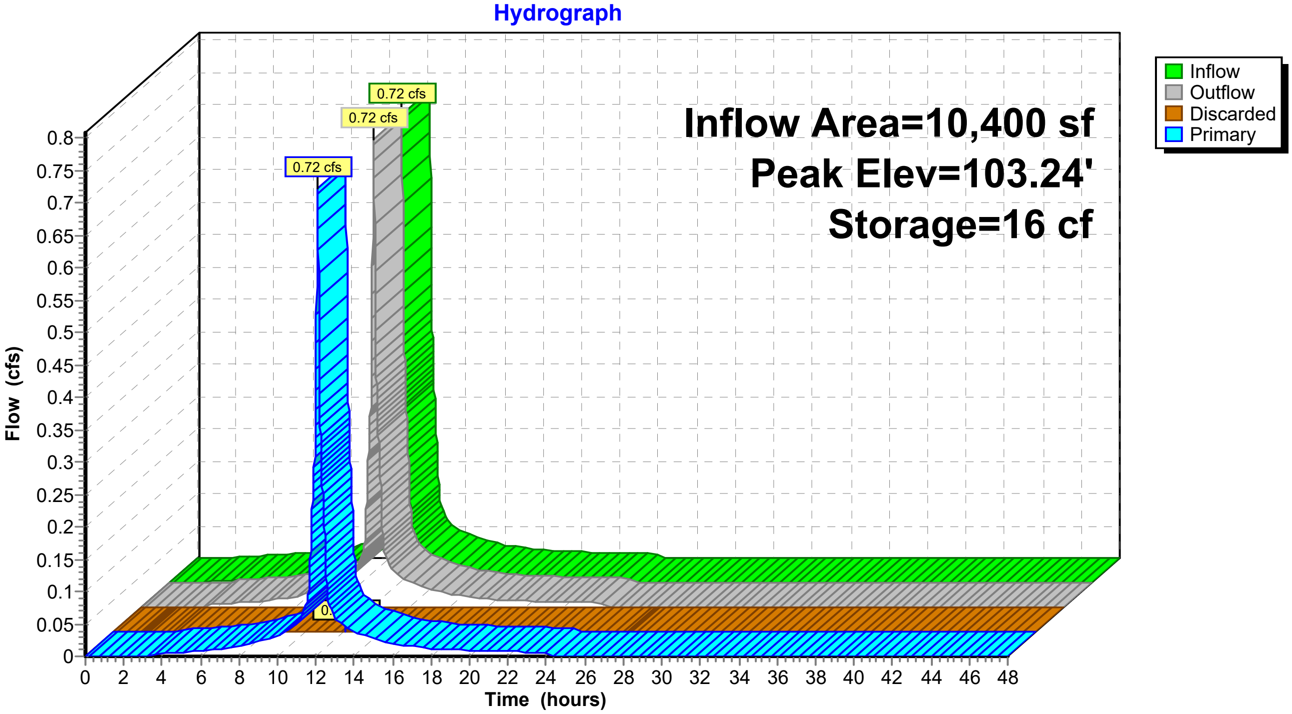
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	36	0	0
103.00	36	36	36
104.00	48	42	78
105.00	60	54	132
106.00	68	64	196

Device	Routing	Invert	Outlet Devices
#1	Primary	102.65'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.65' / 102.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	102.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	102.65'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=103.24' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.72 cfs @ 12.09 hrs HW=103.24' TW=102.59' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.72 cfs of 0.89 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.72 cfs @ 2.32 fps)

Pond 23P: Tree Box



Summary for Pond 24P: (new Pond)

Inflow Area = 6,920 sf,100.00% Impervious, Inflow Depth = 2.89" for 2-Year event
Inflow = 0.48 cfs @ 12.08 hrs, Volume= 1,665 cf
Outflow = 0.05 cfs @ 12.80 hrs, Volume= 1,665 cf, Atten= 90%, Lag= 43.0 min
Discarded = 0.05 cfs @ 12.80 hrs, Volume= 1,665 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 106.79' @ 12.80 hrs Surf.Area= 2,000 sf Storage= 555 cf

Plug-Flow detention time= 76.1 min calculated for 1,665 cf (100% of inflow)
Center-of-Mass det. time= 76.1 min (833.0 - 756.9)

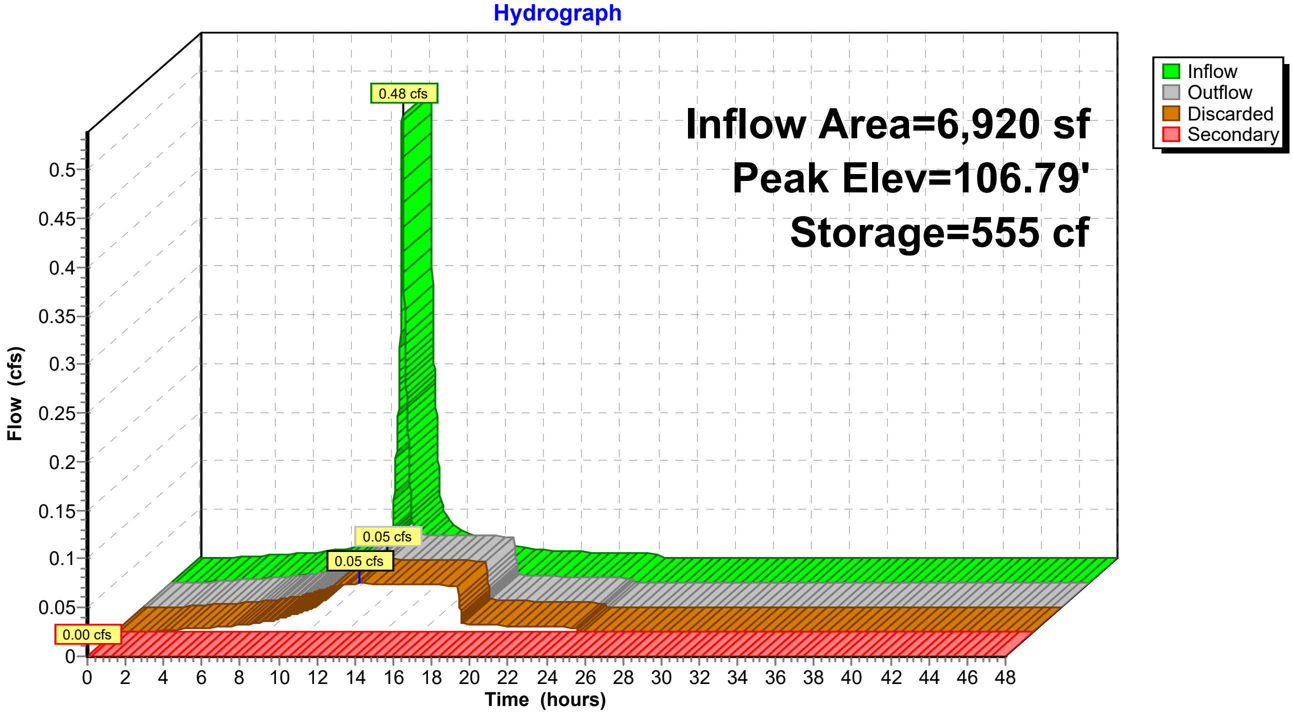
Volume	Invert	Avail.Storage	Storage Description
#1	106.00'	1,120 cf	**40.00'W x 50.00'L x 1.60'H Prismatoid** 3,200 cf Overall x 35.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Secondary	107.00'	**30.0' 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
#2	Discarded	106.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=0.05 cfs @ 12.80 hrs HW=106.79' (Free Discharge)
└─**2=Exfiltration** (Controls 0.05 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=106.00' TW=100.20' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: (new Pond)



Summary for Pond 26P: Tree Box

Inflow Area = 16,145 sf,100.00% Impervious, Inflow Depth = 2.89" for 2-Year event
Inflow = 1.12 cfs @ 12.08 hrs, Volume= 3,885 cf
Outflow = 1.12 cfs @ 12.09 hrs, Volume= 3,885 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 96 cf
Primary = 1.12 cfs @ 12.09 hrs, Volume= 3,789 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.33' @ 12.08 hrs Surf.Area= 50 sf Storage= 30 cf

Plug-Flow detention time= 5.7 min calculated for 3,885 cf (100% of inflow)
Center-of-Mass det. time= 5.6 min (762.6 - 756.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	96 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 274 cf Overall x 35.0% Voids

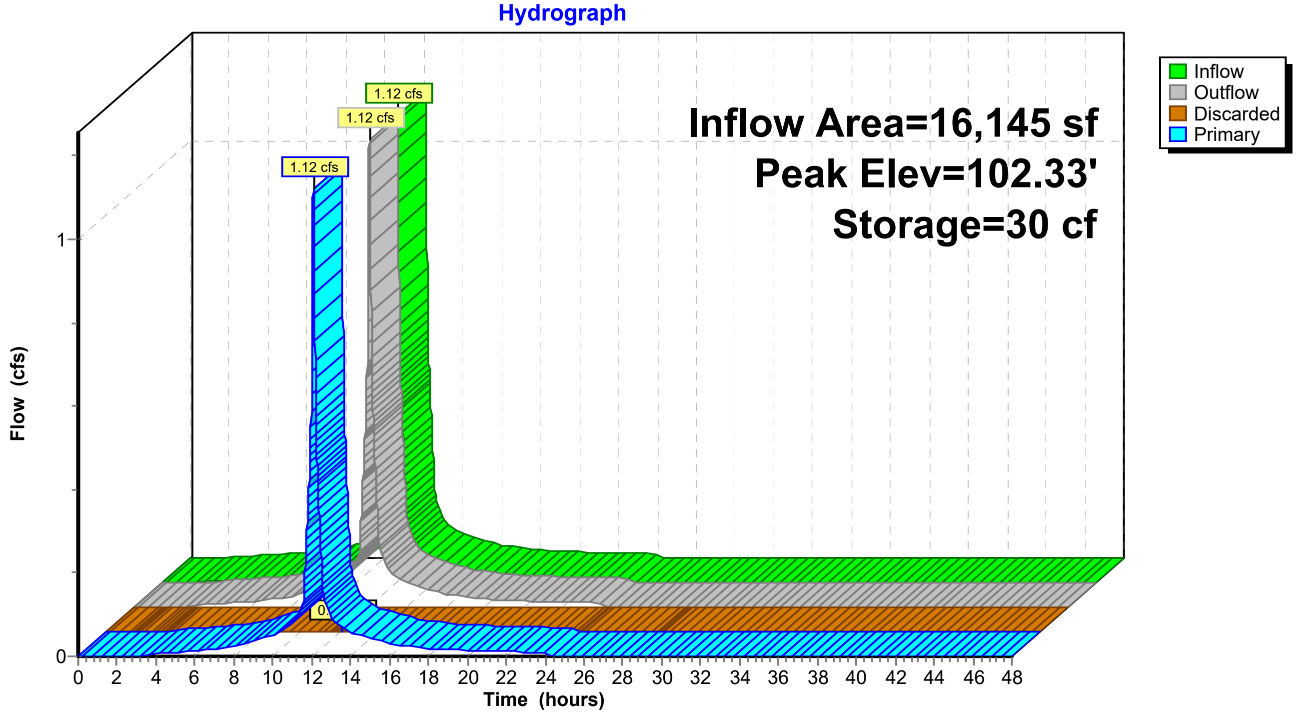
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	36	0	0
101.20	36	36	36
102.20	48	42	78
103.20	60	54	132
104.20	72	66	198
105.20	80	76	274

Device	Routing	Invert	Outlet Devices
#1	Primary	101.30'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.30' / 101.25' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.30'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=102.33' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.12 cfs @ 12.09 hrs HW=102.33' TW=102.23' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.12 cfs of 1.23 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 1.12 cfs @ 1.40 fps)

Pond 26P: Tree Box



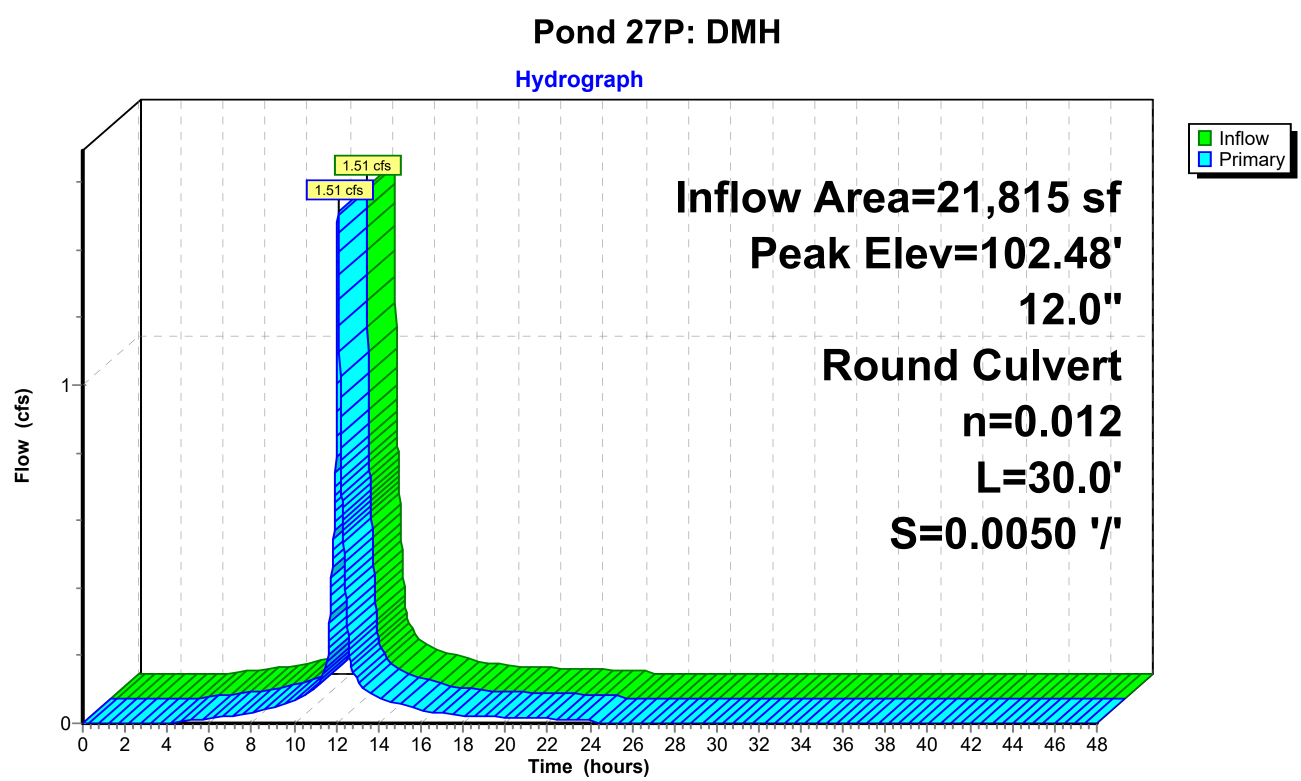
Summary for Pond 27P: DMH

Inflow Area = 21,815 sf,100.00% Impervious, Inflow Depth = 2.71" for 2-Year event
Inflow = 1.51 cfs @ 12.09 hrs, Volume= 4,922 cf
Outflow = 1.51 cfs @ 12.09 hrs, Volume= 4,922 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.51 cfs @ 12.09 hrs, Volume= 4,922 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.48' @ 12.09 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.70'	**12.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.70' / 101.55' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.51 cfs @ 12.09 hrs HW=102.48' TW=102.03' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.51 cfs @ 3.17 fps)



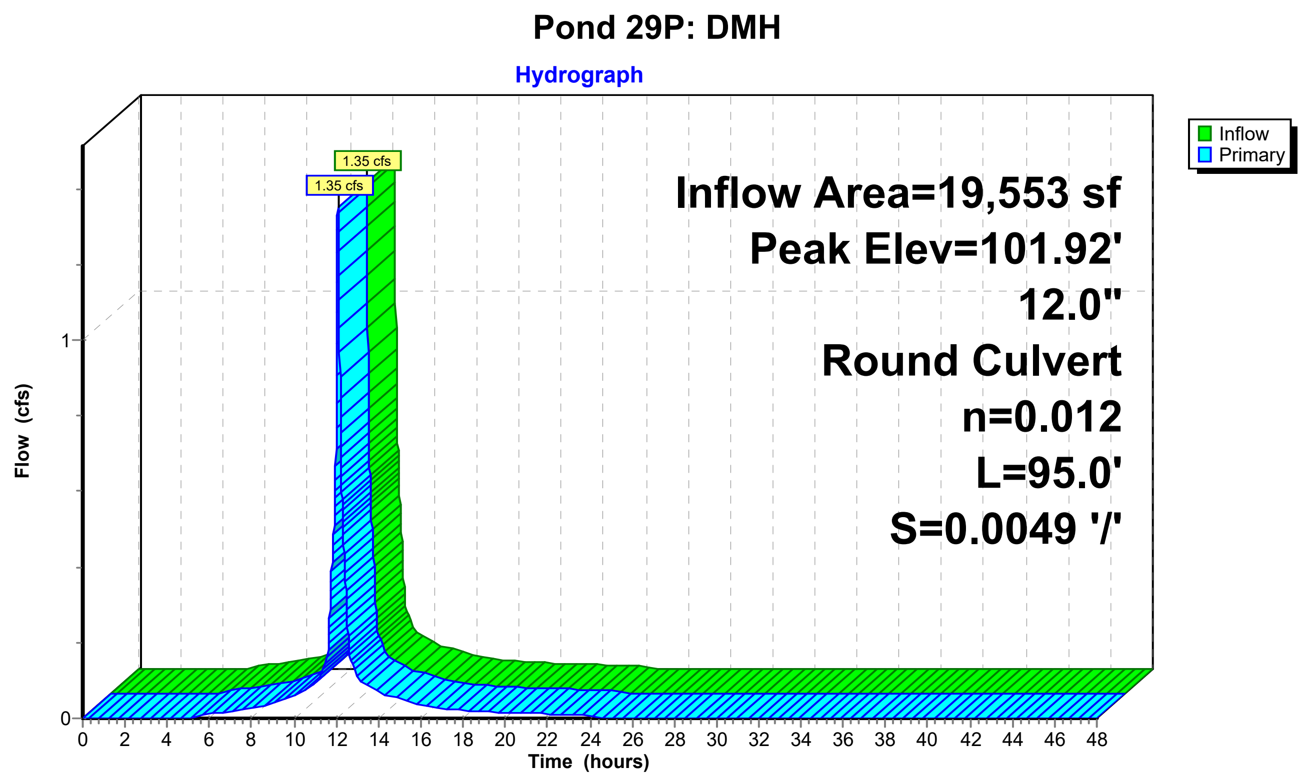
Summary for Pond 29P: DMH

Inflow Area = 19,553 sf,100.00% Impervious, Inflow Depth = 2.66" for 2-Year event
Inflow = 1.35 cfs @ 12.08 hrs, Volume= 4,338 cf
Outflow = 1.35 cfs @ 12.08 hrs, Volume= 4,338 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.35 cfs @ 12.08 hrs, Volume= 4,338 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.92' @ 12.10 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.08'	**12.0" Round Culvert** L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.08' / 100.61' S= 0.0049 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.35 cfs @ 12.08 hrs HW=101.91' TW=101.52' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.35 cfs @ 2.63 fps)



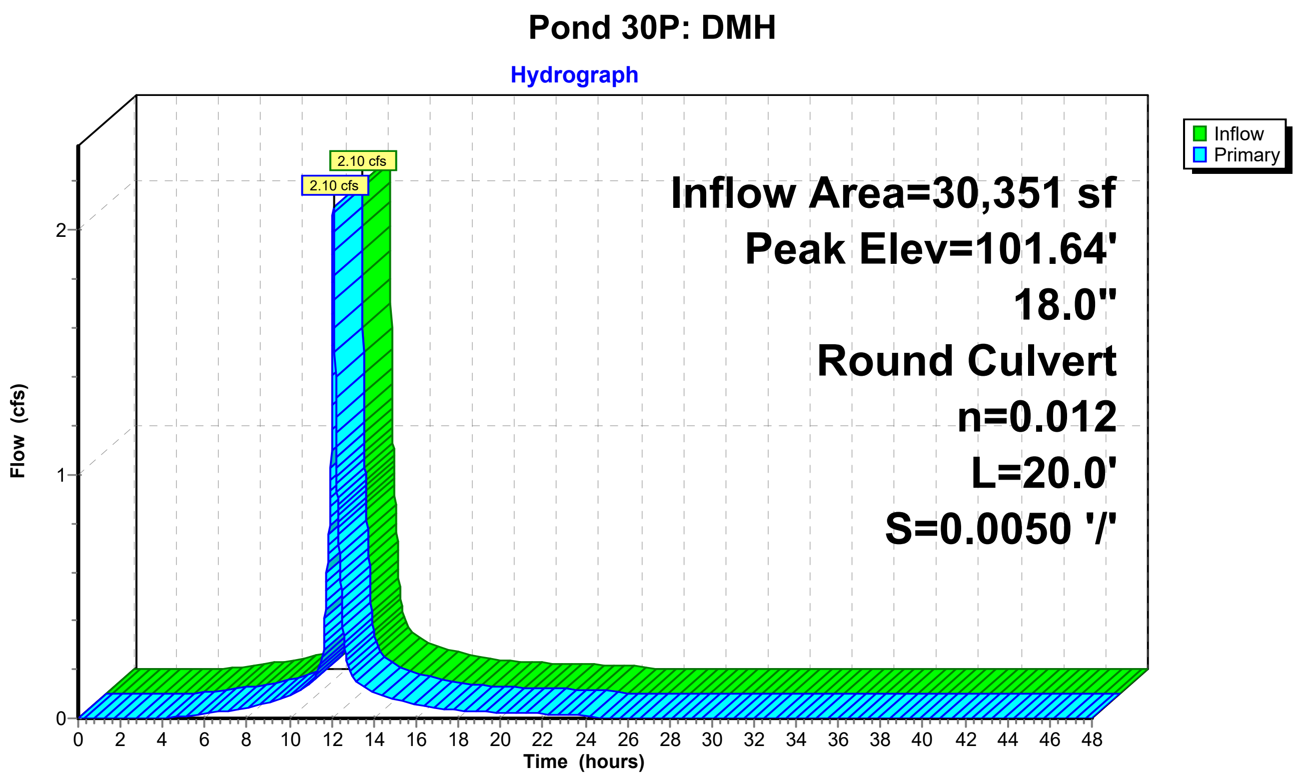
Summary for Pond 30P: DMH

Inflow Area =	30,351 sf,100.00% Impervious,	Inflow Depth = 2.68"	for 2-Year event	
Inflow =	2.10 cfs @	12.08 hrs, Volume=	6,774 cf	
Outflow =	2.10 cfs @	12.08 hrs, Volume=	6,774 cf,	Atten= 0%, Lag= 0.0 min
Primary =	2.10 cfs @	12.08 hrs, Volume=	6,774 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.64' @ 12.28 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.60'	**18.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.60' / 100.50' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.09 cfs @ 12.08 hrs HW=101.52' TW=101.32' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 2.09 cfs @ 2.64 fps)



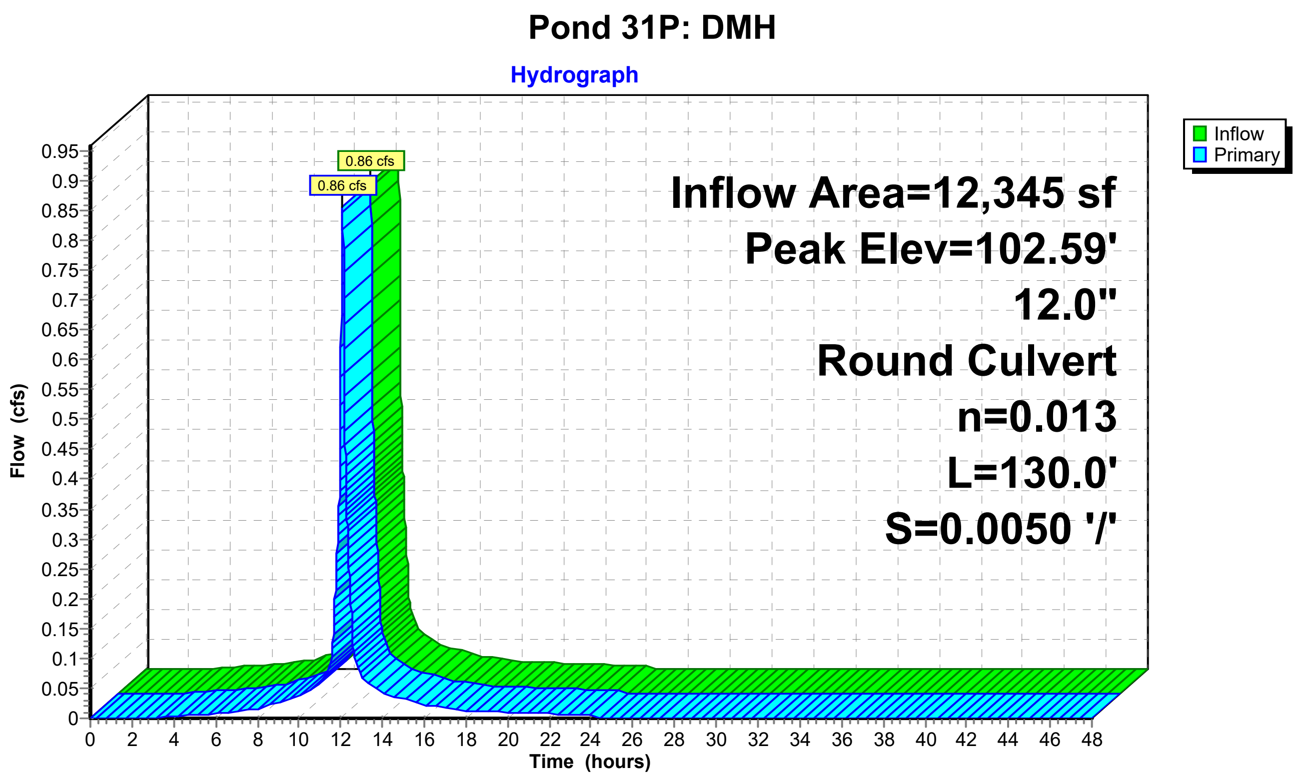
Summary for Pond 31P: DMH

Inflow Area =	12,345 sf,100.00% Impervious,	Inflow Depth = 2.72"	for 2-Year event	
Inflow =	0.86 cfs @	12.09 hrs, Volume=	2,797 cf	
Outflow =	0.86 cfs @	12.09 hrs, Volume=	2,797 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.86 cfs @	12.09 hrs, Volume=	2,797 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.59' @ 12.09 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.90'	**12.0" Round Culvert** L= 130.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.90' / 101.25' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.85 cfs @ 12.09 hrs HW=102.59' TW=102.23' (Dynamic Tailwater)
└1=Culvert (Outlet Controls 0.85 cfs @ 2.07 fps)



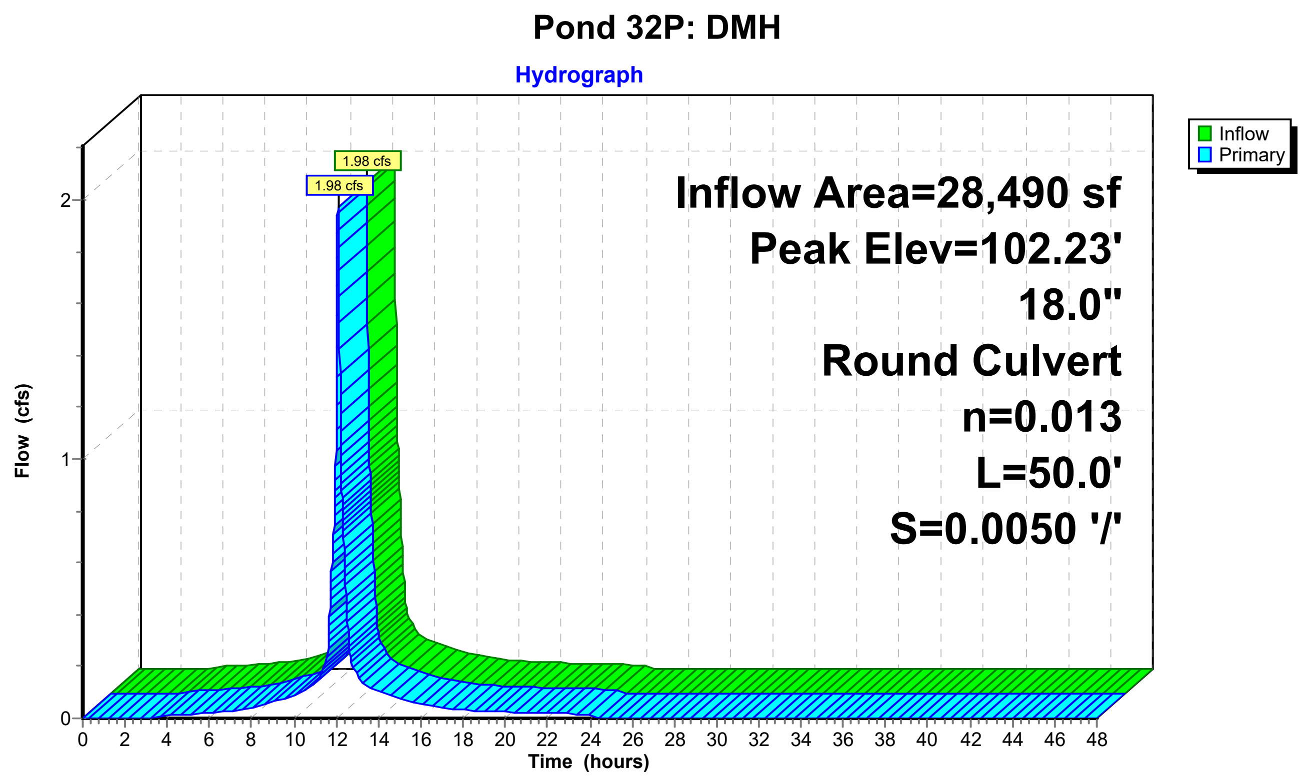
Summary for Pond 32P: DMH

Inflow Area = 28,490 sf,100.00% Impervious, Inflow Depth = 2.77" for 2-Year event
Inflow = 1.98 cfs @ 12.09 hrs, Volume= 6,586 cf
Outflow = 1.98 cfs @ 12.09 hrs, Volume= 6,586 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.98 cfs @ 12.09 hrs, Volume= 6,586 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.23' @ 12.09 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.25'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.25' / 101.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.97 cfs @ 12.09 hrs HW=102.23' TW=102.03' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 1.97 cfs @ 2.30 fps)



Summary for Pond 33P: DMH

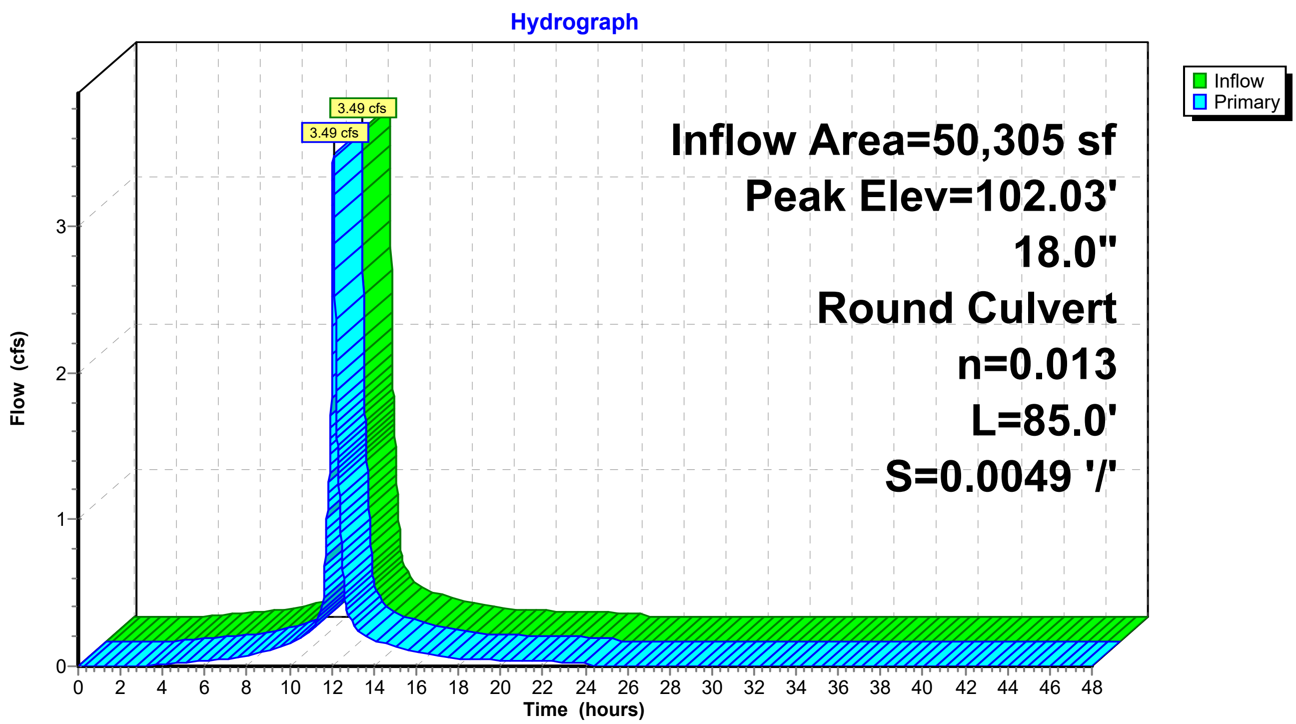
Inflow Area =	50,305 sf,100.00% Impervious,	Inflow Depth = 2.75"	for 2-Year event	
Inflow =	3.49 cfs @	12.09 hrs, Volume=	11,508 cf	
Outflow =	3.49 cfs @	12.09 hrs, Volume=	11,508 cf,	Atten= 0%, Lag= 0.0 min
Primary =	3.49 cfs @	12.09 hrs, Volume=	11,508 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.03' @ 12.09 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.00'	**18.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.00' / 100.58' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.48 cfs @ 12.09 hrs HW=102.03' TW=100.99' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 3.48 cfs @ 3.80 fps)

Pond 33P: DMH



Summary for Pond 34P: Tree Box

Inflow Area = 11,350 sf,100.00% Impervious, Inflow Depth = 2.89" for 2-Year event
Inflow = 0.79 cfs @ 12.08 hrs, Volume= 2,731 cf
Outflow = 0.79 cfs @ 12.08 hrs, Volume= 2,731 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 172 cf
Primary = 0.79 cfs @ 12.08 hrs, Volume= 2,559 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.17' @ 12.08 hrs Surf.Area= 38 sf Storage= 36 cf
Flood Elev= 107.00' Surf.Area= 8 sf Storage= 52 cf

Plug-Flow detention time= 12.6 min calculated for 2,731 cf (100% of inflow)
Center-of-Mass det. time= 12.6 min (769.6 - 756.9)

Volume	Invert	Avail.Storage	Storage Description
#1	101.60'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

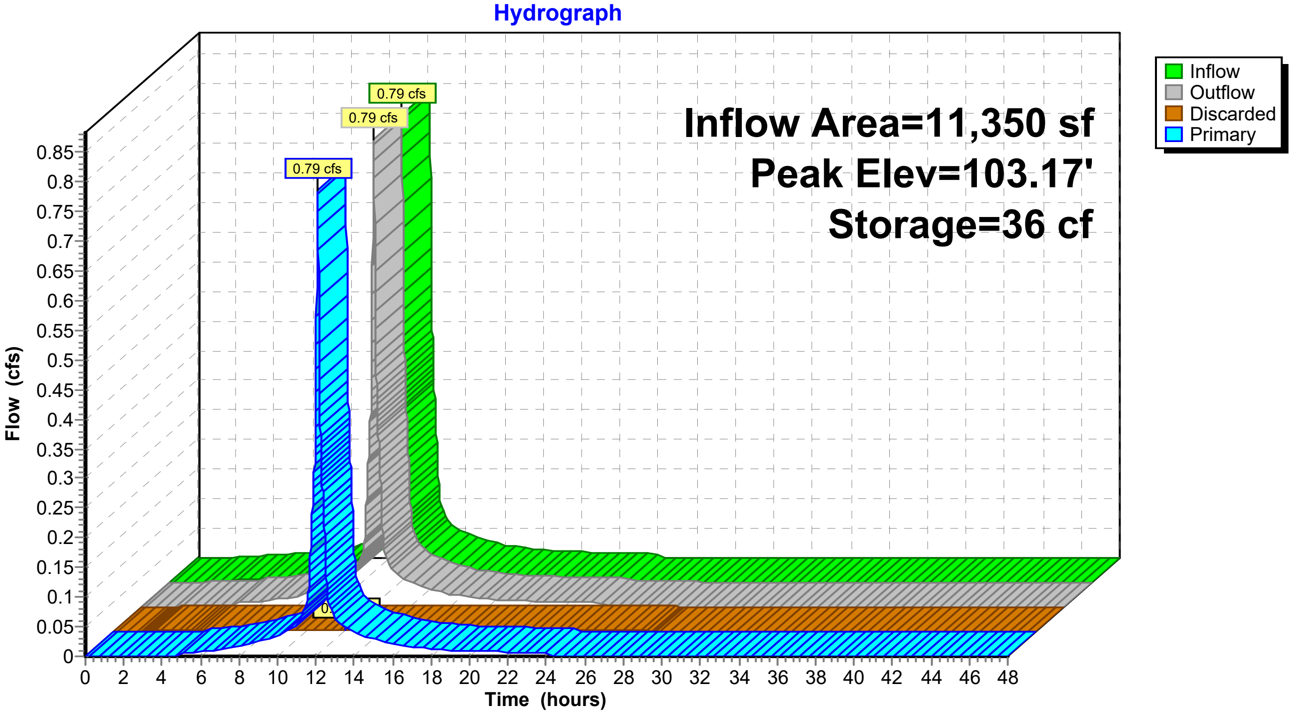
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.60	72	0	0
102.60	72	72	72
103.60	12	42	114
104.60	12	12	126
105.60	12	12	138
106.60	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	102.55'	**12.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.55' / 102.05' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	101.60'	**1.020 in/hr Exfiltration over Horizontal area above 101.55'** Conductivity to Groundwater Elevation = 90.00' Excluded Horizontal area = 0 sf Phase-In= 0.01'
#3	Device 1	102.55'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=103.17' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.79 cfs @ 12.08 hrs HW=103.17' TW=102.48' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.79 cfs of 1.10 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.79 cfs @ 2.37 fps)

Pond 34P: Tree Box



Summary for Pond 36P: Tree Box

Inflow Area = 10,465 sf,100.00% Impervious, Inflow Depth = 2.89" for 2-Year event
Inflow = 0.73 cfs @ 12.08 hrs, Volume= 2,518 cf
Outflow = 0.73 cfs @ 12.09 hrs, Volume= 2,518 cf, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 156 cf
Primary = 0.72 cfs @ 12.09 hrs, Volume= 2,363 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.74' @ 12.09 hrs Surf.Area= 63 sf Storage= 29 cf
Flood Elev= 106.00' Surf.Area= 10 sf Storage= 50 cf

Plug-Flow detention time= 7.4 min calculated for 2,518 cf (100% of inflow)
Center-of-Mass det. time= 7.4 min (764.4 - 756.9)

Volume	Invert	Avail.Storage	Storage Description
#1	101.60'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

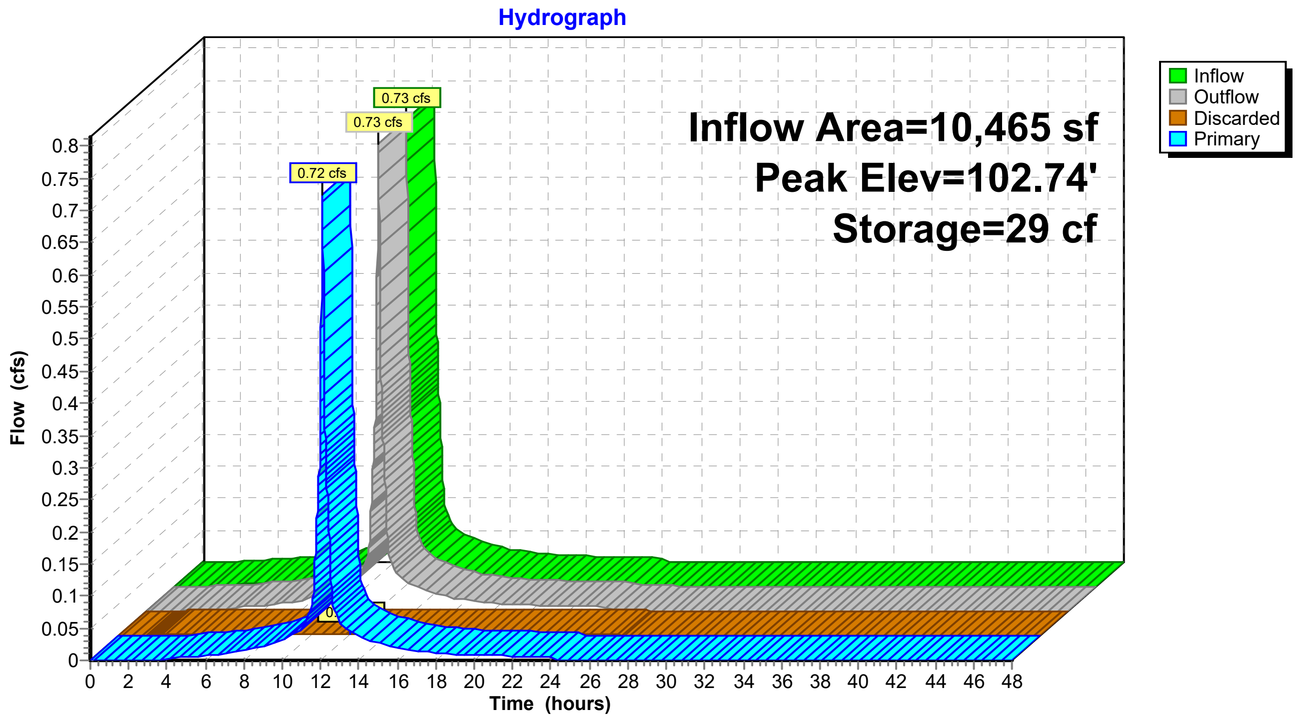
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.60	72	0	0
102.60	72	72	72
103.60	12	42	114
104.60	12	12	126
105.60	12	12	138
106.60	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	102.10'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.10' / 101.60' S= 0.0500 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	101.60'	**1.020 in/hr Exfiltration over Horizontal area above 101.10'** Conductivity to Groundwater Elevation = 90.00' Excluded Horizontal area = 0 sf Phase-In= 0.01'
#3	Device 1	102.10'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=102.74' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.72 cfs @ 12.09 hrs HW=102.74' TW=102.48' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.72 cfs of 1.15 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.72 cfs @ 2.07 fps)

Pond 36P: Tree Box

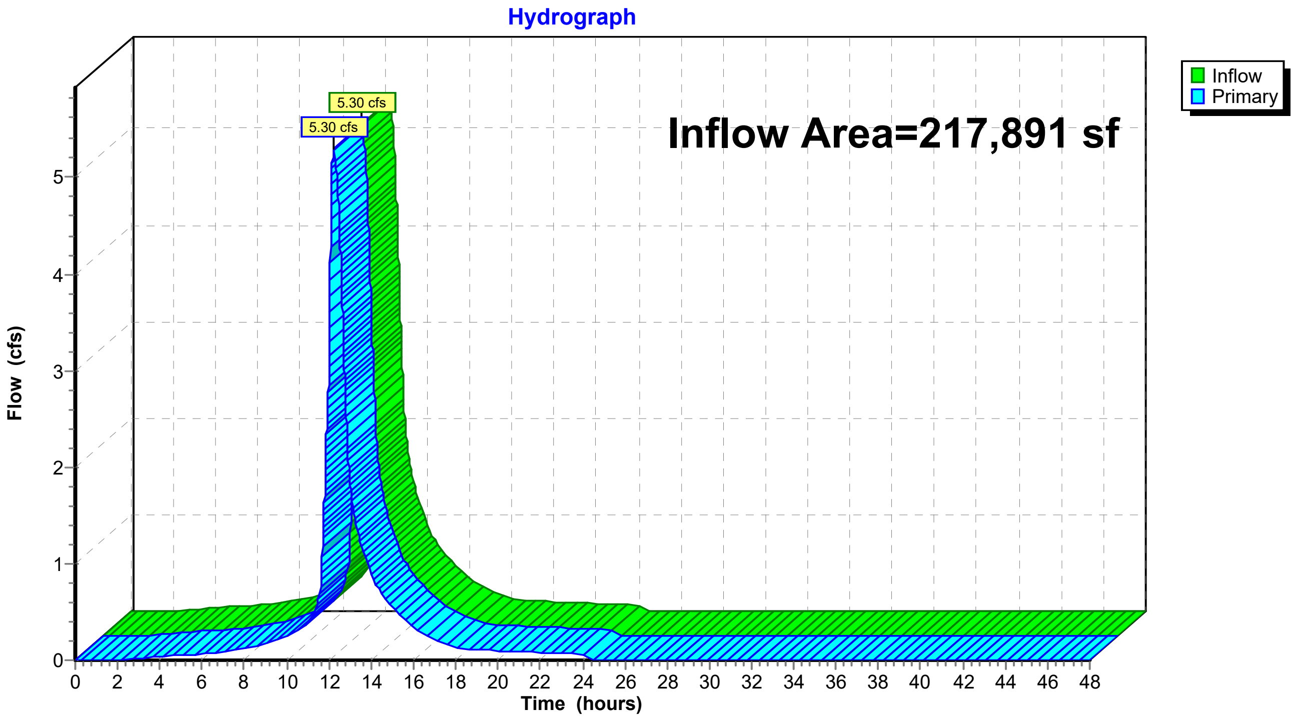


Summary for Link 1L: (new Link)

Inflow Area = 217,891 sf, 82.73% Impervious, Inflow Depth = 1.85" for 2-Year event
Inflow = 5.30 cfs @ 12.23 hrs, Volume= 33,532 cf
Primary = 5.30 cfs @ 12.23 hrs, Volume= 33,532 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 1L: (new Link)



Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	0-1.2"	Type III 24-hr		Default	24.00	1	1.20	2
2	1-Year	Type III 24-hr		Default	24.00	1	2.48	2
3	10-Year	Type III 24-hr		Default	24.00	1	5.04	2
4	25-Year	Type III 24-hr		Default	24.00	1	6.23	2
5	100-Year	Type III 24-hr		Default	24.00	1	8.07	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
37,635	74	>75% Grass cover, Good, HSG C (2S)
107,821	98	Paved parking, HSG C (11S, 12S, 13S, 15S, 16S, 17S, 18S, 19S, 20S, 21S, 22, 23S)
79,355	98	Roofs, HSG D (3S, 5Sa, 5Sb, 6S, 37S)
224,811	**94**	**TOTAL AREA**

Summary for Subcatchment 2S: Open Space

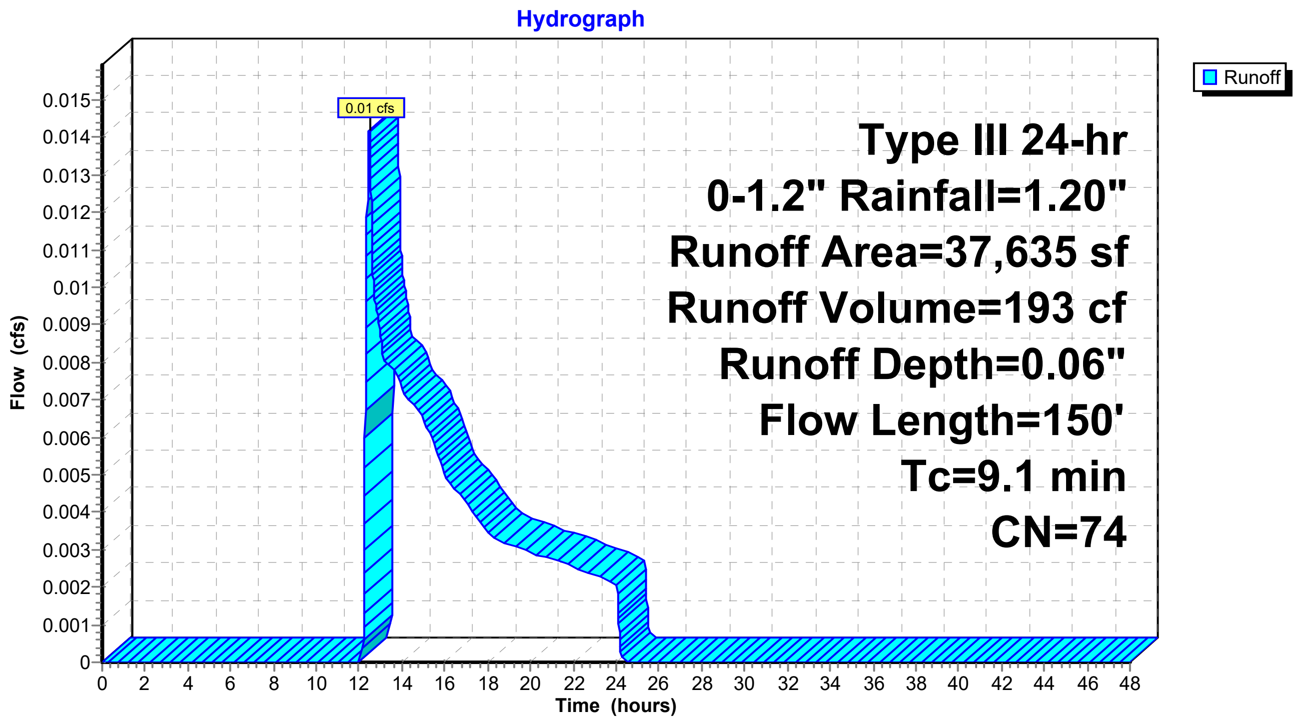
Runoff = 0.01 cfs @ 12.47 hrs, Volume= 193 cf, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
37,635	74	>75% Grass cover, Good, HSG C
37,635	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow, Open Space** Grass: Dense n= 0.240 P2= 3.30"
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Open Space** Grassed Waterway Kv= 15.0 fps
0.6	50	0.0400	1.40		**Shallow Concentrated Flow, Open Space** Short Grass Pasture Kv= 7.0 fps
9.1	150	Total			

Subcatchment 2S: Open Space



Summary for Subcatchment 3S: Brewery Roof

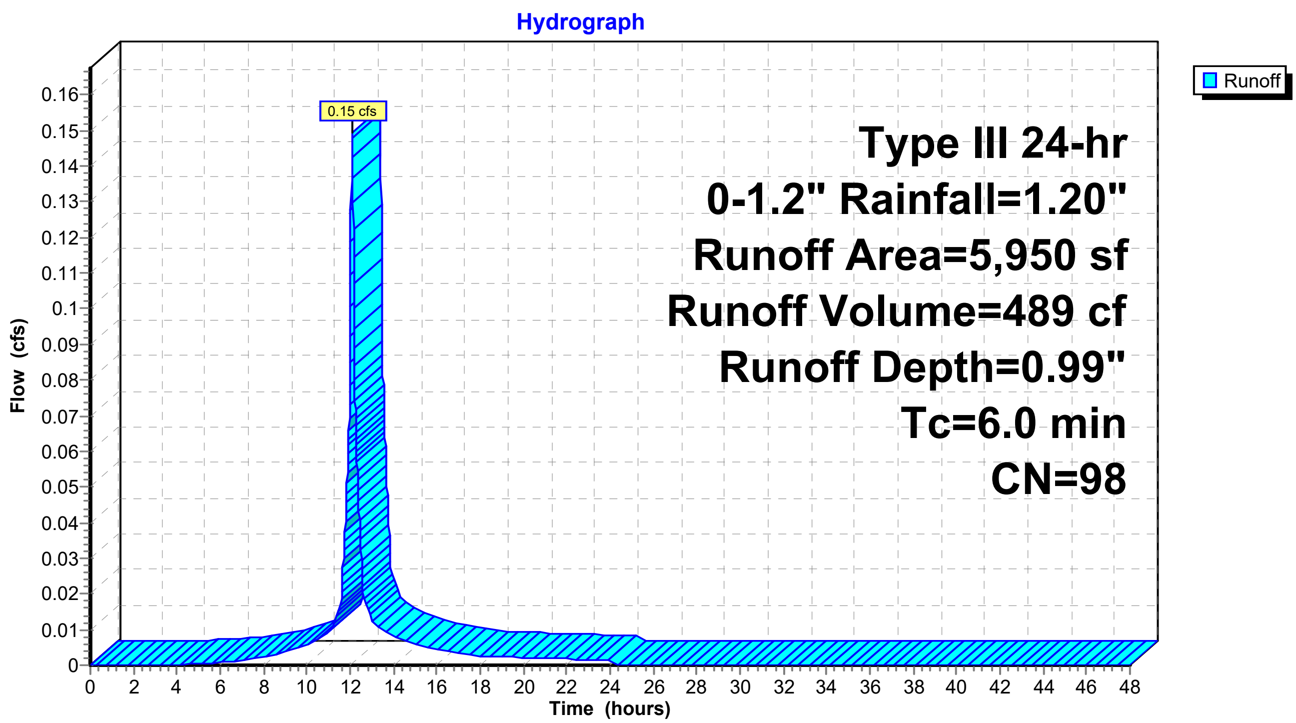
Runoff = 0.15 cfs @ 12.08 hrs, Volume= 489 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
5,950	98	Roofs, HSG D
5,950	98	100.00% Impervious Area

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

Subcatchment 3S: Brewery Roof



Summary for Subcatchment 5Sa: Athletic Roof

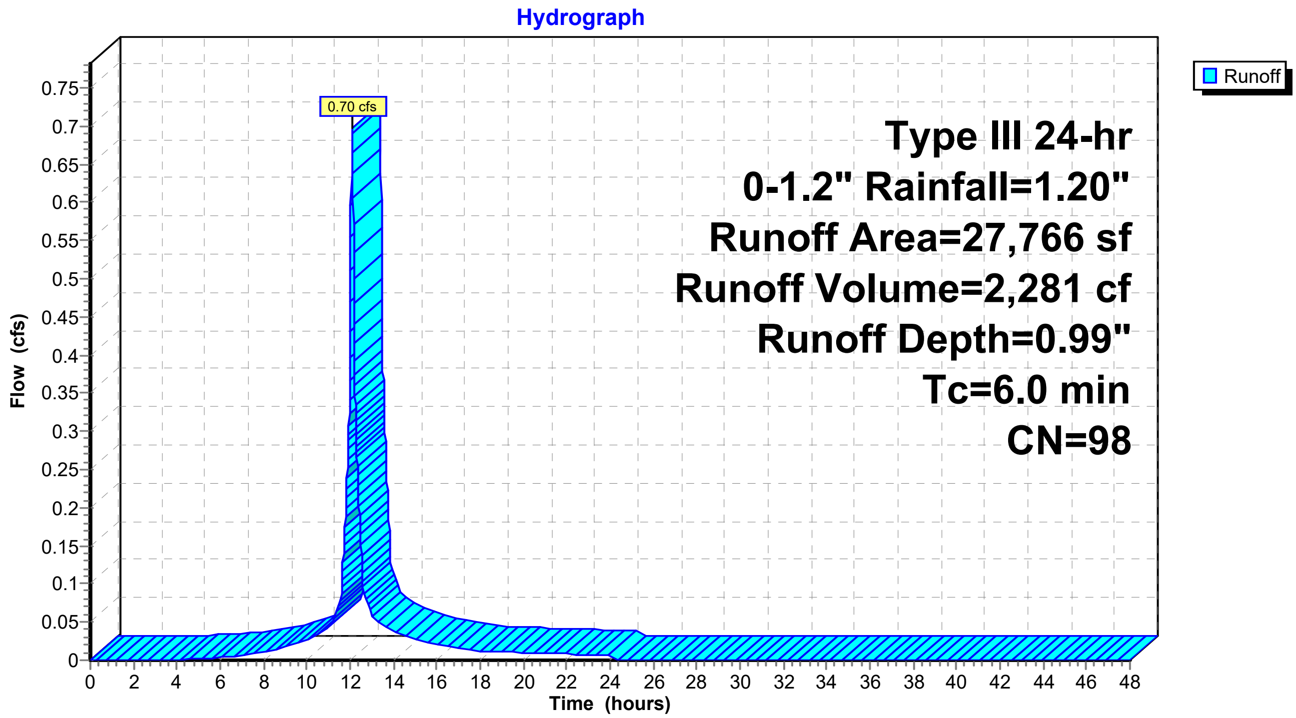
Runoff = 0.70 cfs @ 12.08 hrs, Volume= 2,281 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
27,766	98	Roofs, HSG D
27,766	98	100.00% Impervious Area

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

Subcatchment 5Sa: Athletic Roof



Summary for Subcatchment 5Sb: Athletic Roof

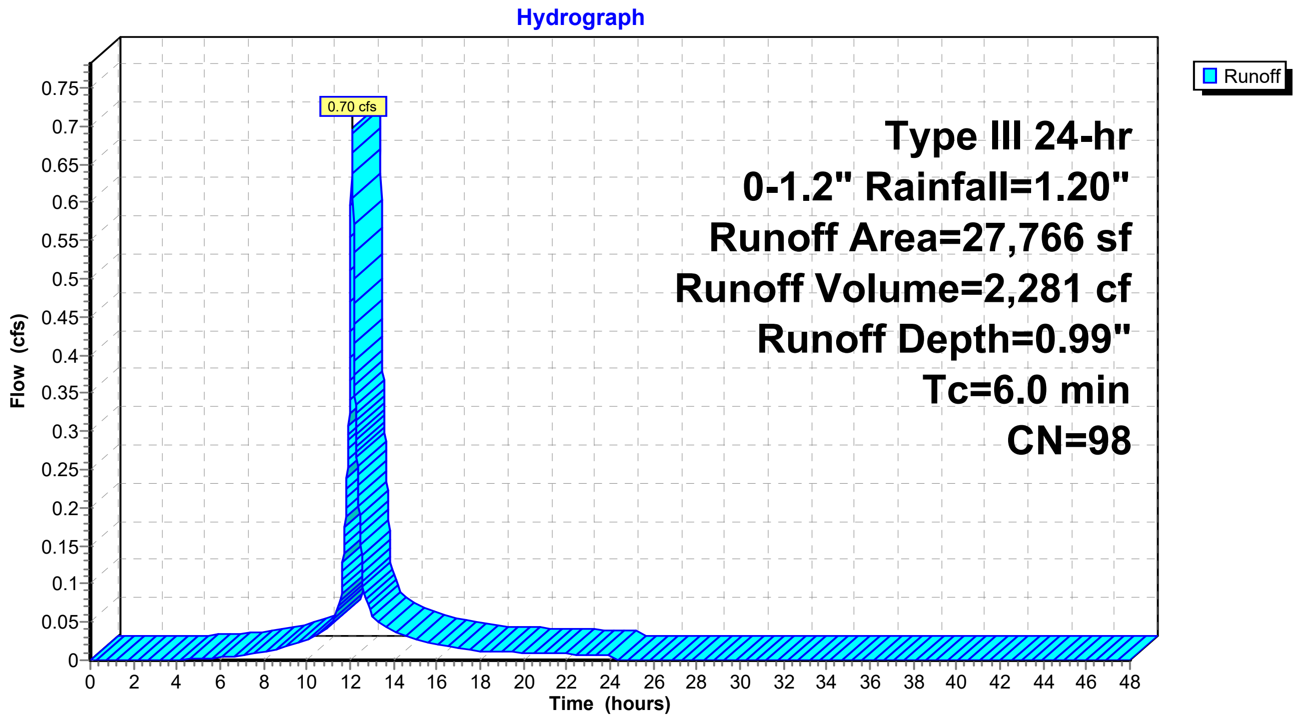
Runoff = 0.70 cfs @ 12.08 hrs, Volume= 2,281 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
27,766	98	Roofs, HSG D
27,766	98	100.00% Impervious Area

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

Subcatchment 5Sb: Athletic Roof



Summary for Subcatchment 6S: Residential Roof

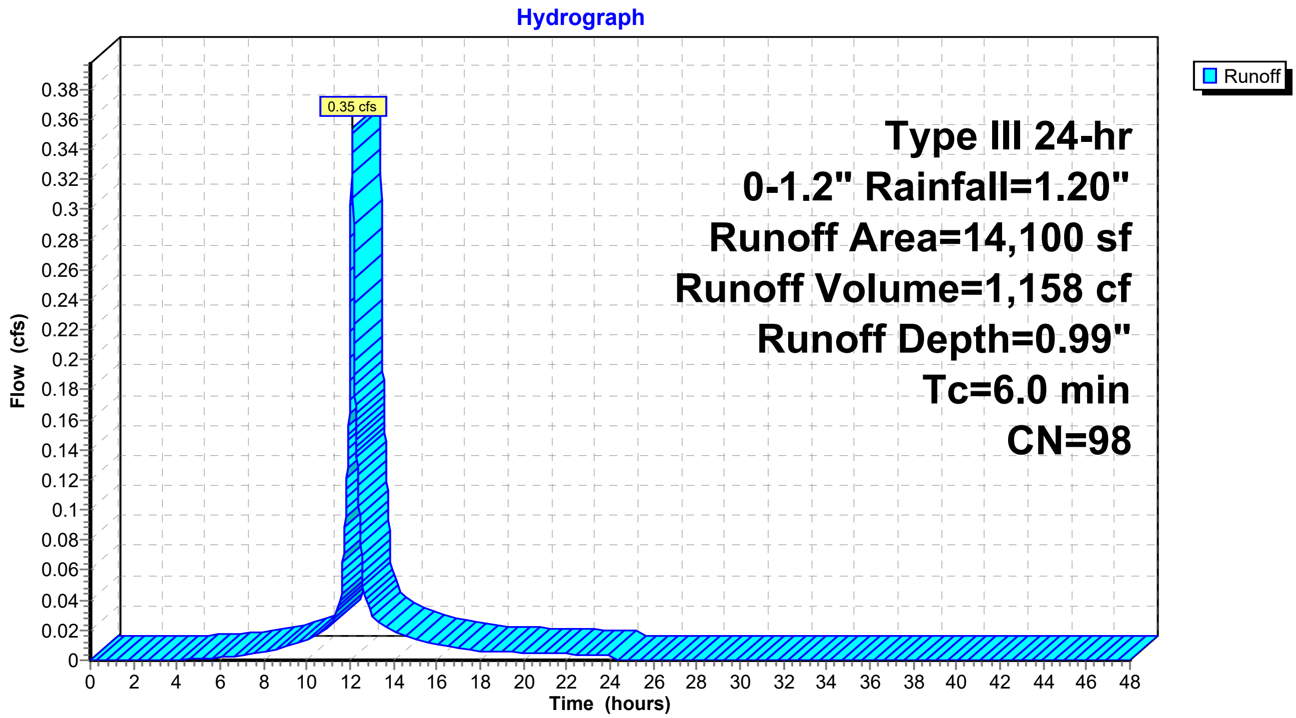
Runoff = 0.35 cfs @ 12.08 hrs, Volume= 1,158 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
14,100	98	Roofs, HSG D
14,100	98	100.00% Impervious Area

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

Subcatchment 6S: Residential Roof



Summary for Subcatchment 11S: Parking/Pavement

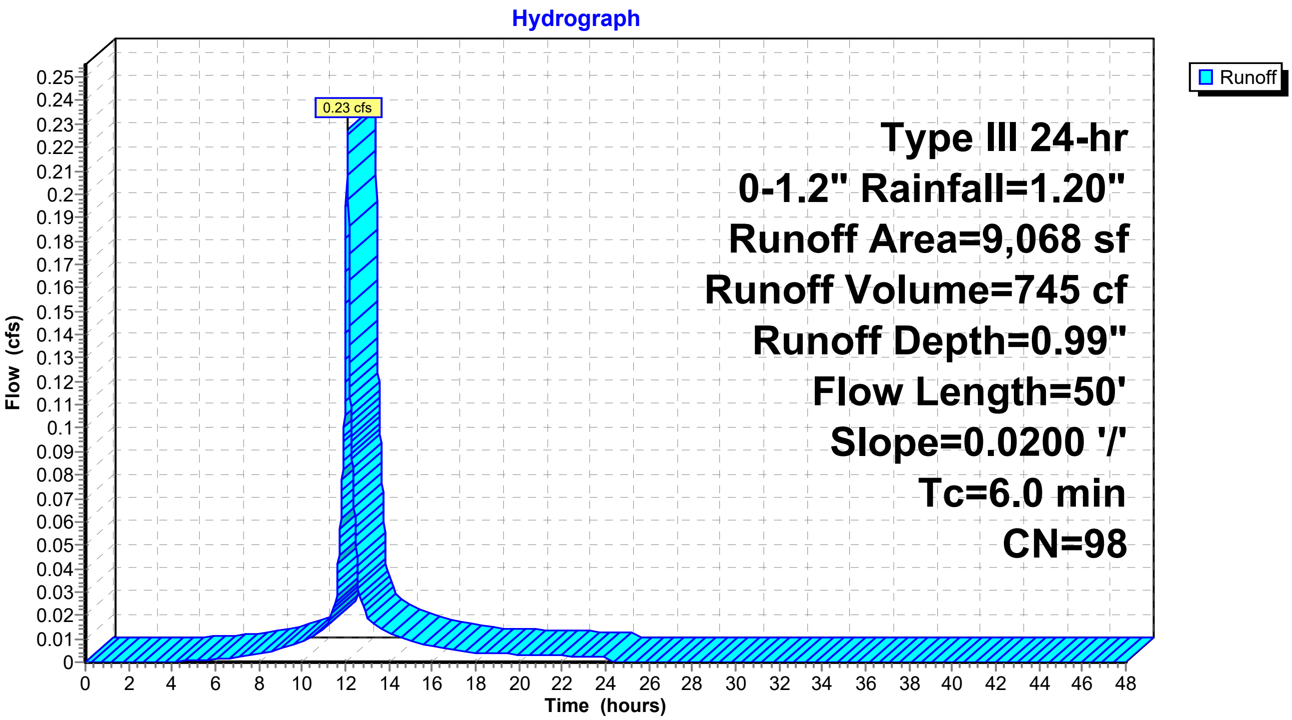
Runoff = 0.23 cfs @ 12.08 hrs, Volume= 745 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
9,068	98	Paved parking, HSG C
9,068	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 11S: Parking/Pavement



Summary for Subcatchment 12S: Parking/Pavement

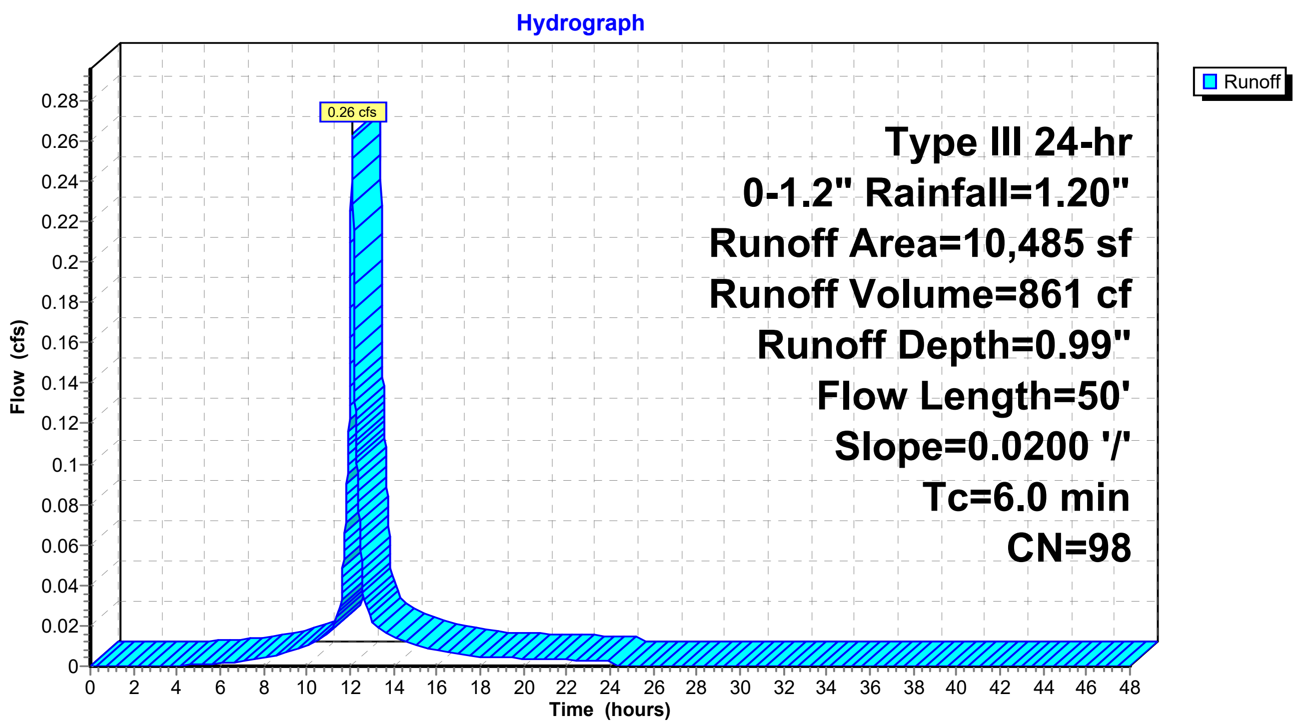
Runoff = 0.26 cfs @ 12.08 hrs, Volume= 861 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
10,485	98	Paved parking, HSG C
10,485	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 12S: Parking/Pavement



Summary for Subcatchment 13S: Parking/Pavement

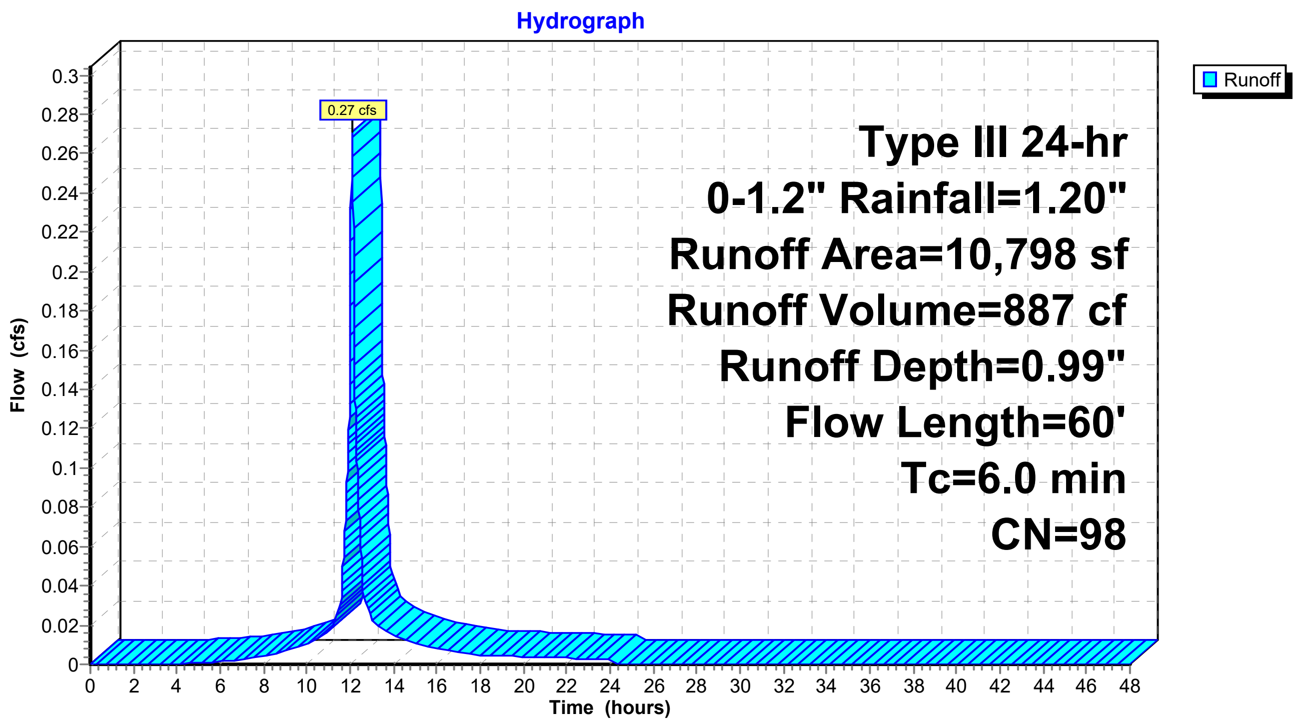
Runoff = 0.27 cfs @ 12.08 hrs, Volume= 887 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
10,798	98	Paved parking, HSG C
10,798	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	10	0.0050	0.04		**Sheet Flow, Landscapeing** Grass: Dense n= 0.240 P2= 3.30"
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
4.6	60	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S: Parking/Pavement



Summary for Subcatchment 15S: Parking/Pavement

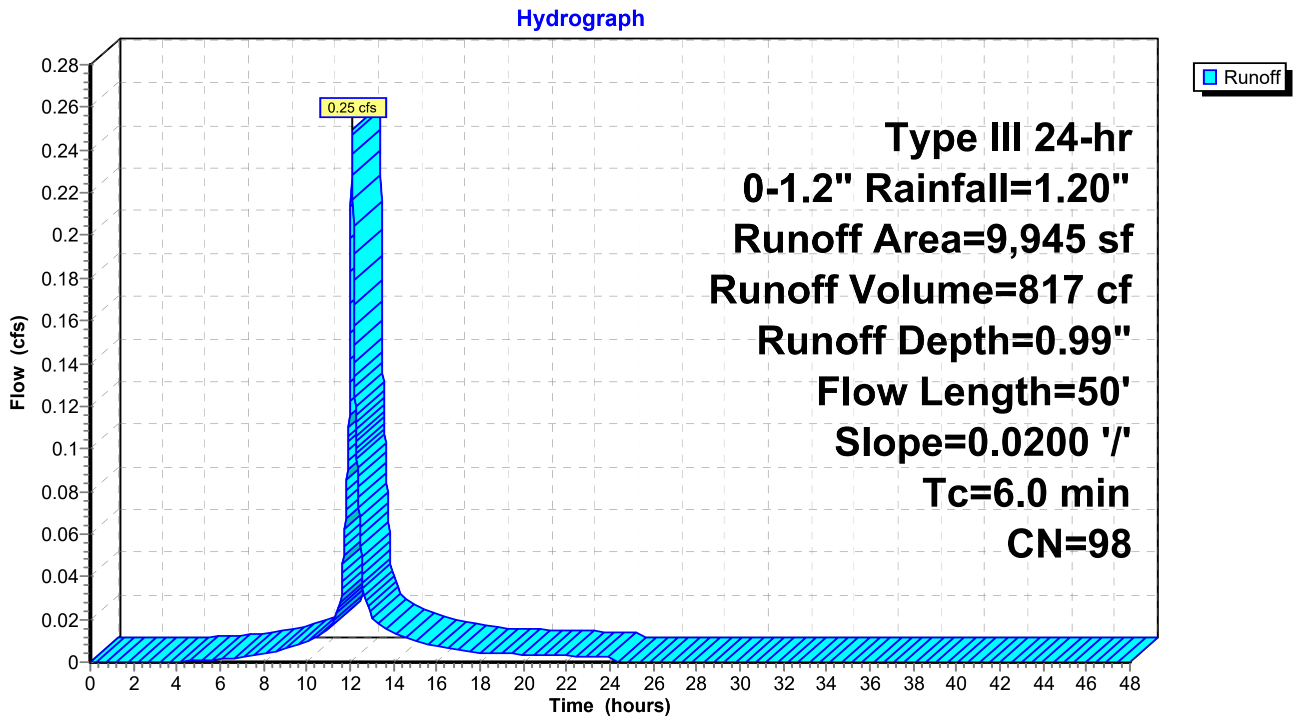
Runoff = 0.25 cfs @ 12.08 hrs, Volume= 817 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
9,945	98	Paved parking, HSG C
9,945	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 15S: Parking/Pavement



Summary for Subcatchment 16S: Parking/Pavement

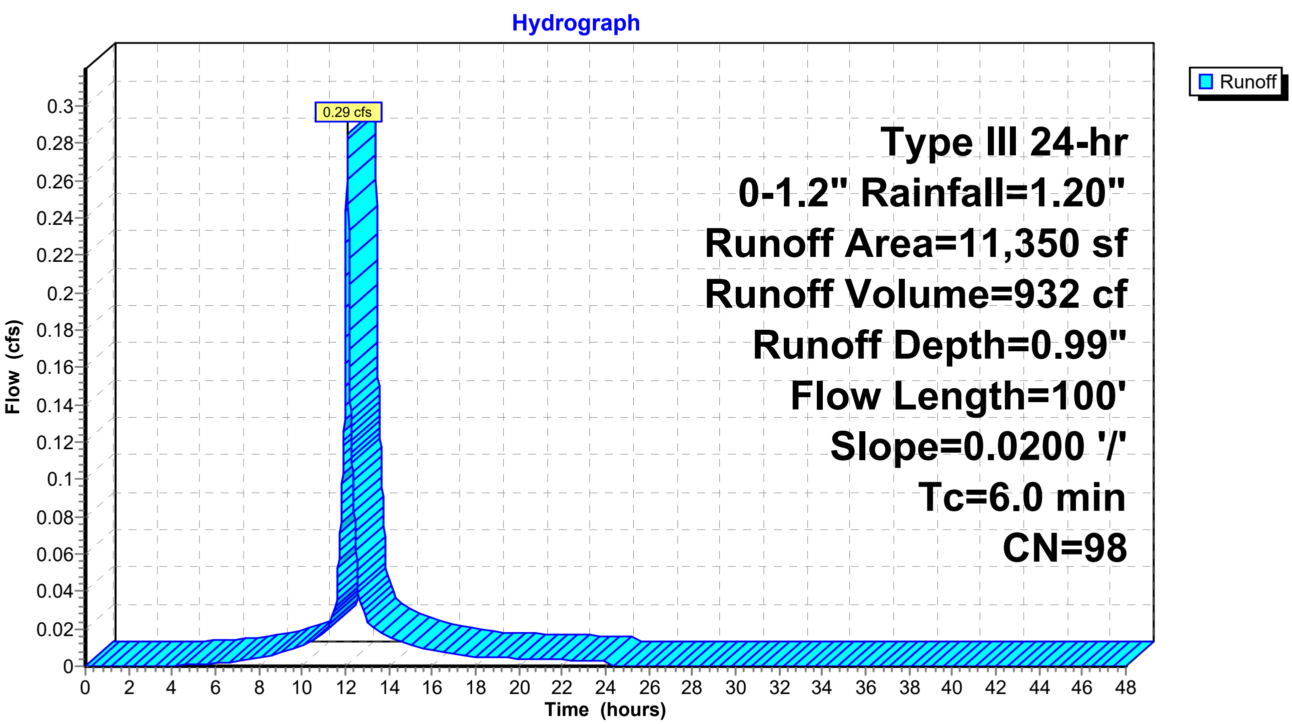
Runoff = 0.29 cfs @ 12.08 hrs, Volume= 932 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
11,350	98	Paved parking, HSG C
11,350	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 16S: Parking/Pavement



Summary for Subcatchment 17S: Parking/Pavement

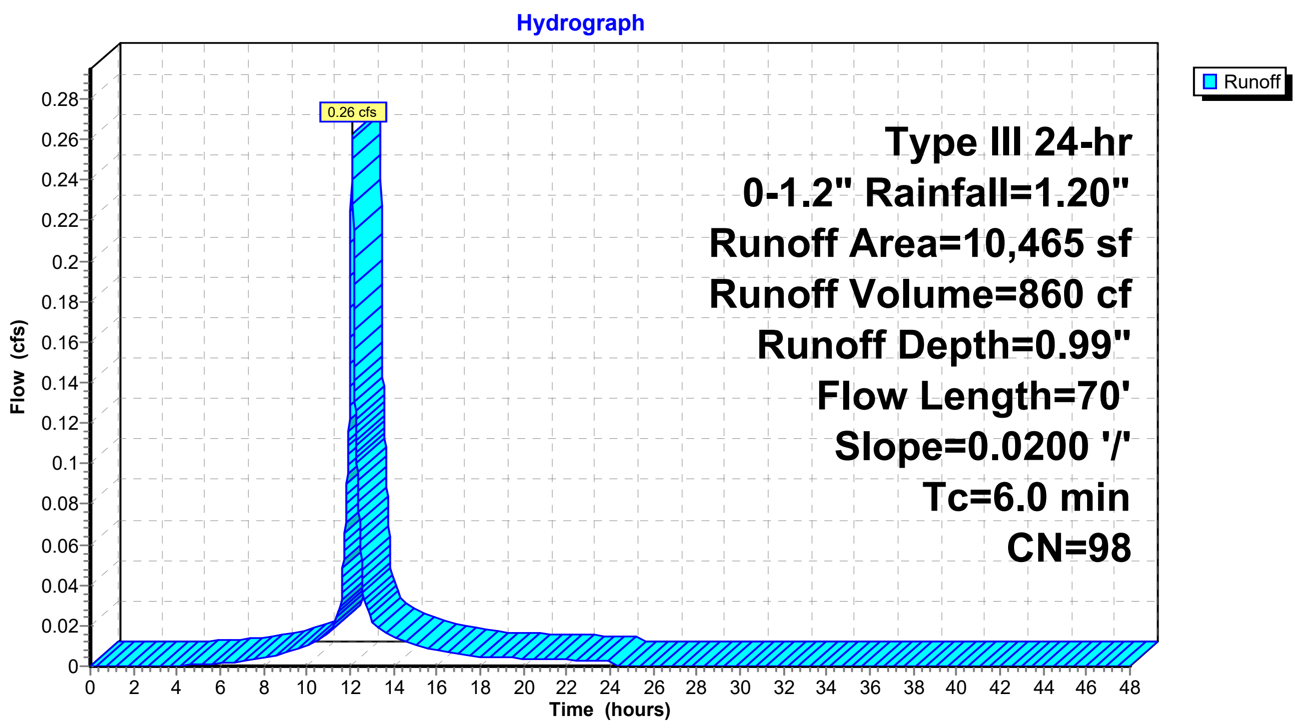
Runoff = 0.26 cfs @ 12.08 hrs, Volume= 860 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
10,465	98	Paved parking, HSG C
10,465	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	70	0.0200	1.30		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.9	70	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 17S: Parking/Pavement



Summary for Subcatchment 18S: Parking/Pavement

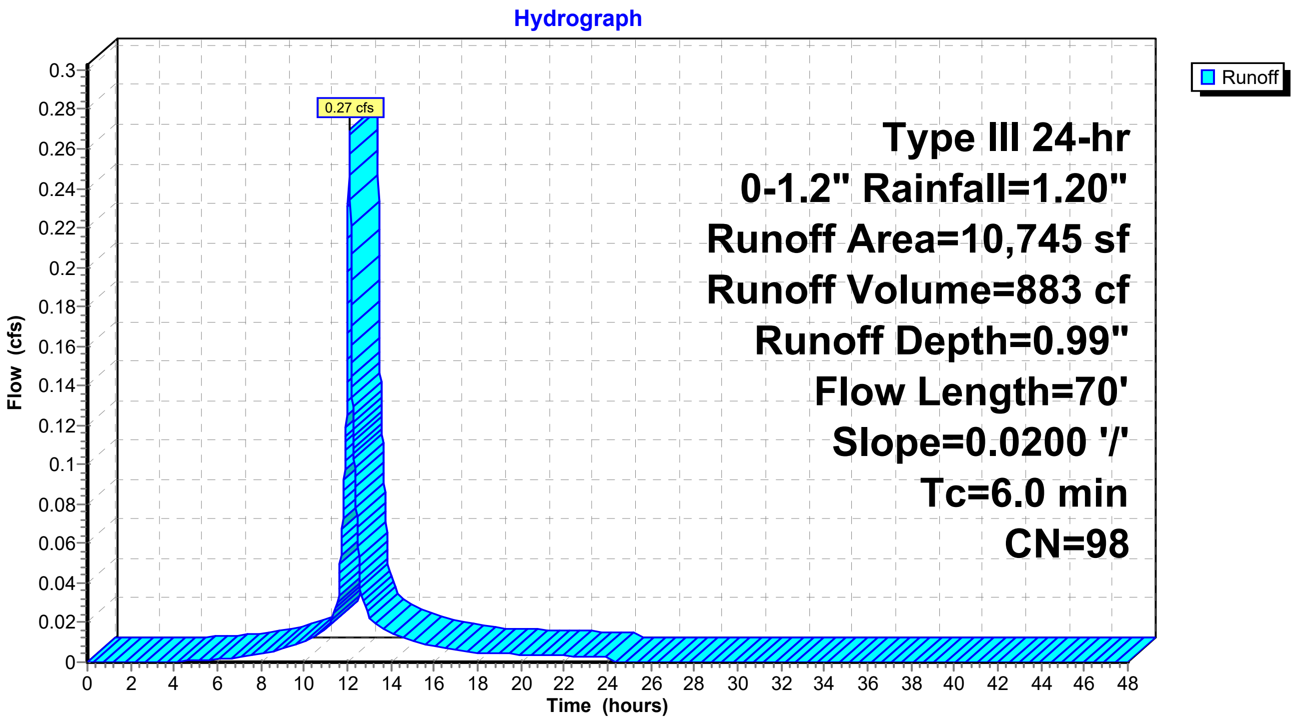
Runoff = 0.27 cfs @ 12.08 hrs, Volume= 883 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
10,745	98	Paved parking, HSG C
10,745	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	70	0.0200	1.30		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.9	70	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 18S: Parking/Pavement



Summary for Subcatchment 19S: Parking/Pavement

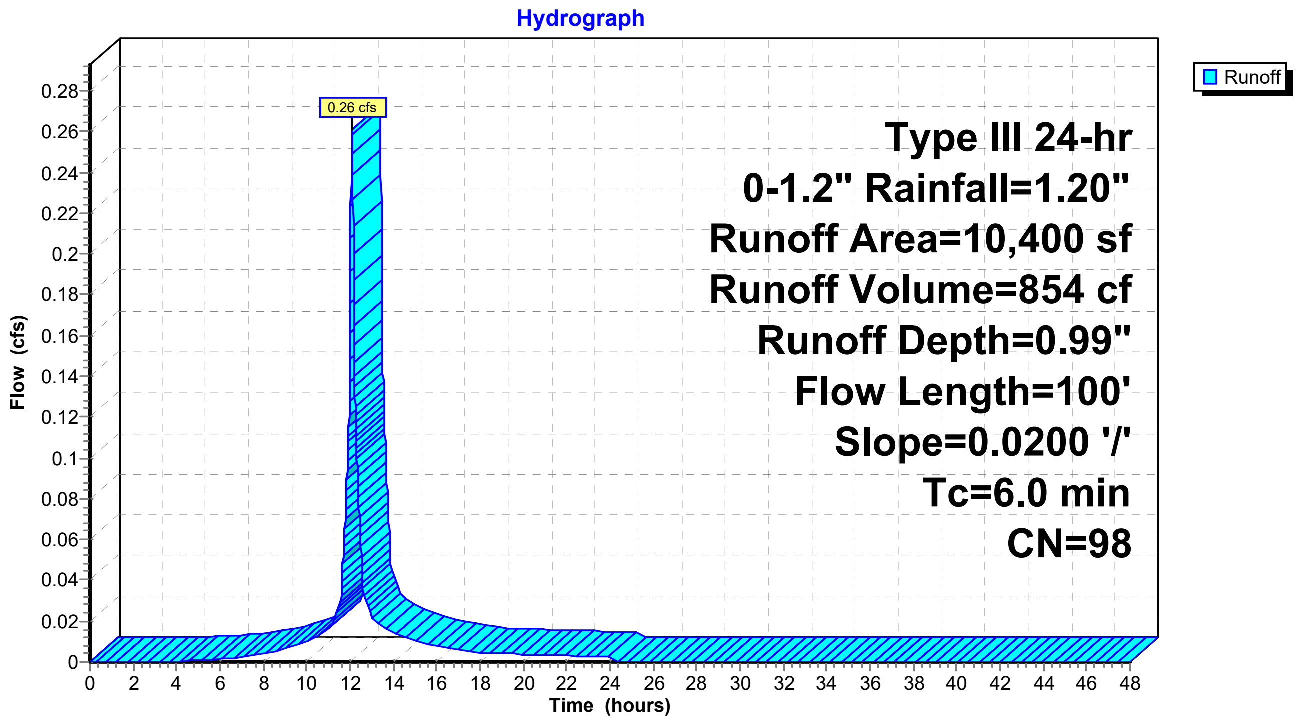
Runoff = 0.26 cfs @ 12.08 hrs, Volume= 854 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
10,400	98	Paved parking, HSG C
10,400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 19S: Parking/Pavement



Summary for Subcatchment 20S: Parking/Pavement

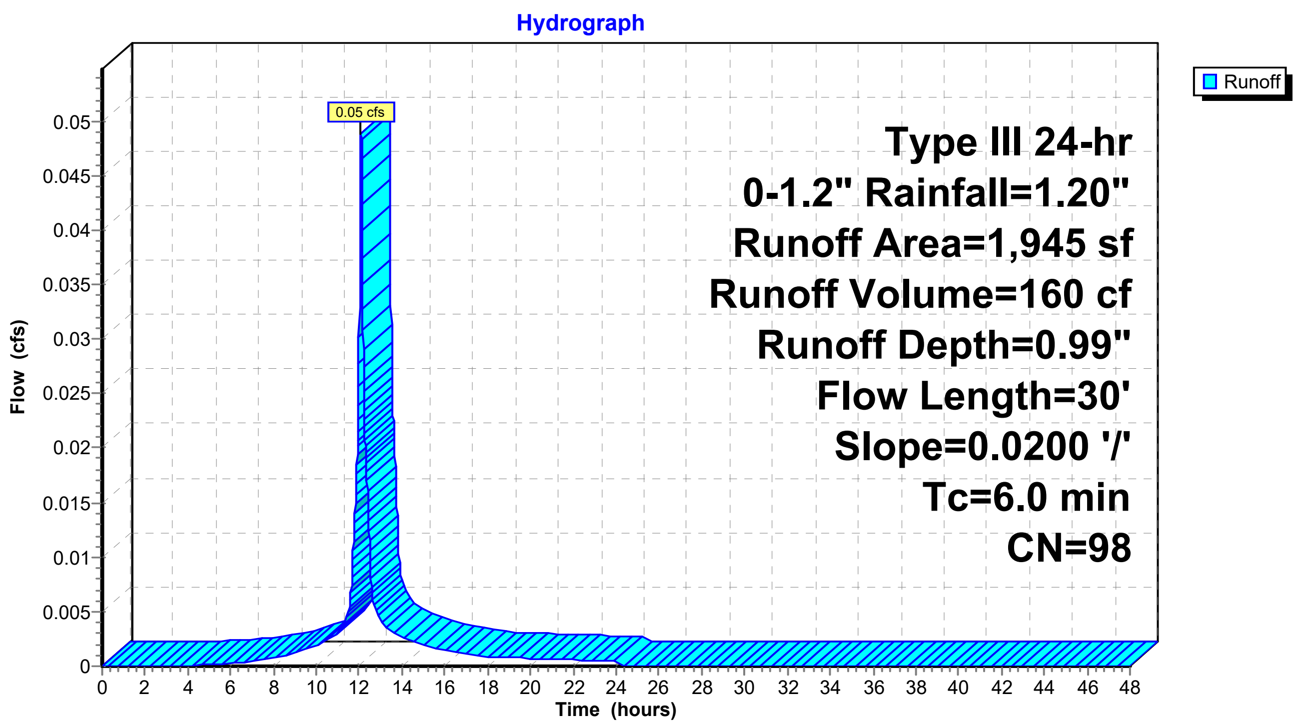
Runoff = 0.05 cfs @ 12.08 hrs, Volume= 160 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
1,945	98	Paved parking, HSG C
1,945	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	30	0.0200	1.10		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.5	30	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 20S: Parking/Pavement



Summary for Subcatchment 21S: Parking/Pavement

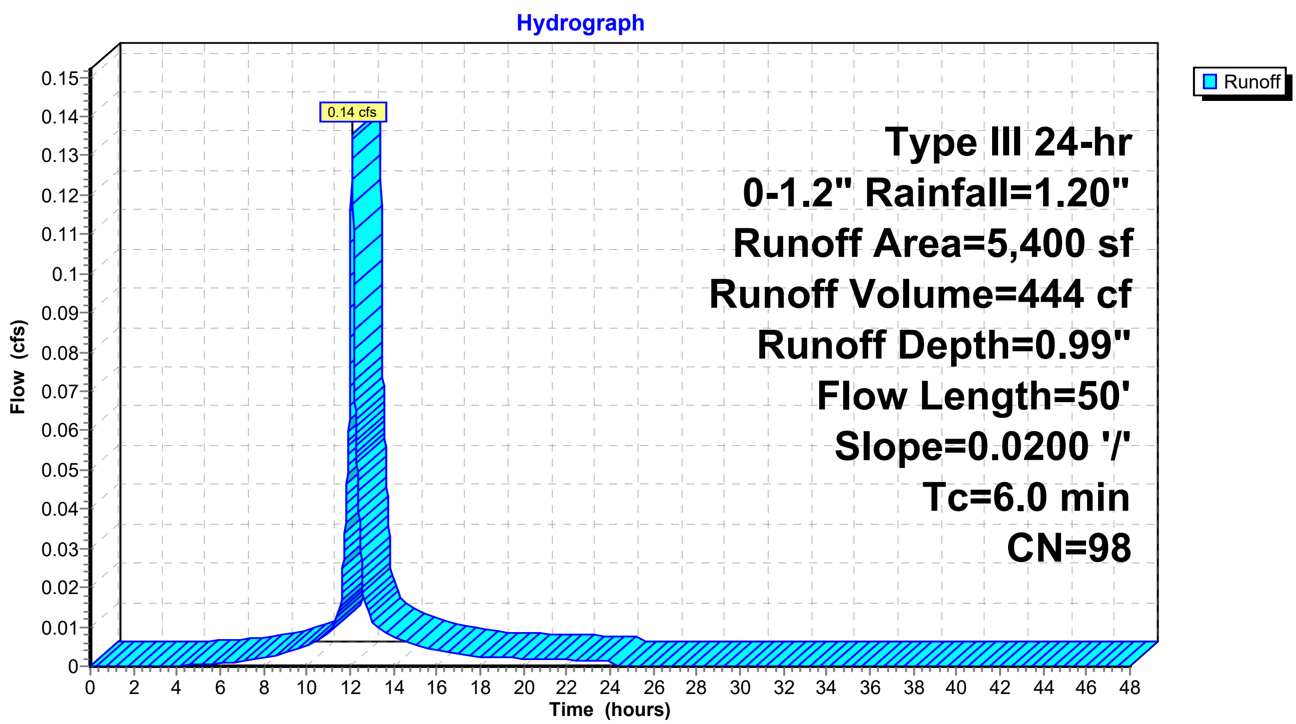
Runoff = 0.14 cfs @ 12.08 hrs, Volume= 444 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
5,400	98	Paved parking, HSG C
5,400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 21S: Parking/Pavement



Summary for Subcatchment 22: Parking/Pavement

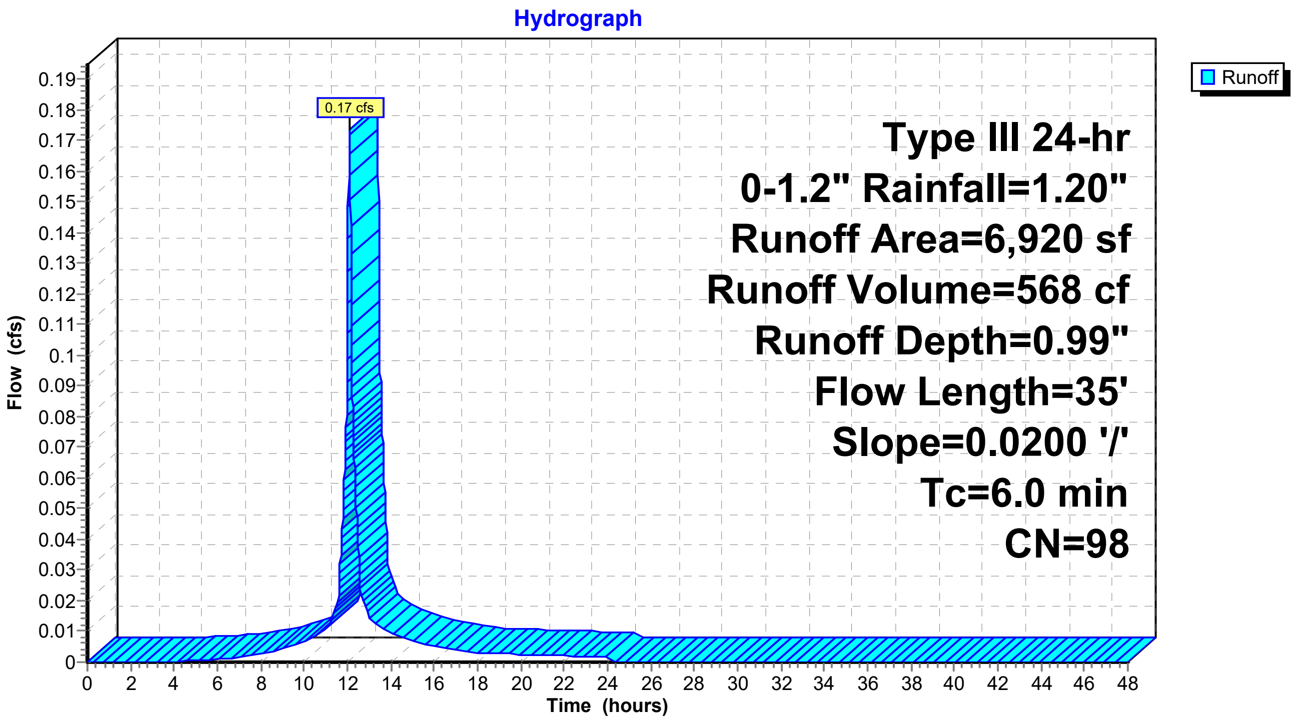
Runoff = 0.17 cfs @ 12.08 hrs, Volume= 568 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
6,920	98	Paved parking, HSG C
6,920	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	35	0.0200	1.13		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
0.5	35	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 22: Parking/Pavement



Summary for Subcatchment 23S: Parking/Pavement

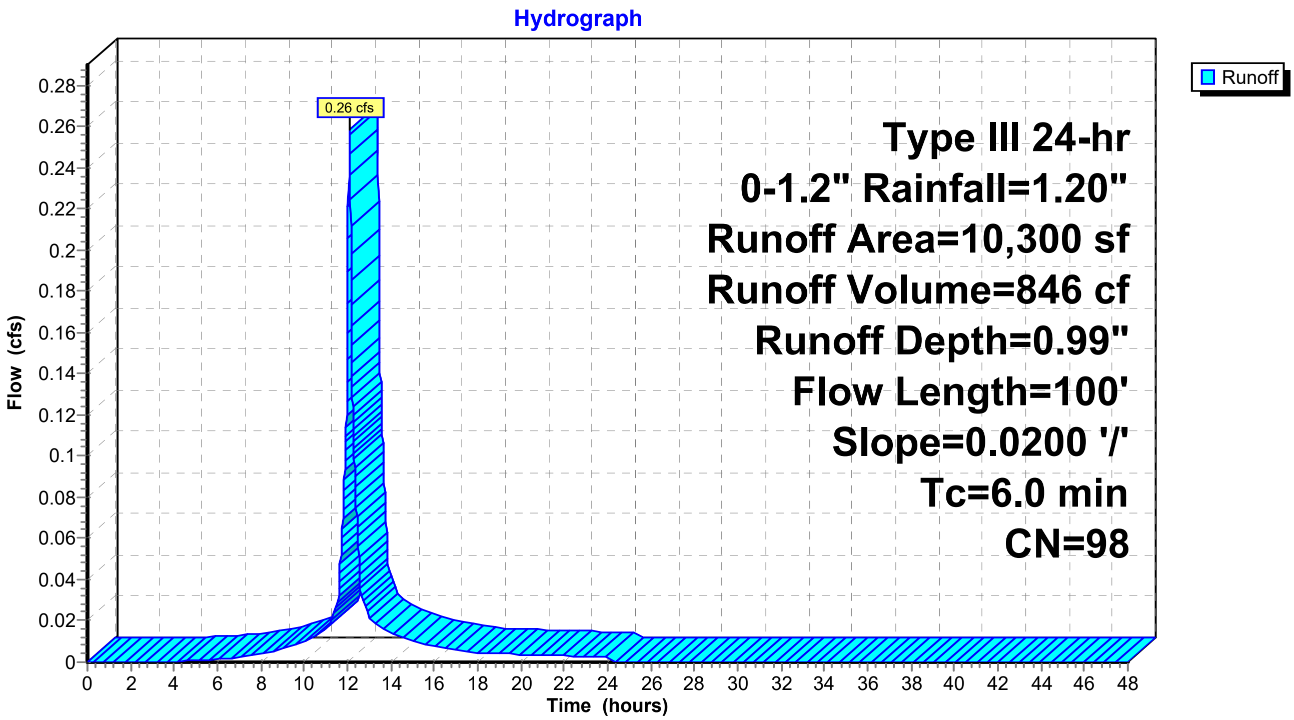
Runoff = 0.26 cfs @ 12.08 hrs, Volume= 846 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
10,300	98	Paved parking, HSG C
10,300	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 23S: Parking/Pavement



Summary for Subcatchment 37S: Grocery Roof

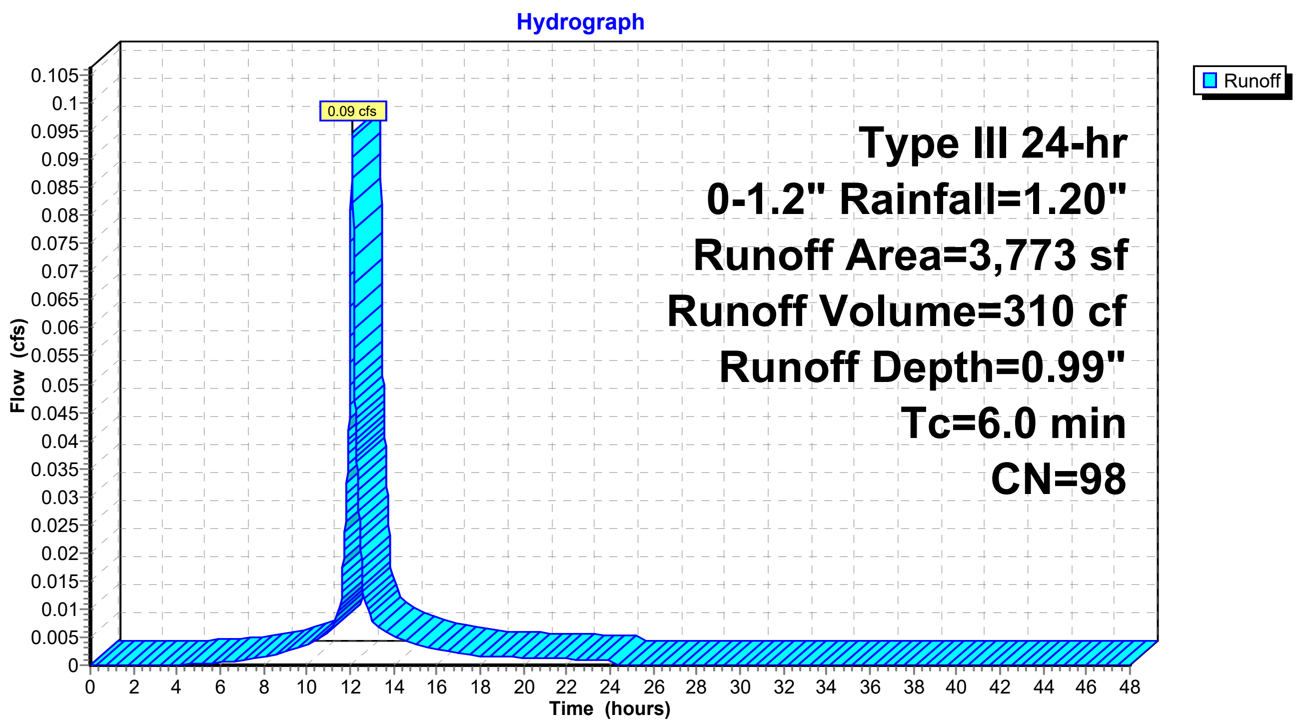
Runoff = 0.09 cfs @ 12.08 hrs, Volume= 310 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 0-1.2" Rainfall=1.20"

Area (sf)	CN	Description
3,773	98	Roofs, HSG D
3,773	98	100.00% Impervious Area

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

Subcatchment 37S: Grocery Roof



Summary for Pond 1P: Area behind levee - Facemate

Inflow Area = 217,891 sf, 82.73% Impervious, Inflow Depth = 0.42" for 0-1.2" event
Inflow = 2.00 cfs @ 12.09 hrs, Volume= 7,662 cf
Outflow = 1.88 cfs @ 12.12 hrs, Volume= 7,662 cf, Atten= 6%, Lag= 1.9 min
Primary = 1.88 cfs @ 12.12 hrs, Volume= 7,662 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 90.05' @ 12.12 hrs Surf.Area= 6,474 sf Storage= 330 cf

Plug-Flow detention time= 6.1 min calculated for 7,660 cf (100% of inflow)
Center-of-Mass det. time= 6.1 min (794.2 - 788.0)

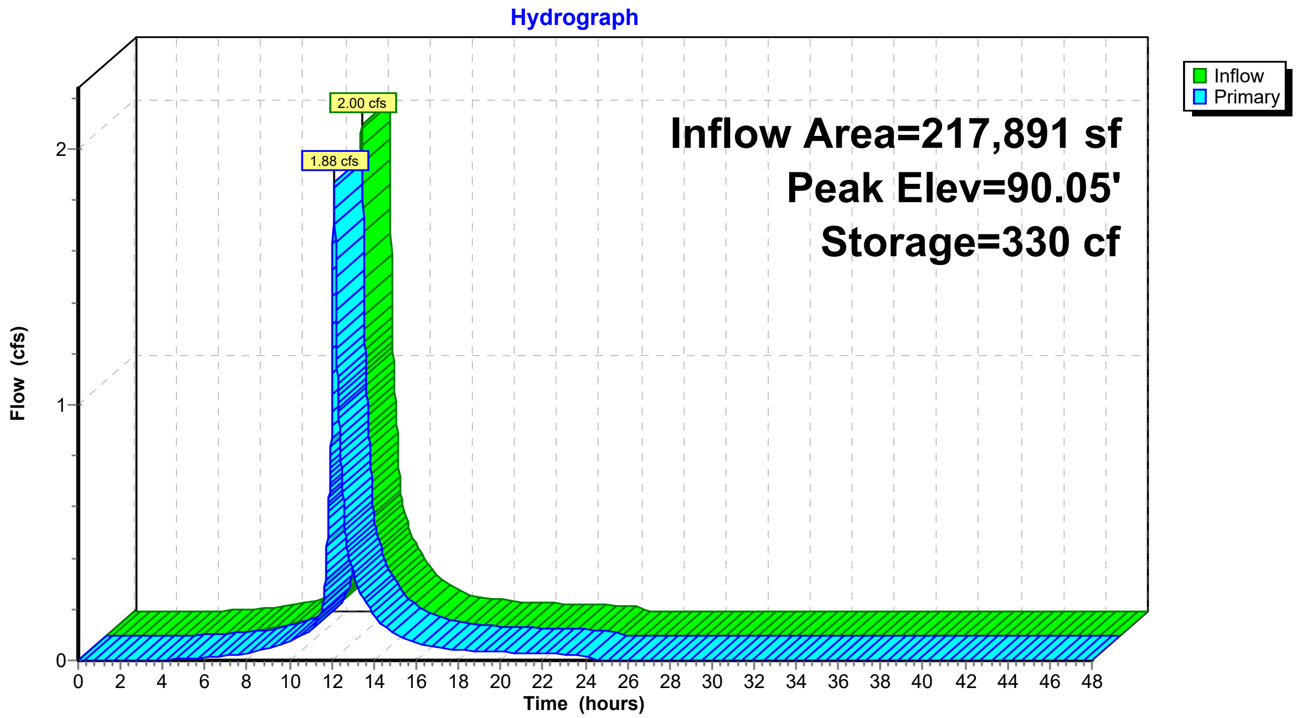
Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	90.00'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.87 cfs @ 12.12 hrs HW=90.05' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Weir Controls 0.94 cfs @ 0.75 fps)
2=Orifice/Grate (Weir Controls 0.94 cfs @ 0.75 fps)

Pond 1P: Area behind levee - Facemate



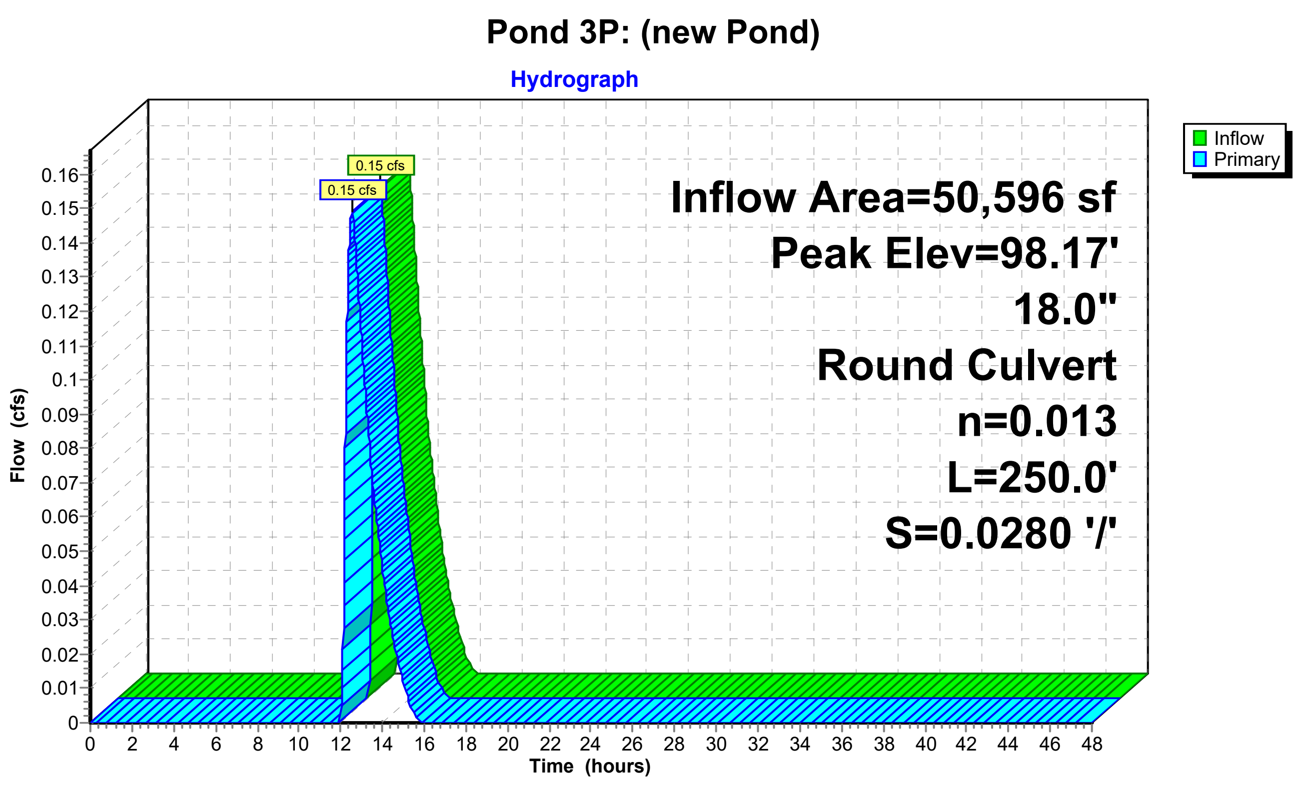
Summary for Pond 3P: (new Pond)

Inflow Area = 50,596 sf,100.00% Impervious, Inflow Depth = 0.18" for 0-1.2" event
Inflow = 0.15 cfs @ 12.53 hrs, Volume= 767 cf
Outflow = 0.15 cfs @ 12.53 hrs, Volume= 767 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.15 cfs @ 12.53 hrs, Volume= 767 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 98.17' @ 12.53 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.00'	**18.0" Round Culvert** L= 250.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 98.00' / 91.00' S= 0.0280 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.15 cfs @ 12.53 hrs HW=98.17' TW=90.03' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.15 cfs @ 1.39 fps)



Summary for Pond 5P: Tree Box

Inflow Area = 9,945 sf,100.00% Impervious, Inflow Depth = 0.99" for 0-1.2" event
Inflow = 0.25 cfs @ 12.08 hrs, Volume= 817 cf
Outflow = 0.25 cfs @ 12.09 hrs, Volume= 817 cf, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 71 cf
Primary = 0.25 cfs @ 12.09 hrs, Volume= 746 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.13' @ 12.09 hrs Surf.Area= 36 sf Storage= 12 cf

Plug-Flow detention time= 10.4 min calculated for 817 cf (100% of inflow)
Center-of-Mass det. time= 10.4 min (792.4 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	91 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 259 cf Overall x 35.0% Voids

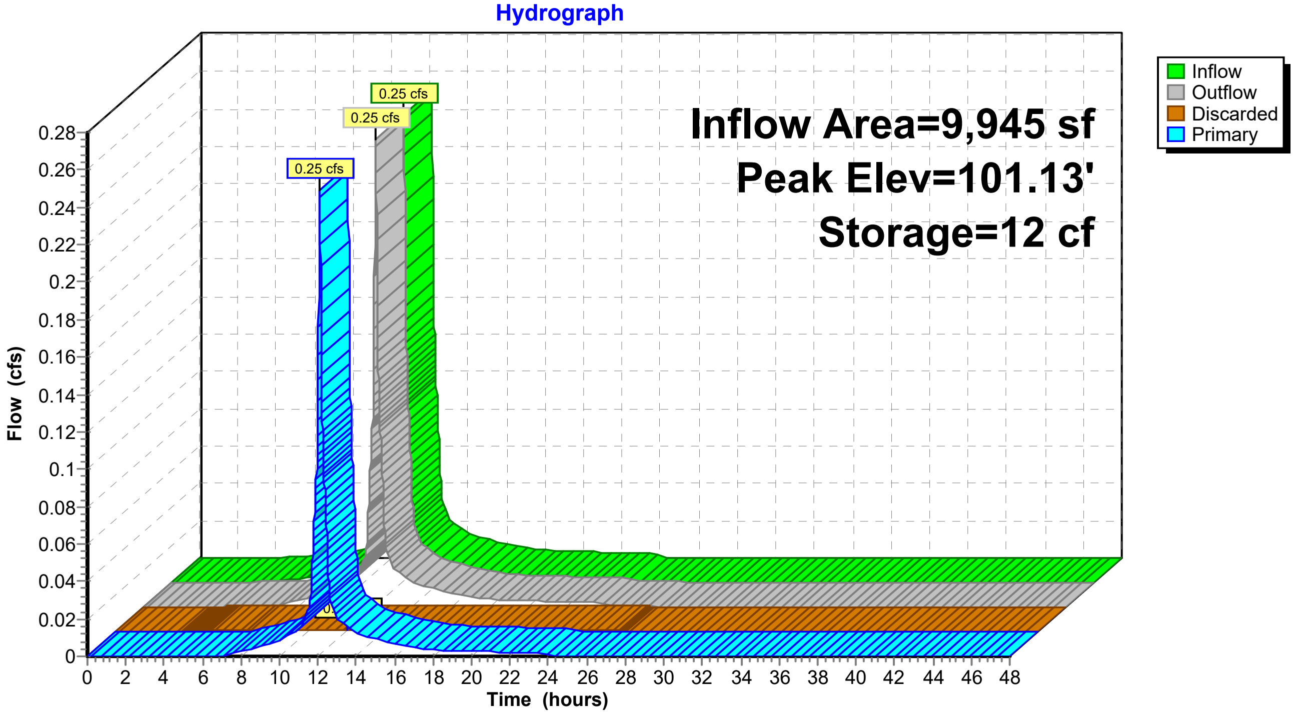
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	36	0	0
101.20	36	36	36
102.20	48	42	78
103.20	60	54	132
104.20	72	66	198
105.00	80	61	259

Device	Routing	Invert	Outlet Devices
#1	Primary	100.75'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.75' / 100.65' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.75'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=101.13' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.25 cfs @ 12.09 hrs HW=101.13' TW=101.02' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.25 cfs of 0.31 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.25 cfs @ 1.43 fps)

Pond 5P: Tree Box



Summary for Pond 6P: DMH

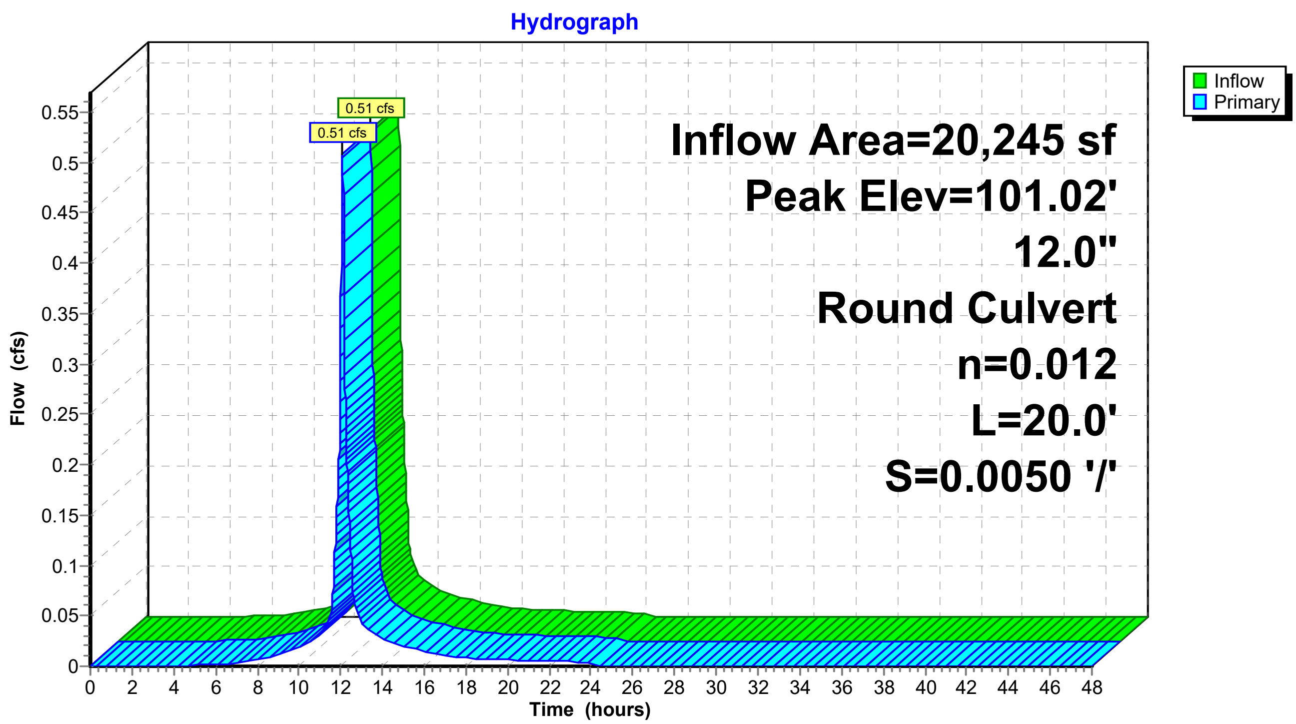
Inflow Area = 20,245 sf,100.00% Impervious, Inflow Depth = 0.94" for 0-1.2" event
Inflow = 0.51 cfs @ 12.09 hrs, Volume= 1,592 cf
Outflow = 0.51 cfs @ 12.09 hrs, Volume= 1,592 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.51 cfs @ 12.09 hrs, Volume= 1,592 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.02' @ 12.09 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.60'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.60' / 100.50' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.51 cfs @ 12.09 hrs HW=101.02' TW=100.54' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 0.51 cfs @ 2.38 fps)

Pond 6P: DMH



Summary for Pond 7P: Storage Chambers South

Inflow Area = 50,596 sf,100.00% Impervious, Inflow Depth = 0.86" for 0-1.2" event
Inflow = 1.26 cfs @ 12.09 hrs, Volume= 3,624 cf
Outflow = 0.23 cfs @ 12.53 hrs, Volume= 3,624 cf, Atten= 81%, Lag= 26.6 min
Discarded = 0.09 cfs @ 12.53 hrs, Volume= 2,857 cf
Primary = 0.15 cfs @ 12.53 hrs, Volume= 767 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 100.77' @ 12.53 hrs Surf.Area= 3,348 sf Storage= 1,419 cf
Flood Elev= 106.00' Surf.Area= 3,348 sf Storage= 8,592 cf

Plug-Flow detention time= 84.2 min calculated for 3,623 cf (100% of inflow)
Center-of-Mass det. time= 84.2 min (862.0 - 777.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	3,199 cf	**53.00'W x 63.17'L x 4.00'H Field A** 13,391 cf Overall - 5,393 cf Embedded = 7,998 cf x 40.0% Voids
#2A	100.50'	5,393 cf	**Cultec R-360HD** x 144 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 144 Chambers in 9 Rows Cap Storage= +6.5 cf x 2 x 9 rows = 116.3 cf
		8,592 cf	Total Available Storage

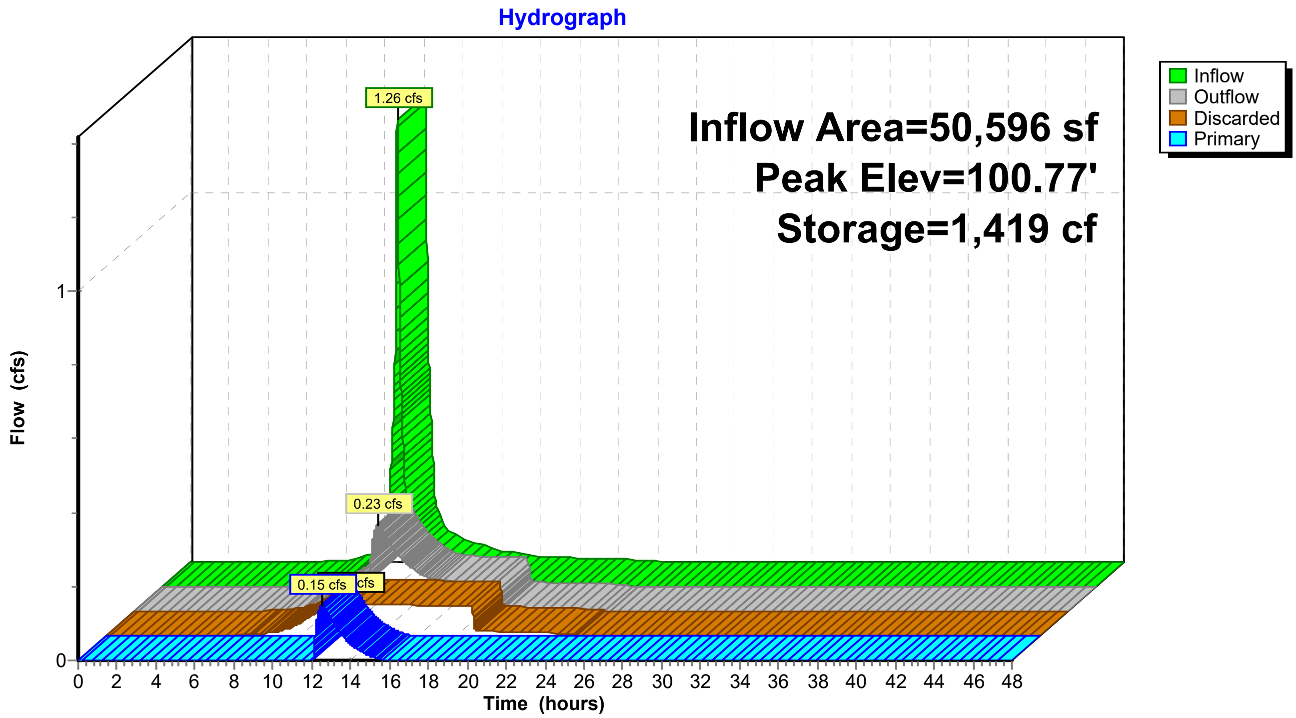
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	99.00'	**18.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 99.00' / 96.00' S= 0.1500 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.25 1.25 2.50 2.50 3.00 Width (feet) 0.33 0.33 0.66 0.66 2.00 2.00

Discarded OutFlow Max=0.09 cfs @ 12.53 hrs HW=100.77' (Free Discharge)
└─**2=Exfiltration** (Controls 0.09 cfs)

Primary OutFlow Max=0.15 cfs @ 12.53 hrs HW=100.77' TW=98.17' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.15 cfs of 8.58 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.15 cfs @ 1.69 fps)

Pond 7P: Storage Chambers South



Summary for Pond 8P: Storage Chambers North

Inflow Area = 50,305 sf,100.00% Impervious, Inflow Depth = 0.86" for 0-1.2" event
Inflow = 1.26 cfs @ 12.09 hrs, Volume= 3,620 cf
Outflow = 0.16 cfs @ 12.62 hrs, Volume= 3,620 cf, Atten= 87%, Lag= 32.1 min
Discarded = 0.12 cfs @ 12.62 hrs, Volume= 3,436 cf
Primary = 0.04 cfs @ 12.62 hrs, Volume= 184 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 100.61' @ 12.62 hrs Surf.Area= 4,786 sf Storage= 1,406 cf

Plug-Flow detention time= 81.8 min calculated for 3,619 cf (100% of inflow)
Center-of-Mass det. time= 81.7 min (860.5 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	4,622 cf	**116.25'W x 41.17'L x 4.00'H Field A** 19,143 cf Overall - 7,587 cf Embedded = 11,555 cf x 40.0% Voids
#2A	100.50'	7,587 cf	**Cultec R-360HD** x 200 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 200 Chambers in 20 Rows Cap Storage= +6.5 cf x 2 x 20 rows = 258.4 cf
		12,209 cf	Total Available Storage

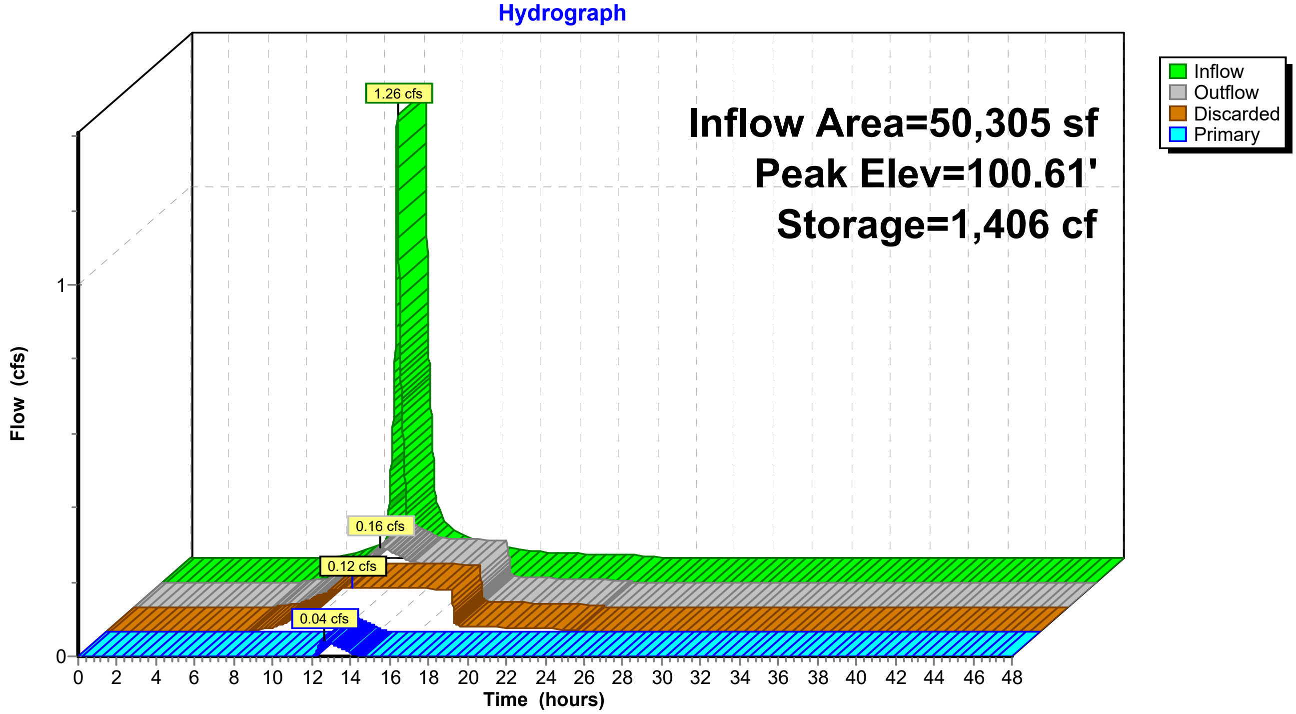
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.50'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.50' / 100.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.25 1.25 2.50 2.50 3.00 Width (feet) 0.33 0.33 0.66 0.66 2.00 2.00

Discarded OutFlow Max=0.12 cfs @ 12.62 hrs HW=100.61' (Free Discharge)
└─**2=Exfiltration** (Controls 0.12 cfs)

Primary OutFlow Max=0.04 cfs @ 12.62 hrs HW=100.61' TW=90.02' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.04 cfs of 0.06 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.04 cfs @ 1.10 fps)

Pond 8P: Storage Chambers North



Summary for Pond 11P: Tree Box

Inflow Area = 9,068 sf,100.00% Impervious, Inflow Depth = 0.99" for 0-1.2" event
Inflow = 0.23 cfs @ 12.08 hrs, Volume= 745 cf
Outflow = 0.23 cfs @ 12.09 hrs, Volume= 745 cf, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 161 cf
Primary = 0.23 cfs @ 12.09 hrs, Volume= 584 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.83' @ 12.09 hrs Surf.Area= 34 sf Storage= 37 cf
Flood Elev= 105.00' Surf.Area= 8 sf Storage= 51 cf

Plug-Flow detention time= 46.9 min calculated for 745 cf (100% of inflow)
Center-of-Mass det. time= 46.9 min (829.0 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	51 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 146 cf Overall x 35.0% Voids

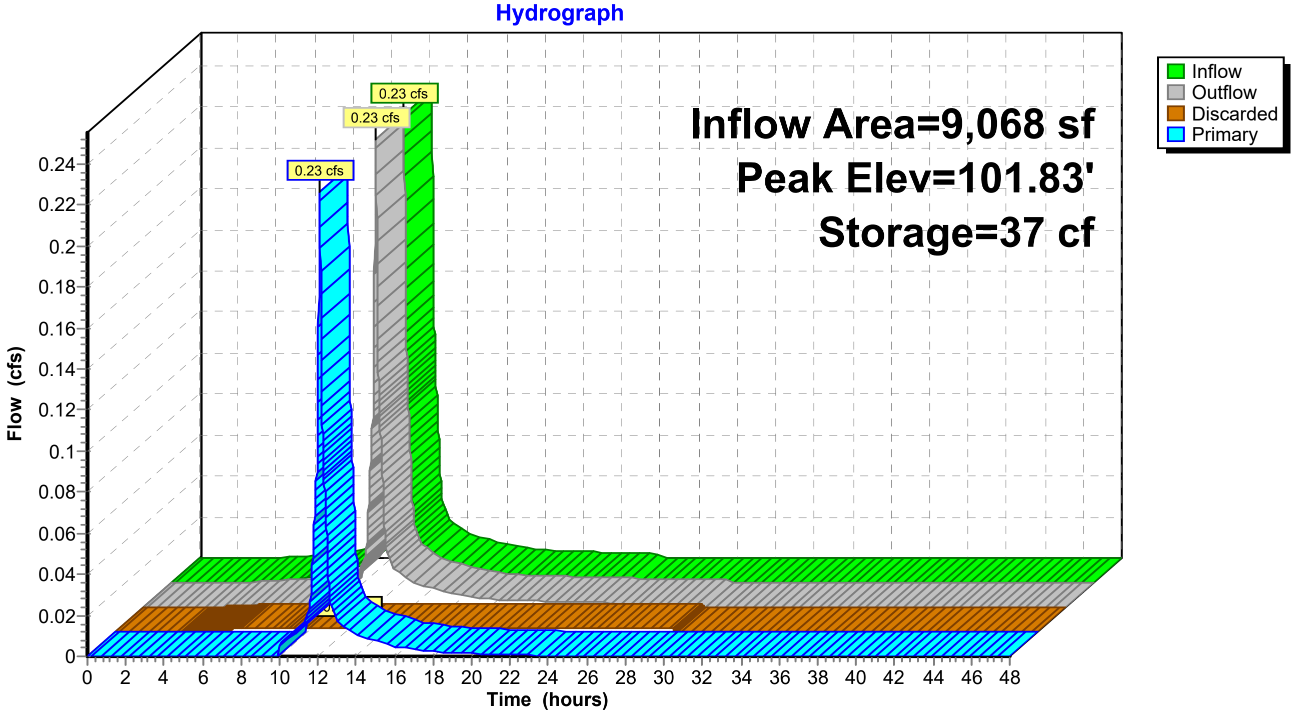
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	72	0	0
101.20	72	72	72
102.20	12	42	114
103.20	12	12	126
104.20	12	12	138
105.00	8	8	146

Device	Routing	Invert	Outlet Devices
#1	Primary	101.53'	**12.0" Round Culvert** L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.53' / 101.08' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.53'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=101.83' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.23 cfs @ 12.09 hrs HW=101.83' TW=101.50' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.23 cfs of 0.24 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.23 cfs @ 1.72 fps)

Pond 11P: Tree Box



Summary for Pond 12P: Tree Box

Inflow Area = 10,485 sf,100.00% Impervious, Inflow Depth = 0.99" for 0-1.2" event
Inflow = 0.26 cfs @ 12.08 hrs, Volume= 861 cf
Outflow = 0.26 cfs @ 12.09 hrs, Volume= 861 cf, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 159 cf
Primary = 0.26 cfs @ 12.09 hrs, Volume= 703 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.59' @ 12.09 hrs Surf.Area= 36 sf Storage= 36 cf

Plug-Flow detention time= 37.6 min calculated for 861 cf (100% of inflow)
Center-of-Mass det. time= 37.7 min (819.7 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

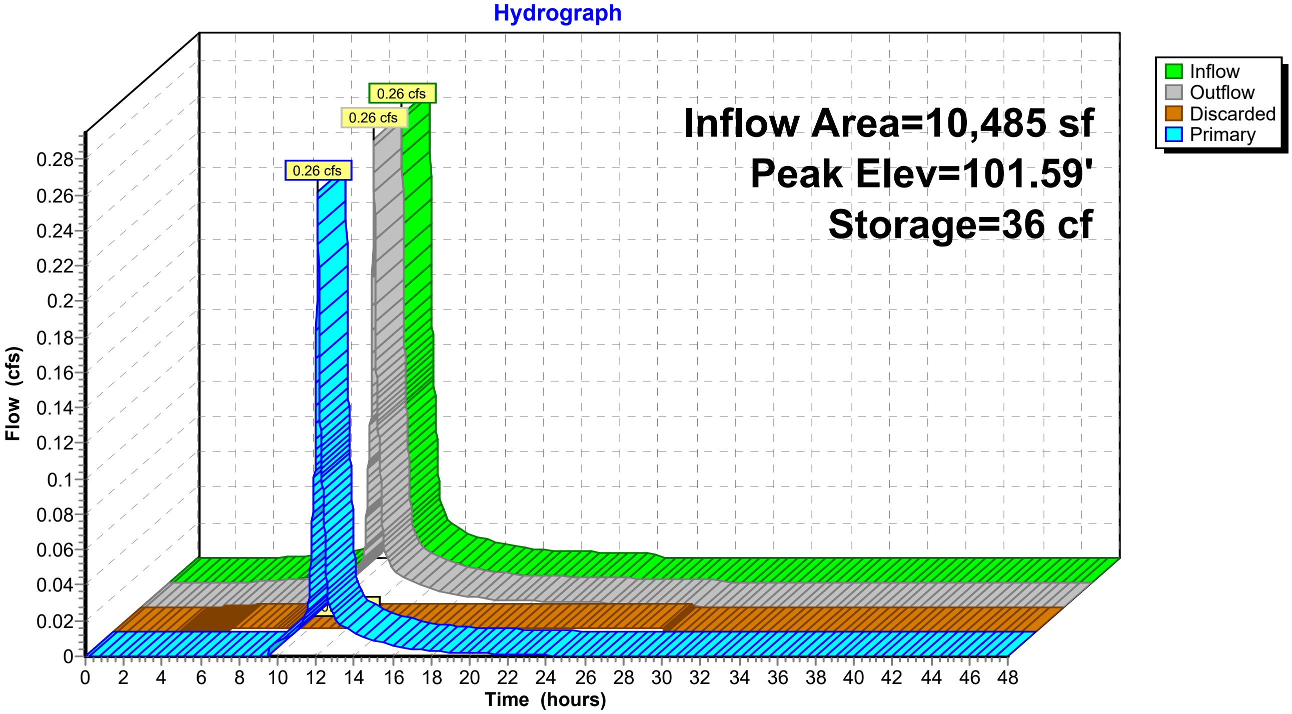
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	72	0	0
101.00	72	72	72
102.00	12	42	114
103.00	12	12	126
104.00	12	12	138
105.00	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	101.18'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.18' / 101.13' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.18'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=101.59' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.09 hrs HW=101.59' TW=101.50' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.26 cfs of 0.36 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.26 cfs @ 1.35 fps)

Pond 12P: Tree Box



Summary for Pond 13P: Tree Box

Inflow Area = 10,798 sf,100.00% Impervious, Inflow Depth = 0.99" for 0-1.2" event
Inflow = 0.27 cfs @ 12.08 hrs, Volume= 887 cf
Outflow = 0.27 cfs @ 12.09 hrs, Volume= 887 cf, Atten= 0%, Lag= 0.4 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 141 cf
Primary = 0.27 cfs @ 12.09 hrs, Volume= 746 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.12' @ 12.09 hrs Surf.Area= 65 sf Storage= 28 cf

Plug-Flow detention time= 21.1 min calculated for 887 cf (100% of inflow)
Center-of-Mass det. time= 21.1 min (803.2 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

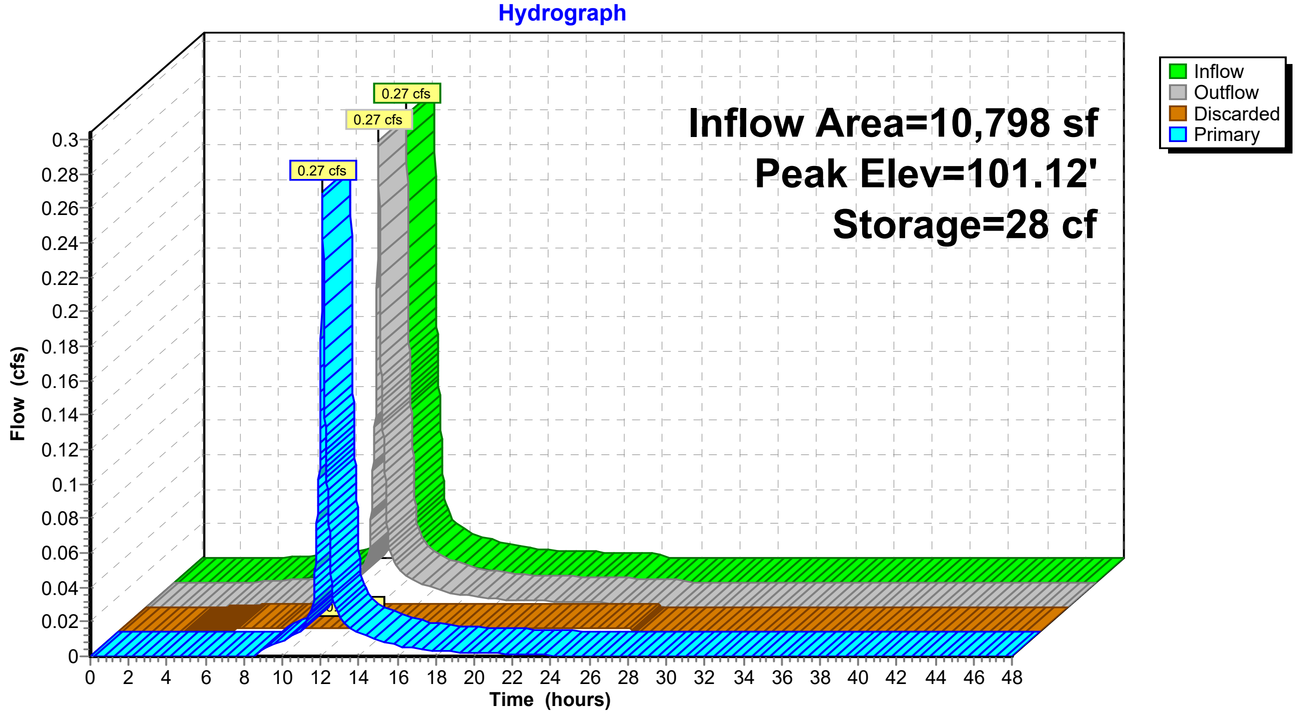
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	72	0	0
101.00	72	72	72
102.00	12	42	114
103.00	12	12	126
104.00	12	12	138
105.00	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	100.65'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.65' / 100.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.65'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=101.12' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.27 cfs @ 12.09 hrs HW=101.12' TW=101.06' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.27 cfs of 0.37 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.27 cfs @ 1.17 fps)

Pond 13P: Tree Box



Summary for Pond 22P: Tree Box

Inflow Area = 1,945 sf,100.00% Impervious, Inflow Depth = 0.99" for 0-1.2" event
Inflow = 0.05 cfs @ 12.08 hrs, Volume= 160 cf
Outflow = 0.05 cfs @ 12.09 hrs, Volume= 160 cf, Atten= 0%, Lag= 0.3 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 69 cf
Primary = 0.05 cfs @ 12.09 hrs, Volume= 91 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.37' @ 12.09 hrs Surf.Area= 40 sf Storage= 18 cf

Plug-Flow detention time= 78.8 min calculated for 160 cf (100% of inflow)
Center-of-Mass det. time= 78.9 min (860.9 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	69 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 196 cf Overall x 35.0% Voids

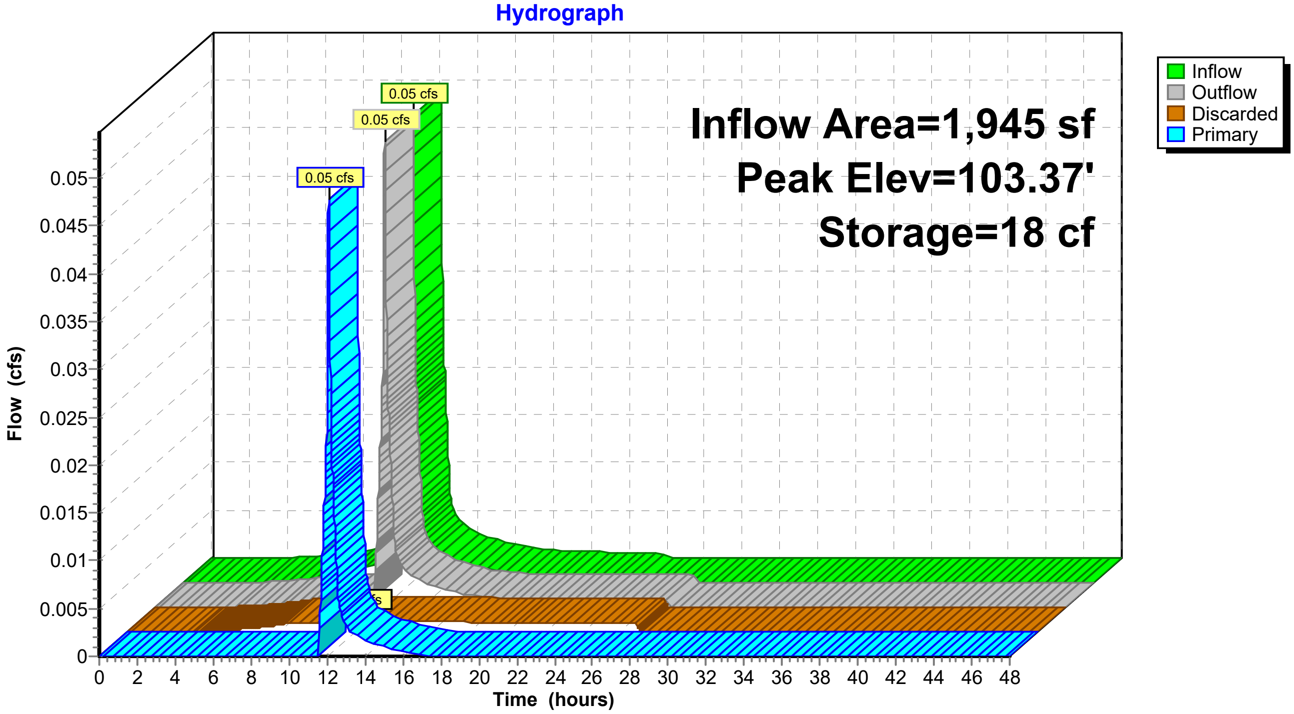
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	36	0	0
103.00	36	36	36
104.00	48	42	78
105.00	60	54	132
106.00	68	64	196

Device	Routing	Invert	Outlet Devices
#1	Primary	103.25'	**12.0" Round Culvert** L= 125.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 103.25' / 102.63' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	102.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	103.25'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=103.37' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.05 cfs @ 12.09 hrs HW=103.37' TW=102.26' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 0.05 cfs @ 1.31 fps)
  └─**3=Custom Weir/Orifice** (Passes 0.05 cfs of 0.05 cfs potential flow)

Pond 22P: Tree Box



Summary for Pond 23P: Tree Box

Inflow Area = 10,400 sf,100.00% Impervious, Inflow Depth = 0.99" for 0-1.2" event
Inflow = 0.26 cfs @ 12.08 hrs, Volume= 854 cf
Outflow = 0.26 cfs @ 12.09 hrs, Volume= 854 cf, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 72 cf
Primary = 0.26 cfs @ 12.09 hrs, Volume= 782 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.98' @ 12.09 hrs Surf.Area= 36 sf Storage= 12 cf

Plug-Flow detention time= 11.6 min calculated for 854 cf (100% of inflow)
Center-of-Mass det. time= 11.6 min (793.7 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	69 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 196 cf Overall x 35.0% Voids

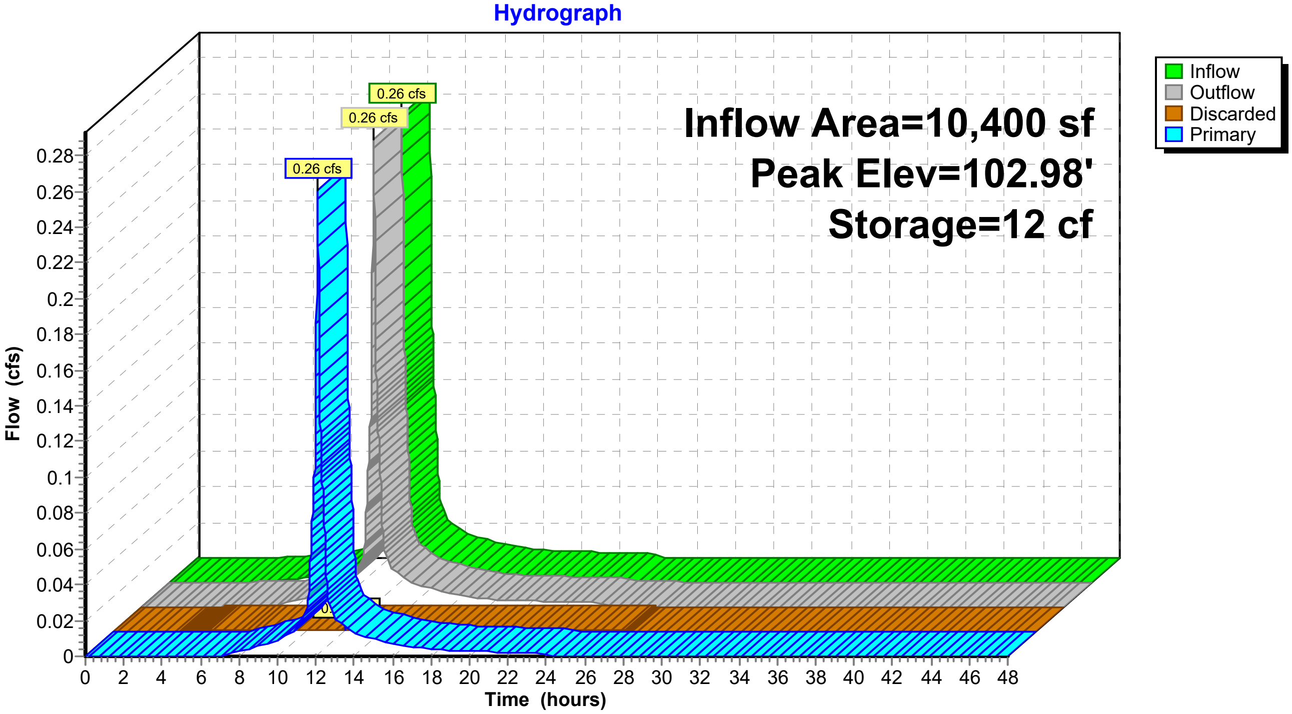
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	36	0	0
103.00	36	36	36
104.00	48	42	78
105.00	60	54	132
106.00	68	64	196

Device	Routing	Invert	Outlet Devices
#1	Primary	102.65'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.65' / 102.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	102.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	102.65'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=102.98' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.09 hrs HW=102.98' TW=102.25' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.26 cfs of 0.31 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.26 cfs @ 1.79 fps)

Pond 23P: Tree Box



Summary for Pond 24P: (new Pond)

Inflow Area =	6,920 sf,100.00% Impervious,	Inflow Depth = 0.99" for 0-1.2" event		
Inflow =	0.17 cfs @	12.08 hrs, Volume=	568 cf	
Outflow =	0.05 cfs @	12.43 hrs, Volume=	568 cf,	Atten= 73%, Lag= 20.9 min
Discarded =	0.05 cfs @	12.43 hrs, Volume=	568 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 106.16' @ 12.43 hrs Surf.Area= 2,000 sf Storage= 109 cf

Plug-Flow detention time= 12.1 min calculated for 568 cf (100% of inflow)
Center-of-Mass det. time= 12.1 min (794.1 - 782.0)

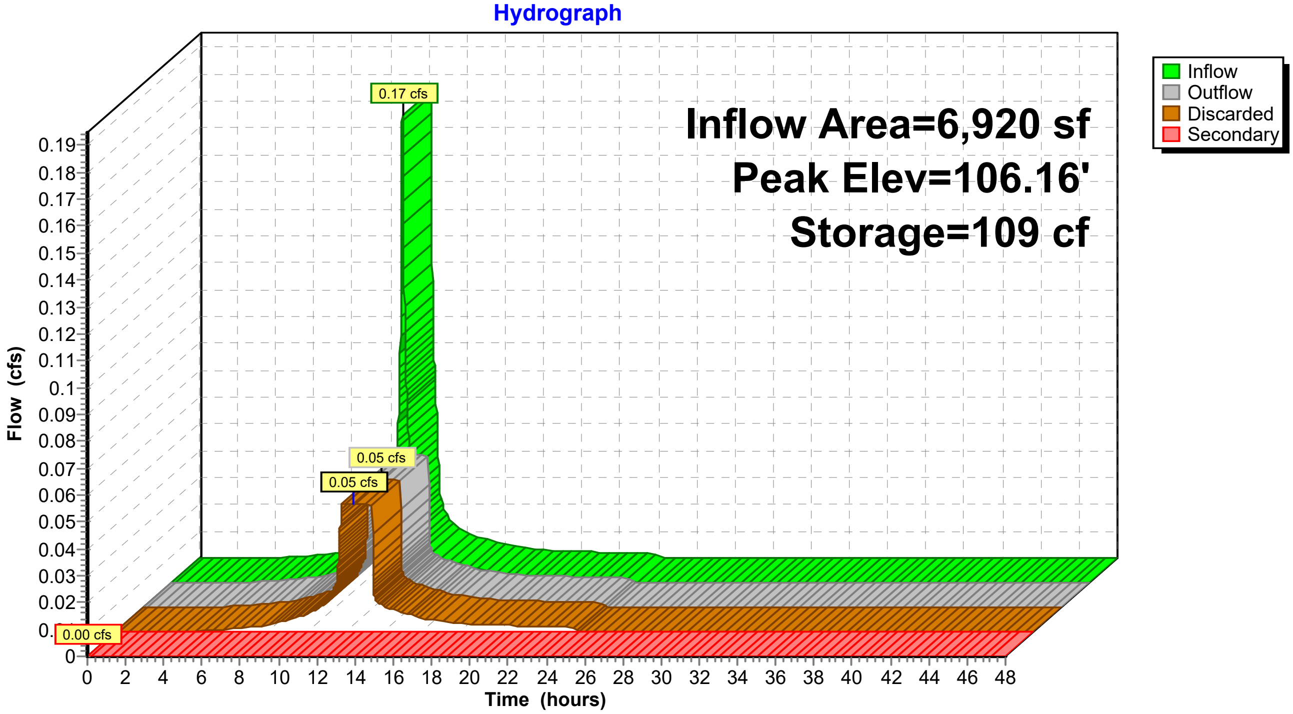
Volume	Invert	Avail.Storage	Storage Description
#1	106.00'	1,120 cf	**40.00'W x 50.00'L x 1.60'H Prismatoid** 3,200 cf Overall x 35.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Secondary	107.00'	**30.0' 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
#2	Discarded	106.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=0.05 cfs @ 12.43 hrs HW=106.16' (Free Discharge)
└─**2=Exfiltration** (Controls 0.05 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=106.00' TW=100.20' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: (new Pond)



Summary for Pond 26P: Tree Box

Inflow Area = 16,145 sf,100.00% Impervious, Inflow Depth = 0.99" for 0-1.2" event
Inflow = 0.41 cfs @ 12.08 hrs, Volume= 1,326 cf
Outflow = 0.41 cfs @ 12.09 hrs, Volume= 1,326 cf, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 85 cf
Primary = 0.40 cfs @ 12.09 hrs, Volume= 1,241 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.86' @ 12.09 hrs Surf.Area= 44 sf Storage= 22 cf

Plug-Flow detention time= 13.4 min calculated for 1,326 cf (100% of inflow)
Center-of-Mass det. time= 13.4 min (795.4 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	96 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 274 cf Overall x 35.0% Voids

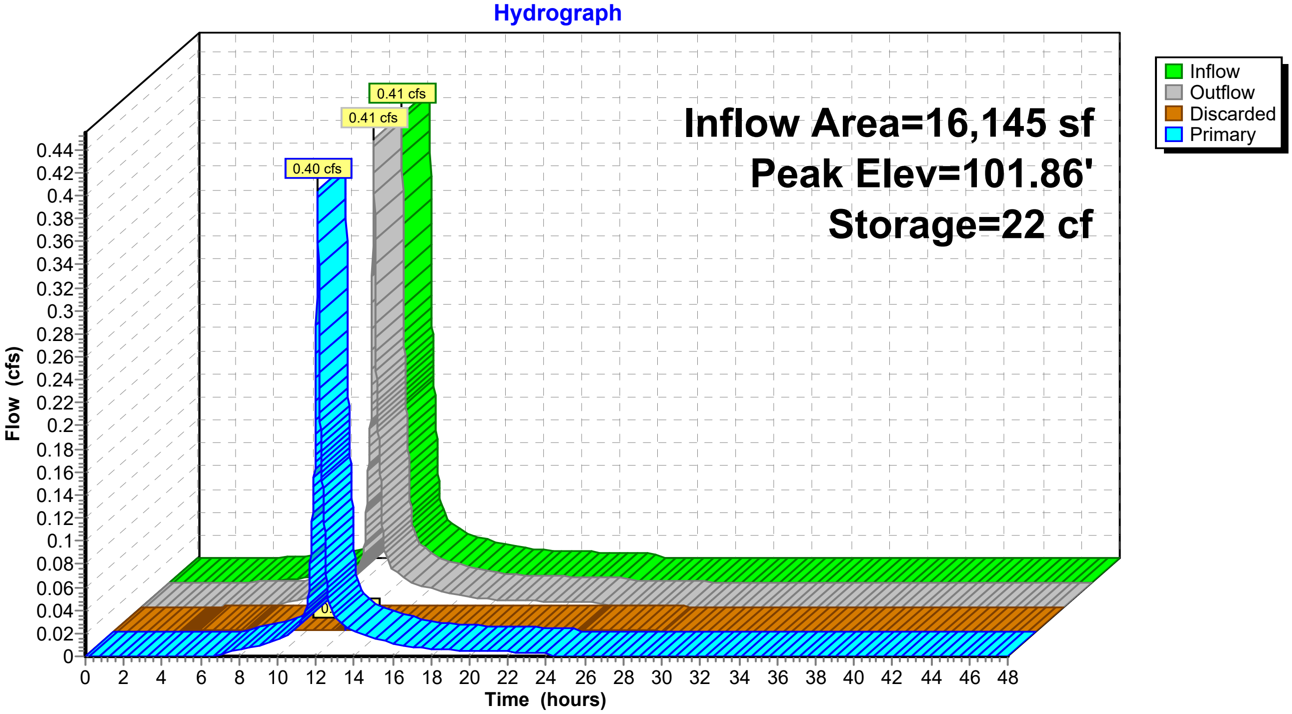
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	36	0	0
101.20	36	36	36
102.20	48	42	78
103.20	60	54	132
104.20	72	66	198
105.20	80	76	274

Device	Routing	Invert	Outlet Devices
#1	Primary	101.30'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.30' / 101.25' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.30'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=101.86' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.40 cfs @ 12.09 hrs HW=101.86' TW=101.77' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.40 cfs of 0.57 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.40 cfs @ 1.38 fps)

Pond 26P: Tree Box



Summary for Pond 27P: DMH

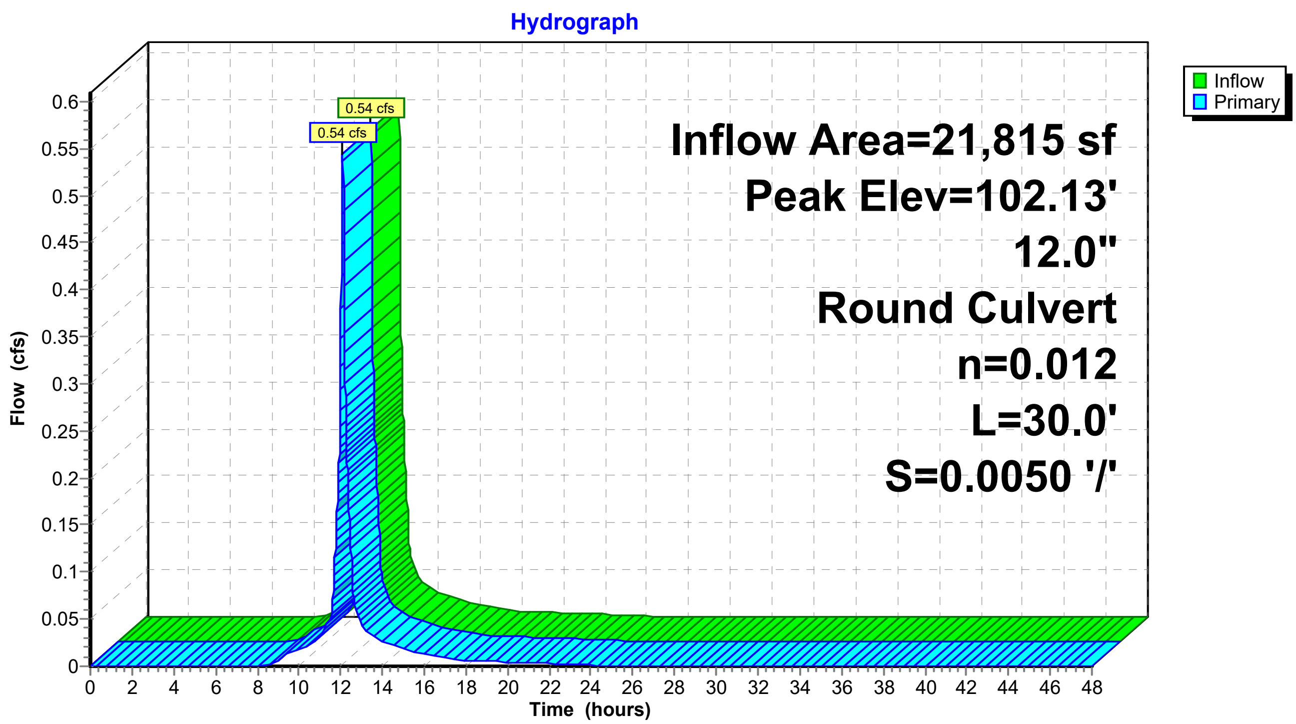
Inflow Area =	21,815 sf,100.00% Impervious,	Inflow Depth = 0.83" for 0-1.2" event			
Inflow =	0.54 cfs @	12.09 hrs,	Volume=	1,507 cf	
Outflow =	0.54 cfs @	12.09 hrs,	Volume=	1,507 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.54 cfs @	12.09 hrs,	Volume=	1,507 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.13' @ 12.09 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.70'	**12.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.70' / 101.55' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.54 cfs @ 12.09 hrs HW=102.13' TW=101.58' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 0.54 cfs @ 2.47 fps)

Pond 27P: DMH



Summary for Pond 29P: DMH

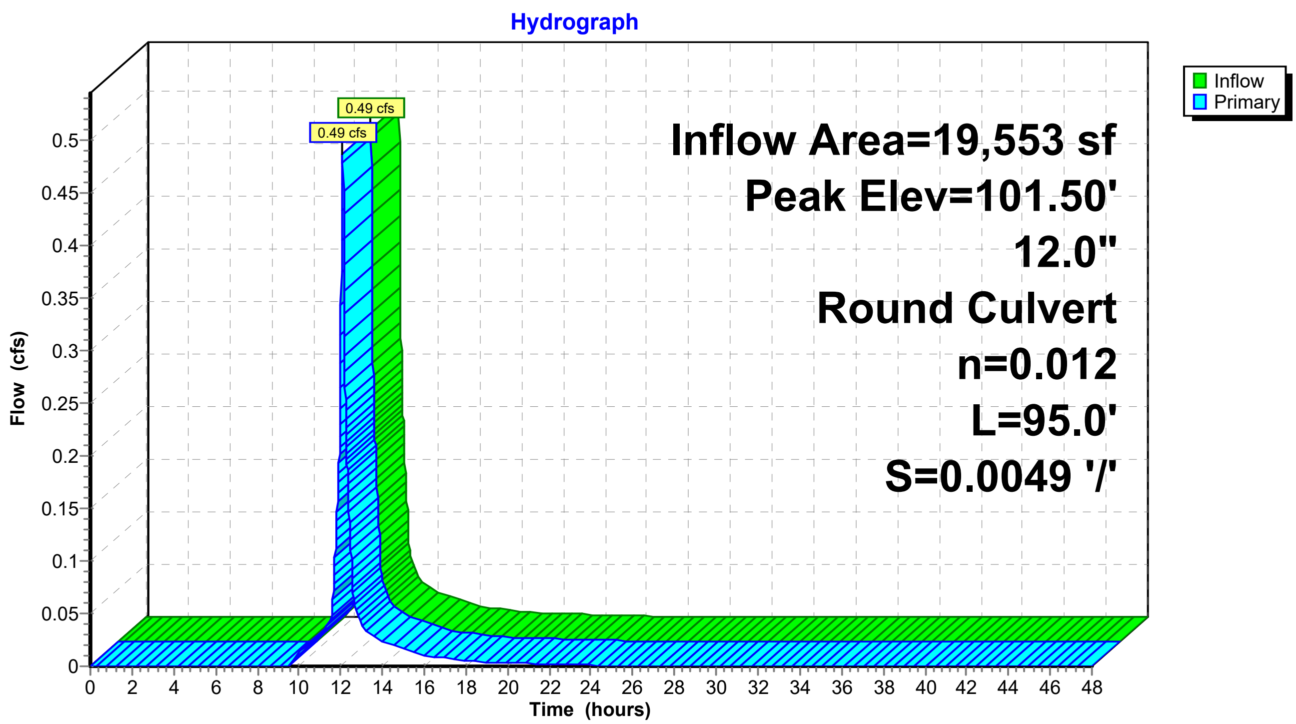
Inflow Area = 19,553 sf,100.00% Impervious, Inflow Depth = 0.79" for 0-1.2" event
Inflow = 0.49 cfs @ 12.09 hrs, Volume= 1,286 cf
Outflow = 0.49 cfs @ 12.09 hrs, Volume= 1,286 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.49 cfs @ 12.09 hrs, Volume= 1,286 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.50' @ 12.09 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.08'	**12.0" Round Culvert** L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.08' / 100.61' S= 0.0049 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.49 cfs @ 12.09 hrs HW=101.50' TW=101.06' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 0.49 cfs @ 2.29 fps)

Pond 29P: DMH



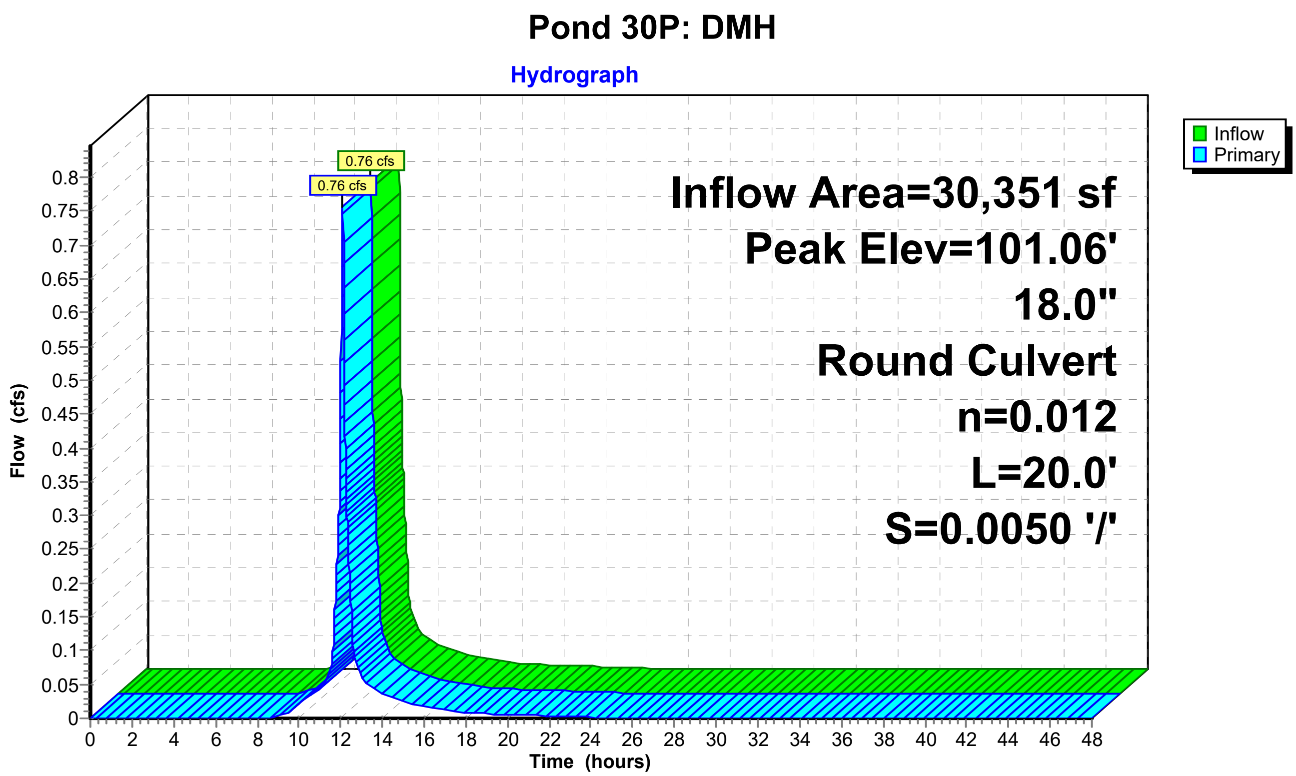
Summary for Pond 30P: DMH

Inflow Area =	30,351 sf,100.00% Impervious,	Inflow Depth = 0.80" for 0-1.2" event		
Inflow =	0.76 cfs @	12.09 hrs, Volume=	2,032 cf	
Outflow =	0.76 cfs @	12.09 hrs, Volume=	2,032 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.76 cfs @	12.09 hrs, Volume=	2,032 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.06' @ 12.09 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.60'	**18.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.60' / 100.50' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.76 cfs @ 12.09 hrs HW=101.06' TW=100.54' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 0.76 cfs @ 2.50 fps)



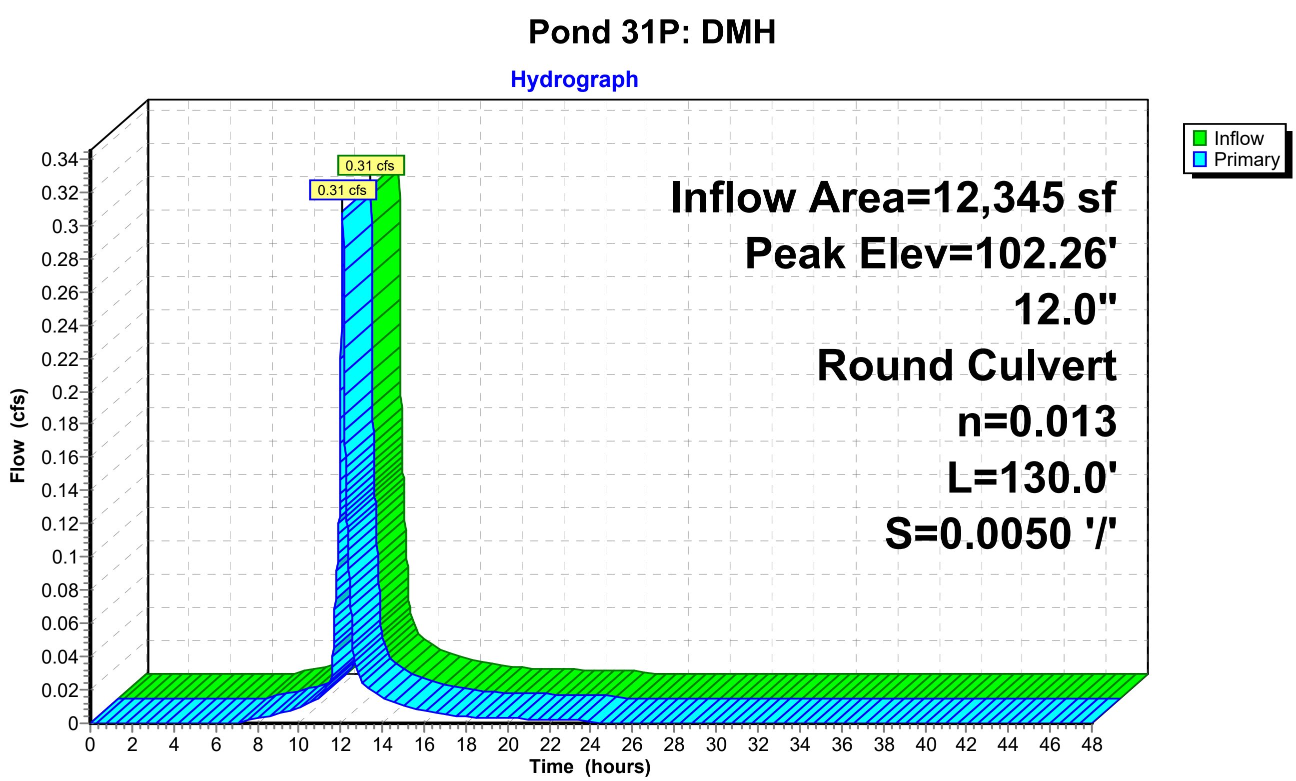
Summary for Pond 31P: DMH

Inflow Area = 12,345 sf,100.00% Impervious, Inflow Depth = 0.85" for 0-1.2" event
Inflow = 0.31 cfs @ 12.09 hrs, Volume= 873 cf
Outflow = 0.31 cfs @ 12.09 hrs, Volume= 873 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.31 cfs @ 12.09 hrs, Volume= 873 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.26' @ 12.09 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.90'	**12.0" Round Culvert** L= 130.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.90' / 101.25' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.31 cfs @ 12.09 hrs HW=102.25' TW=101.77' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 0.31 cfs @ 1.84 fps)



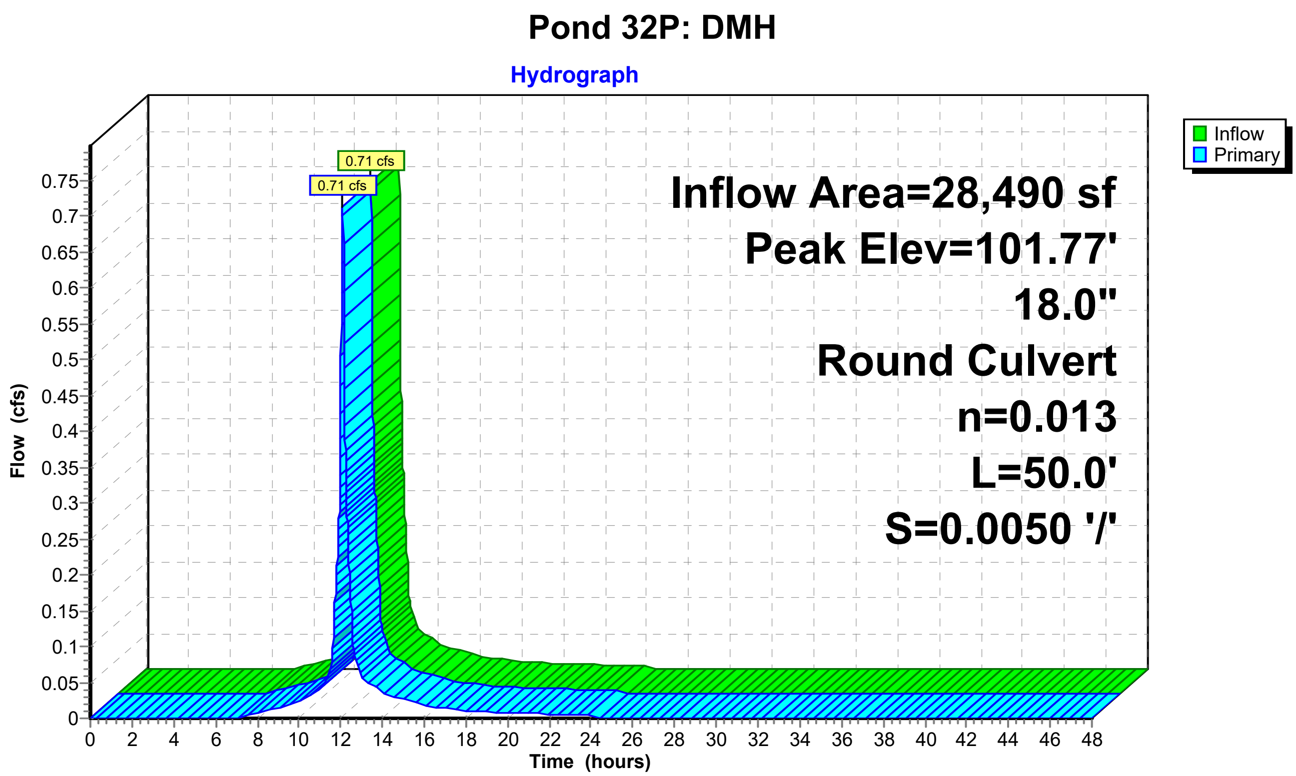
Summary for Pond 32P: DMH

Inflow Area = 28,490 sf,100.00% Impervious, Inflow Depth = 0.89" for 0-1.2" event
Inflow = 0.71 cfs @ 12.09 hrs, Volume= 2,113 cf
Outflow = 0.71 cfs @ 12.09 hrs, Volume= 2,113 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.71 cfs @ 12.09 hrs, Volume= 2,113 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.77' @ 12.09 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.25'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.25' / 101.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.71 cfs @ 12.09 hrs HW=101.77' TW=101.58' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 0.71 cfs @ 1.94 fps)



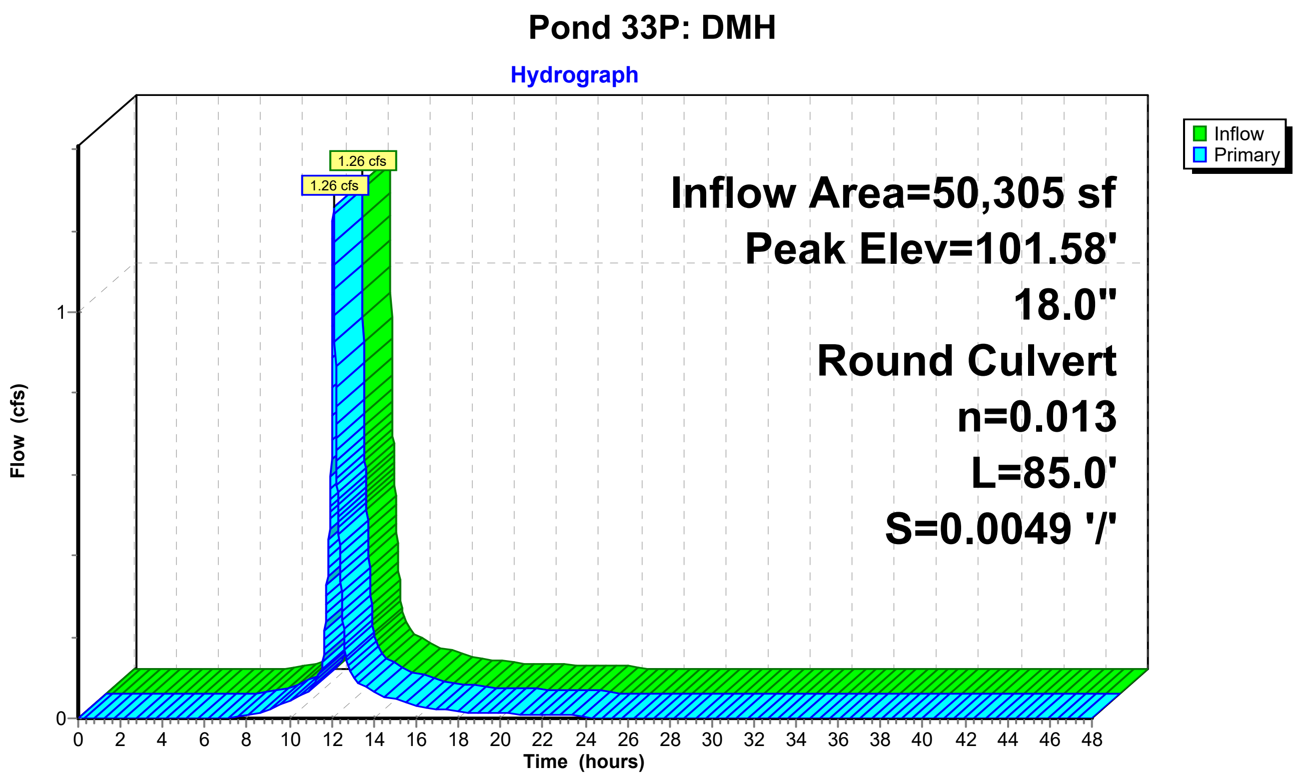
Summary for Pond 33P: DMH

Inflow Area = 50,305 sf,100.00% Impervious, Inflow Depth = 0.86" for 0-1.2" event
Inflow = 1.26 cfs @ 12.09 hrs, Volume= 3,620 cf
Outflow = 1.26 cfs @ 12.09 hrs, Volume= 3,620 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.26 cfs @ 12.09 hrs, Volume= 3,620 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.58' @ 12.09 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.00'	**18.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.00' / 100.58' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.26 cfs @ 12.09 hrs HW=101.58' TW=100.36' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 1.26 cfs @ 2.95 fps)



Summary for Pond 34P: Tree Box

Inflow Area = 11,350 sf,100.00% Impervious, Inflow Depth = 0.99" for 0-1.2" event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 932 cf
Outflow = 0.29 cfs @ 12.09 hrs, Volume= 932 cf, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 151 cf
Primary = 0.28 cfs @ 12.09 hrs, Volume= 782 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.90' @ 12.09 hrs Surf.Area= 54 sf Storage= 32 cf
Flood Elev= 107.00' Surf.Area= 8 sf Storage= 52 cf

Plug-Flow detention time= 28.8 min calculated for 932 cf (100% of inflow)
Center-of-Mass det. time= 28.8 min (810.8 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	101.60'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

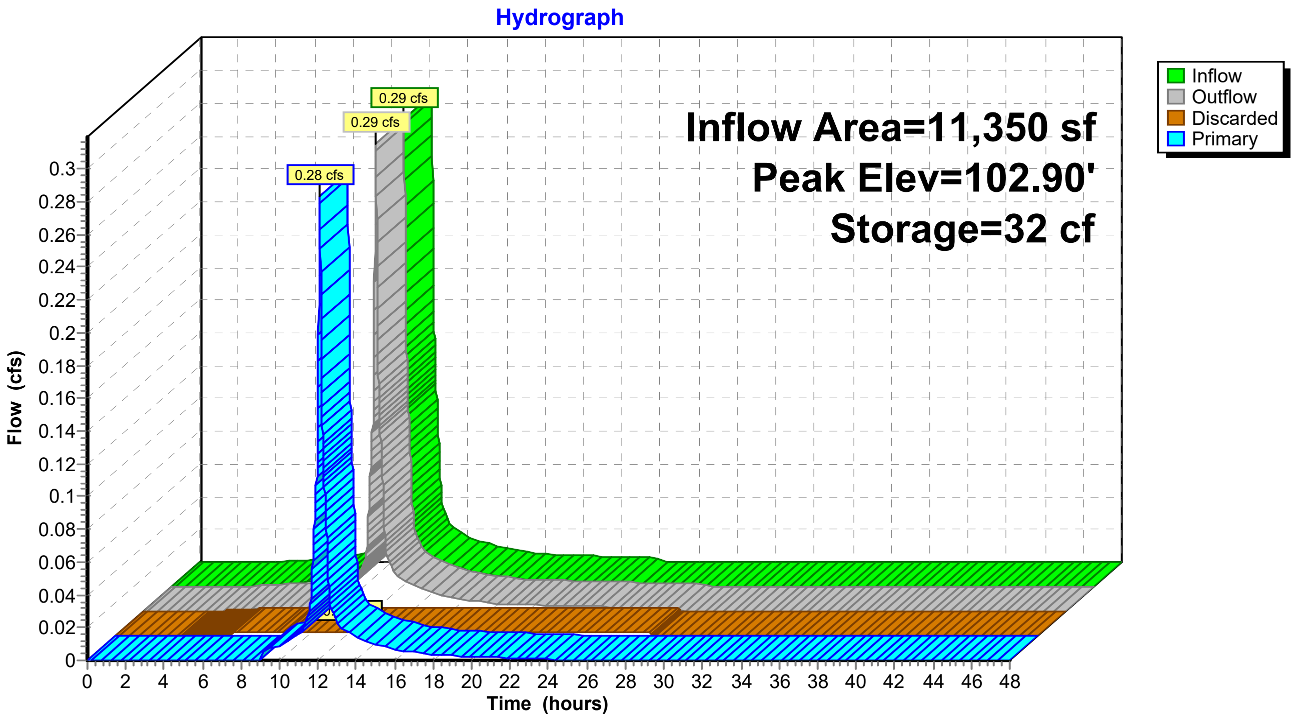
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.60	72	0	0
102.60	72	72	72
103.60	12	42	114
104.60	12	12	126
105.60	12	12	138
106.60	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	102.55'	**12.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.55' / 102.05' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	101.60'	**1.020 in/hr Exfiltration over Horizontal area above 101.55'** Conductivity to Groundwater Elevation = 90.00' Excluded Horizontal area = 0 sf Phase-In= 0.01'
#3	Device 1	102.55'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=102.90' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.28 cfs @ 12.09 hrs HW=102.90' TW=102.13' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.28 cfs of 0.39 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.28 cfs @ 1.83 fps)

Pond 34P: Tree Box



Summary for Pond 36P: Tree Box

Inflow Area = 10,465 sf,100.00% Impervious, Inflow Depth = 0.99" for 0-1.2" event
Inflow = 0.26 cfs @ 12.08 hrs, Volume= 860 cf
Outflow = 0.26 cfs @ 12.09 hrs, Volume= 860 cf, Atten= 0%, Lag= 0.3 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 135 cf
Primary = 0.26 cfs @ 12.09 hrs, Volume= 725 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.43' @ 12.09 hrs Surf.Area= 72 sf Storage= 21 cf
Flood Elev= 106.00' Surf.Area= 10 sf Storage= 50 cf

Plug-Flow detention time= 16.4 min calculated for 859 cf (100% of inflow)
Center-of-Mass det. time= 16.5 min (798.5 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	101.60'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

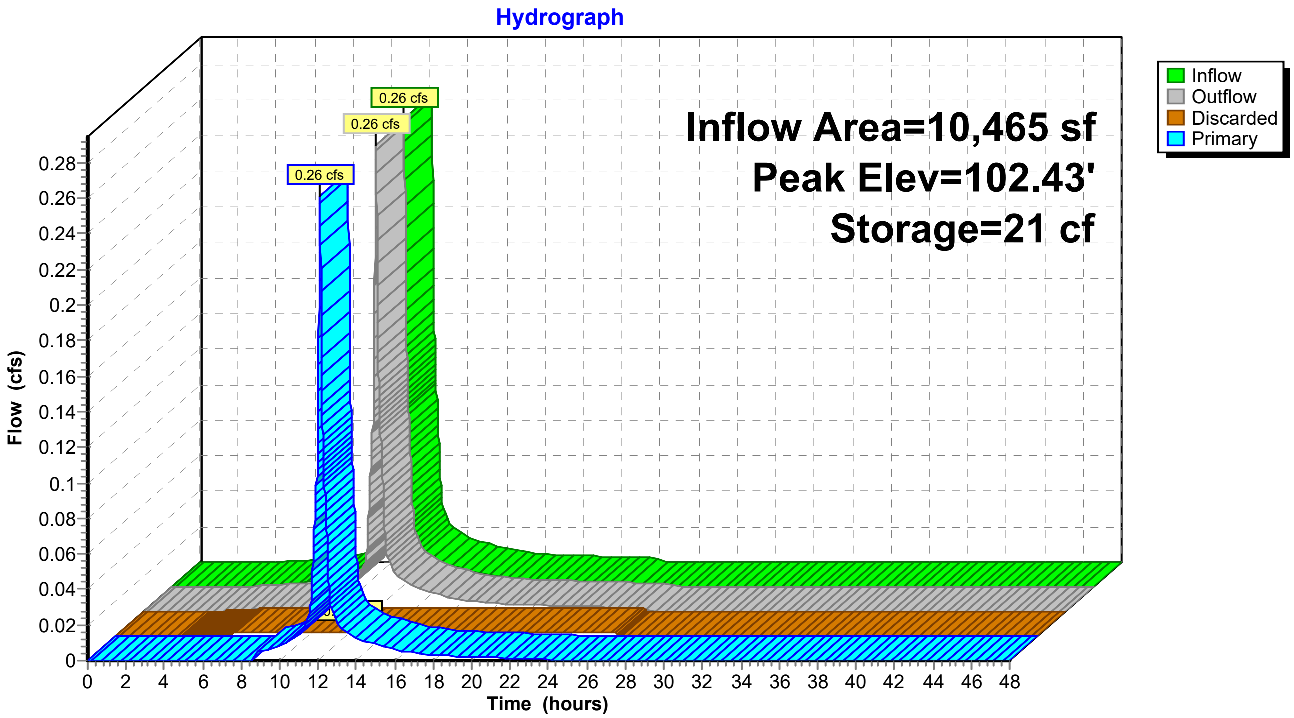
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.60	72	0	0
102.60	72	72	72
103.60	12	42	114
104.60	12	12	126
105.60	12	12	138
106.60	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	102.10'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.10' / 101.60' S= 0.0500 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	101.60'	**1.020 in/hr Exfiltration over Horizontal area above 101.10'** Conductivity to Groundwater Elevation = 90.00' Excluded Horizontal area = 0 sf Phase-In= 0.01'
#3	Device 1	102.10'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=102.43' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.09 hrs HW=102.43' TW=102.13' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.26 cfs of 0.45 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.26 cfs @ 1.78 fps)

Pond 36P: Tree Box

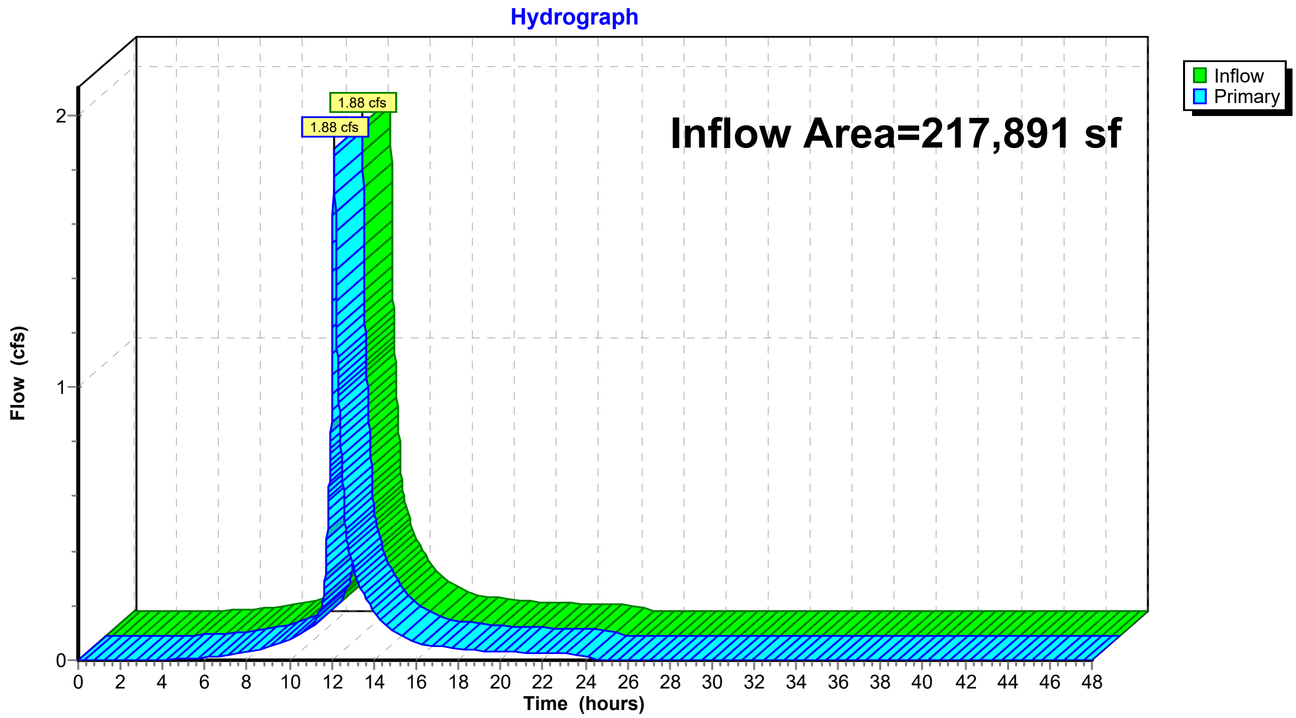


Summary for Link 1L: (new Link)

Inflow Area = 217,891 sf, 82.73% Impervious, Inflow Depth = 0.42" for 0-1.2" event
Inflow = 1.88 cfs @ 12.12 hrs, Volume= 7,662 cf
Primary = 1.88 cfs @ 12.12 hrs, Volume= 7,662 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 1L: (new Link)



Summary for Subcatchment 2S: Open Space

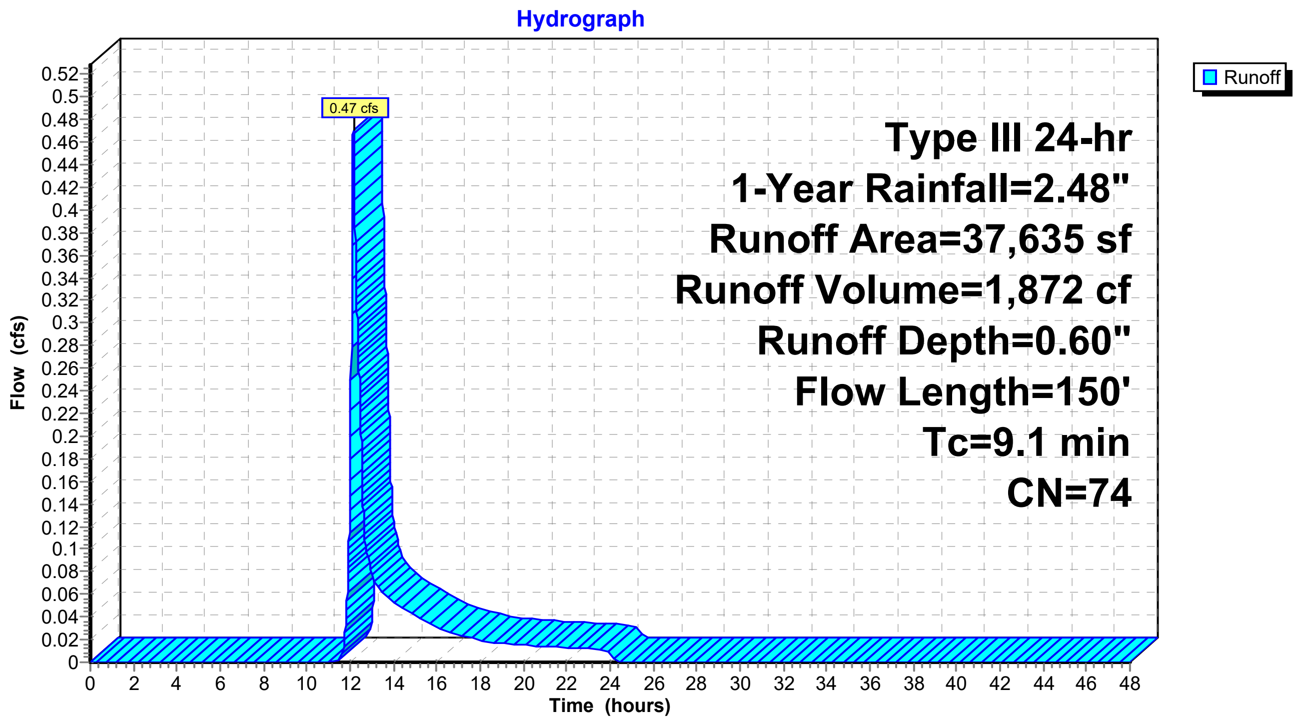
Runoff = 0.47 cfs @ 12.14 hrs, Volume= 1,872 cf, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
37,635	74	>75% Grass cover, Good, HSG C
37,635	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow, Open Space** Grass: Dense n= 0.240 P2= 3.30"
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Open Space** Grassed Waterway Kv= 15.0 fps
0.6	50	0.0400	1.40		**Shallow Concentrated Flow, Open Space** Short Grass Pasture Kv= 7.0 fps
9.1	150	Total			

Subcatchment 2S: Open Space



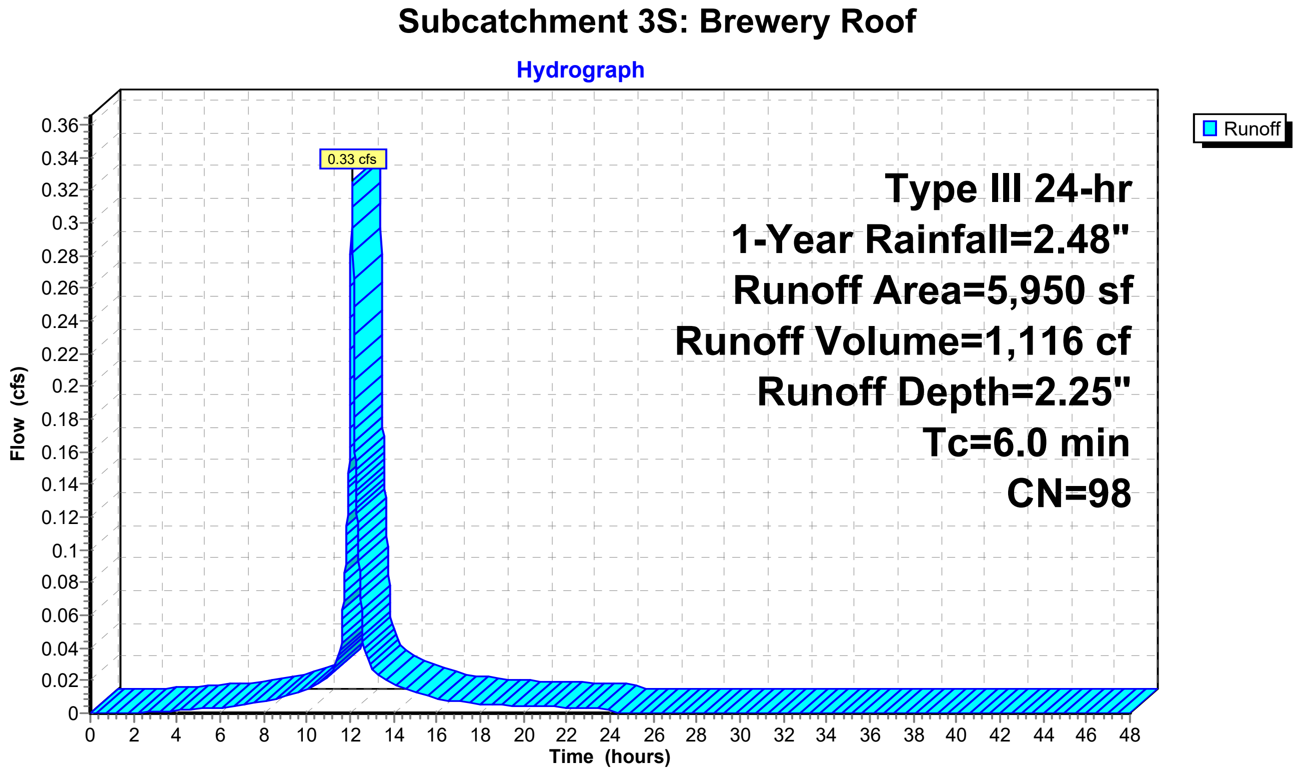
Summary for Subcatchment 3S: Brewery Roof

Runoff = 0.33 cfs @ 12.08 hrs, Volume= 1,116 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
5,950	98	Roofs, HSG D
5,950	98	100.00% Impervious Area

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



Summary for Subcatchment 5Sa: Athletic Roof

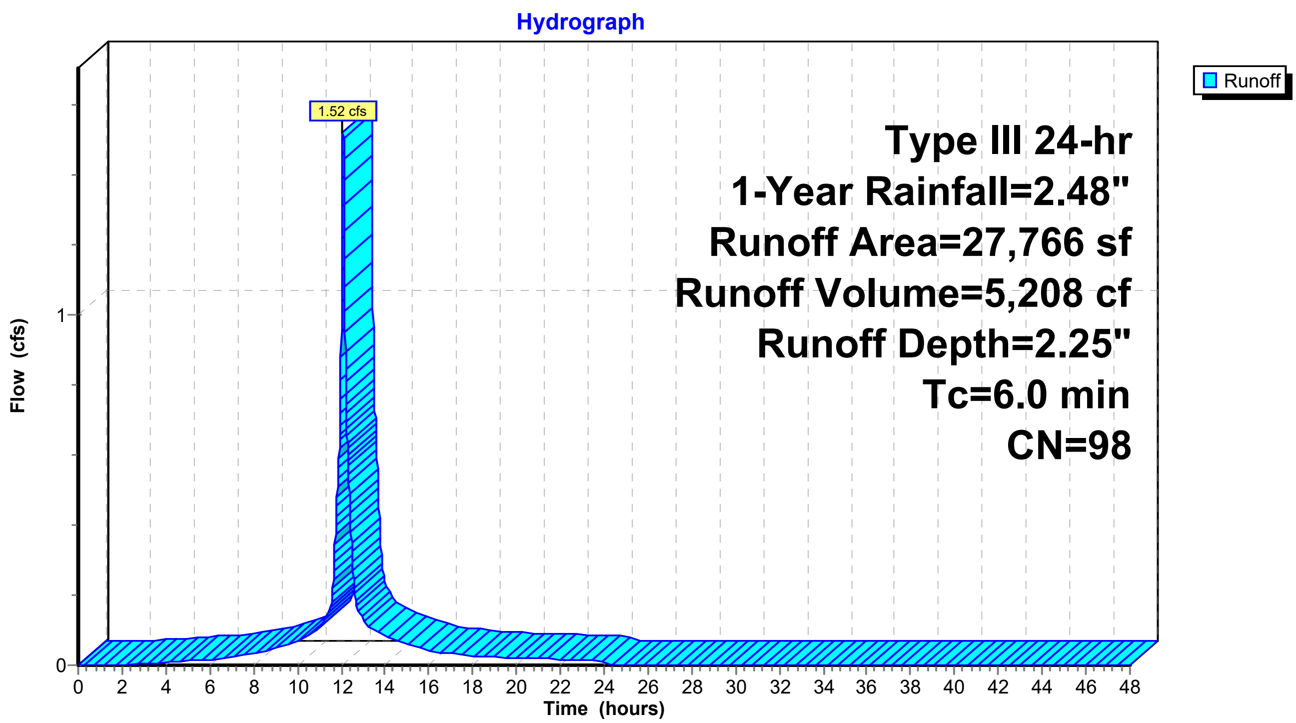
Runoff = 1.52 cfs @ 12.08 hrs, Volume= 5,208 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
27,766	98	Roofs, HSG D
27,766	98	100.00% Impervious Area

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

Subcatchment 5Sa: Athletic Roof



Summary for Subcatchment 5Sb: Athletic Roof

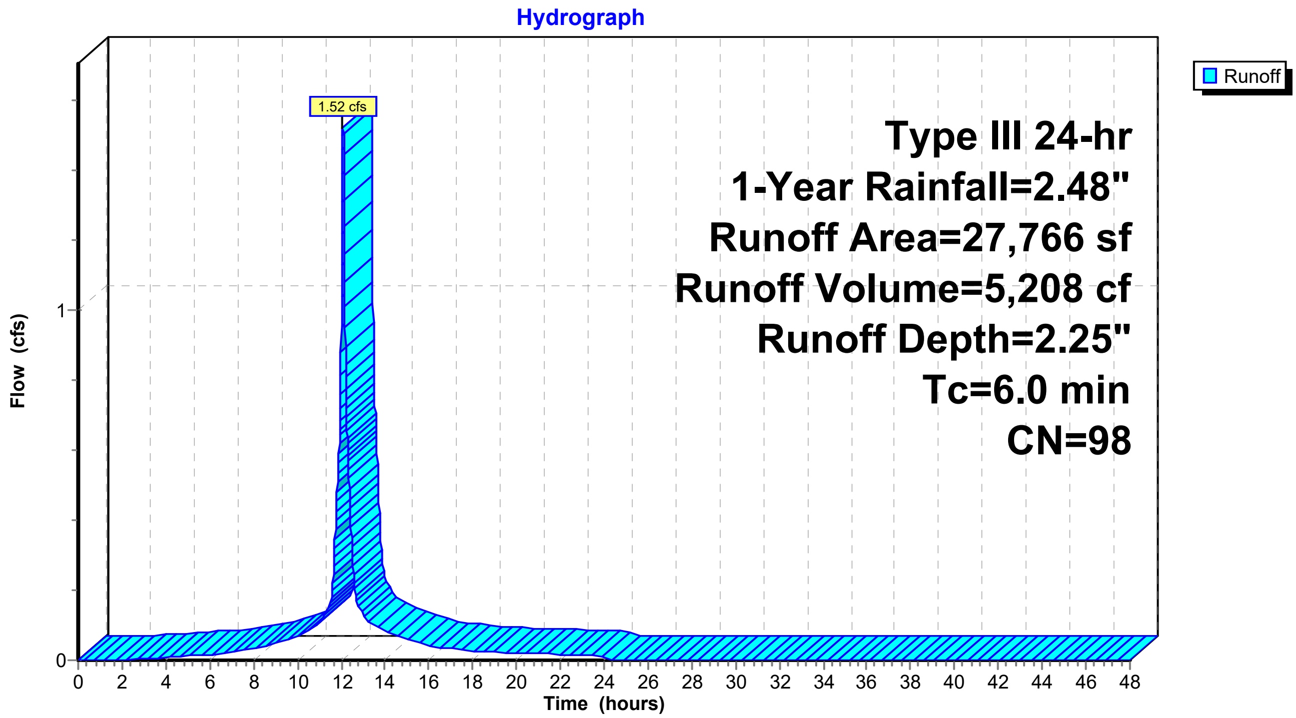
Runoff = 1.52 cfs @ 12.08 hrs, Volume= 5,208 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
27,766	98	Roofs, HSG D
27,766	98	100.00% Impervious Area

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

Subcatchment 5Sb: Athletic Roof



Summary for Subcatchment 6S: Residential Roof

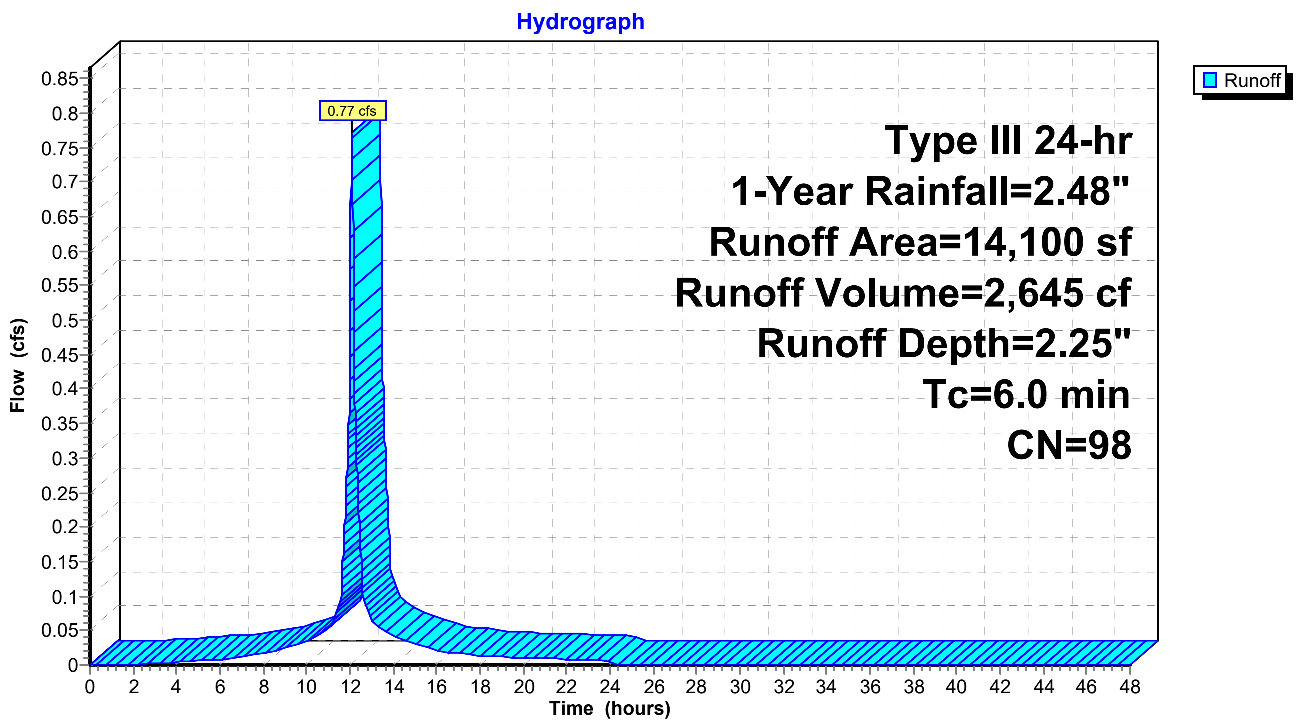
Runoff = 0.77 cfs @ 12.08 hrs, Volume= 2,645 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
14,100	98	Roofs, HSG D
14,100	98	100.00% Impervious Area

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

Subcatchment 6S: Residential Roof



Summary for Subcatchment 11S: Parking/Pavement

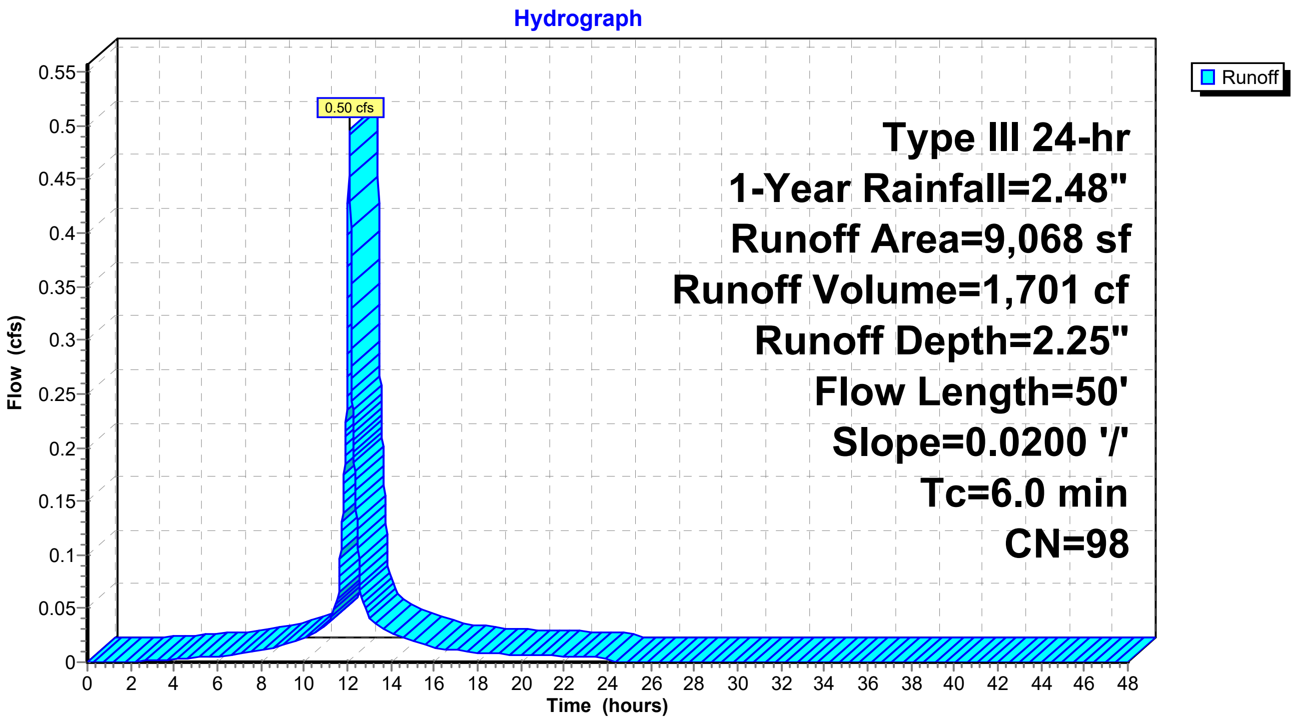
Runoff = 0.50 cfs @ 12.08 hrs, Volume= 1,701 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
9,068	98	Paved parking, HSG C
9,068	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 11S: Parking/Pavement



Summary for Subcatchment 12S: Parking/Pavement

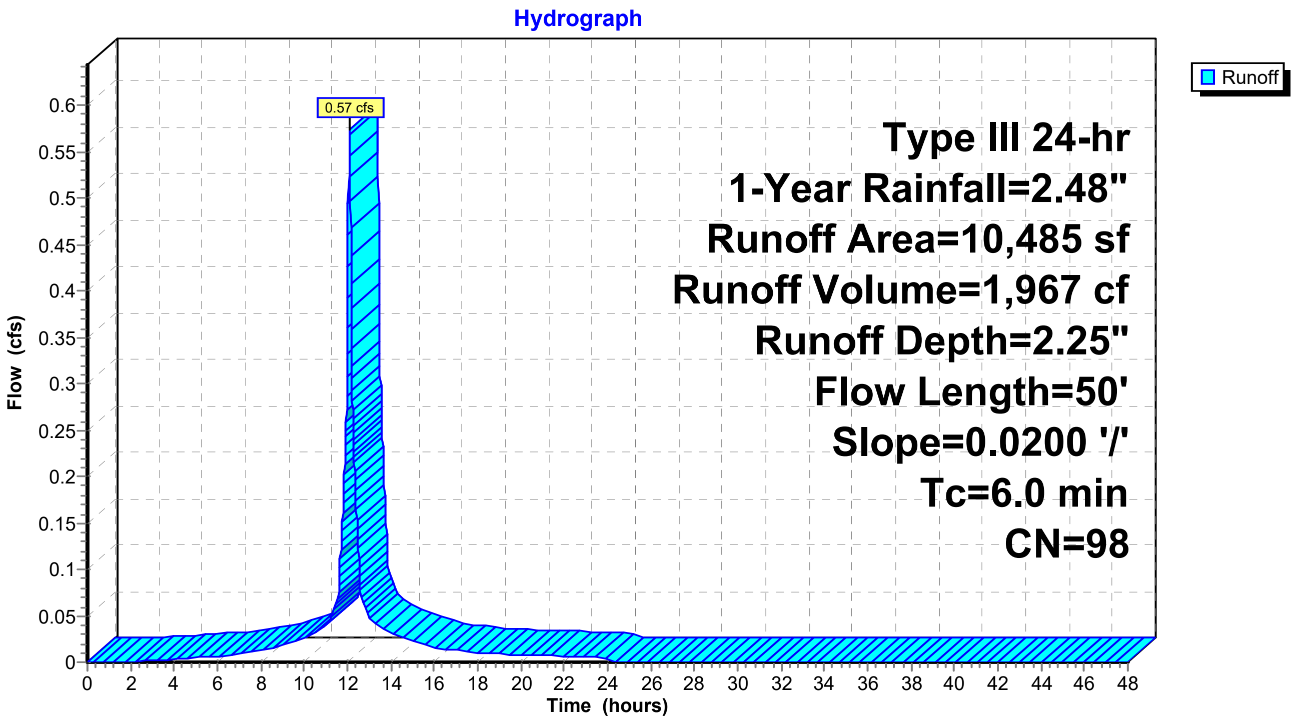
Runoff = 0.57 cfs @ 12.08 hrs, Volume= 1,967 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
10,485	98	Paved parking, HSG C
10,485	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 12S: Parking/Pavement



Summary for Subcatchment 13S: Parking/Pavement

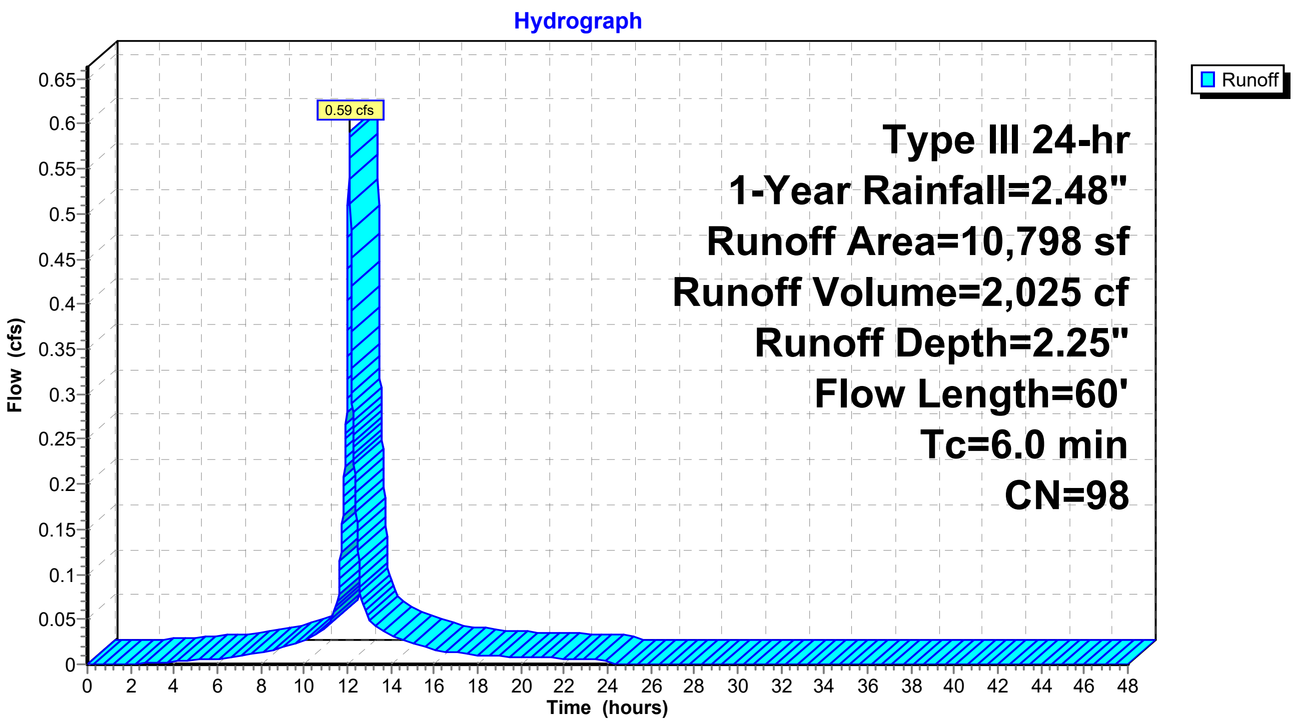
Runoff = 0.59 cfs @ 12.08 hrs, Volume= 2,025 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
10,798	98	Paved parking, HSG C
10,798	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	10	0.0050	0.04		**Sheet Flow, Landscapeing** Grass: Dense n= 0.240 P2= 3.30"
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
4.6	60	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S: Parking/Pavement



Summary for Subcatchment 15S: Parking/Pavement

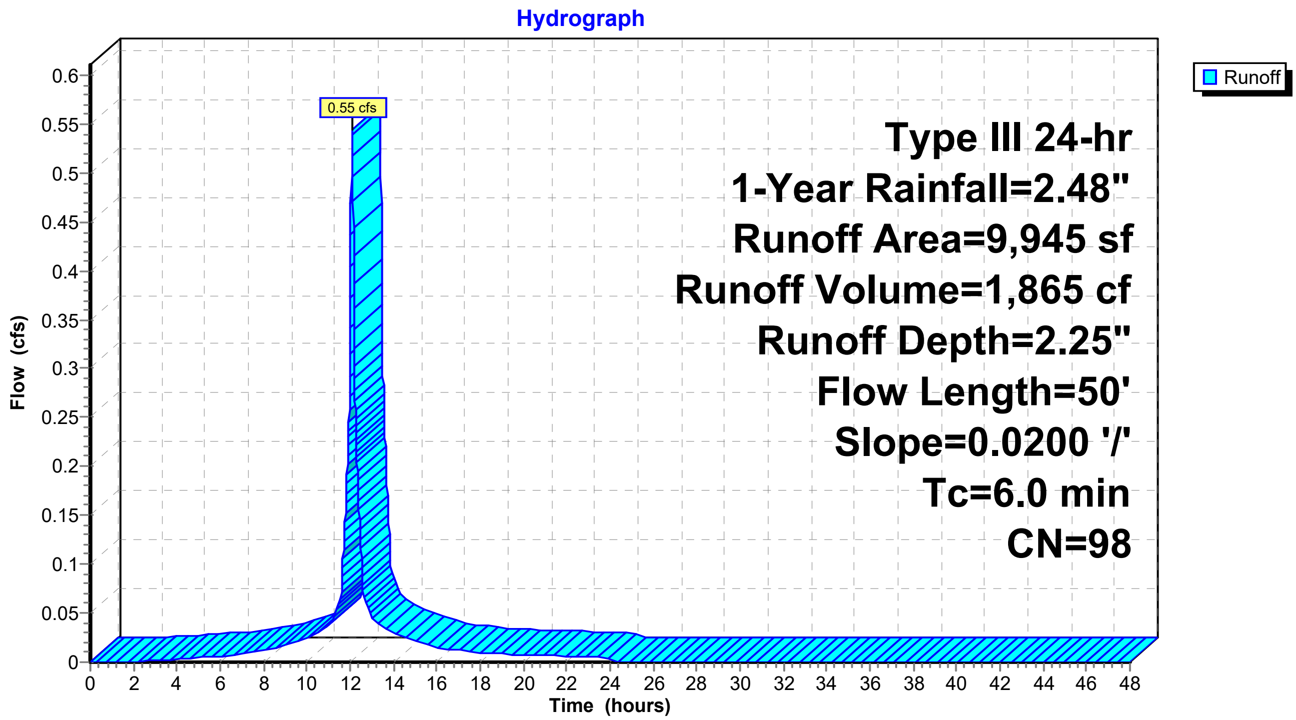
Runoff = 0.55 cfs @ 12.08 hrs, Volume= 1,865 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
9,945	98	Paved parking, HSG C
9,945	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 15S: Parking/Pavement



Summary for Subcatchment 16S: Parking/Pavement

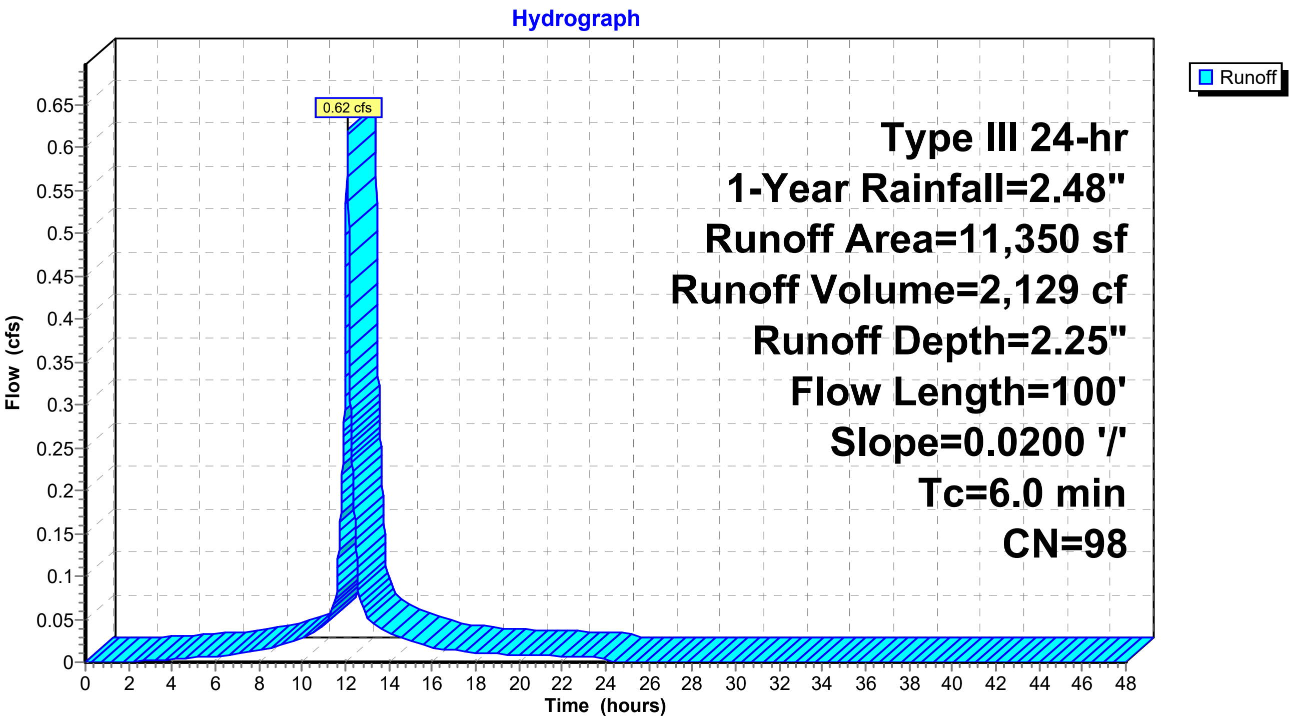
Runoff = 0.62 cfs @ 12.08 hrs, Volume= 2,129 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
11,350	98	Paved parking, HSG C
11,350	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 16S: Parking/Pavement



Summary for Subcatchment 17S: Parking/Pavement

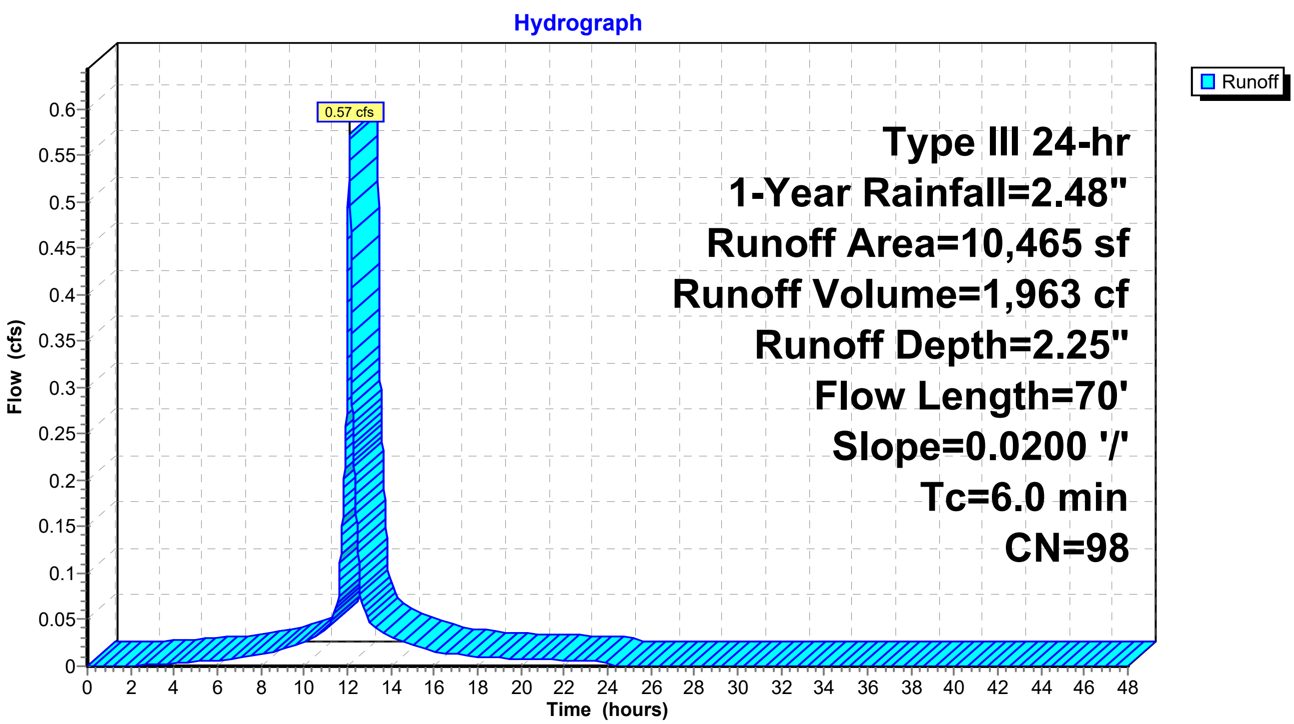
Runoff = 0.57 cfs @ 12.08 hrs, Volume= 1,963 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
10,465	98	Paved parking, HSG C
10,465	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	70	0.0200	1.30		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.9	70	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 17S: Parking/Pavement



Summary for Subcatchment 18S: Parking/Pavement

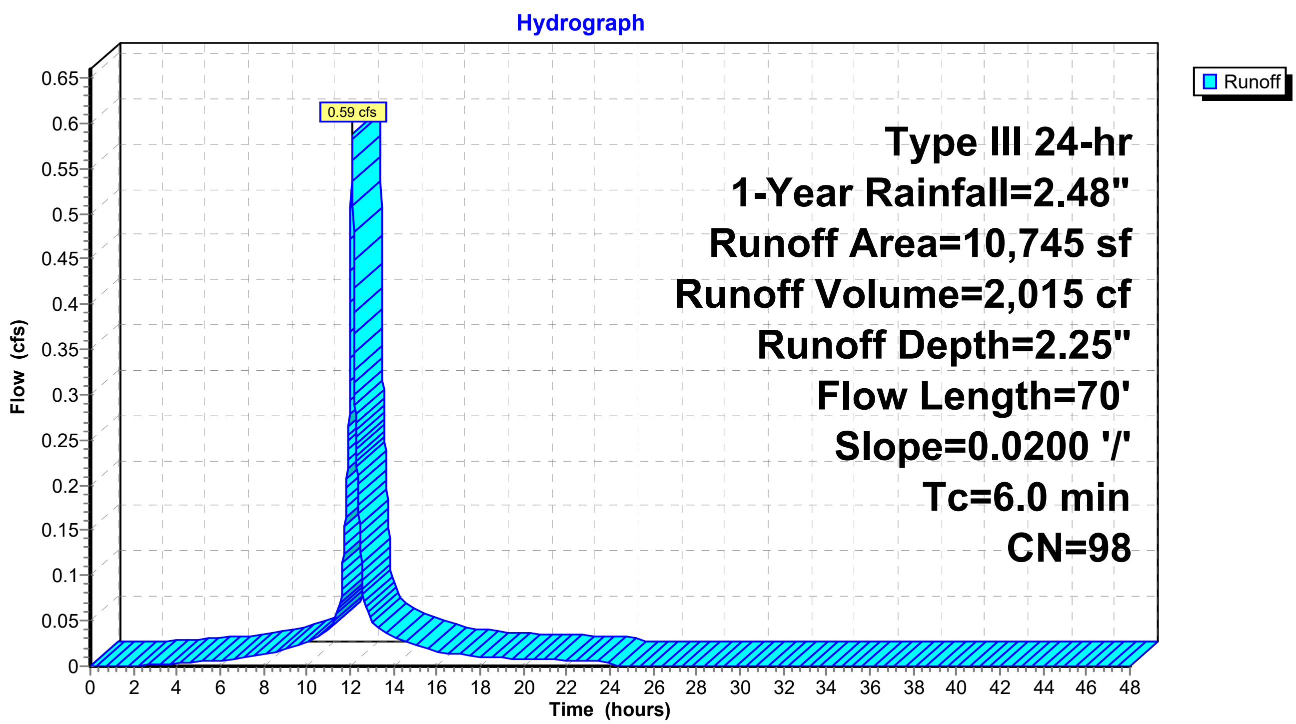
Runoff = 0.59 cfs @ 12.08 hrs, Volume= 2,015 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
10,745	98	Paved parking, HSG C
10,745	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	70	0.0200	1.30		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.9	70	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 18S: Parking/Pavement



Summary for Subcatchment 19S: Parking/Pavement

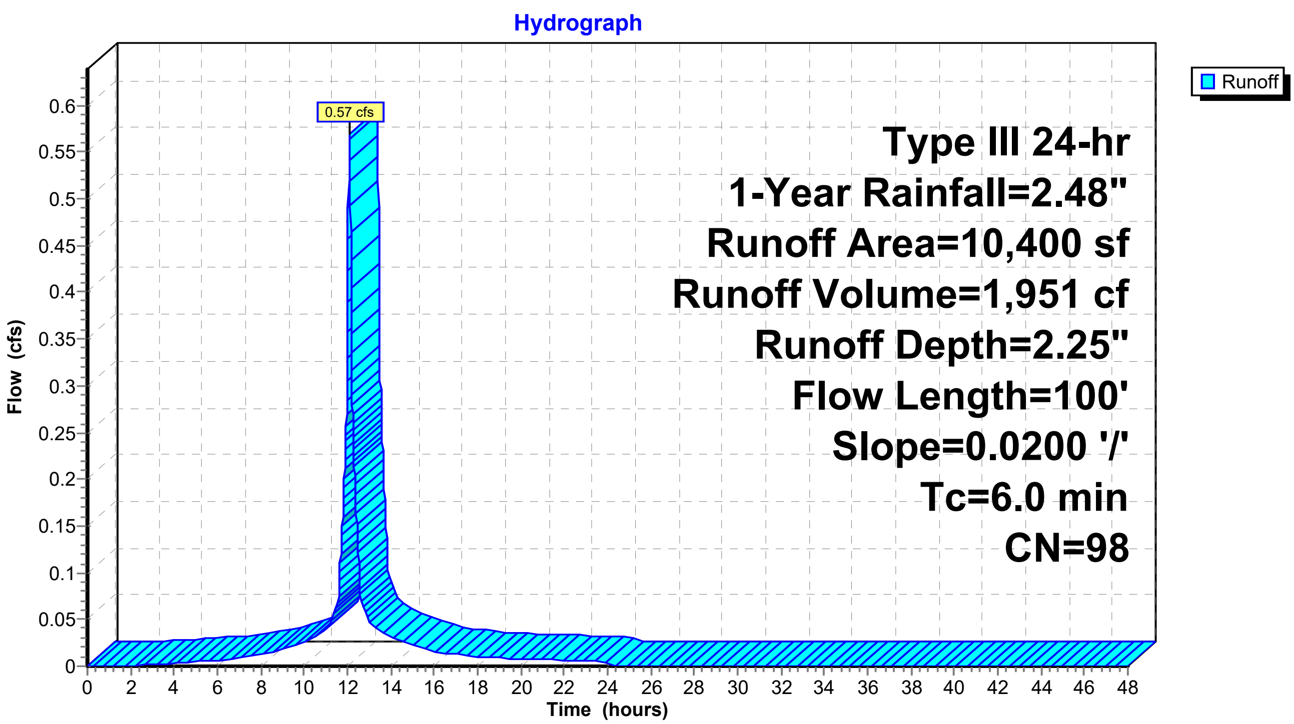
Runoff = 0.57 cfs @ 12.08 hrs, Volume= 1,951 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
10,400	98	Paved parking, HSG C
10,400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total,	Increased to minimum Tc = 6.0 min		

Subcatchment 19S: Parking/Pavement



Summary for Subcatchment 20S: Parking/Pavement

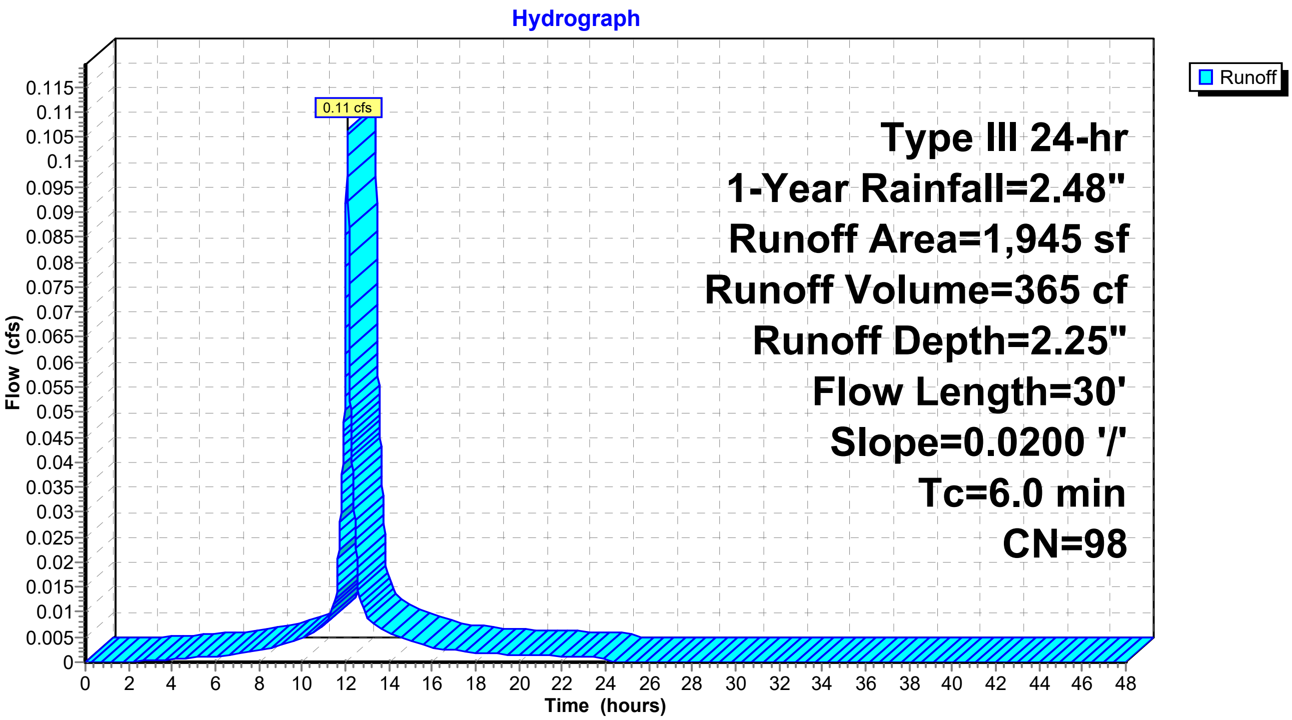
Runoff = 0.11 cfs @ 12.08 hrs, Volume= 365 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
1,945	98	Paved parking, HSG C
1,945	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	30	0.0200	1.10		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.5	30	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 20S: Parking/Pavement



Summary for Subcatchment 21S: Parking/Pavement

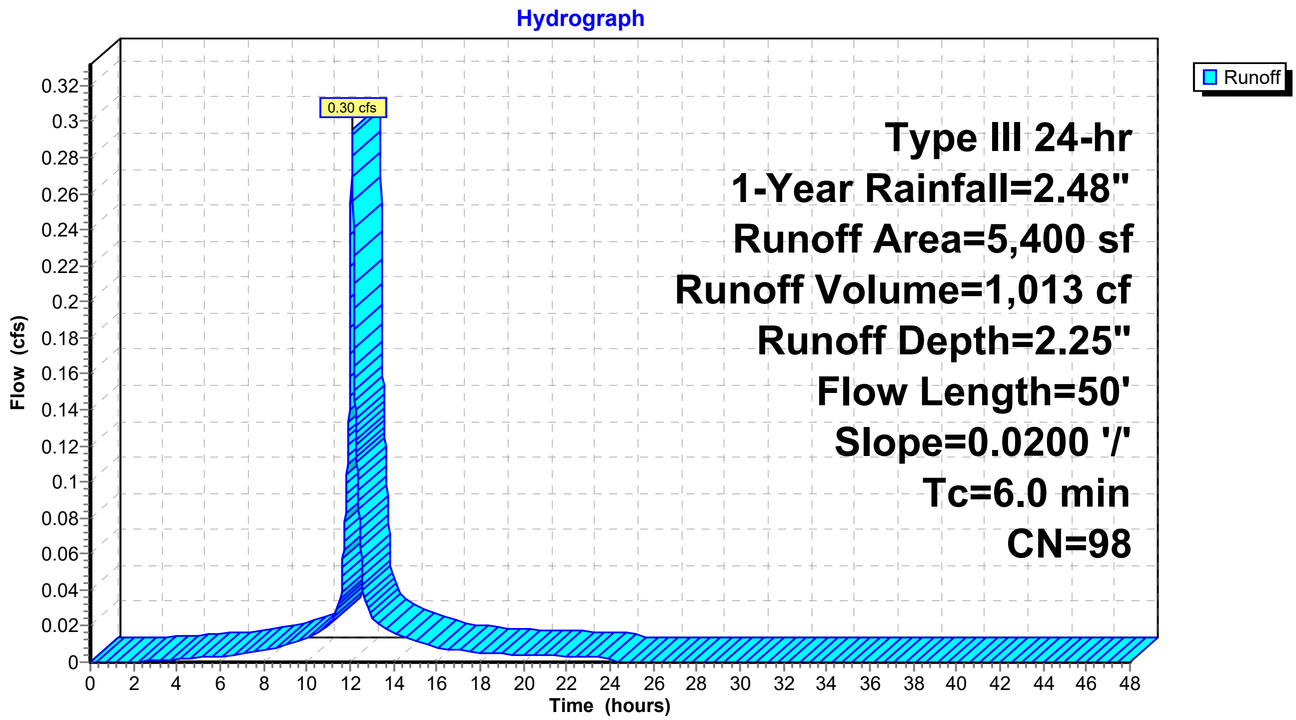
Runoff = 0.30 cfs @ 12.08 hrs, Volume= 1,013 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
5,400	98	Paved parking, HSG C
5,400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total,	Increased to minimum Tc = 6.0 min		

Subcatchment 21S: Parking/Pavement



Summary for Subcatchment 22: Parking/Pavement

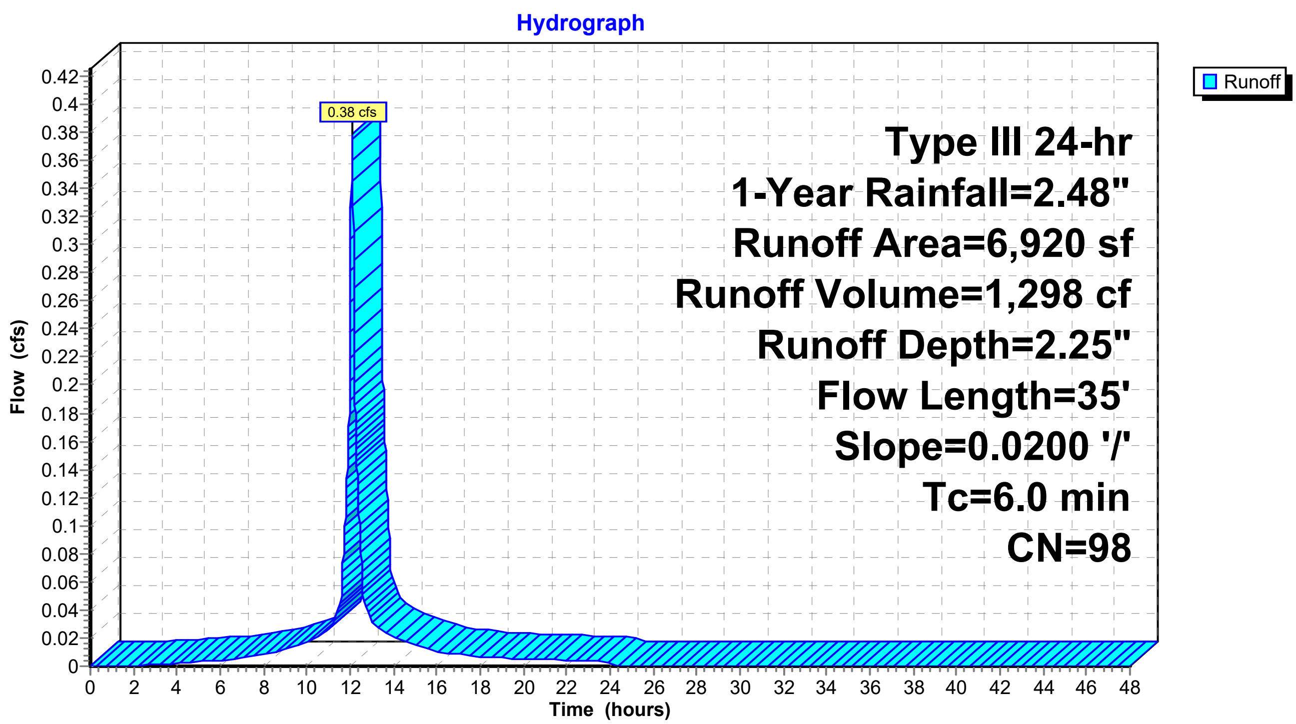
Runoff = 0.38 cfs @ 12.08 hrs, Volume= 1,298 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
6,920	98	Paved parking, HSG C
6,920	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	35	0.0200	1.13		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
0.5	35	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 22: Parking/Pavement



Summary for Subcatchment 23S: Parking/Pavement

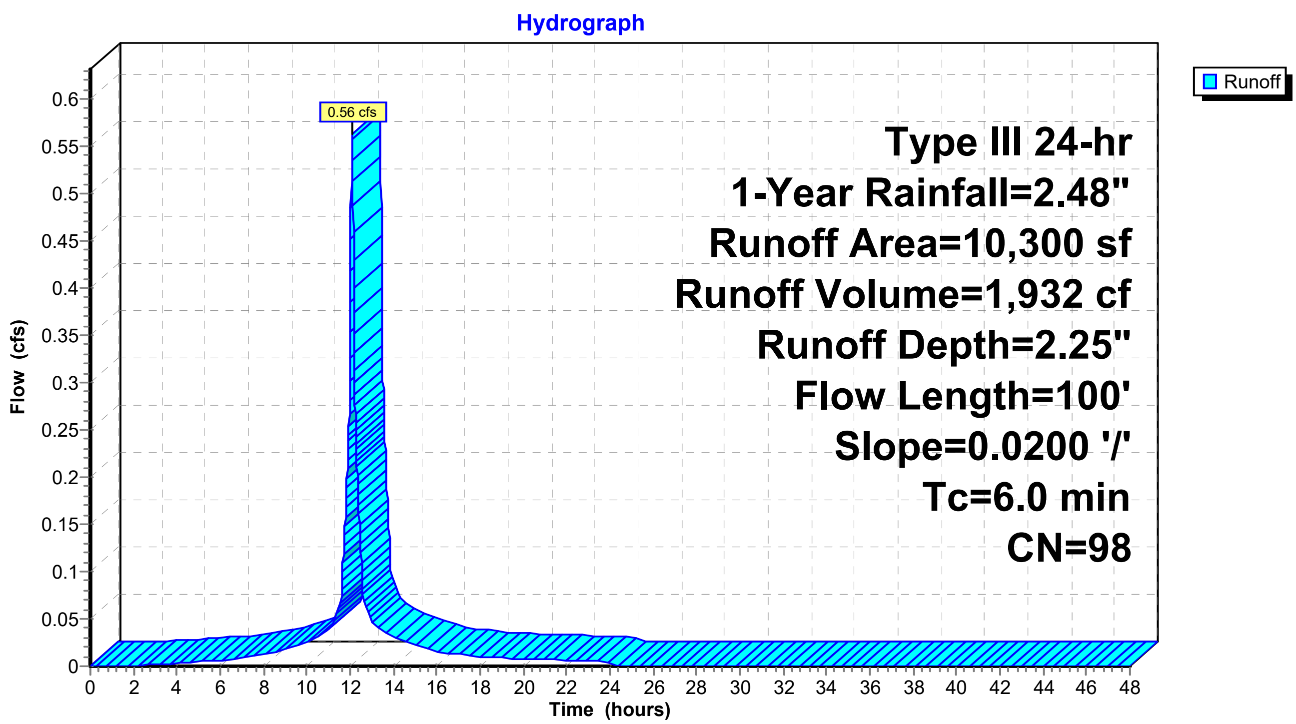
Runoff = 0.56 cfs @ 12.08 hrs, Volume= 1,932 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
10,300	98	Paved parking, HSG C
10,300	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 23S: Parking/Pavement



Summary for Subcatchment 37S: Grocery Roof

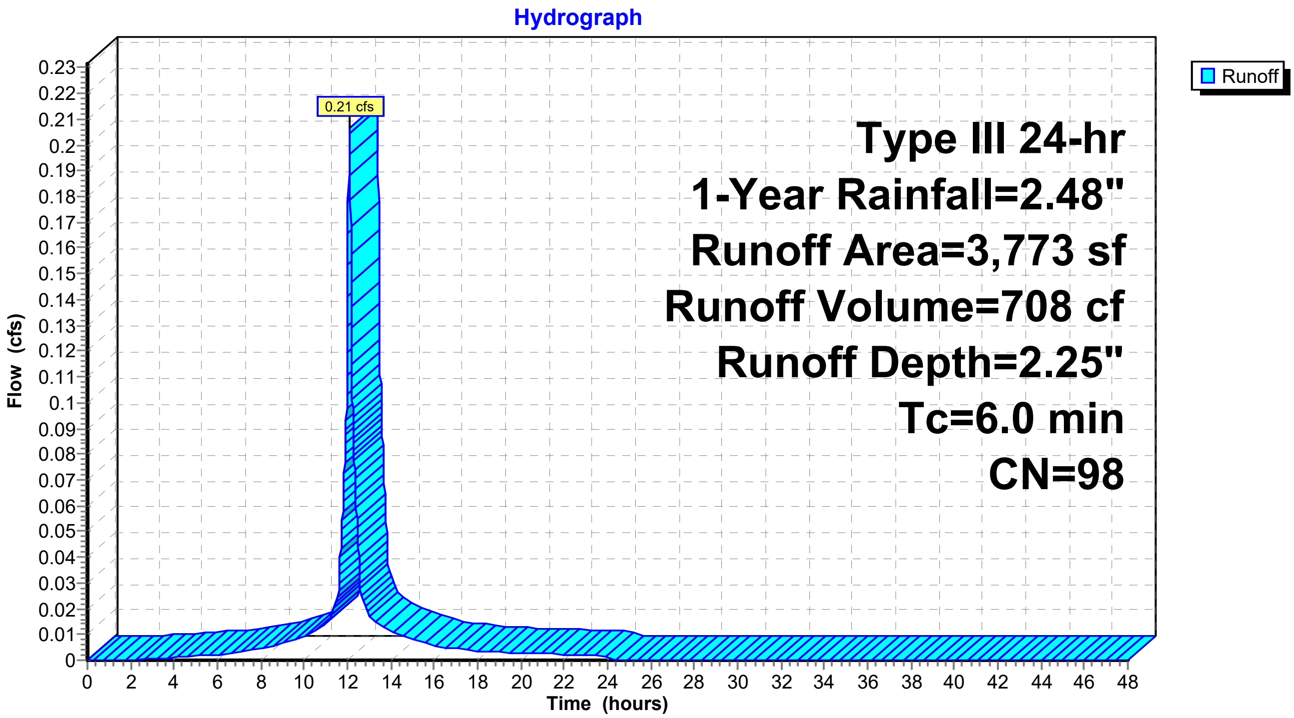
Runoff = 0.21 cfs @ 12.08 hrs, Volume= 708 cf, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
3,773	98	Roofs, HSG D
3,773	98	100.00% Impervious Area

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

Subcatchment 37S: Grocery Roof



Summary for Pond 1P: Area behind levee - Facemate

Inflow Area = 217,891 sf, 82.73% Impervious, Inflow Depth = 1.33" for 1-Year event
Inflow = 5.41 cfs @ 12.10 hrs, Volume= 24,163 cf
Outflow = 4.12 cfs @ 12.19 hrs, Volume= 24,163 cf, Atten= 24%, Lag= 5.5 min
Primary = 4.12 cfs @ 12.19 hrs, Volume= 24,163 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 90.18' @ 12.19 hrs Surf.Area= 7,309 sf Storage= 1,231 cf

Plug-Flow detention time= 4.9 min calculated for 24,163 cf (100% of inflow)
Center-of-Mass det. time= 4.8 min (786.4 - 781.6)

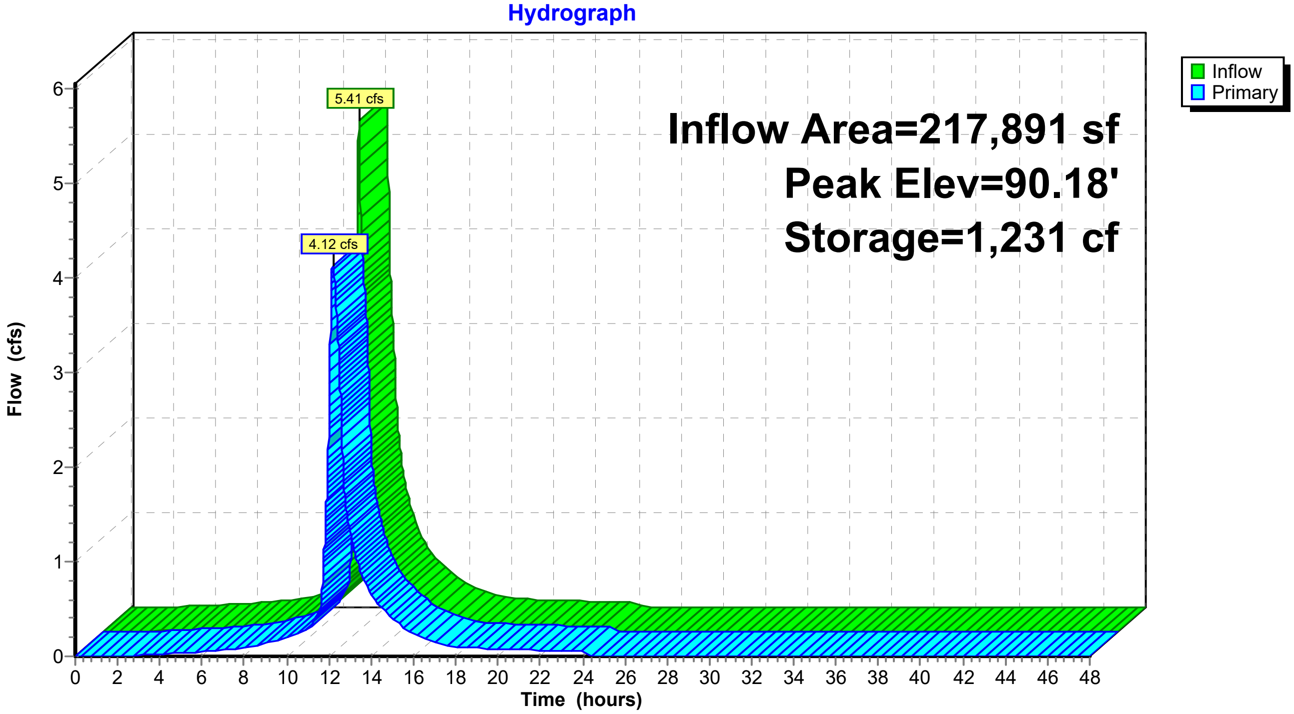
Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	90.00'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.12 cfs @ 12.19 hrs HW=90.18' TW=0.00' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 2.06 cfs @ 2.06 fps)
└─**2=Orifice/Grate** (Orifice Controls 2.06 cfs @ 2.06 fps)

Pond 1P: Area behind levee - Facemate



Summary for Pond 3P: (new Pond)

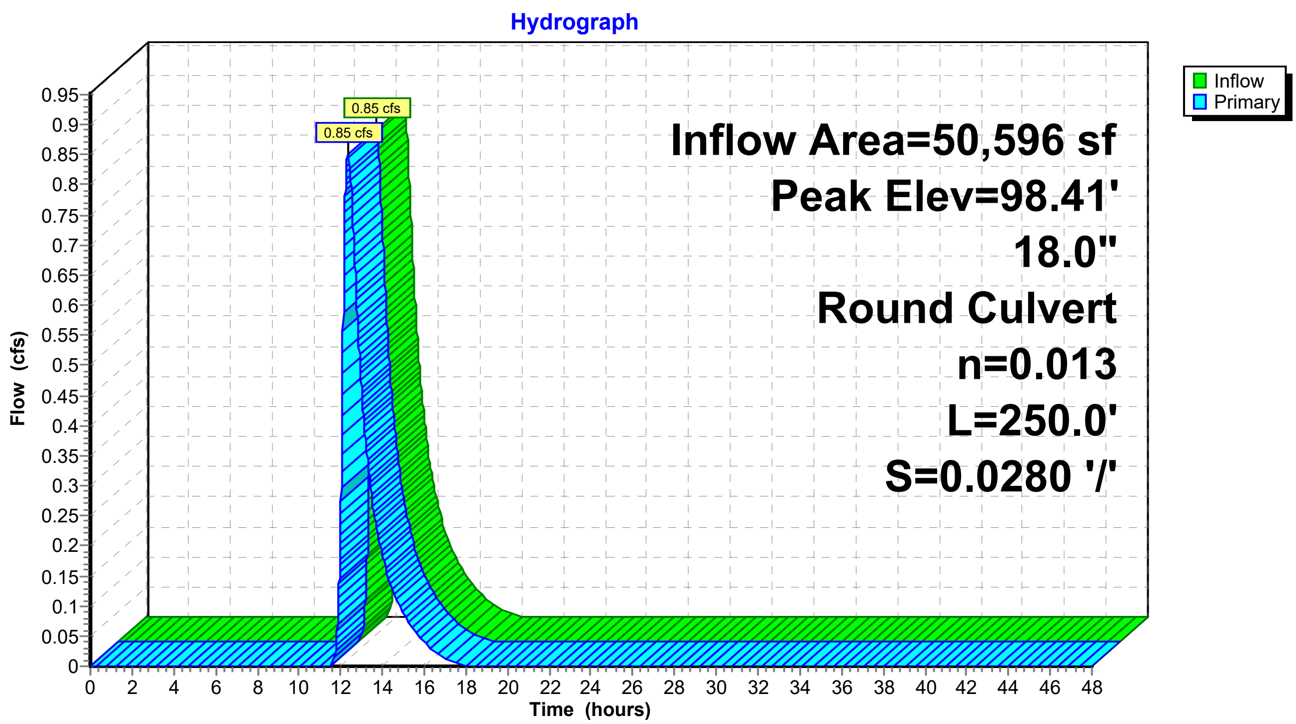
Inflow Area = 50,596 sf,100.00% Impervious, Inflow Depth = 1.03" for 1-Year event
Inflow = 0.85 cfs @ 12.36 hrs, Volume= 4,345 cf
Outflow = 0.85 cfs @ 12.36 hrs, Volume= 4,345 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.85 cfs @ 12.36 hrs, Volume= 4,345 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 98.41' @ 12.36 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.00'	**18.0" Round Culvert** L= 250.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 98.00' / 91.00' S= 0.0280 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.85 cfs @ 12.36 hrs HW=98.41' TW=90.15' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.85 cfs @ 2.18 fps)

Pond 3P: (new Pond)



Summary for Pond 5P: Tree Box

Inflow Area = 9,945 sf,100.00% Impervious, Inflow Depth = 2.25" for 1-Year event
Inflow = 0.55 cfs @ 12.08 hrs, Volume= 1,865 cf
Outflow = 0.54 cfs @ 12.09 hrs, Volume= 1,865 cf, Atten= 1%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.11 hrs, Volume= 79 cf
Primary = 0.54 cfs @ 12.09 hrs, Volume= 1,787 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.42' @ 12.11 hrs Surf.Area= 39 sf Storage= 15 cf

Plug-Flow detention time= 5.6 min calculated for 1,865 cf (100% of inflow)
Center-of-Mass det. time= 5.7 min (767.7 - 762.1)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	91 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 259 cf Overall x 35.0% Voids

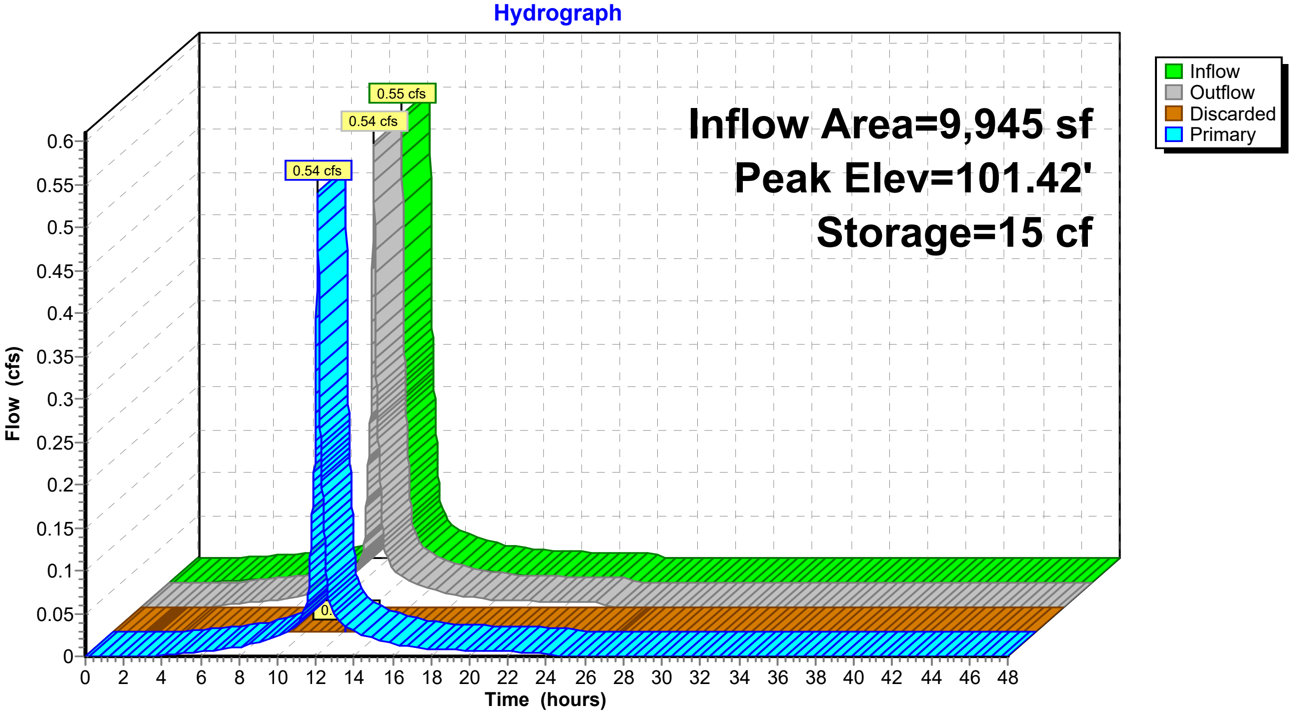
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	36	0	0
101.20	36	36	36
102.20	48	42	78
103.20	60	54	132
104.20	72	66	198
105.00	80	61	259

Device	Routing	Invert	Outlet Devices
#1	Primary	100.75'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.75' / 100.65' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.75'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=101.42' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.54 cfs @ 12.09 hrs HW=101.41' TW=101.30' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.54 cfs of 0.72 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.54 cfs @ 1.50 fps)

Pond 5P: Tree Box



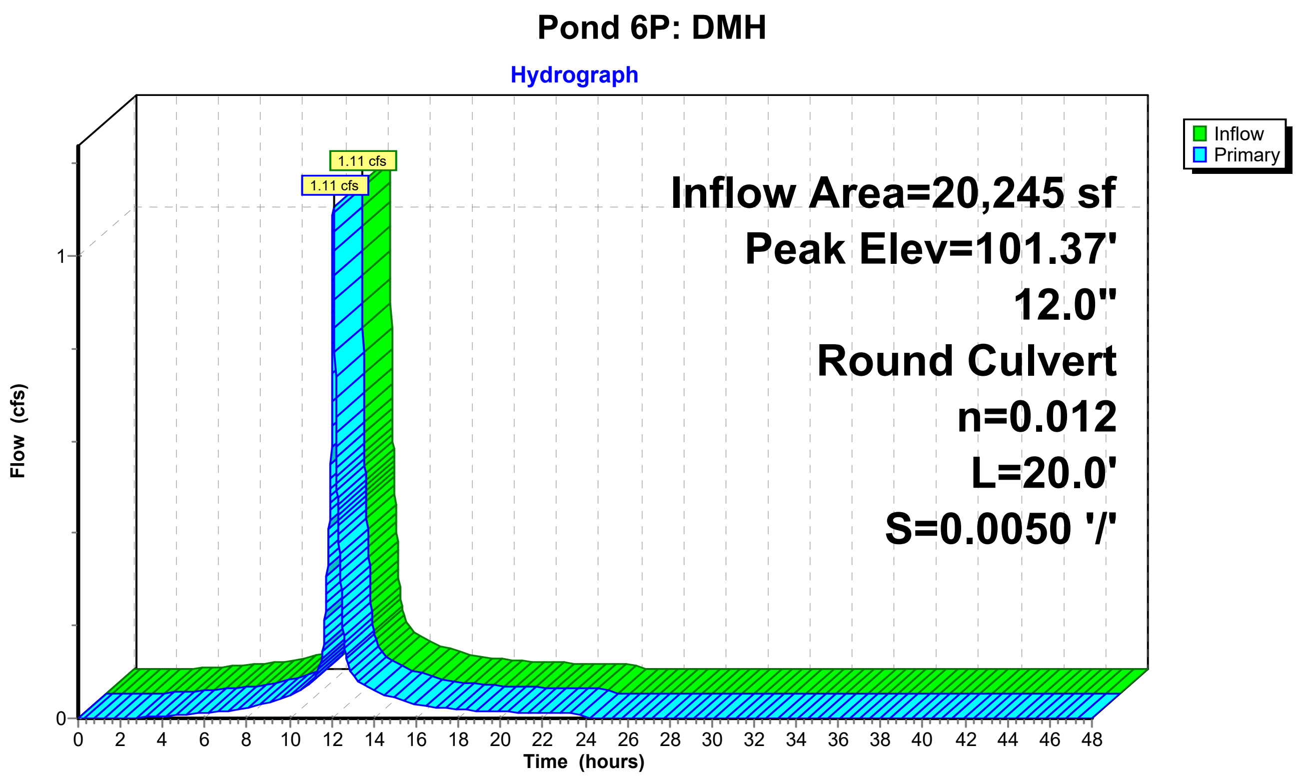
Summary for Pond 6P: DMH

Inflow Area =		20,245 sf,100.00% Impervious,	Inflow Depth = 2.20" for 1-Year event		
Inflow	=	1.11 cfs @	12.08 hrs, Volume=	3,719 cf	
Outflow	=	1.11 cfs @	12.08 hrs, Volume=	3,719 cf,	Atten= 0%, Lag= 0.0 min
Primary	=	1.11 cfs @	12.08 hrs, Volume=	3,719 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.37' @ 12.32 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.60'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.60' / 100.50' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.10 cfs @ 12.08 hrs HW=101.29' TW=101.07' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.10 cfs @ 2.67 fps)



Summary for Pond 7P: Storage Chambers South

Inflow Area = 50,596 sf,100.00% Impervious, Inflow Depth = 2.11" for 1-Year event
Inflow = 2.76 cfs @ 12.08 hrs, Volume= 8,894 cf
Outflow = 0.94 cfs @ 12.36 hrs, Volume= 8,894 cf, Atten= 66%, Lag= 16.2 min
Discarded = 0.09 cfs @ 12.36 hrs, Volume= 4,549 cf
Primary = 0.85 cfs @ 12.36 hrs, Volume= 4,345 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.35' @ 12.36 hrs Surf.Area= 3,348 sf Storage= 3,031 cf
Flood Elev= 106.00' Surf.Area= 3,348 sf Storage= 8,592 cf

Plug-Flow detention time= 73.6 min calculated for 8,892 cf (100% of inflow)
Center-of-Mass det. time= 73.6 min (838.6 - 765.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	3,199 cf	**53.00'W x 63.17'L x 4.00'H Field A**
			13,391 cf Overall - 5,393 cf Embedded = 7,998 cf x 40.0% Voids
#2A	100.50'	5,393 cf	**Cultec R-360HD** x 144 Inside #1
			Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf
			Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap
			144 Chambers in 9 Rows
			Cap Storage= +6.5 cf x 2 x 9 rows = 116.3 cf
		8,592 cf	Total Available Storage

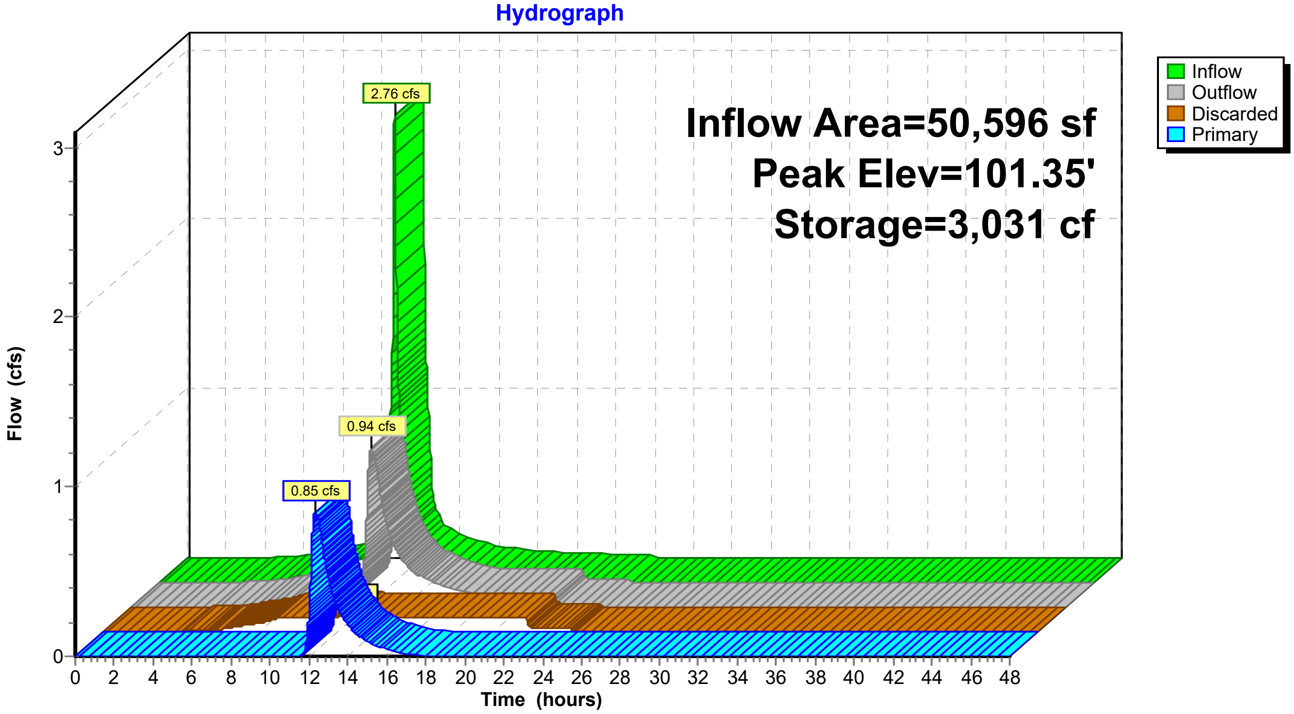
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	99.00'	**18.0" Round Culvert**
			L= 20.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 99.00' / 96.00' S= 0.1500 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area**
			Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**
			Head (feet) 0.00 1.25 1.25 2.50 2.50 3.00
			Width (feet) 0.33 0.33 0.66 0.66 2.00 2.00

Discarded OutFlow Max=0.09 cfs @ 12.36 hrs HW=101.35' (Free Discharge)
└─**2=Exfiltration** (Controls 0.09 cfs)

Primary OutFlow Max=0.85 cfs @ 12.36 hrs HW=101.35' TW=98.41' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.85 cfs of 10.77 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.85 cfs @ 3.02 fps)

Pond 7P: Storage Chambers South



Summary for Pond 8P: Storage Chambers North

Inflow Area = 50,305 sf,100.00% Impervious, Inflow Depth = 2.11" for 1-Year event
Inflow = 2.75 cfs @ 12.09 hrs, Volume= 8,853 cf
Outflow = 0.62 cfs @ 12.49 hrs, Volume= 8,853 cf, Atten= 78%, Lag= 23.9 min
Discarded = 0.13 cfs @ 12.49 hrs, Volume= 5,792 cf
Primary = 0.49 cfs @ 12.49 hrs, Volume= 3,061 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.09' @ 12.49 hrs Surf.Area= 4,786 sf Storage= 3,293 cf

Plug-Flow detention time= 86.8 min calculated for 8,853 cf (100% of inflow)
Center-of-Mass det. time= 86.8 min (851.3 - 764.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	4,622 cf	**116.25'W x 41.17'L x 4.00'H Field A**
			19,143 cf Overall - 7,587 cf Embedded = 11,555 cf x 40.0% Voids
#2A	100.50'	7,587 cf	**Cultec R-360HD** x 200 Inside #1
			Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf
			Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap
			200 Chambers in 20 Rows
			Cap Storage= +6.5 cf x 2 x 20 rows = 258.4 cf
		12,209 cf	Total Available Storage

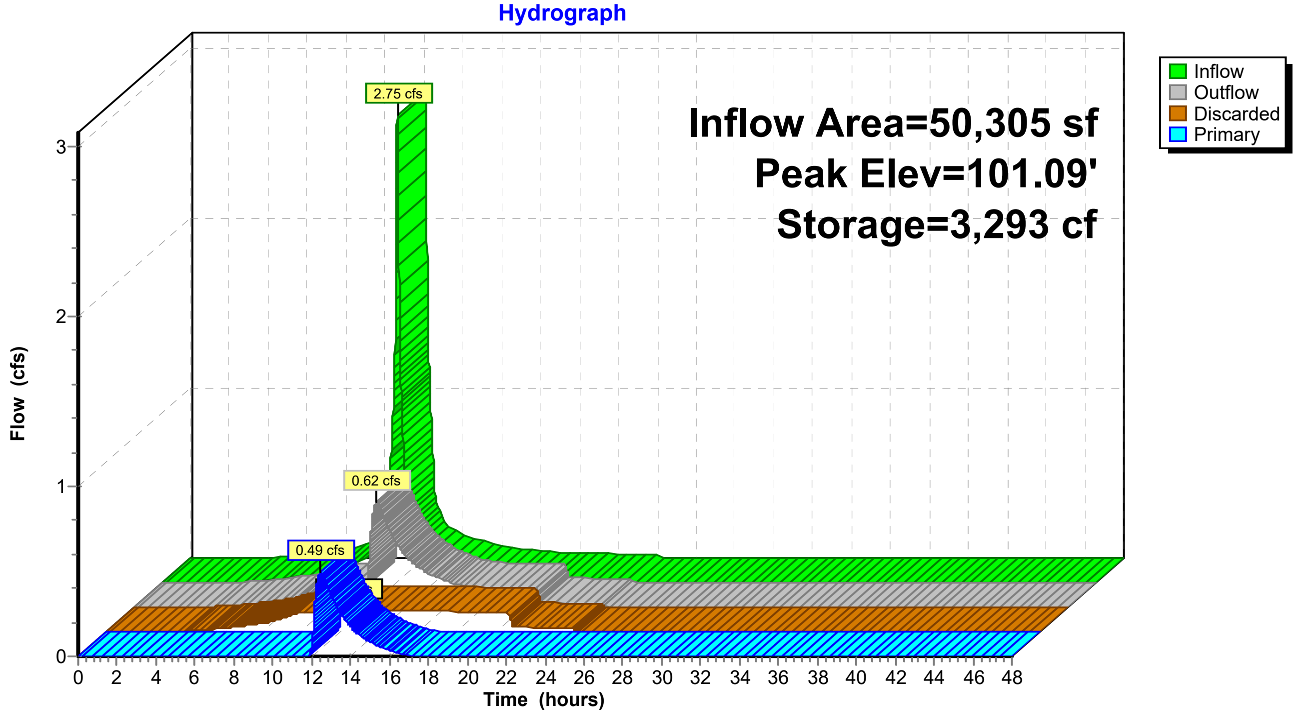
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.50'	**18.0" Round Culvert**
			L= 50.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 100.50' / 100.00' S= 0.0100 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area**
			Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**
			Head (feet) 0.00 1.25 1.25 2.50 2.50 3.00
			Width (feet) 0.33 0.33 0.66 0.66 2.00 2.00

Discarded OutFlow Max=0.13 cfs @ 12.49 hrs HW=101.09' (Free Discharge)
└─**2=Exfiltration** (Controls 0.13 cfs)

Primary OutFlow Max=0.49 cfs @ 12.49 hrs HW=101.09' TW=90.10' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.49 cfs of 1.62 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.49 cfs @ 2.52 fps)

Pond 8P: Storage Chambers North



Summary for Pond 11P: Tree Box

Inflow Area = 9,068 sf,100.00% Impervious, Inflow Depth = 2.25" for 1-Year event
Inflow = 0.50 cfs @ 12.08 hrs, Volume= 1,701 cf
Outflow = 0.50 cfs @ 12.08 hrs, Volume= 1,701 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 181 cf
Primary = 0.49 cfs @ 12.08 hrs, Volume= 1,520 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.03' @ 12.09 hrs Surf.Area= 22 sf Storage= 39 cf
Flood Elev= 105.00' Surf.Area= 8 sf Storage= 51 cf

Plug-Flow detention time= 24.7 min calculated for 1,701 cf (100% of inflow)
Center-of-Mass det. time= 24.7 min (786.8 - 762.1)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	51 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 146 cf Overall x 35.0% Voids

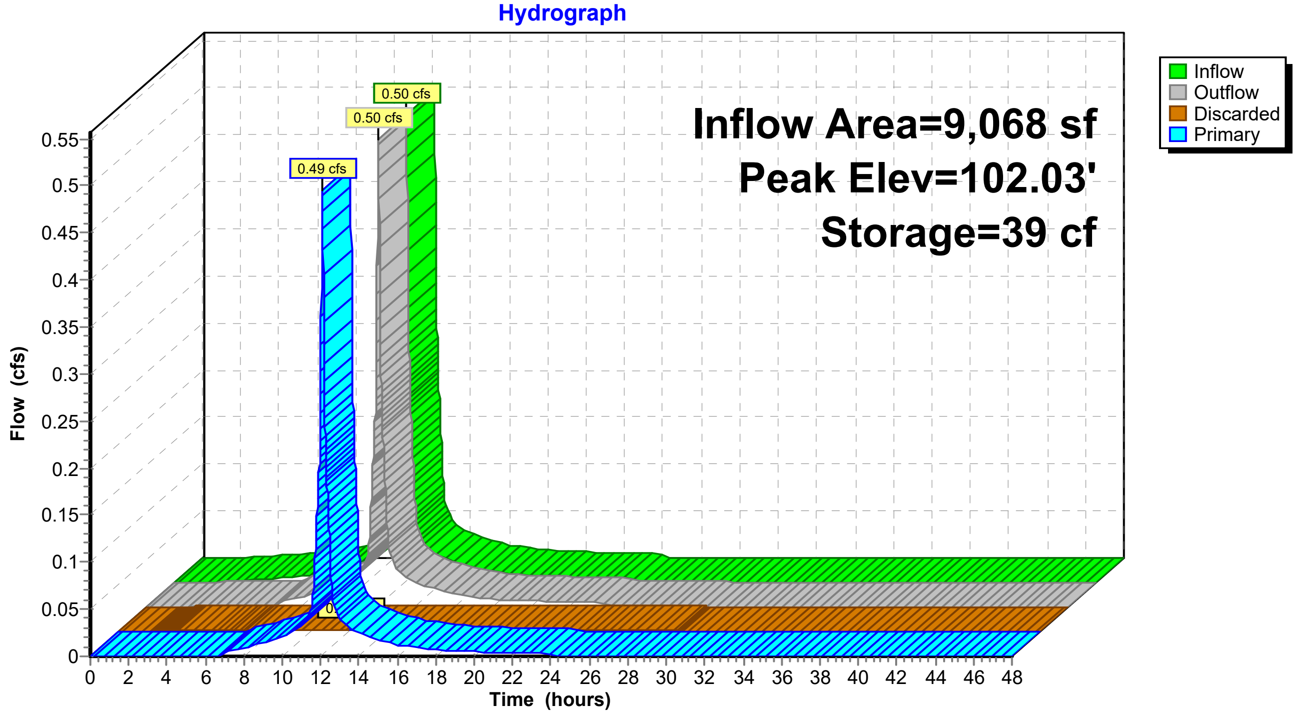
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	72	0	0
101.20	72	72	72
102.20	12	42	114
103.20	12	12	126
104.20	12	12	138
105.00	8	8	146

Device	Routing	Invert	Outlet Devices
#1	Primary	101.53'	**12.0" Round Culvert** L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.53' / 101.08' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.53'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=102.03' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.49 cfs @ 12.08 hrs HW=102.03' TW=101.76' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.49 cfs of 0.52 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.49 cfs @ 1.99 fps)

Pond 11P: Tree Box



Summary for Pond 12P: Tree Box

Inflow Area = 10,485 sf,100.00% Impervious, Inflow Depth = 2.25" for 1-Year event
Inflow = 0.57 cfs @ 12.08 hrs, Volume= 1,967 cf
Outflow = 0.57 cfs @ 12.08 hrs, Volume= 1,967 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 177 cf
Primary = 0.57 cfs @ 12.08 hrs, Volume= 1,789 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.86' @ 12.09 hrs Surf.Area= 20 sf Storage= 39 cf

Plug-Flow detention time= 19.9 min calculated for 1,966 cf (100% of inflow)
Center-of-Mass det. time= 20.0 min (782.1 - 762.1)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

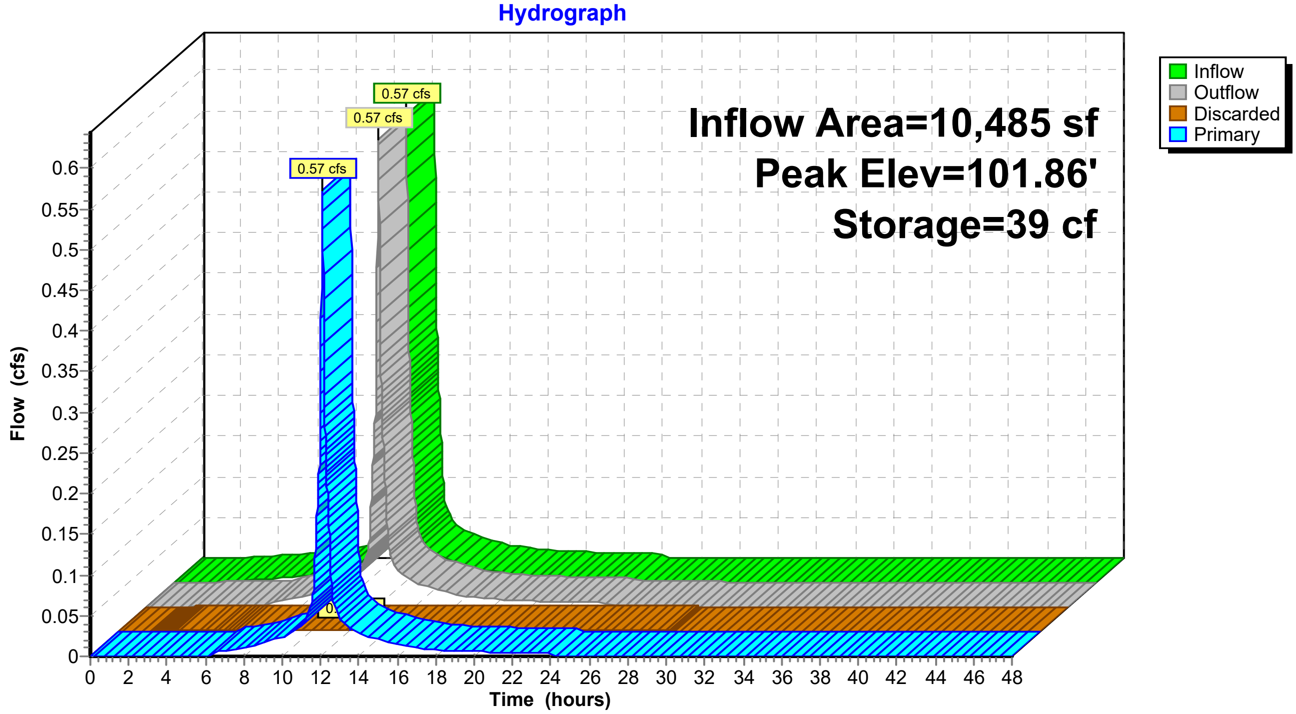
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	72	0	0
101.00	72	72	72
102.00	12	42	114
103.00	12	12	126
104.00	12	12	138
105.00	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	101.18'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.18' / 101.13' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.18'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=101.86' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.56 cfs @ 12.08 hrs HW=101.86' TW=101.76' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.56 cfs of 0.79 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.56 cfs @ 1.47 fps)

Pond 12P: Tree Box



Summary for Pond 13P: Tree Box

Inflow Area = 10,798 sf,100.00% Impervious, Inflow Depth = 2.25" for 1-Year event
Inflow = 0.59 cfs @ 12.08 hrs, Volume= 2,025 cf
Outflow = 0.59 cfs @ 12.09 hrs, Volume= 2,025 cf, Atten= 1%, Lag= 0.2 min
Discarded = 0.00 cfs @ 12.11 hrs, Volume= 159 cf
Primary = 0.59 cfs @ 12.09 hrs, Volume= 1,866 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.42' @ 12.11 hrs Surf.Area= 47 sf Storage= 34 cf

Plug-Flow detention time= 11.9 min calculated for 2,025 cf (100% of inflow)
Center-of-Mass det. time= 11.9 min (774.0 - 762.1)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

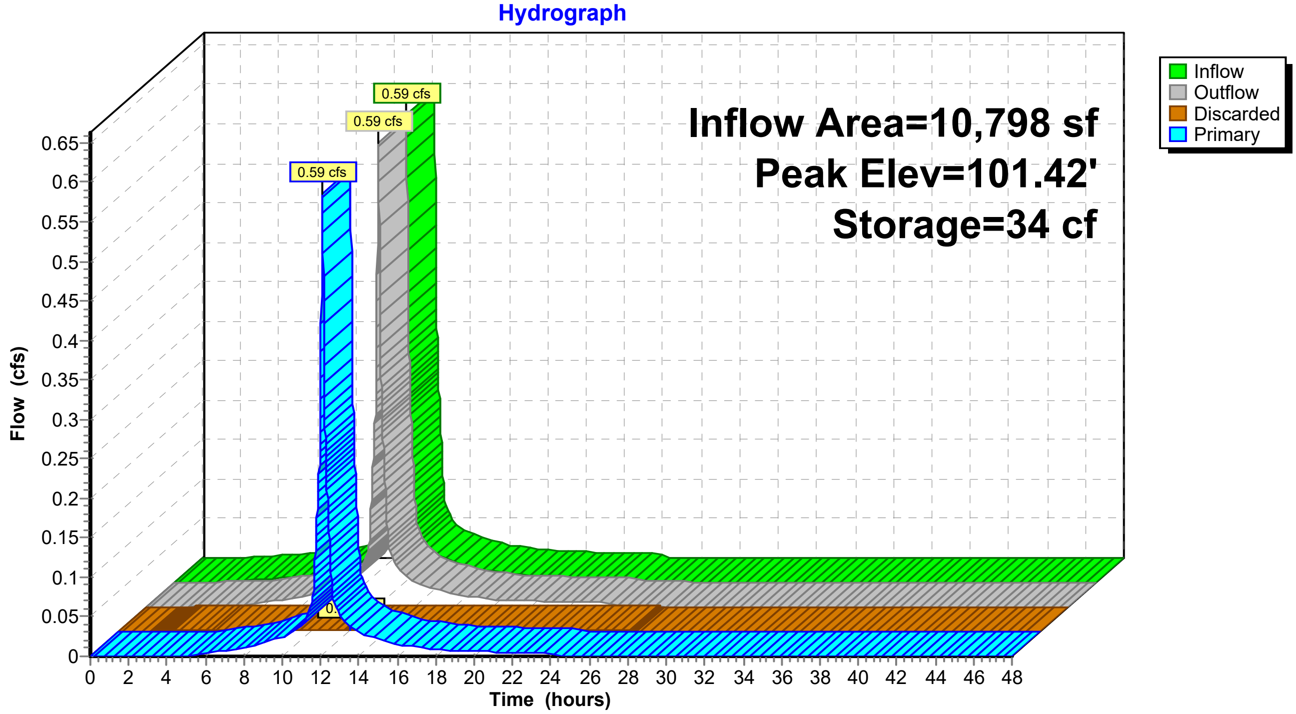
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	72	0	0
101.00	72	72	72
102.00	12	42	114
103.00	12	12	126
104.00	12	12	138
105.00	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	100.65'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.65' / 100.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.65'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=101.42' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.59 cfs @ 12.09 hrs HW=101.40' TW=101.32' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.59 cfs of 0.80 cfs potential flow)
　└─**3=Custom Weir/Orifice** (Weir Controls 0.59 cfs @ 1.34 fps)

Pond 13P: Tree Box



Summary for Pond 22P: Tree Box

Inflow Area = 1,945 sf,100.00% Impervious, Inflow Depth = 2.25" for 1-Year event
Inflow = 0.11 cfs @ 12.08 hrs, Volume= 365 cf
Outflow = 0.11 cfs @ 12.09 hrs, Volume= 365 cf, Atten= 0%, Lag= 0.3 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 89 cf
Primary = 0.11 cfs @ 12.09 hrs, Volume= 276 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.44' @ 12.09 hrs Surf.Area= 41 sf Storage= 19 cf

Plug-Flow detention time= 49.1 min calculated for 365 cf (100% of inflow)
Center-of-Mass det. time= 49.2 min (811.3 - 762.1)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	69 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 196 cf Overall x 35.0% Voids

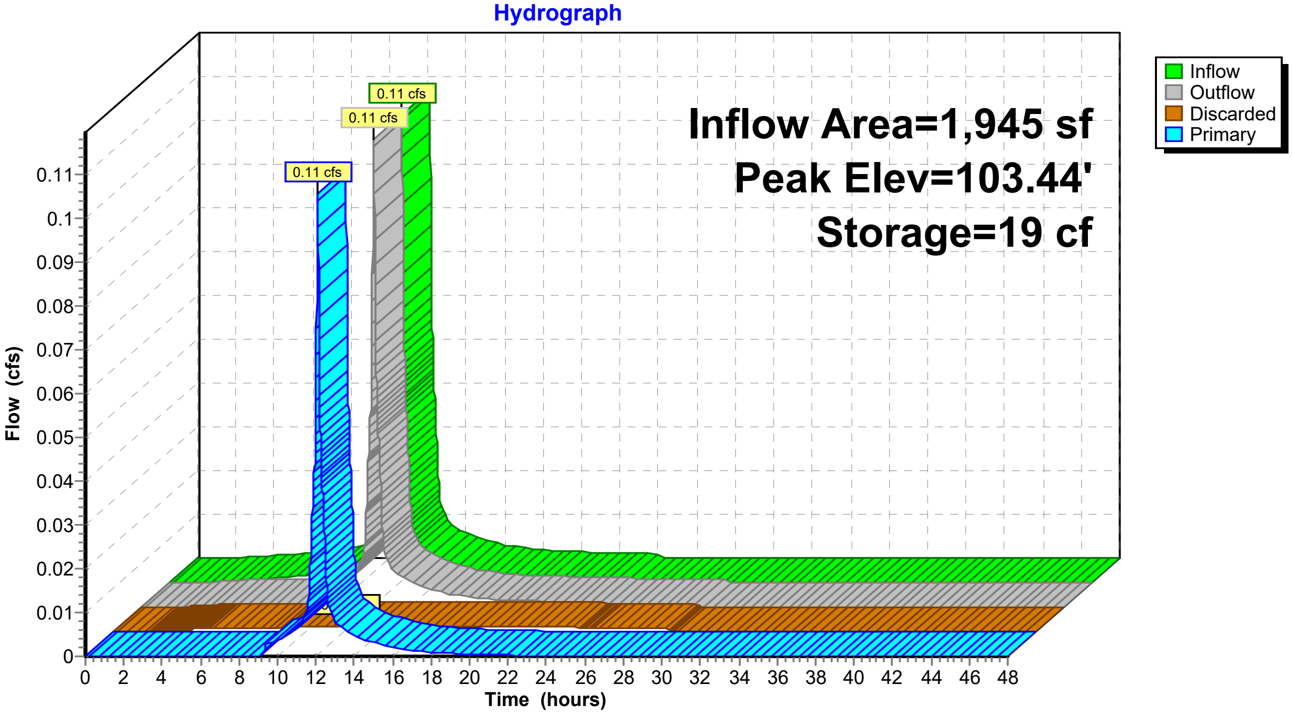
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	36	0	0
103.00	36	36	36
104.00	48	42	78
105.00	60	54	132
106.00	68	64	196

Device	Routing	Invert	Outlet Devices
#1	Primary	103.25'	**12.0" Round Culvert** L= 125.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 103.25' / 102.63' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	102.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	103.25'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=103.44' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.11 cfs @ 12.09 hrs HW=103.44' TW=102.48' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.11 cfs of 0.12 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.11 cfs @ 1.39 fps)

Pond 22P: Tree Box



Summary for Pond 23P: Tree Box

Inflow Area =	10,400 sf,100.00% Impervious,	Inflow Depth = 2.25" for 1-Year event		
Inflow =	0.57 cfs @	12.08 hrs, Volume=	1,951 cf	
Outflow =	0.57 cfs @	12.09 hrs, Volume=	1,951 cf,	Atten= 0%, Lag= 0.1 min
Discarded =	0.00 cfs @	12.09 hrs, Volume=	80 cf	
Primary =	0.57 cfs @	12.09 hrs, Volume=	1,871 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.17' @ 12.09 hrs Surf.Area= 38 sf Storage= 15 cf

Plug-Flow detention time= 6.1 min calculated for 1,951 cf (100% of inflow)
Center-of-Mass det. time= 6.1 min (768.2 - 762.1)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	69 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 196 cf Overall x 35.0% Voids

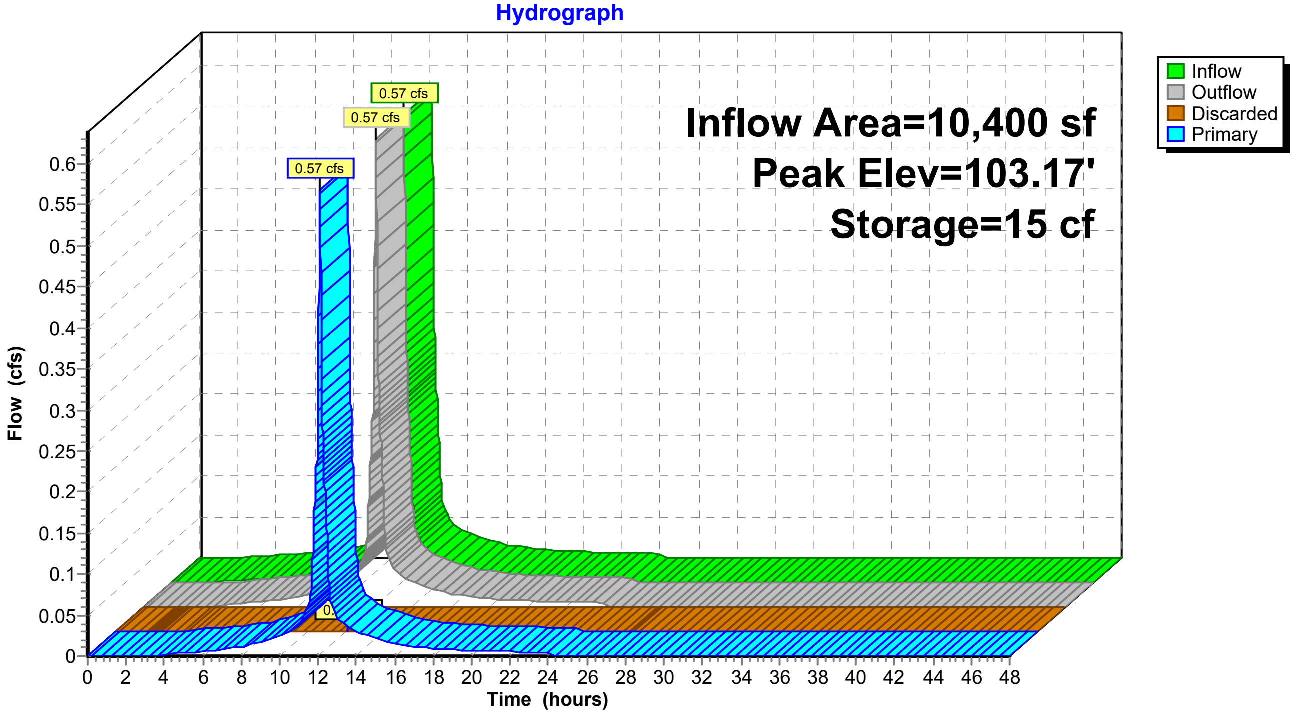
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	36	0	0
103.00	36	36	36
104.00	48	42	78
105.00	60	54	132
106.00	68	64	196

Device	Routing	Invert	Outlet Devices
#1	Primary	102.65'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.65' / 102.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	102.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	102.65'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=103.17' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.57 cfs @ 12.09 hrs HW=103.17' TW=102.48' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.57 cfs of 0.70 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.57 cfs @ 2.19 fps)

Pond 23P: Tree Box



Summary for Pond 24P: (new Pond)

Inflow Area = 6,920 sf,100.00% Impervious, Inflow Depth = 2.25" for 1-Year event
Inflow = 0.38 cfs @ 12.08 hrs, Volume= 1,298 cf
Outflow = 0.05 cfs @ 12.62 hrs, Volume= 1,298 cf, Atten= 87%, Lag= 31.9 min
Discarded = 0.05 cfs @ 12.62 hrs, Volume= 1,298 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 106.57' @ 12.62 hrs Surf.Area= 2,000 sf Storage= 396 cf

Plug-Flow detention time= 51.1 min calculated for 1,298 cf (100% of inflow)
Center-of-Mass det. time= 51.1 min (813.2 - 762.1)

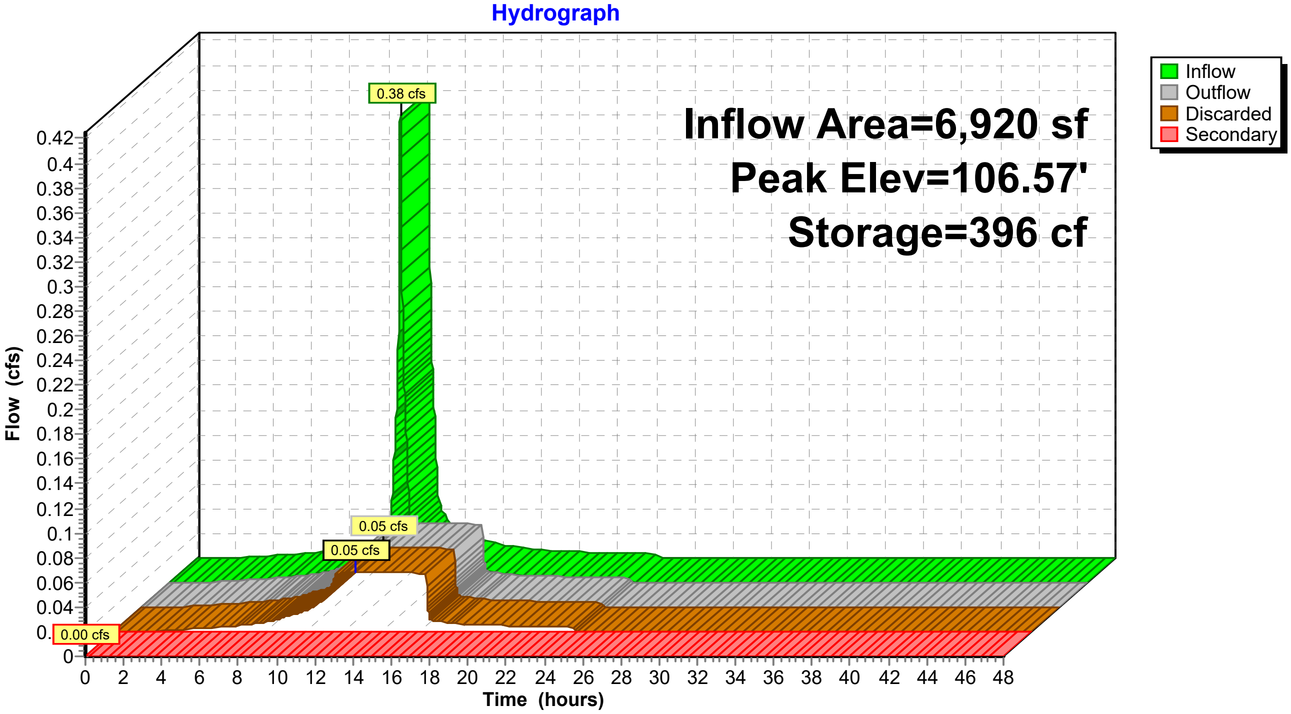
Volume	Invert	Avail.Storage	Storage Description
#1	106.00'	1,120 cf	**40.00'W x 50.00'L x 1.60'H Prismatoid** 3,200 cf Overall x 35.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Secondary	107.00'	**30.0' 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
#2	Discarded	106.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=0.05 cfs @ 12.62 hrs HW=106.57' (Free Discharge)
└─**2=Exfiltration** (Controls 0.05 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=106.00' TW=100.20' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: (new Pond)



Summary for Pond 26P: Tree Box

Inflow Area = 16,145 sf,100.00% Impervious, Inflow Depth = 2.25" for 1-Year event
Inflow = 0.89 cfs @ 12.08 hrs, Volume= 3,028 cf
Outflow = 0.88 cfs @ 12.09 hrs, Volume= 3,028 cf, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 94 cf
Primary = 0.88 cfs @ 12.09 hrs, Volume= 2,934 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.20' @ 12.09 hrs Surf.Area= 48 sf Storage= 27 cf

Plug-Flow detention time= 6.9 min calculated for 3,028 cf (100% of inflow)
Center-of-Mass det. time= 6.9 min (769.0 - 762.1)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	96 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 274 cf Overall x 35.0% Voids

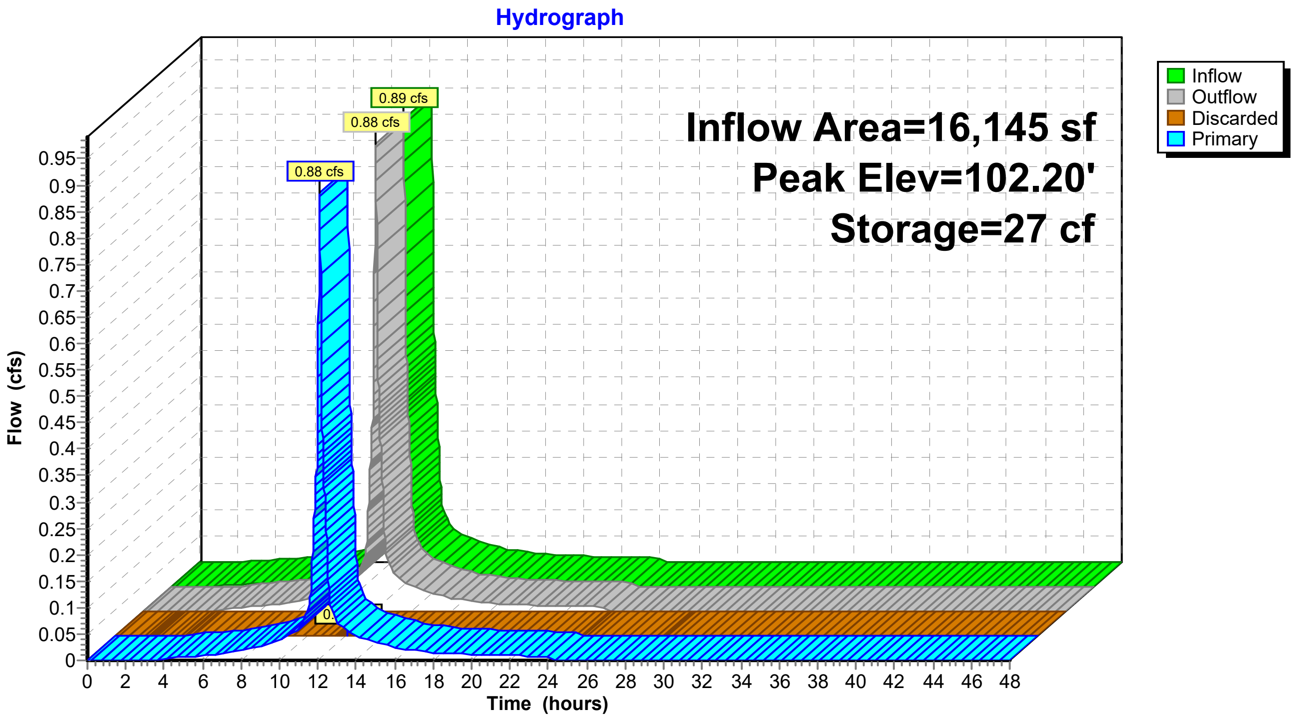
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	36	0	0
101.20	36	36	36
102.20	48	42	78
103.20	60	54	132
104.20	72	66	198
105.20	80	76	274

Device	Routing	Invert	Outlet Devices
#1	Primary	101.30'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.30' / 101.25' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.30'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=102.20' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.88 cfs @ 12.09 hrs HW=102.20' TW=102.09' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.88 cfs of 1.16 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.88 cfs @ 1.55 fps)

Pond 26P: Tree Box



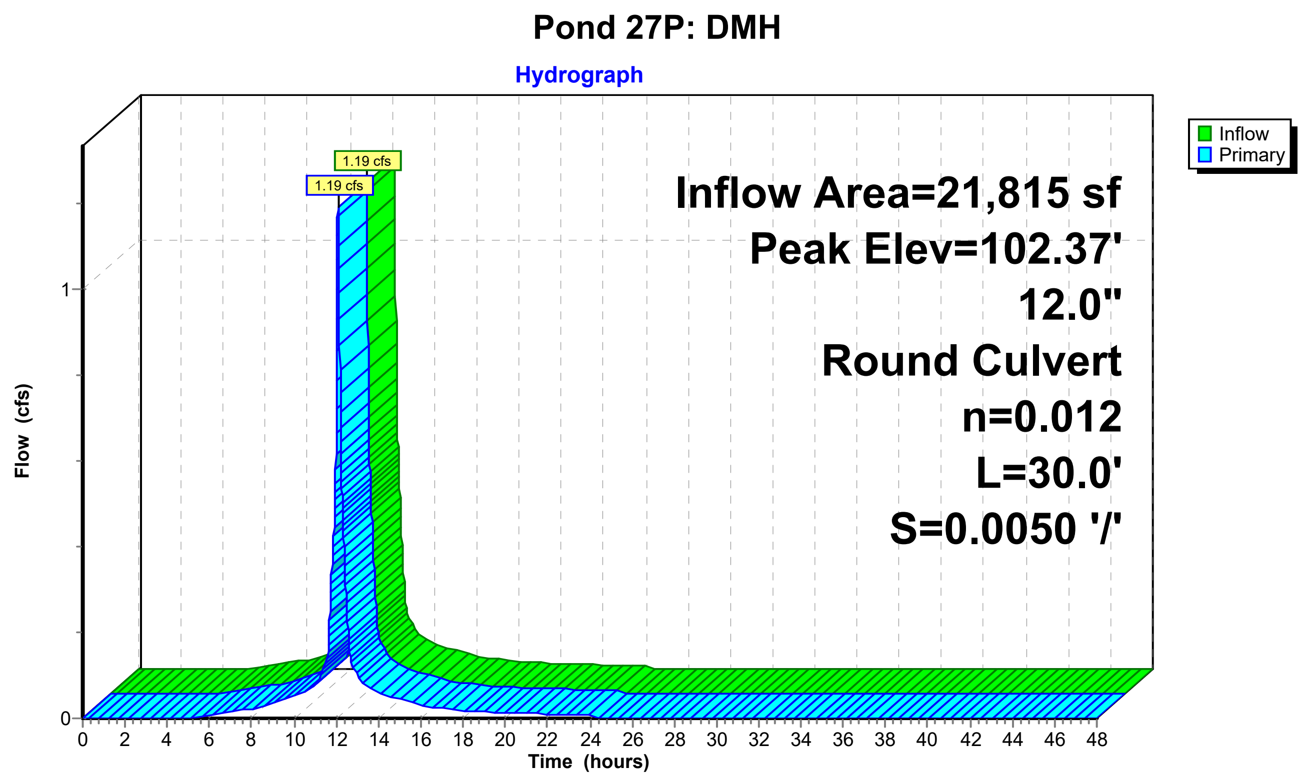
Summary for Pond 27P: DMH

Inflow Area =	21,815 sf,100.00% Impervious,	Inflow Depth = 2.07"	for 1-Year event	
Inflow =	1.19 cfs @	12.09 hrs, Volume=	3,772 cf	
Outflow =	1.19 cfs @	12.09 hrs, Volume=	3,772 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.19 cfs @	12.09 hrs, Volume=	3,772 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.37' @ 12.09 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.70'	**12.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.70' / 101.55' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.19 cfs @ 12.09 hrs HW=102.37' TW=101.89' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.19 cfs @ 2.99 fps)



Summary for Pond 29P: DMH

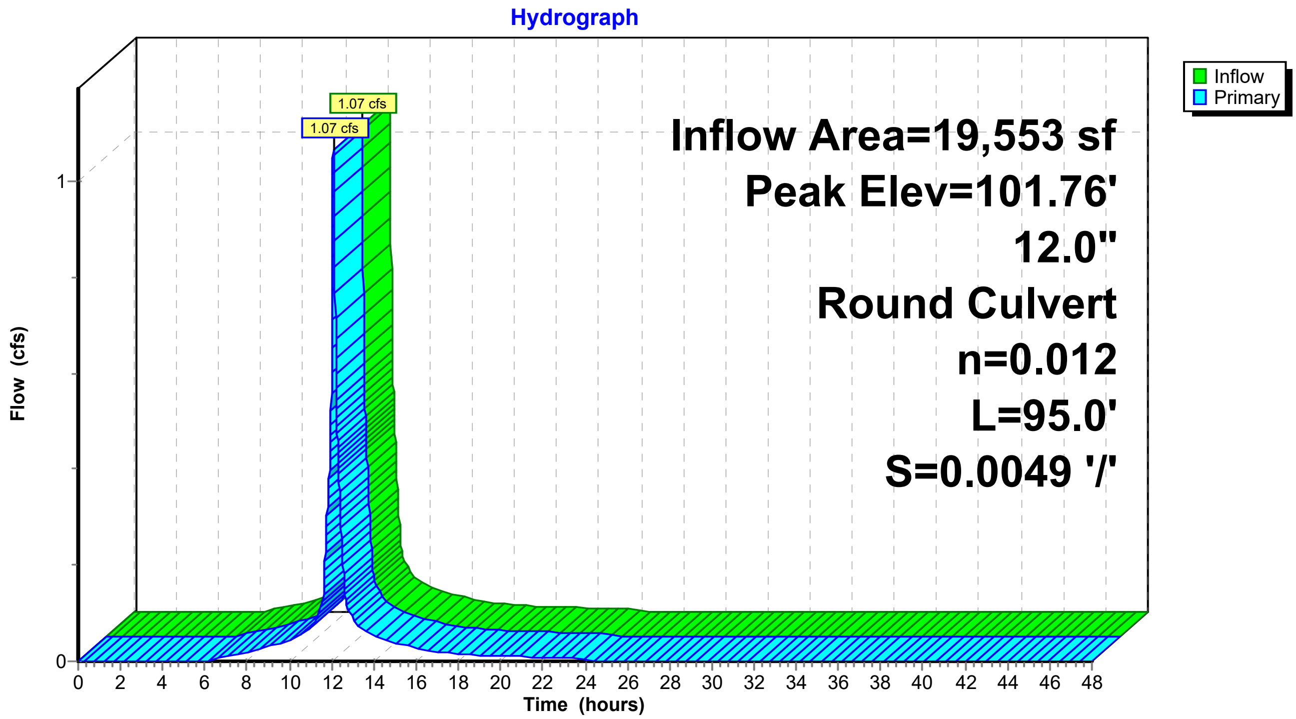
Inflow Area =	19,553 sf,100.00% Impervious,	Inflow Depth = 2.03"	for 1-Year event	
Inflow =	1.07 cfs @	12.08 hrs, Volume=	3,309 cf	
Outflow =	1.07 cfs @	12.08 hrs, Volume=	3,309 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.07 cfs @	12.08 hrs, Volume=	3,309 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.76' @ 12.09 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.08'	**12.0" Round Culvert** L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.08' / 100.61' S= 0.0049 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.07 cfs @ 12.08 hrs HW=101.76' TW=101.32' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 1.07 cfs @ 2.66 fps)

Pond 29P: DMH



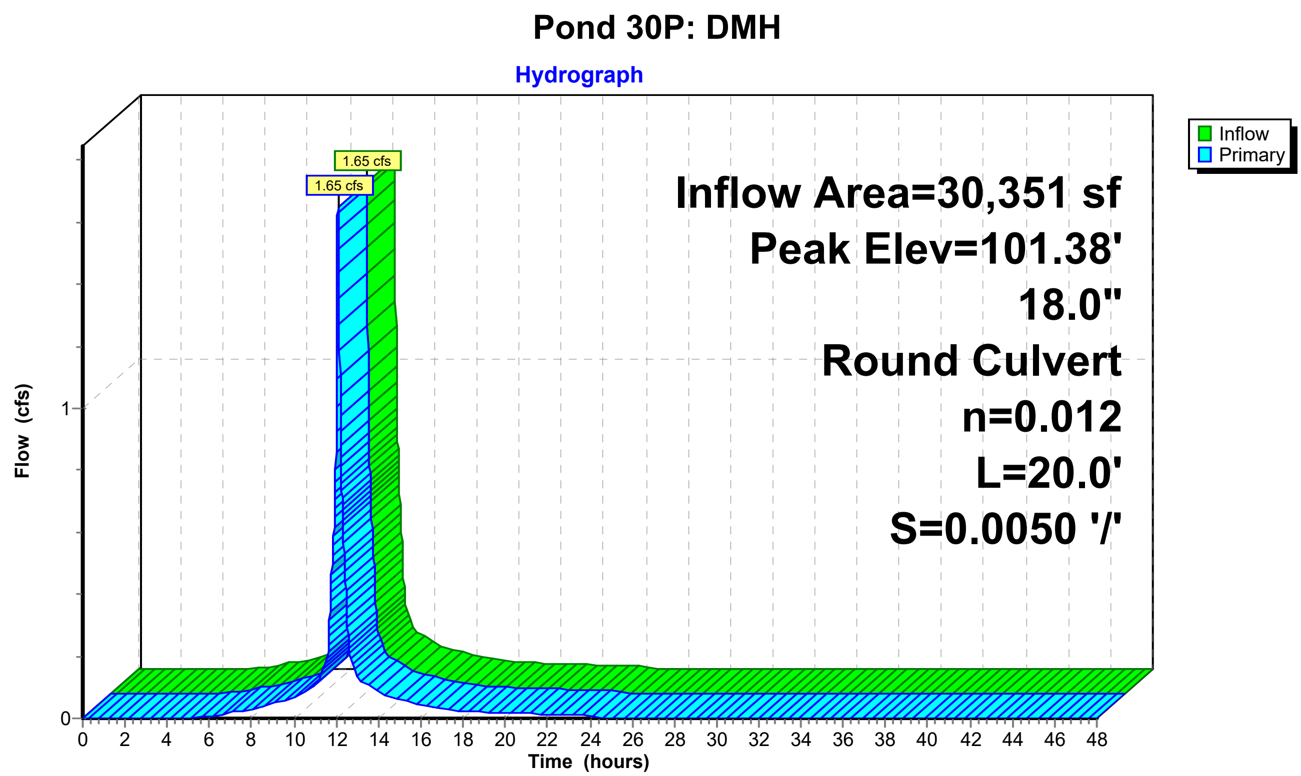
Summary for Pond 30P: DMH

Inflow Area =	30,351 sf,100.00% Impervious,	Inflow Depth = 2.05"	for 1-Year event		
Inflow =	1.65 cfs @	12.09 hrs, Volume=	5,176 cf		
Outflow =	1.65 cfs @	12.09 hrs, Volume=	5,176 cf,	Atten= 0%,	Lag= 0.0 min
Primary =	1.65 cfs @	12.09 hrs, Volume=	5,176 cf		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.38' @ 12.31 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.60'	**18.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.60' / 100.50' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.65 cfs @ 12.09 hrs HW=101.32' TW=101.07' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.65 cfs @ 2.88 fps)



Summary for Pond 31P: DMH

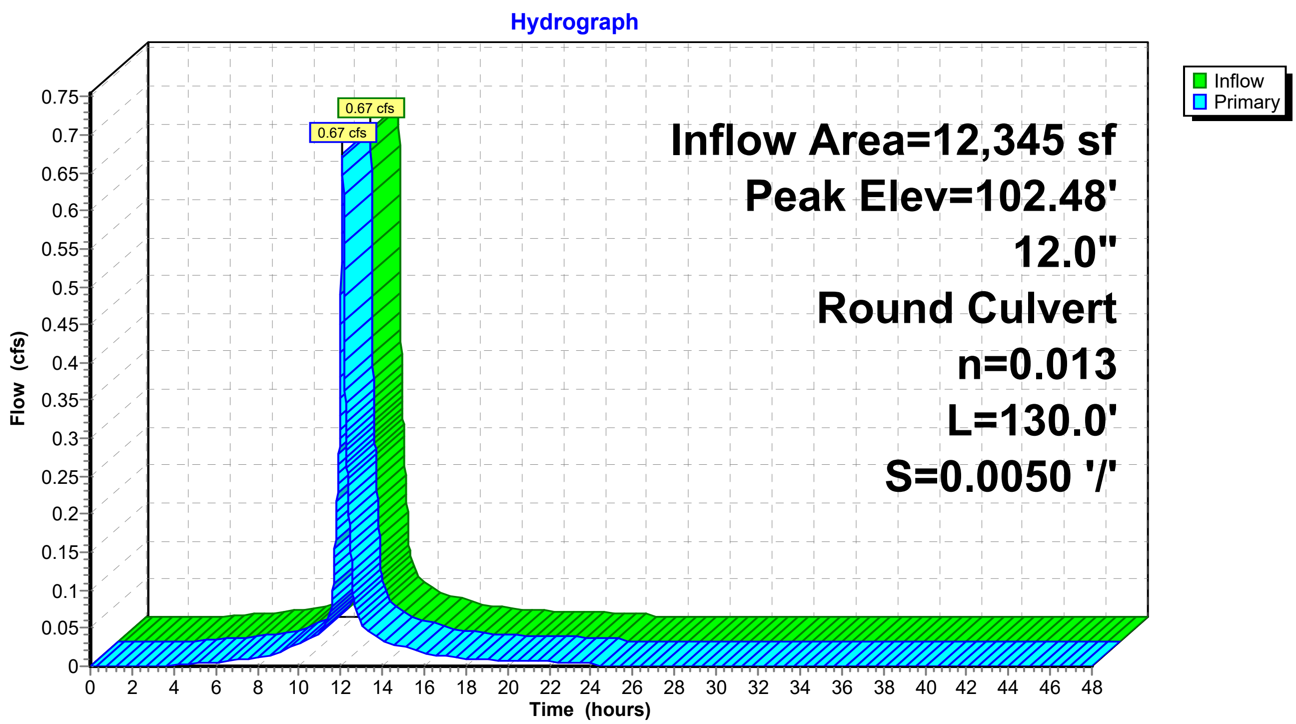
Inflow Area = 12,345 sf,100.00% Impervious, Inflow Depth = 2.09" for 1-Year event
Inflow = 0.67 cfs @ 12.09 hrs, Volume= 2,147 cf
Outflow = 0.67 cfs @ 12.09 hrs, Volume= 2,147 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.09 hrs, Volume= 2,147 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.48' @ 12.09 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.90'	**12.0" Round Culvert** L= 130.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.90' / 101.25' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.67 cfs @ 12.09 hrs HW=102.48' TW=102.09' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.67 cfs @ 2.04 fps)

Pond 31P: DMH



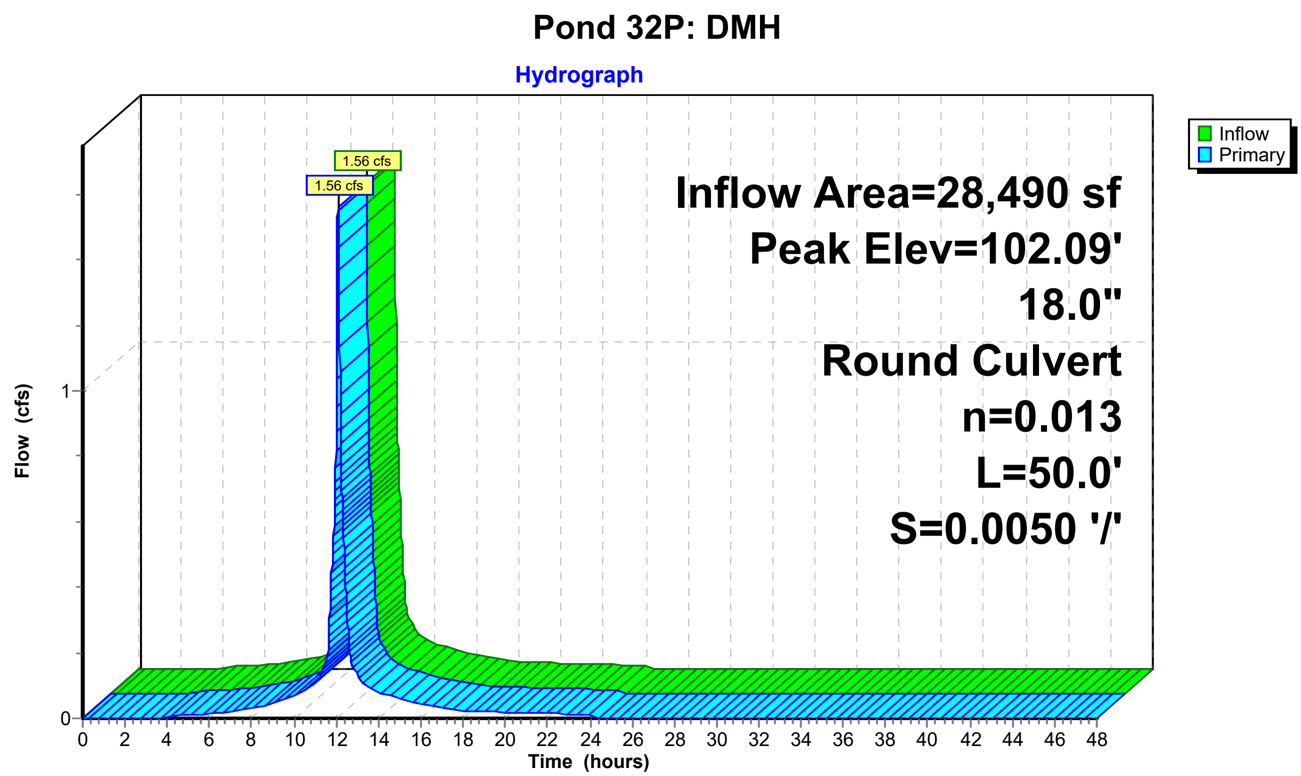
Summary for Pond 32P: DMH

Inflow Area =	28,490 sf,100.00% Impervious,	Inflow Depth = 2.14" for 1-Year event			
Inflow =	1.56 cfs @	12.09 hrs,	Volume=	5,081 cf	
Outflow =	1.56 cfs @	12.09 hrs,	Volume=	5,081 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.56 cfs @	12.09 hrs,	Volume=	5,081 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.09' @ 12.09 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.25'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.25' / 101.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.56 cfs @ 12.09 hrs HW=102.09' TW=101.89' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 1.56 cfs @ 2.21 fps)



Summary for Pond 33P: DMH

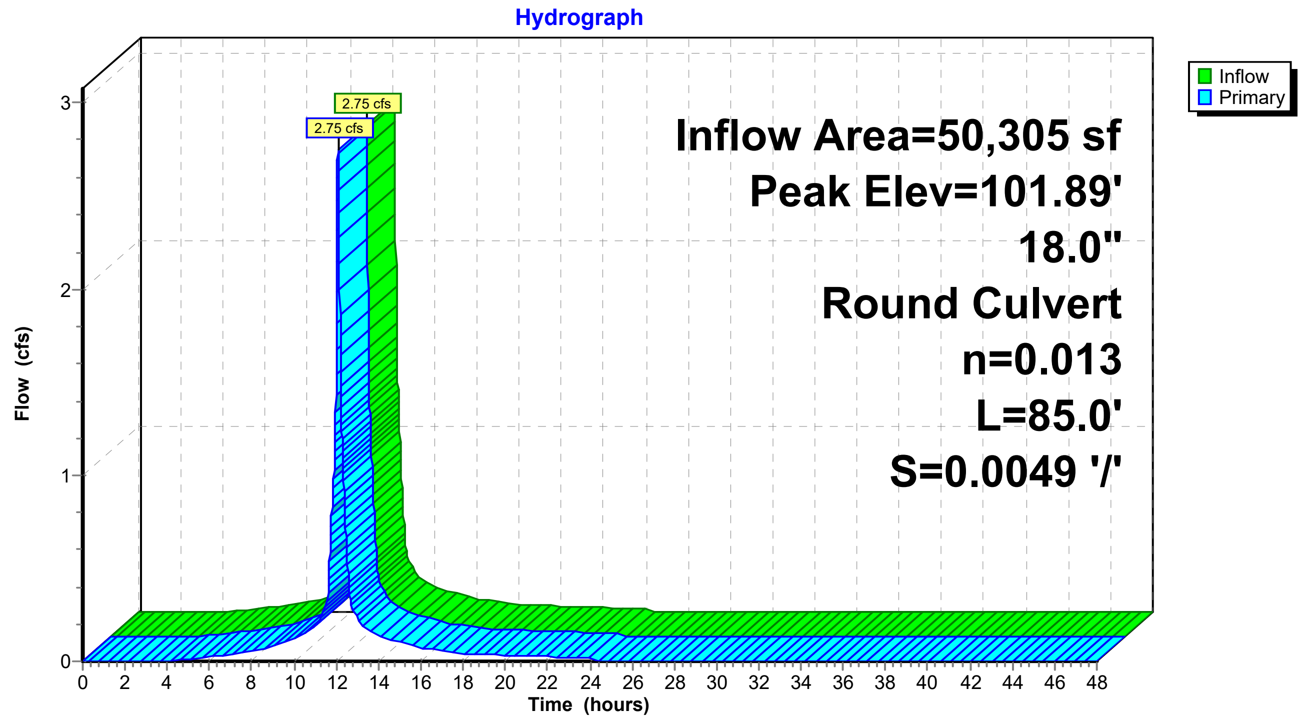
Inflow Area =	50,305 sf,100.00% Impervious,	Inflow Depth = 2.11"	for 1-Year event	
Inflow =	2.75 cfs @	12.09 hrs, Volume=	8,853 cf	
Outflow =	2.75 cfs @	12.09 hrs, Volume=	8,853 cf,	Atten= 0%, Lag= 0.0 min
Primary =	2.75 cfs @	12.09 hrs, Volume=	8,853 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.89' @ 12.09 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.00'	**18.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.00' / 100.58' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.74 cfs @ 12.09 hrs HW=101.89' TW=100.79' (Dynamic Tailwater)
1=Culvert (Barrel Controls 2.74 cfs @ 3.59 fps)

Pond 33P: DMH



Summary for Pond 34P: Tree Box

Inflow Area = 11,350 sf,100.00% Impervious, Inflow Depth = 2.25" for 1-Year event
Inflow = 0.62 cfs @ 12.08 hrs, Volume= 2,129 cf
Outflow = 0.62 cfs @ 12.09 hrs, Volume= 2,129 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 168 cf
Primary = 0.62 cfs @ 12.09 hrs, Volume= 1,961 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.09' @ 12.09 hrs Surf.Area= 43 sf Storage= 35 cf
Flood Elev= 107.00' Surf.Area= 8 sf Storage= 52 cf

Plug-Flow detention time= 15.4 min calculated for 2,128 cf (100% of inflow)
Center-of-Mass det. time= 15.4 min (777.5 - 762.1)

Volume	Invert	Avail.Storage	Storage Description
#1	101.60'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

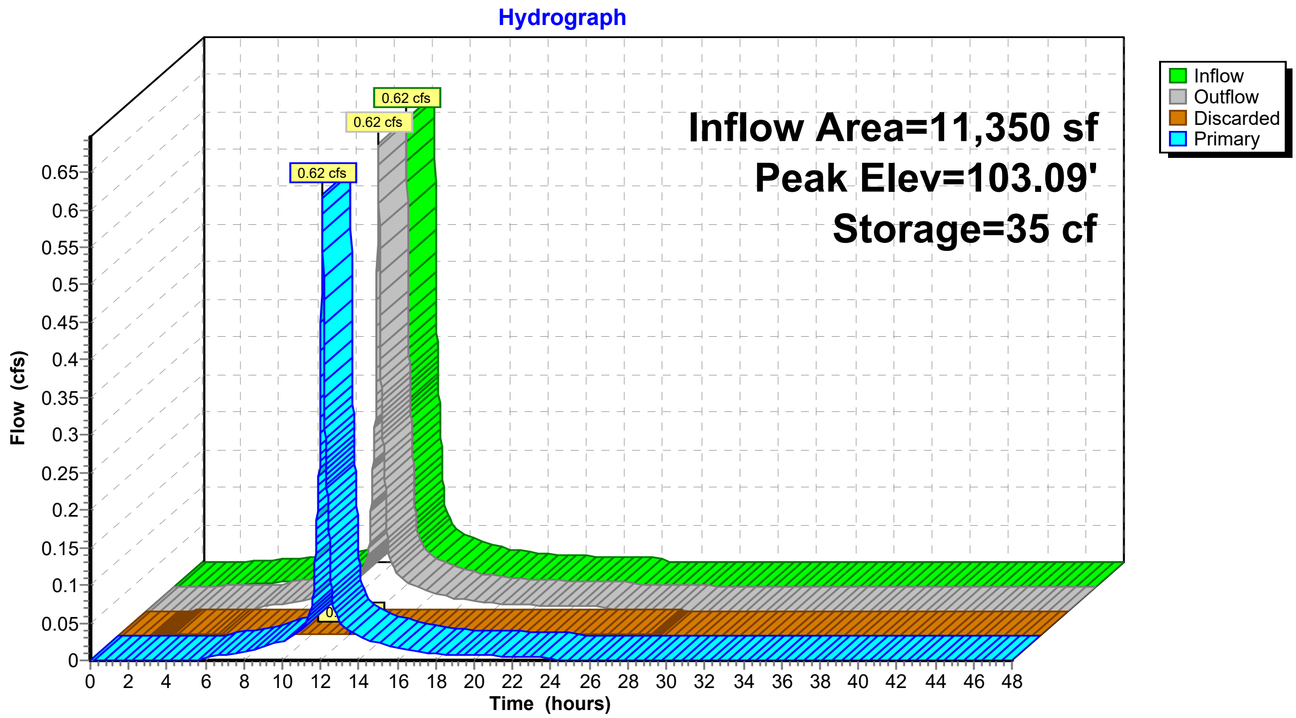
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.60	72	0	0
102.60	72	72	72
103.60	12	42	114
104.60	12	12	126
105.60	12	12	138
106.60	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	102.55'	**12.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.55' / 102.05' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	101.60'	**1.020 in/hr Exfiltration over Horizontal area above 101.55'** Conductivity to Groundwater Elevation = 90.00' Excluded Horizontal area = 0 sf Phase-In= 0.01'
#3	Device 1	102.55'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=103.09' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.62 cfs @ 12.09 hrs HW=103.09' TW=102.37' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.62 cfs of 0.88 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.62 cfs @ 2.24 fps)

Pond 34P: Tree Box



Summary for Pond 36P: Tree Box

Inflow Area = 10,465 sf,100.00% Impervious, Inflow Depth = 2.25" for 1-Year event
Inflow = 0.57 cfs @ 12.08 hrs, Volume= 1,963 cf
Outflow = 0.57 cfs @ 12.09 hrs, Volume= 1,963 cf, Atten= 0%, Lag= 0.3 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 152 cf
Primary = 0.57 cfs @ 12.09 hrs, Volume= 1,811 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.65' @ 12.09 hrs Surf.Area= 69 sf Storage= 26 cf
Flood Elev= 106.00' Surf.Area= 10 sf Storage= 50 cf

Plug-Flow detention time= 9.0 min calculated for 1,963 cf (100% of inflow)
Center-of-Mass det. time= 9.0 min (771.1 - 762.1)

Volume	Invert	Avail.Storage	Storage Description
#1	101.60'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

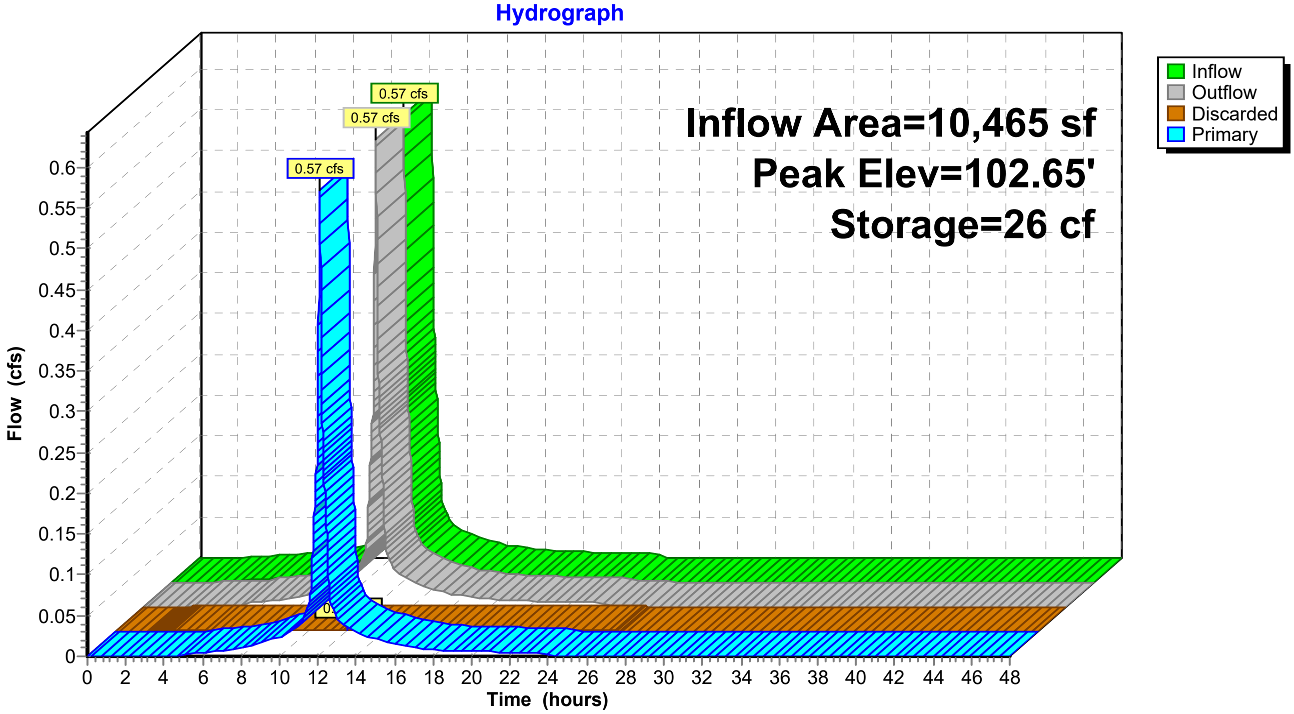
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.60	72	0	0
102.60	72	72	72
103.60	12	42	114
104.60	12	12	126
105.60	12	12	138
106.60	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	102.10'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.10' / 101.60' S= 0.0500 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	101.60'	**1.020 in/hr Exfiltration over Horizontal area above 101.10'** Conductivity to Groundwater Elevation = 90.00' Excluded Horizontal area = 0 sf Phase-In= 0.01'
#3	Device 1	102.10'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=102.65' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.57 cfs @ 12.09 hrs HW=102.65' TW=102.37' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.57 cfs of 0.94 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 0.57 cfs @ 2.03 fps)

Pond 36P: Tree Box

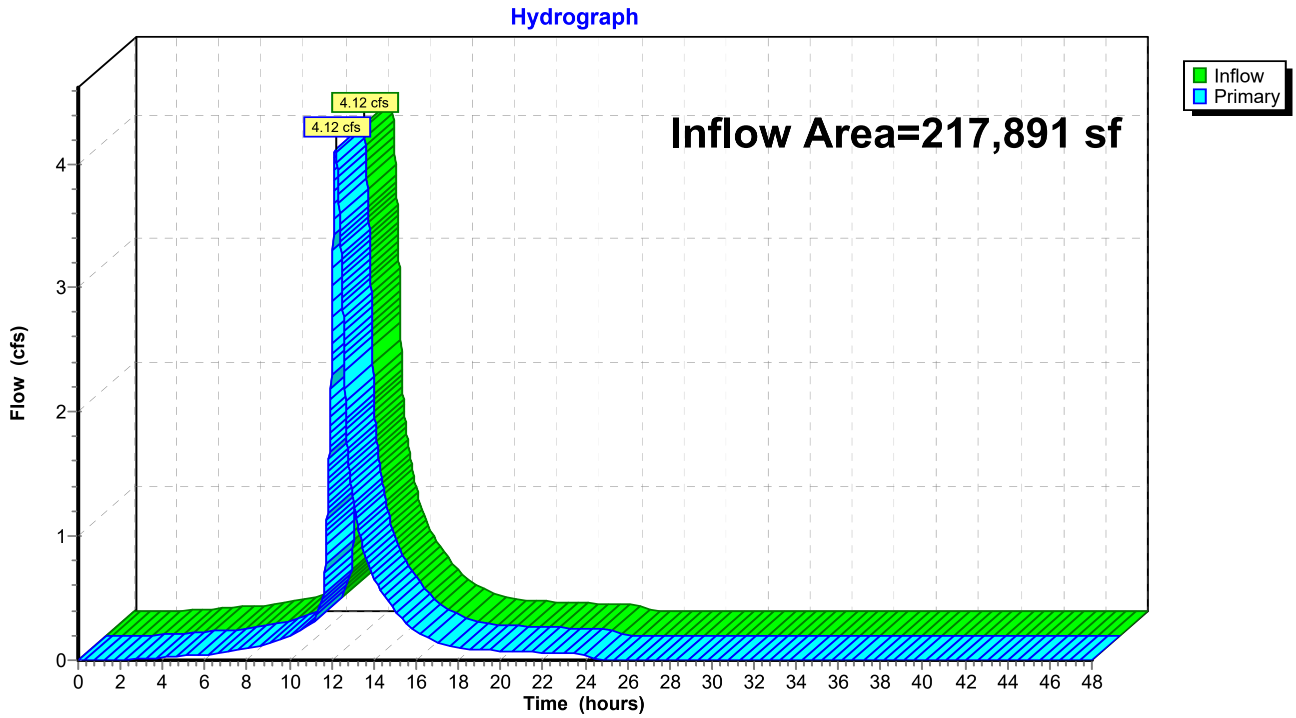


Summary for Link 1L: (new Link)

Inflow Area = 217,891 sf, 82.73% Impervious, Inflow Depth = 1.33" for 1-Year event
Inflow = 4.12 cfs @ 12.19 hrs, Volume= 24,163 cf
Primary = 4.12 cfs @ 12.19 hrs, Volume= 24,163 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 1L: (new Link)



Summary for Subcatchment 2S: Open Space

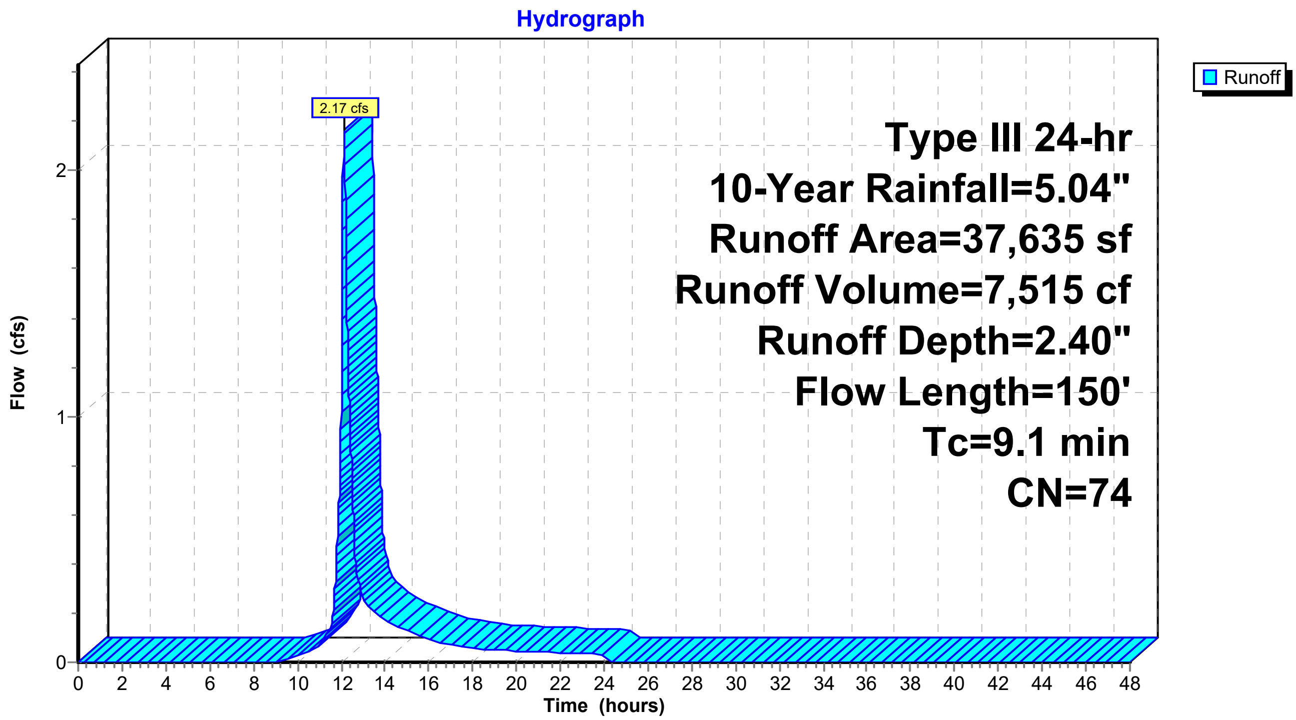
Runoff = 2.17 cfs @ 12.13 hrs, Volume= 7,515 cf, Depth= 2.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
37,635	74	>75% Grass cover, Good, HSG C
37,635	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow, Open Space** Grass: Dense n= 0.240 P2= 3.30"
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Open Space** Grassed Waterway Kv= 15.0 fps
0.6	50	0.0400	1.40		**Shallow Concentrated Flow, Open Space** Short Grass Pasture Kv= 7.0 fps
9.1	150	Total			

Subcatchment 2S: Open Space



Summary for Subcatchment 3S: Brewery Roof

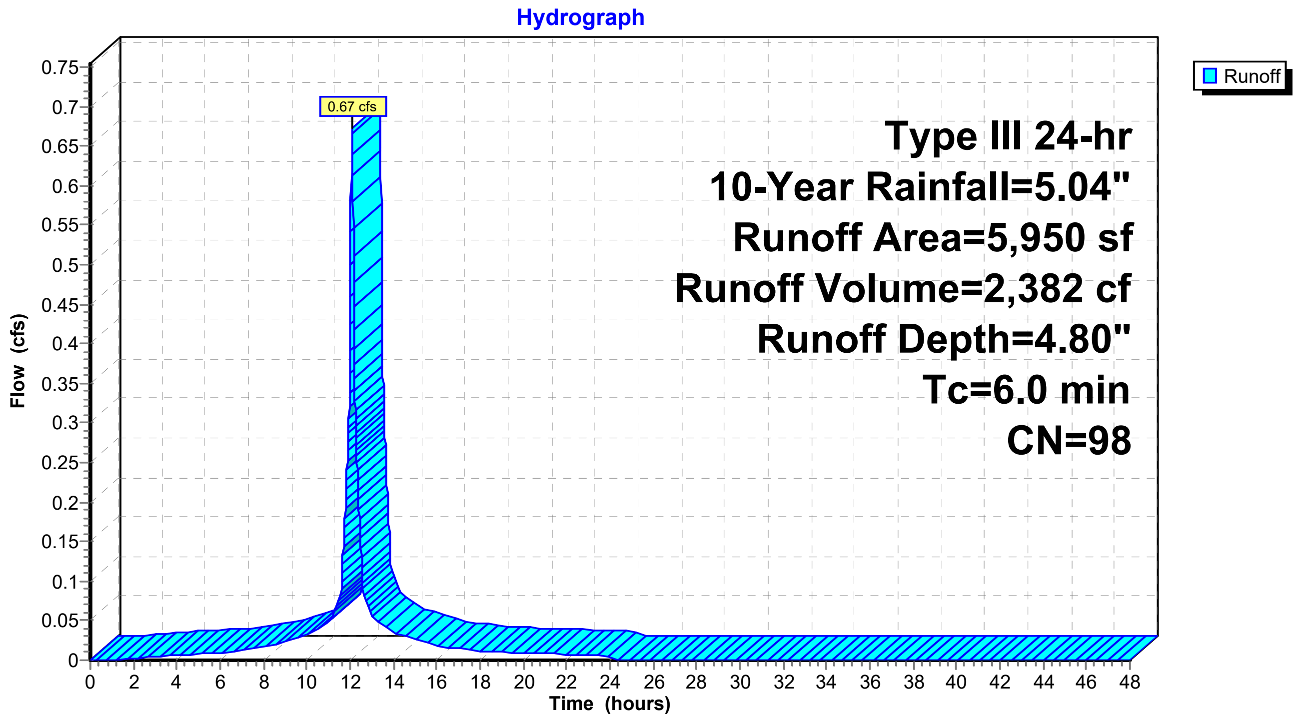
Runoff = 0.67 cfs @ 12.08 hrs, Volume= 2,382 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
5,950	98	Roofs, HSG D
5,950	98	100.00% Impervious Area

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

Subcatchment 3S: Brewery Roof



Summary for Subcatchment 5Sa: Athletic Roof

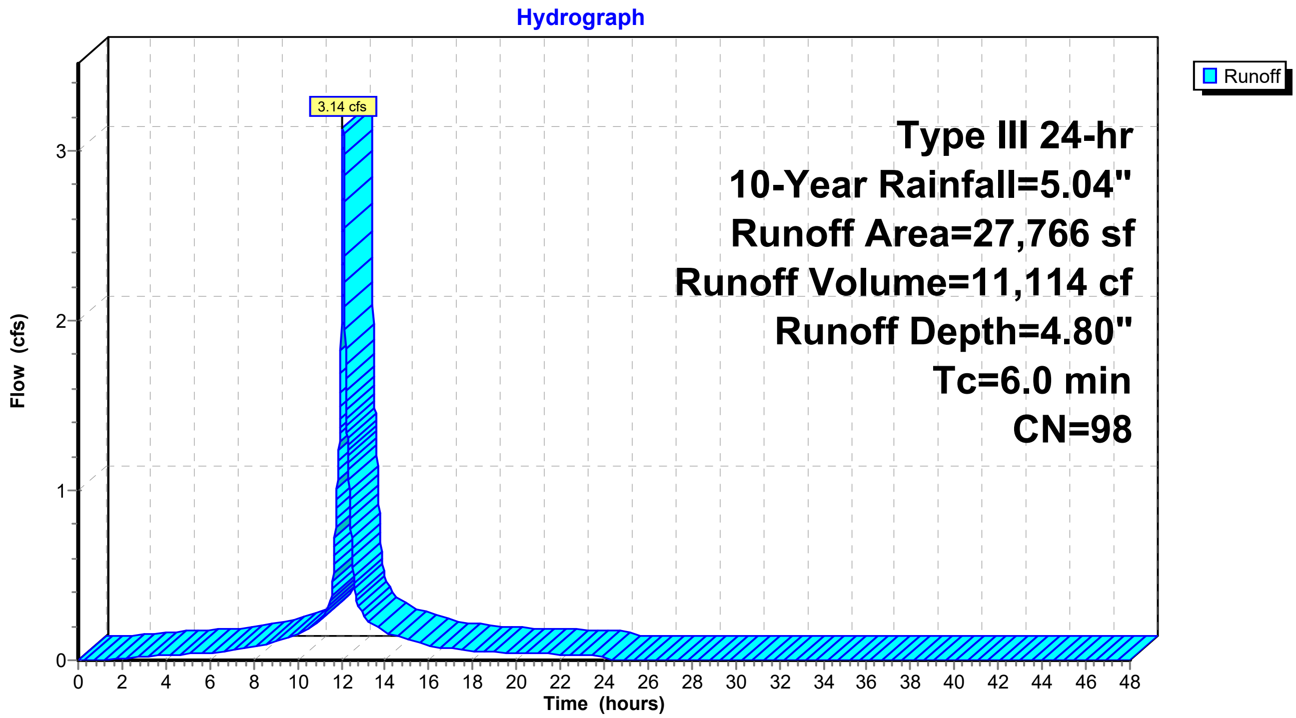
Runoff = 3.14 cfs @ 12.08 hrs, Volume= 11,114 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
27,766	98	Roofs, HSG D
27,766	98	100.00% Impervious Area

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

Subcatchment 5Sa: Athletic Roof



Summary for Subcatchment 5Sb: Athletic Roof

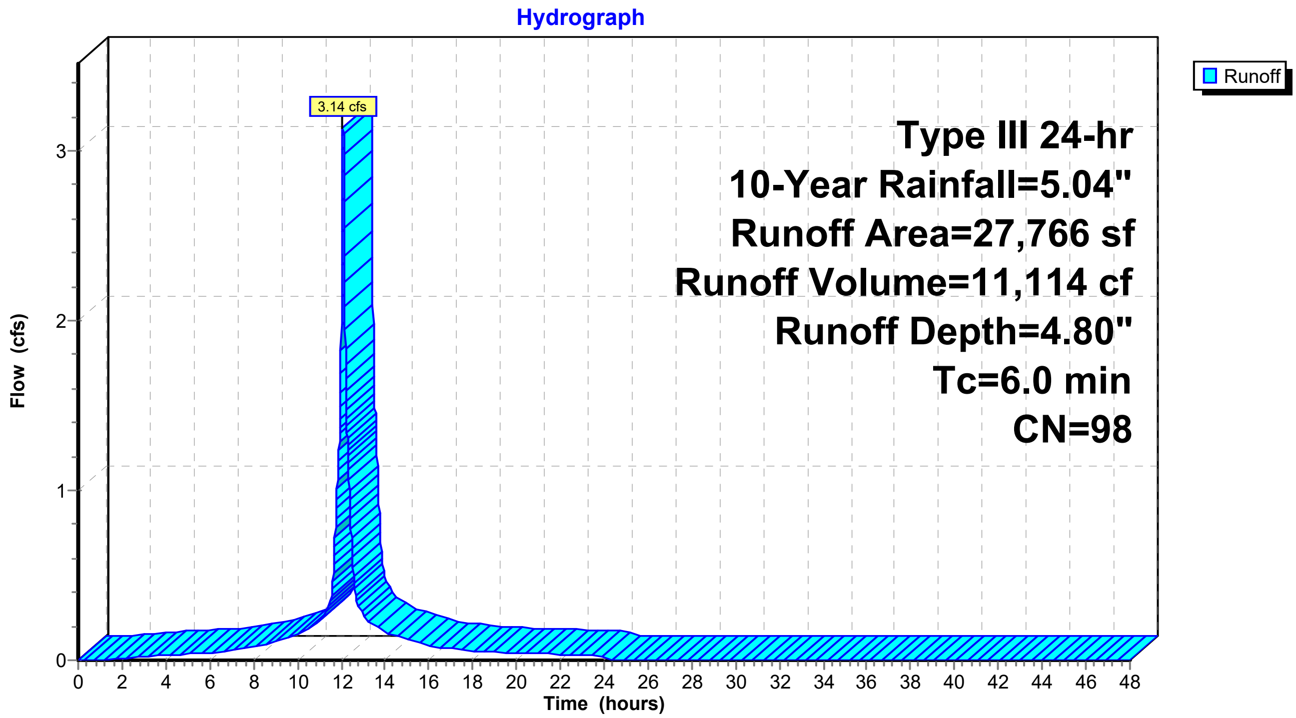
Runoff = 3.14 cfs @ 12.08 hrs, Volume= 11,114 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
27,766	98	Roofs, HSG D
27,766	98	100.00% Impervious Area

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

Subcatchment 5Sb: Athletic Roof



Summary for Subcatchment 6S: Residential Roof

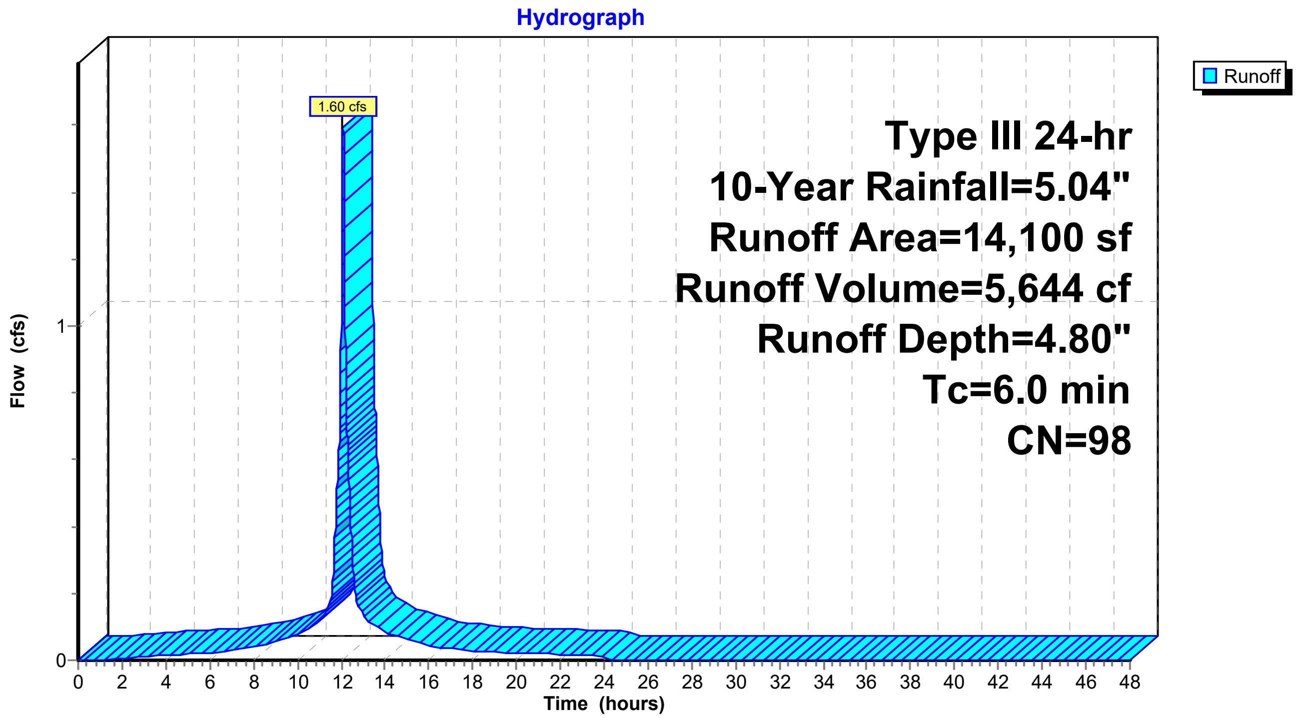
Runoff = 1.60 cfs @ 12.08 hrs, Volume= 5,644 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
14,100	98	Roofs, HSG D
14,100	98	100.00% Impervious Area

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

Subcatchment 6S: Residential Roof



Summary for Subcatchment 11S: Parking/Pavement

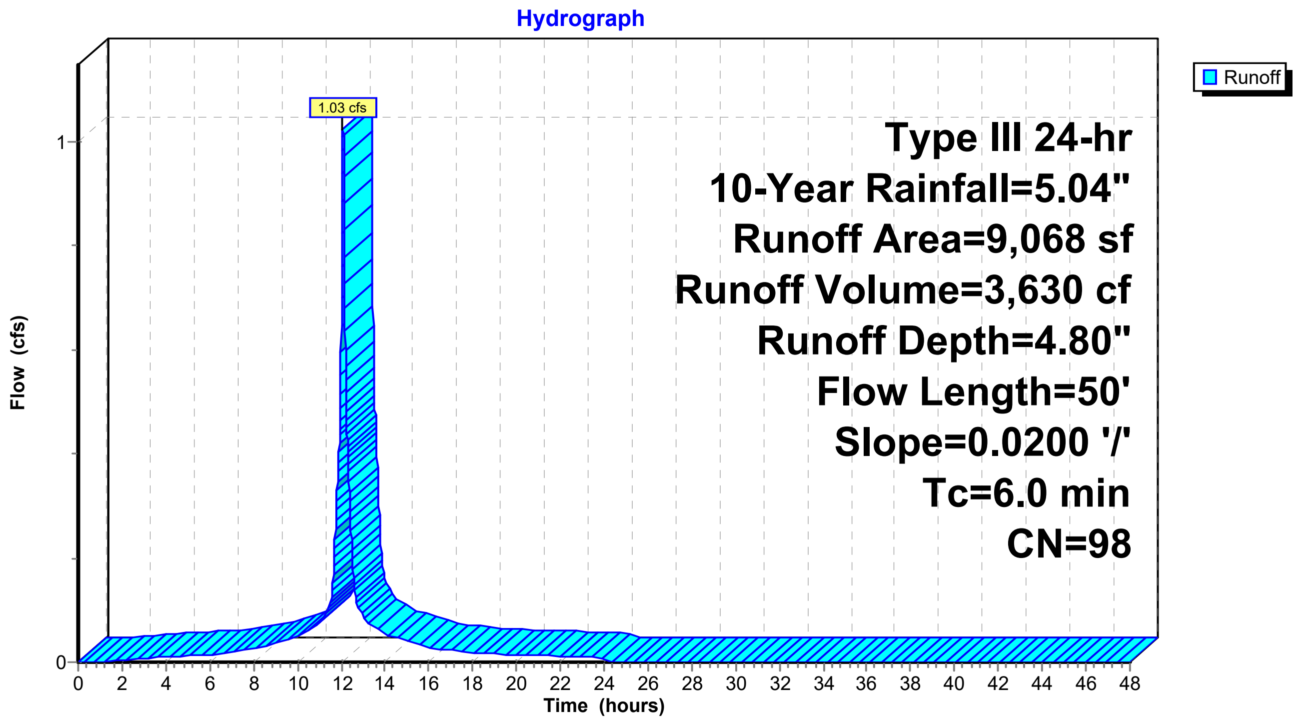
Runoff = 1.03 cfs @ 12.08 hrs, Volume= 3,630 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
9,068	98	Paved parking, HSG C
9,068	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 11S: Parking/Pavement



Summary for Subcatchment 12S: Parking/Pavement

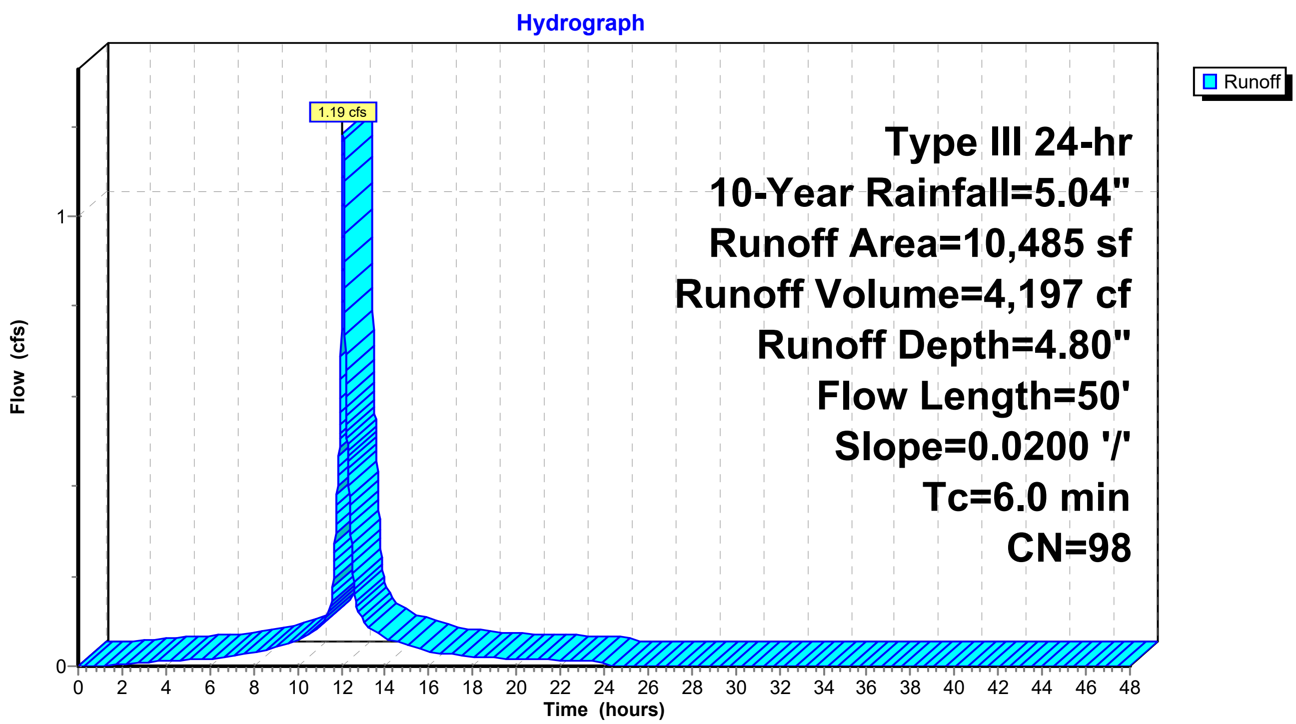
Runoff = 1.19 cfs @ 12.08 hrs, Volume= 4,197 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
10,485	98	Paved parking, HSG C
10,485	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total,	Increased to minimum Tc = 6.0 min		

Subcatchment 12S: Parking/Pavement



Summary for Subcatchment 13S: Parking/Pavement

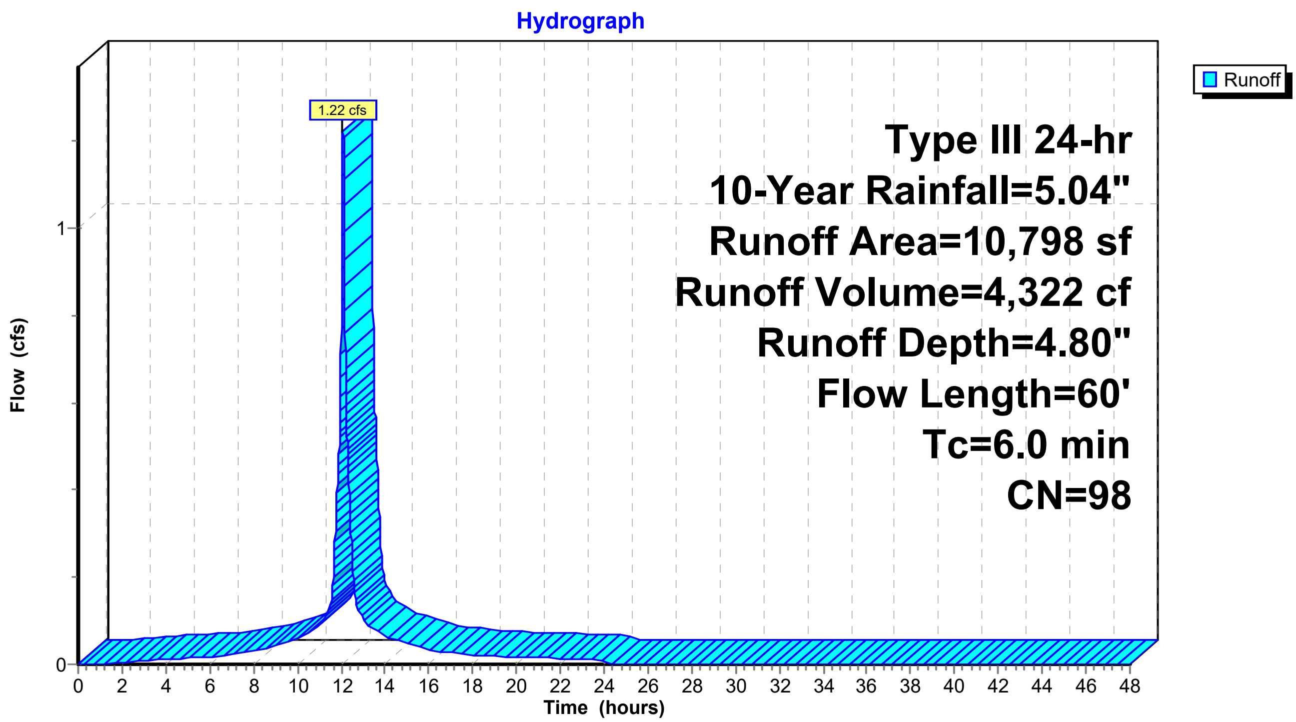
Runoff = 1.22 cfs @ 12.08 hrs, Volume= 4,322 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
10,798	98	Paved parking, HSG C
10,798	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	10	0.0050	0.04		**Sheet Flow, Landscapeing** Grass: Dense n= 0.240 P2= 3.30"
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
4.6	60	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S: Parking/Pavement



Summary for Subcatchment 15S: Parking/Pavement

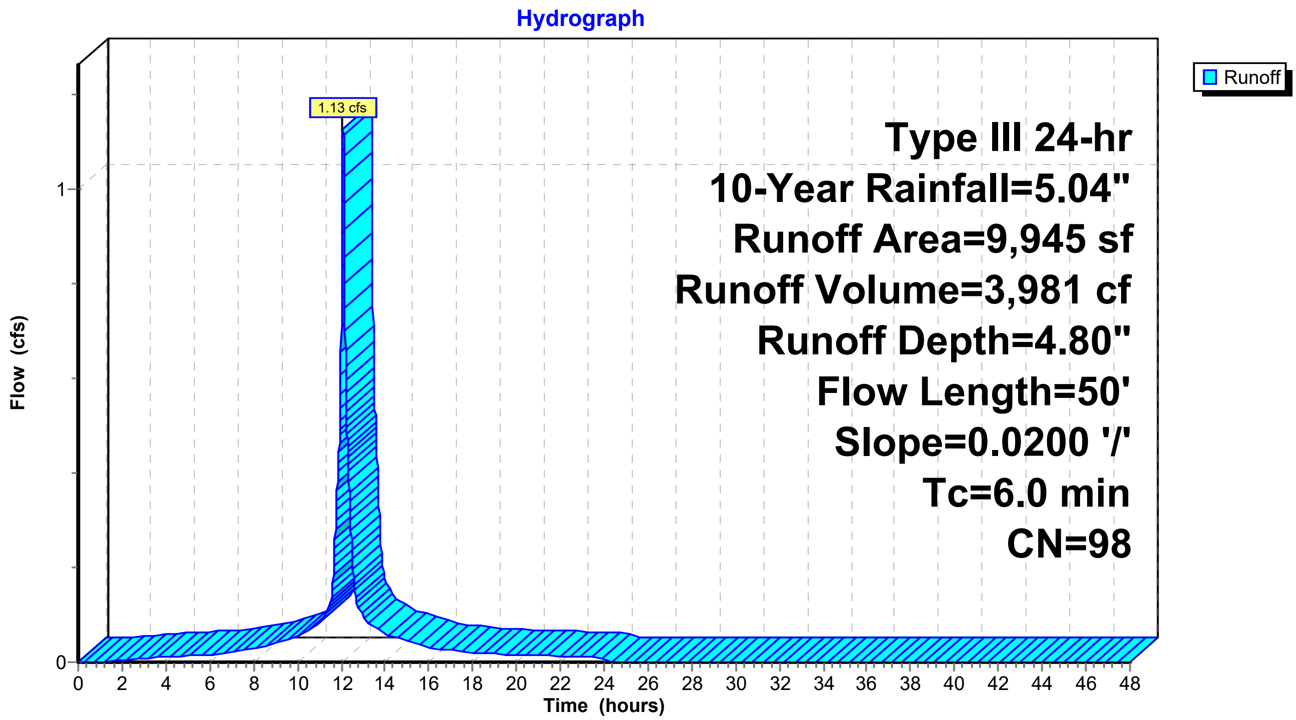
Runoff = 1.13 cfs @ 12.08 hrs, Volume= 3,981 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
9,945	98	Paved parking, HSG C
9,945	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 15S: Parking/Pavement



Summary for Subcatchment 16S: Parking/Pavement

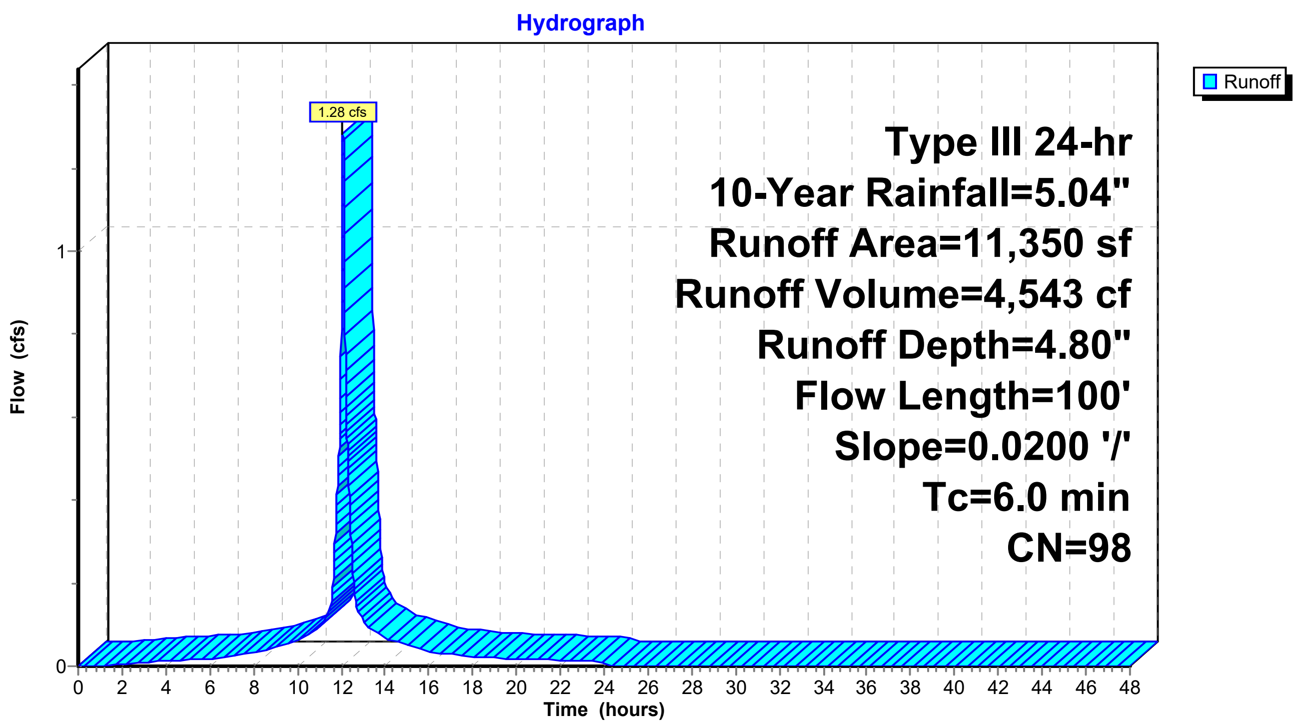
Runoff = 1.28 cfs @ 12.08 hrs, Volume= 4,543 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
11,350	98	Paved parking, HSG C
11,350	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 16S: Parking/Pavement



Summary for Subcatchment 17S: Parking/Pavement

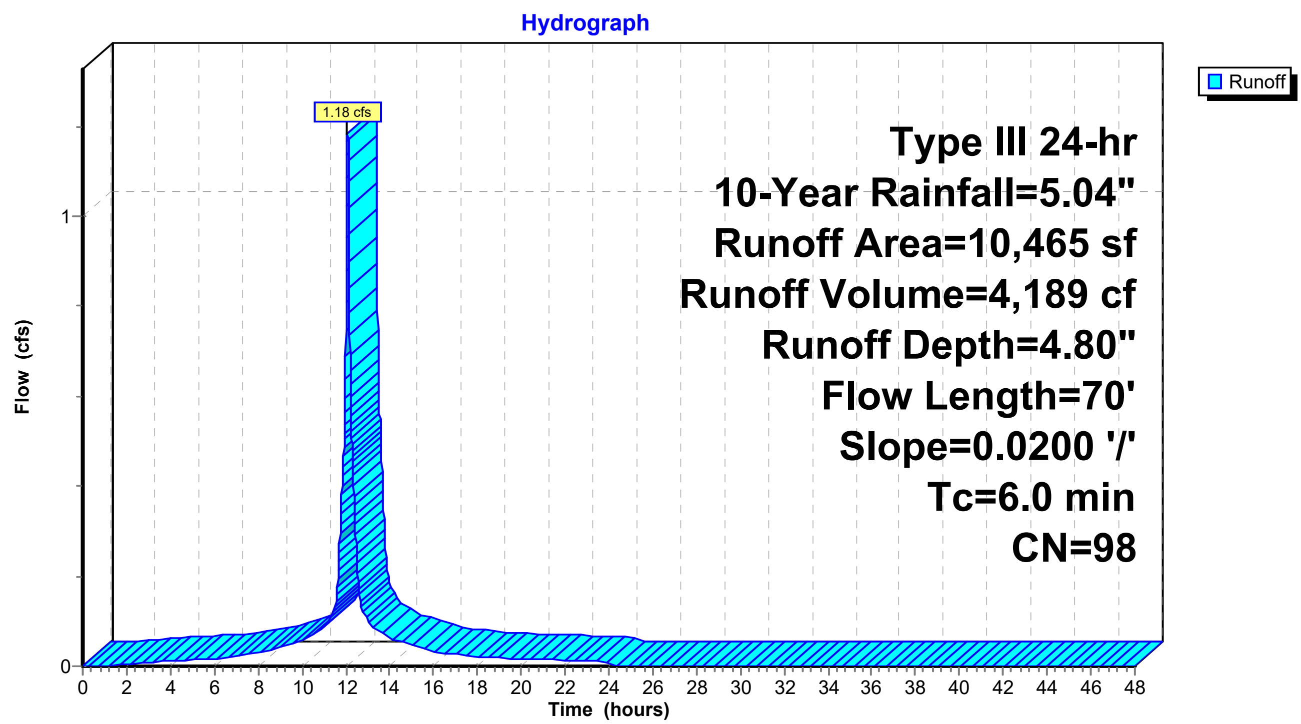
Runoff = 1.18 cfs @ 12.08 hrs, Volume= 4,189 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
10,465	98	Paved parking, HSG C
10,465	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	70	0.0200	1.30		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.9	70	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 17S: Parking/Pavement



Summary for Subcatchment 18S: Parking/Pavement

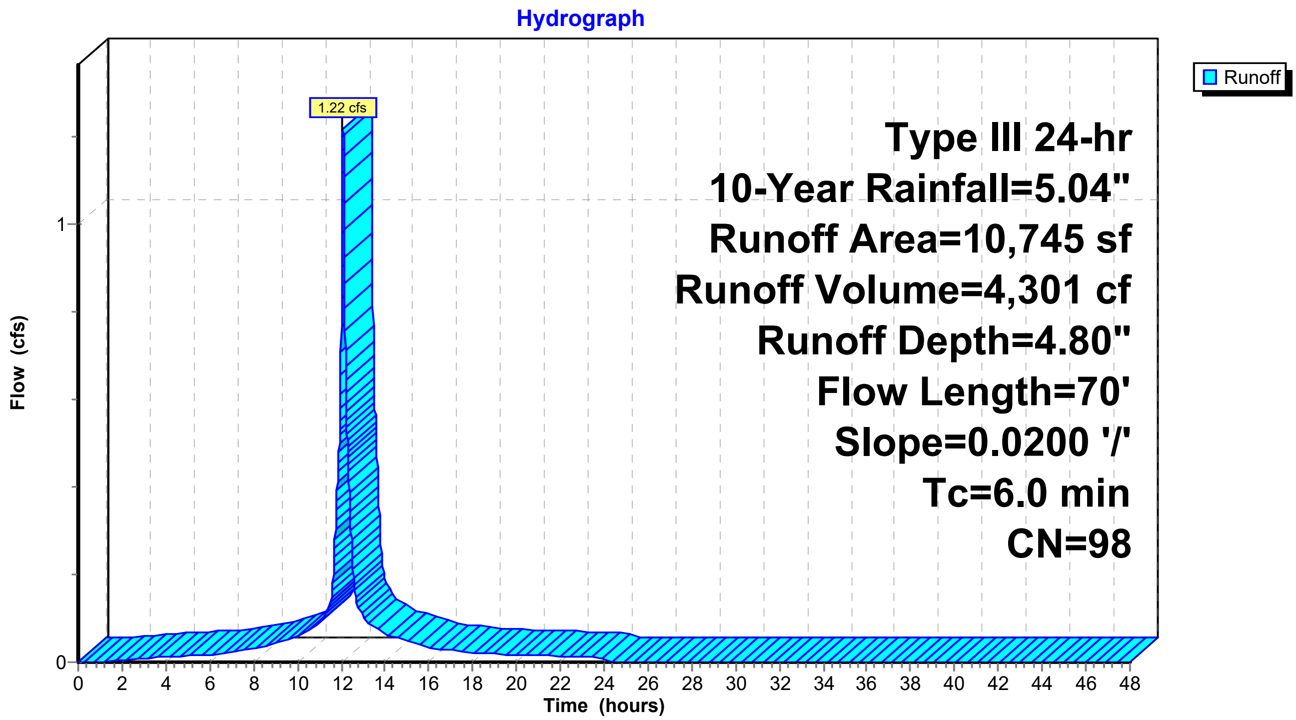
Runoff = 1.22 cfs @ 12.08 hrs, Volume= 4,301 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
10,745	98	Paved parking, HSG C
10,745	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	70	0.0200	1.30		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.9	70	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 18S: Parking/Pavement



Summary for Subcatchment 19S: Parking/Pavement

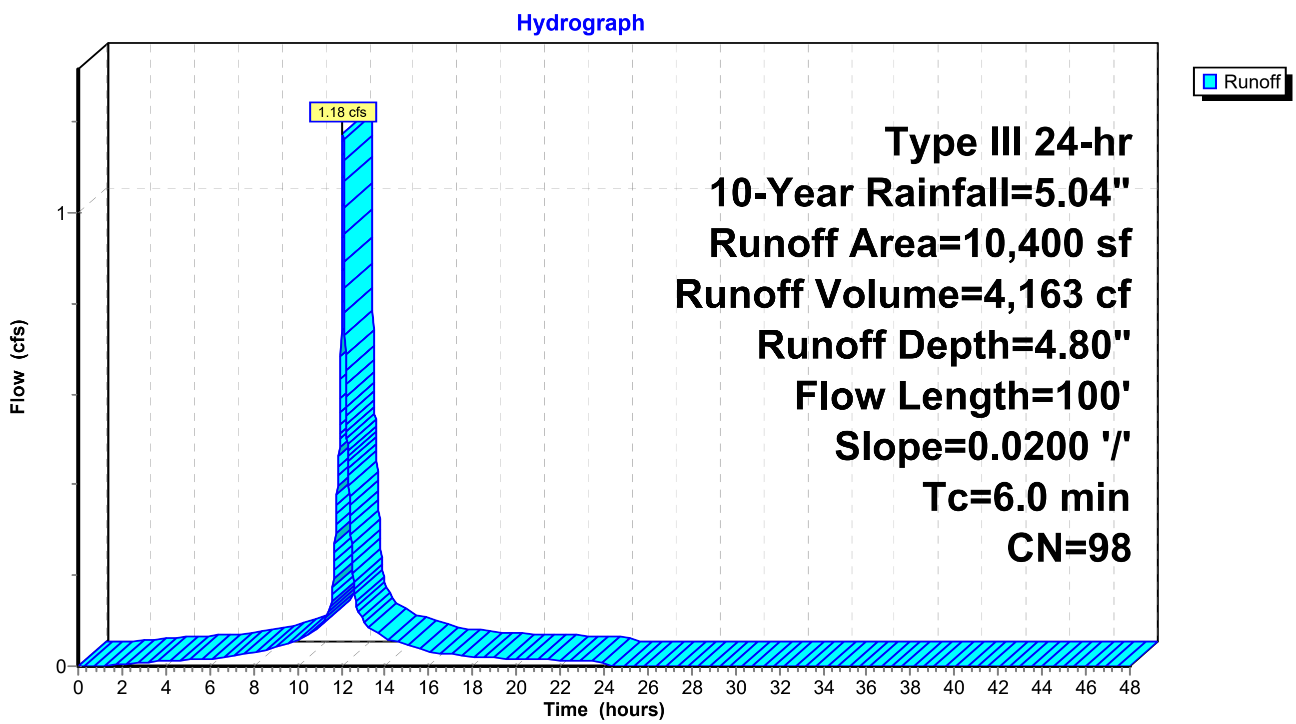
Runoff = 1.18 cfs @ 12.08 hrs, Volume= 4,163 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
10,400	98	Paved parking, HSG C
10,400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 19S: Parking/Pavement



Summary for Subcatchment 20S: Parking/Pavement

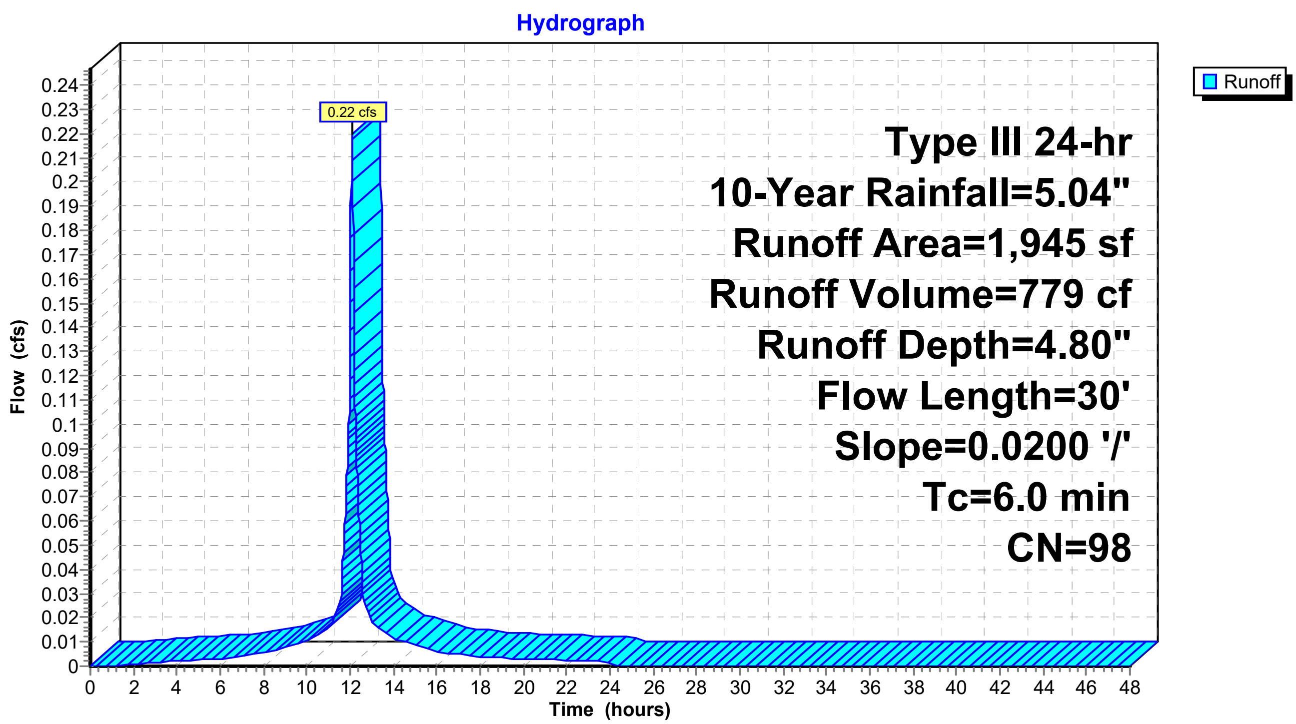
Runoff = 0.22 cfs @ 12.08 hrs, Volume= 779 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
1,945	98	Paved parking, HSG C
1,945	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	30	0.0200	1.10		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.5	30	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 20S: Parking/Pavement



Summary for Subcatchment 21S: Parking/Pavement

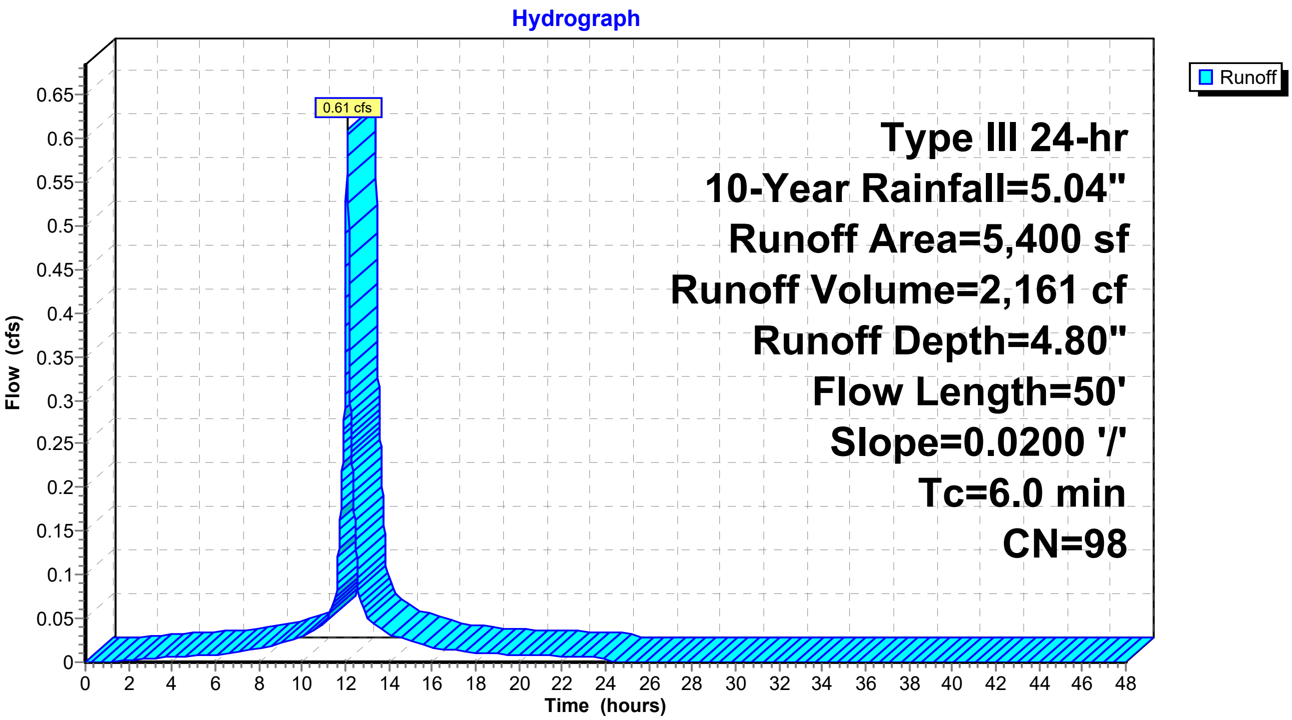
Runoff = 0.61 cfs @ 12.08 hrs, Volume= 2,161 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
5,400	98	Paved parking, HSG C
5,400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 21S: Parking/Pavement



Summary for Subcatchment 22: Parking/Pavement

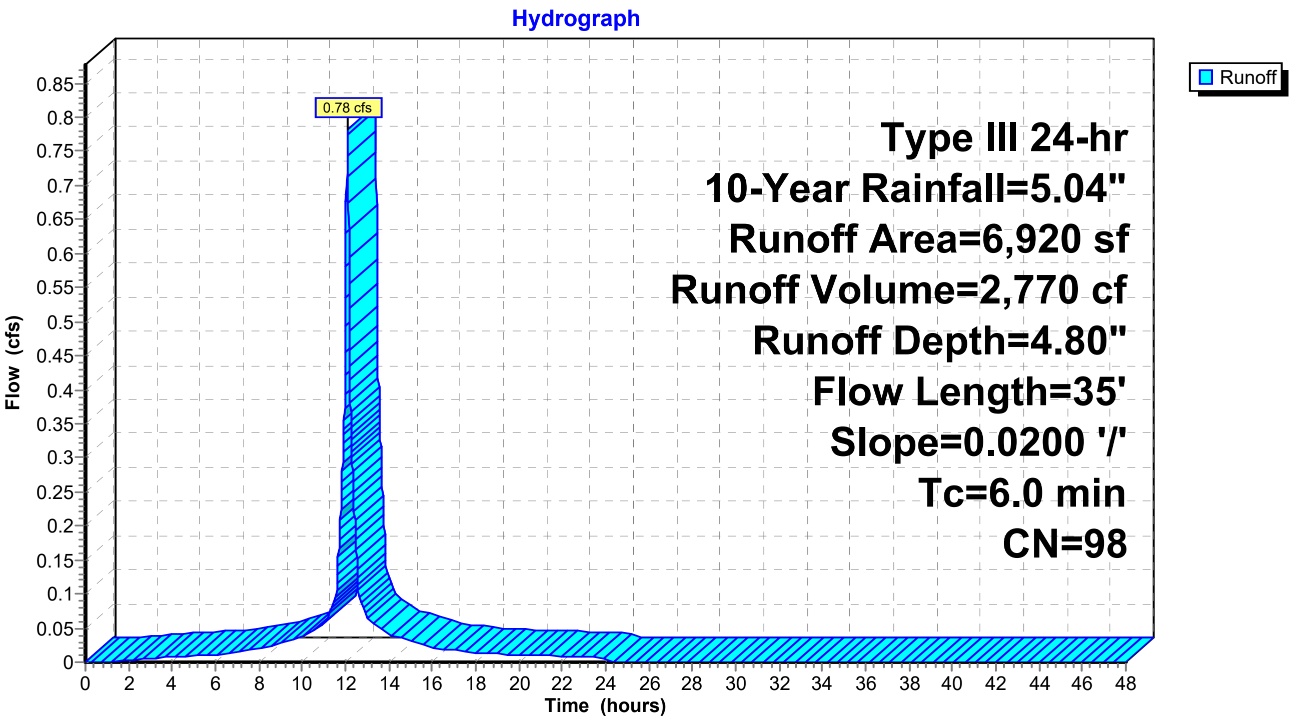
Runoff = 0.78 cfs @ 12.08 hrs, Volume= 2,770 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
6,920	98	Paved parking, HSG C
6,920	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	35	0.0200	1.13		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
0.5	35	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 22: Parking/Pavement



Summary for Subcatchment 23S: Parking/Pavement

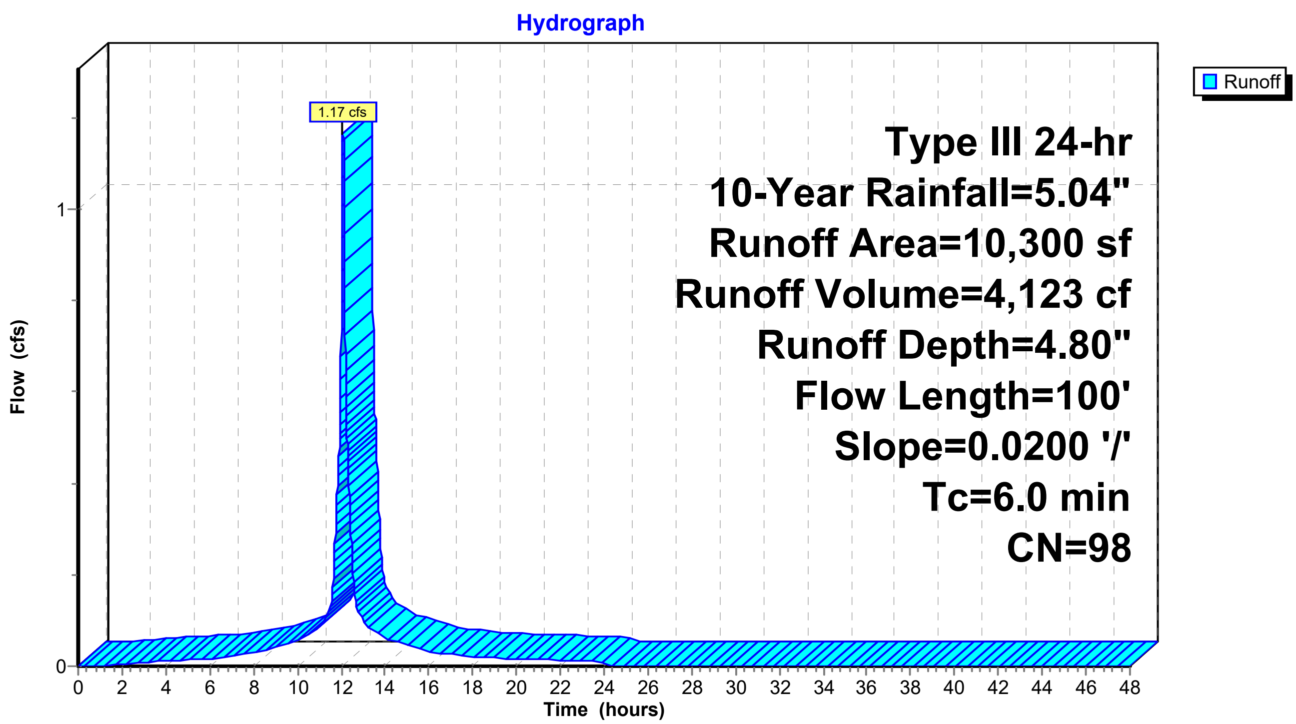
Runoff = 1.17 cfs @ 12.08 hrs, Volume= 4,123 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
10,300	98	Paved parking, HSG C
10,300	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 23S: Parking/Pavement



Summary for Subcatchment 37S: Grocery Roof

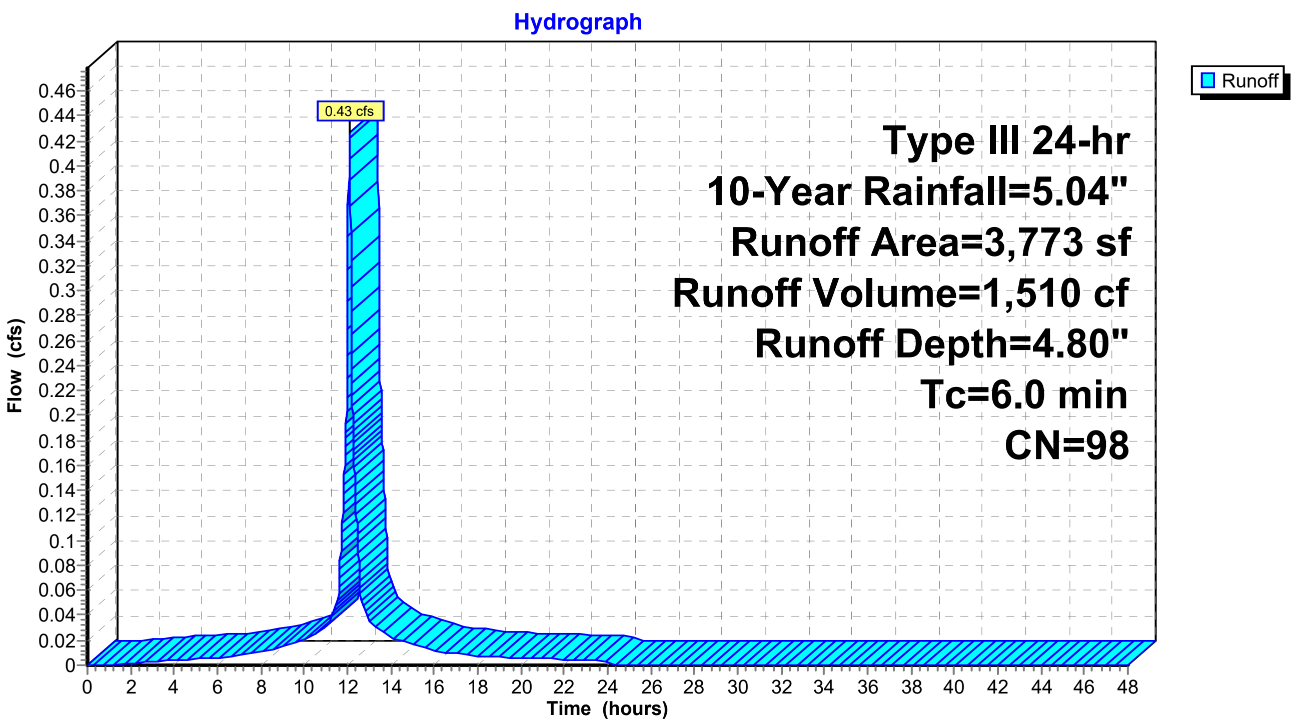
Runoff = 0.43 cfs @ 12.08 hrs, Volume= 1,510 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
3,773	98	Roofs, HSG D
3,773	98	100.00% Impervious Area

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

Subcatchment 37S: Grocery Roof



Summary for Pond 1P: Area behind levee - Facemate

Inflow Area = 217,891 sf, 82.73% Impervious, Inflow Depth = 3.52" for 10-Year event
Inflow = 14.23 cfs @ 12.10 hrs, Volume= 63,992 cf
Outflow = 8.58 cfs @ 12.37 hrs, Volume= 63,992 cf, Atten= 40%, Lag= 16.0 min
Primary = 8.58 cfs @ 12.37 hrs, Volume= 63,992 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 90.79' @ 12.37 hrs Surf.Area= 11,212 sf Storage= 6,892 cf

Plug-Flow detention time= 7.3 min calculated for 63,992 cf (100% of inflow)
Center-of-Mass det. time= 7.1 min (782.4 - 775.3)

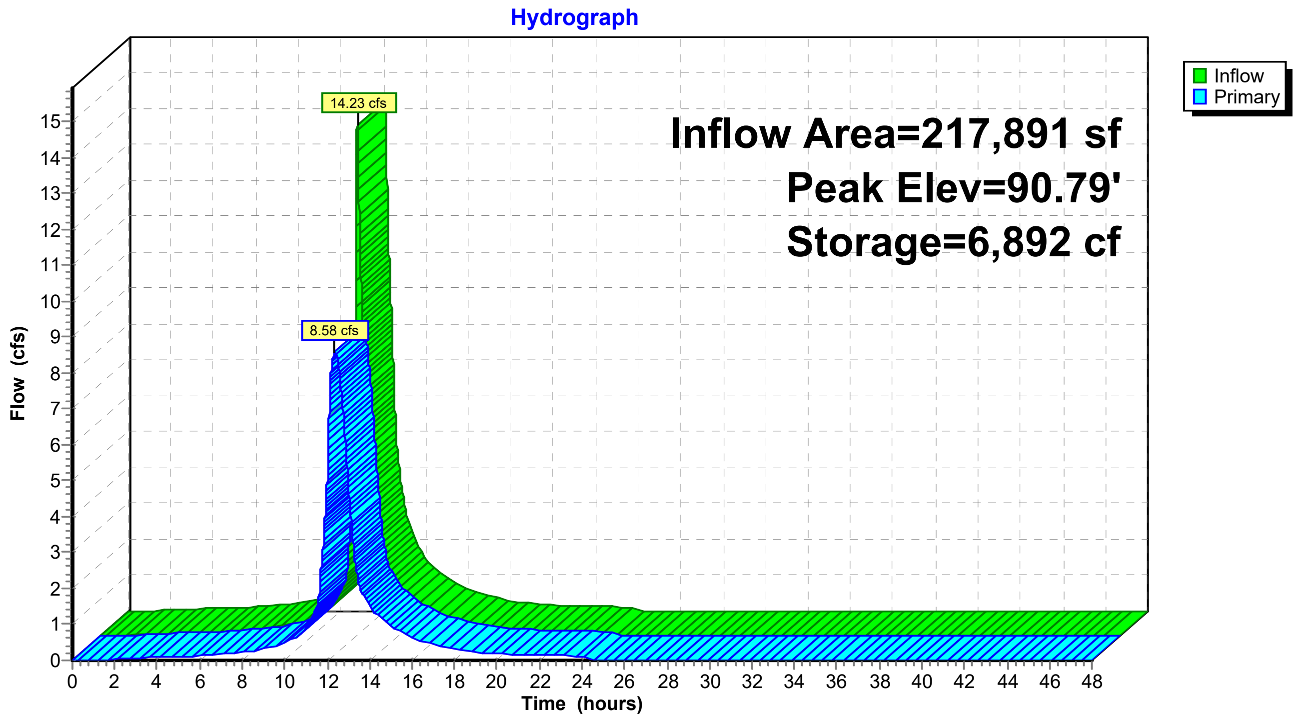
Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	90.00'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=8.58 cfs @ 12.37 hrs HW=90.79' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 4.29 cfs @ 4.29 fps)
2=Orifice/Grate (Orifice Controls 4.29 cfs @ 4.29 fps)

Pond 1P: Area behind levee - Facemate



Summary for Pond 3P: (new Pond)

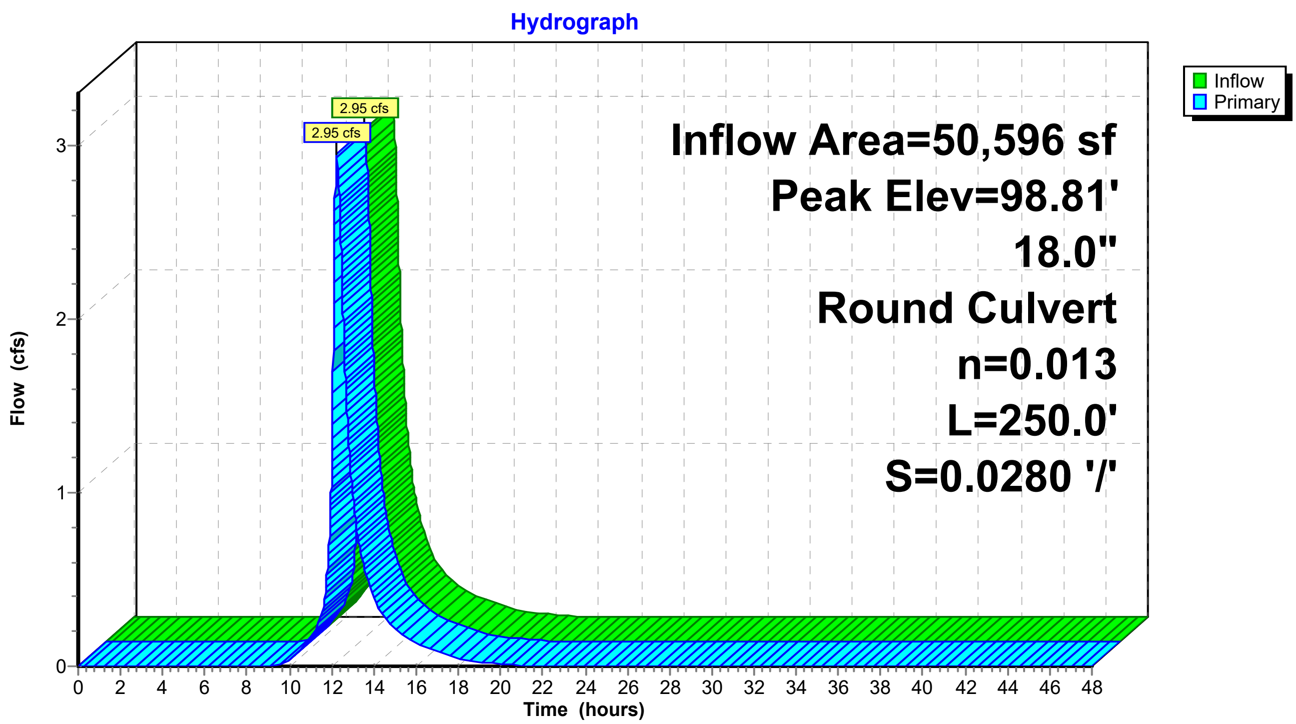
Inflow Area =	50,596 sf,100.00% Impervious,	Inflow Depth = 3.22"	for 10-Year event	
Inflow =	2.95 cfs @	12.24 hrs, Volume=	13,562 cf	
Outflow =	2.95 cfs @	12.24 hrs, Volume=	13,562 cf,	Atten= 0%, Lag= 0.0 min
Primary =	2.95 cfs @	12.24 hrs, Volume=	13,562 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 98.81' @ 12.24 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.00'	**18.0" Round Culvert** L= 250.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 98.00' / 91.00' S= 0.0280 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.95 cfs @ 12.24 hrs HW=98.81' TW=90.75' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.95 cfs @ 3.06 fps)

Pond 3P: (new Pond)



Summary for Pond 5P: Tree Box

Inflow Area = 9,945 sf,100.00% Impervious, Inflow Depth = 5.30" for 10-Year event
Inflow = 1.16 cfs @ 12.17 hrs, Volume= 4,394 cf
Outflow = 1.17 cfs @ 12.17 hrs, Volume= 4,394 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.18 hrs, Volume= 84 cf
Primary = 1.16 cfs @ 12.17 hrs, Volume= 4,310 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.57' @ 12.18 hrs Surf.Area= 52 sf Storage= 34 cf

Plug-Flow detention time= 2.9 min calculated for 4,393 cf (100% of inflow)
Center-of-Mass det. time= 2.9 min (750.4 - 747.5)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	91 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 259 cf Overall x 35.0% Voids

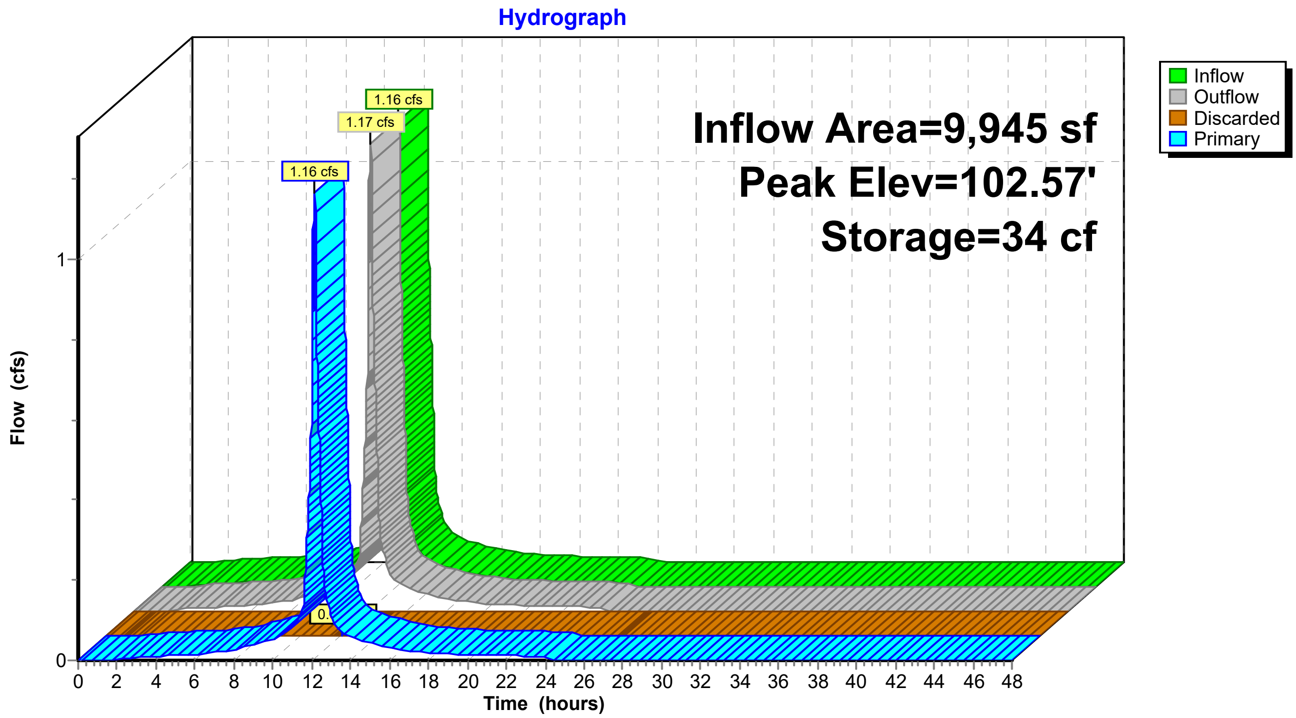
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	36	0	0
101.20	36	36	36
102.20	48	42	78
103.20	60	54	132
104.20	72	66	198
105.00	80	61	259

Device	Routing	Invert	Outlet Devices
#1	Primary	100.75'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.75' / 100.65' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.75'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.18 hrs HW=102.57' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.17 cfs @ 12.17 hrs HW=102.57' TW=102.47' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.17 cfs @ 1.49 fps)
  └─**3=Custom Weir/Orifice** (Passes 1.17 cfs of 5.80 cfs potential flow)

Pond 5P: Tree Box



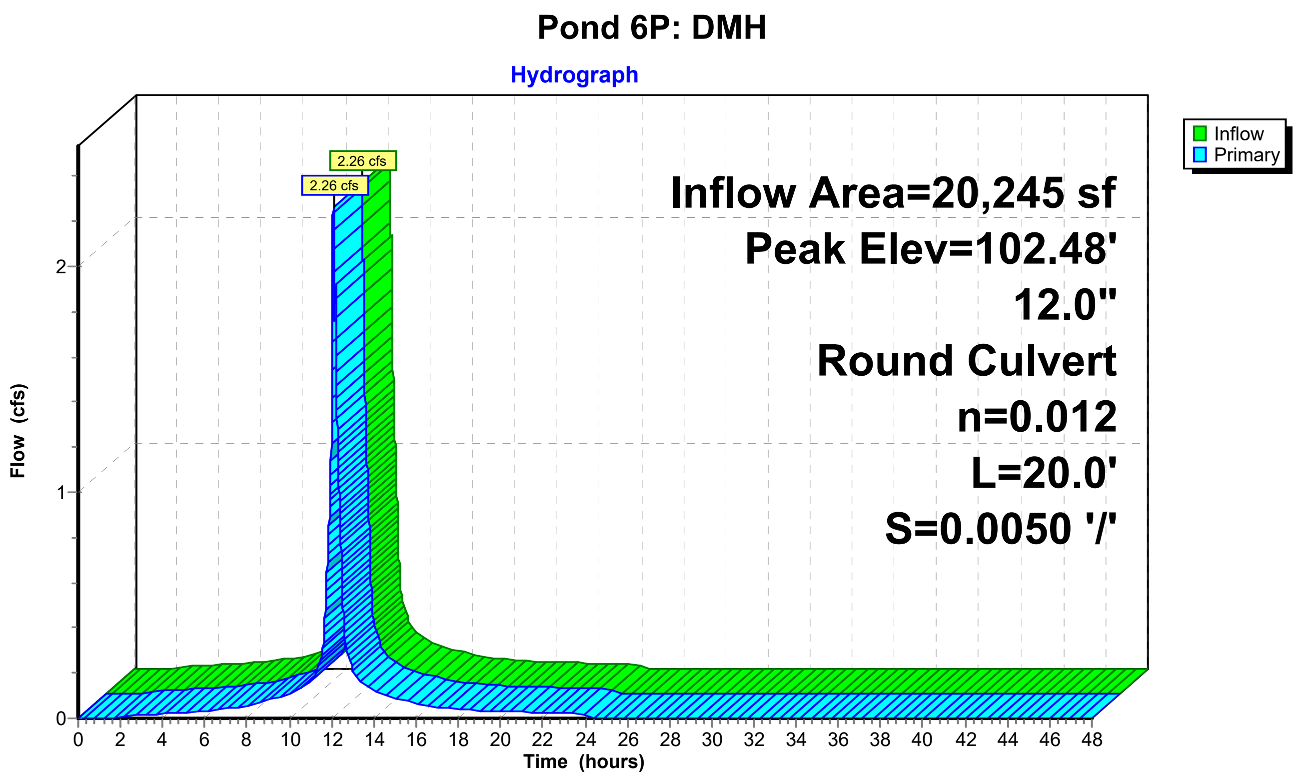
Summary for Pond 6P: DMH

Inflow Area = 20,245 sf,100.00% Impervious, Inflow Depth = 5.00" for 10-Year event
Inflow = 2.26 cfs @ 12.09 hrs, Volume= 8,433 cf
Outflow = 2.26 cfs @ 12.09 hrs, Volume= 8,433 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.26 cfs @ 12.09 hrs, Volume= 8,433 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.48' @ 12.18 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.60'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.60' / 100.50' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.26 cfs @ 12.09 hrs HW=102.27' TW=101.92' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.26 cfs @ 2.88 fps)



Summary for Pond 7P: Storage Chambers South

Inflow Area = 50,596 sf,100.00% Impervious, Inflow Depth = 4.75" for 10-Year event
Inflow = 5.69 cfs @ 12.08 hrs, Volume= 20,031 cf
Outflow = 3.05 cfs @ 12.24 hrs, Volume= 20,031 cf, Atten= 46%, Lag= 9.3 min
Discarded = 0.10 cfs @ 12.24 hrs, Volume= 6,469 cf
Primary = 2.95 cfs @ 12.24 hrs, Volume= 13,562 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.27' @ 12.24 hrs Surf.Area= 3,348 sf Storage= 5,410 cf
Flood Elev= 106.00' Surf.Area= 3,348 sf Storage= 8,592 cf

Plug-Flow detention time= 65.3 min calculated for 20,031 cf (100% of inflow)
Center-of-Mass det. time= 65.3 min (816.0 - 750.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	3,199 cf	**53.00'W x 63.17'L x 4.00'H Field A**
			13,391 cf Overall - 5,393 cf Embedded = 7,998 cf x 40.0% Voids
#2A	100.50'	5,393 cf	**Cultec R-360HD** x 144 Inside #1
			Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf
			Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap
			144 Chambers in 9 Rows
			Cap Storage= +6.5 cf x 2 x 9 rows = 116.3 cf
		8,592 cf	Total Available Storage

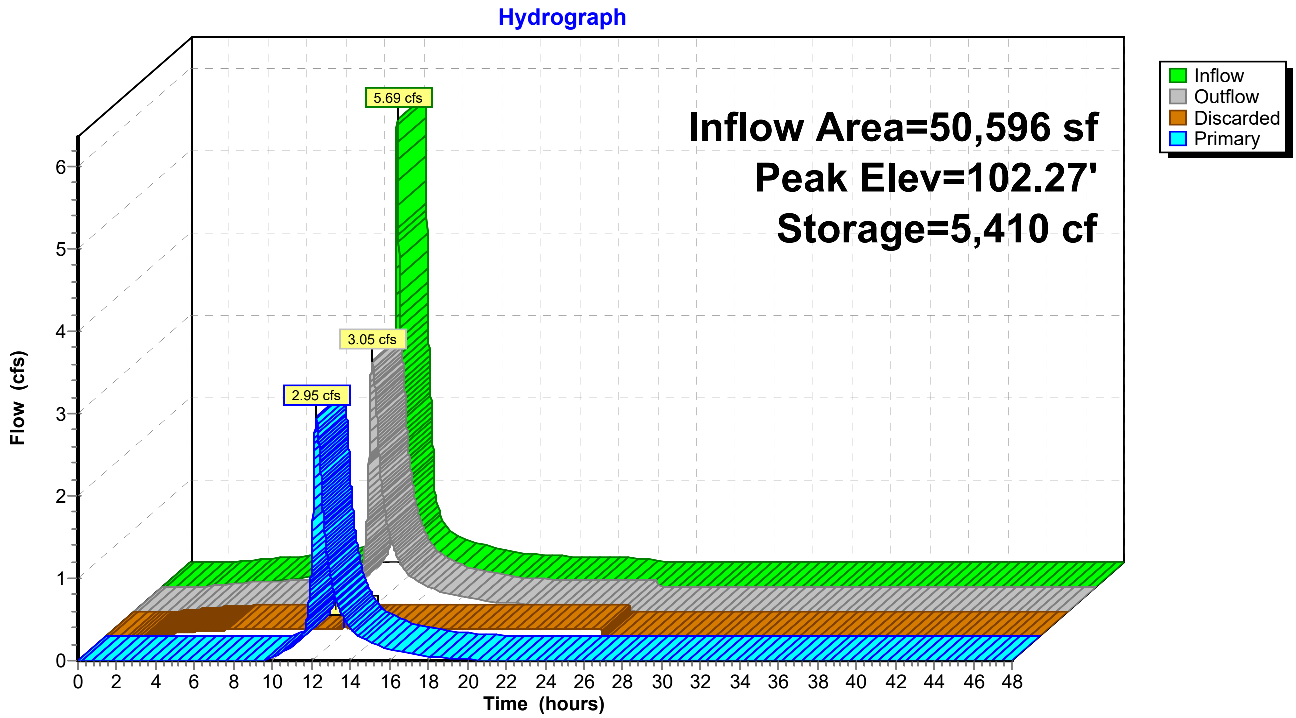
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	99.00'	**18.0" Round Culvert**
			L= 20.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 99.00' / 96.00' S= 0.1500 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area**
			Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**
			Head (feet) 0.00 1.25 1.25 2.50 2.50 3.00
			Width (feet) 0.33 0.33 0.66 0.66 2.00 2.00

Discarded OutFlow Max=0.10 cfs @ 12.24 hrs HW=102.27' (Free Discharge)
└—**2=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=2.95 cfs @ 12.24 hrs HW=102.27' TW=98.81' (Dynamic Tailwater)
└—**1=Culvert** (Passes 2.95 cfs of 13.51 cfs potential flow)
  └—**3=Custom Weir/Orifice** (Weir Controls 2.95 cfs @ 3.90 fps)

Pond 7P: Storage Chambers South



Summary for Pond 8P: Storage Chambers North

Inflow Area = 50,305 sf,100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 5.69 cfs @ 12.09 hrs, Volume= 19,514 cf
Outflow = 2.09 cfs @ 12.33 hrs, Volume= 19,514 cf, Atten= 63%, Lag= 14.4 min
Discarded = 0.13 cfs @ 12.33 hrs, Volume= 8,362 cf
Primary = 1.96 cfs @ 12.33 hrs, Volume= 11,152 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 101.94' @ 12.33 hrs Surf.Area= 4,786 sf Storage= 6,504 cf

Plug-Flow detention time= 80.6 min calculated for 19,510 cf (100% of inflow)
Center-of-Mass det. time= 80.6 min (830.9 - 750.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	4,622 cf	**116.25'W x 41.17'L x 4.00'H Field A** 19,143 cf Overall - 7,587 cf Embedded = 11,555 cf x 40.0% Voids
#2A	100.50'	7,587 cf	**Cultec R-360HD** x 200 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 200 Chambers in 20 Rows Cap Storage= +6.5 cf x 2 x 20 rows = 258.4 cf
		12,209 cf	Total Available Storage

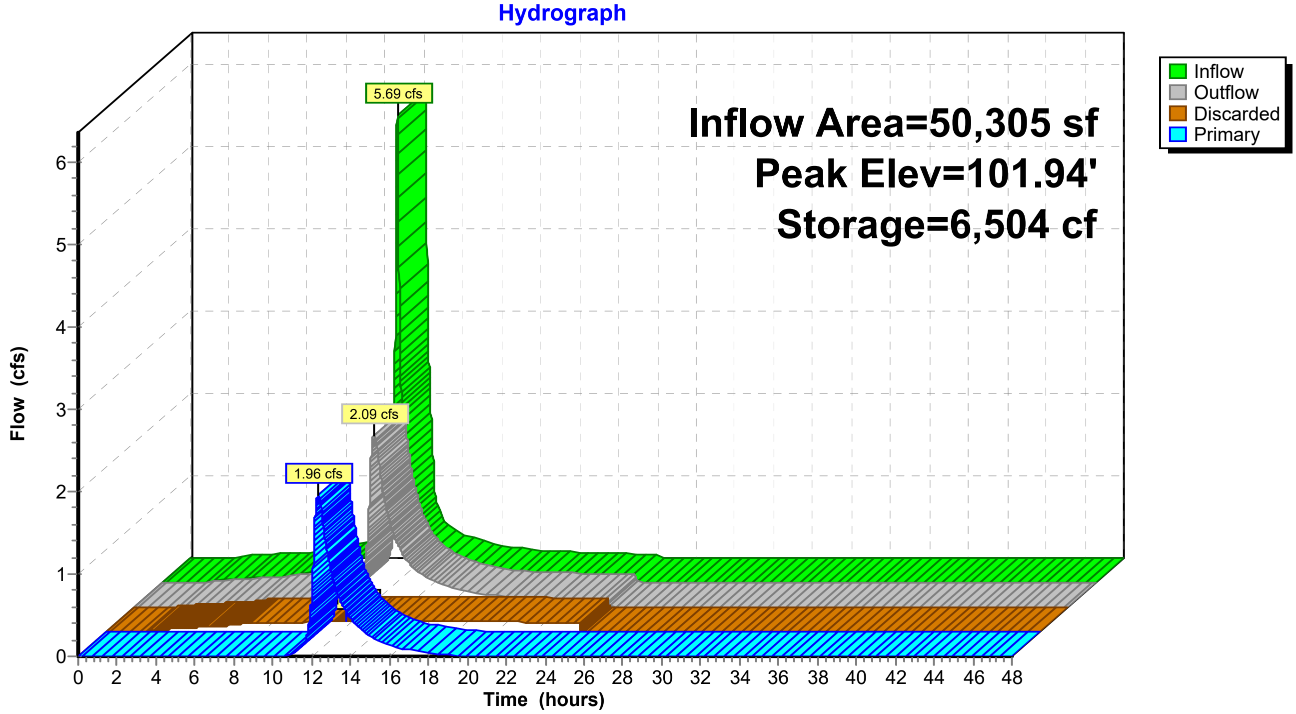
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.50'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.50' / 100.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.25 1.25 2.50 2.50 3.00 Width (feet) 0.33 0.33 0.66 0.66 2.00 2.00

Discarded OutFlow Max=0.13 cfs @ 12.33 hrs HW=101.94' (Free Discharge)
└─**2=Exfiltration** (Controls 0.13 cfs)

Primary OutFlow Max=1.96 cfs @ 12.33 hrs HW=101.94' TW=90.79' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.96 cfs of 6.80 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 1.96 cfs @ 3.64 fps)

Pond 8P: Storage Chambers North



Summary for Pond 11P: Tree Box

Inflow Area = 9,068 sf,100.00% Impervious, Inflow Depth = 4.80" for 10-Year event
Inflow = 1.03 cfs @ 12.08 hrs, Volume= 3,630 cf
Outflow = 1.03 cfs @ 12.08 hrs, Volume= 3,630 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.11 hrs, Volume= 192 cf
Primary = 1.02 cfs @ 12.08 hrs, Volume= 3,437 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.68' @ 12.11 hrs Surf.Area= 12 sf Storage= 42 cf
Flood Elev= 105.00' Surf.Area= 8 sf Storage= 51 cf

Plug-Flow detention time= 13.3 min calculated for 3,629 cf (100% of inflow)
Center-of-Mass det. time= 13.4 min (761.2 - 747.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	51 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 146 cf Overall x 35.0% Voids

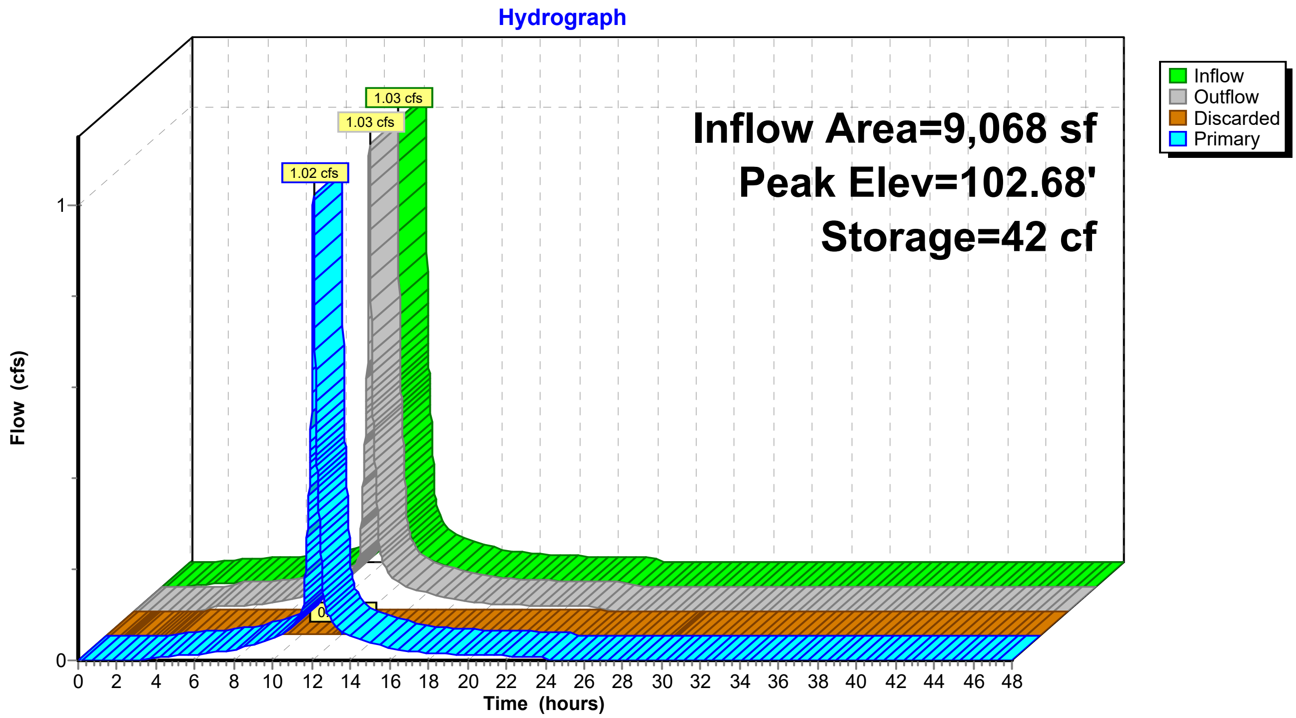
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	72	0	0
101.20	72	72	72
102.20	12	42	114
103.20	12	12	126
104.20	12	12	138
105.00	8	8	146

Device	Routing	Invert	Outlet Devices
#1	Primary	101.53'	**12.0" Round Culvert** L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.53' / 101.08' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.53'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=102.68' (Free Discharge)
└—**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.81 cfs @ 12.08 hrs HW=102.63' TW=102.56' (Dynamic Tailwater)
└—**1=Culvert** (Outlet Controls 0.81 cfs @ 1.16 fps)
  └—**3=Custom Weir/Orifice** (Passes 0.81 cfs of 1.27 cfs potential flow)

Pond 11P: Tree Box



Summary for Pond 12P: Tree Box

Inflow Area = 10,485 sf,100.00% Impervious, Inflow Depth = 4.80" for 10-Year event
Inflow = 1.19 cfs @ 12.08 hrs, Volume= 4,197 cf
Outflow = 1.19 cfs @ 12.08 hrs, Volume= 4,197 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.11 hrs, Volume= 188 cf
Primary = 1.18 cfs @ 12.08 hrs, Volume= 4,008 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.67' @ 12.11 hrs Surf.Area= 12 sf Storage= 43 cf

Plug-Flow detention time= 10.7 min calculated for 4,196 cf (100% of inflow)
Center-of-Mass det. time= 10.8 min (758.7 - 747.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

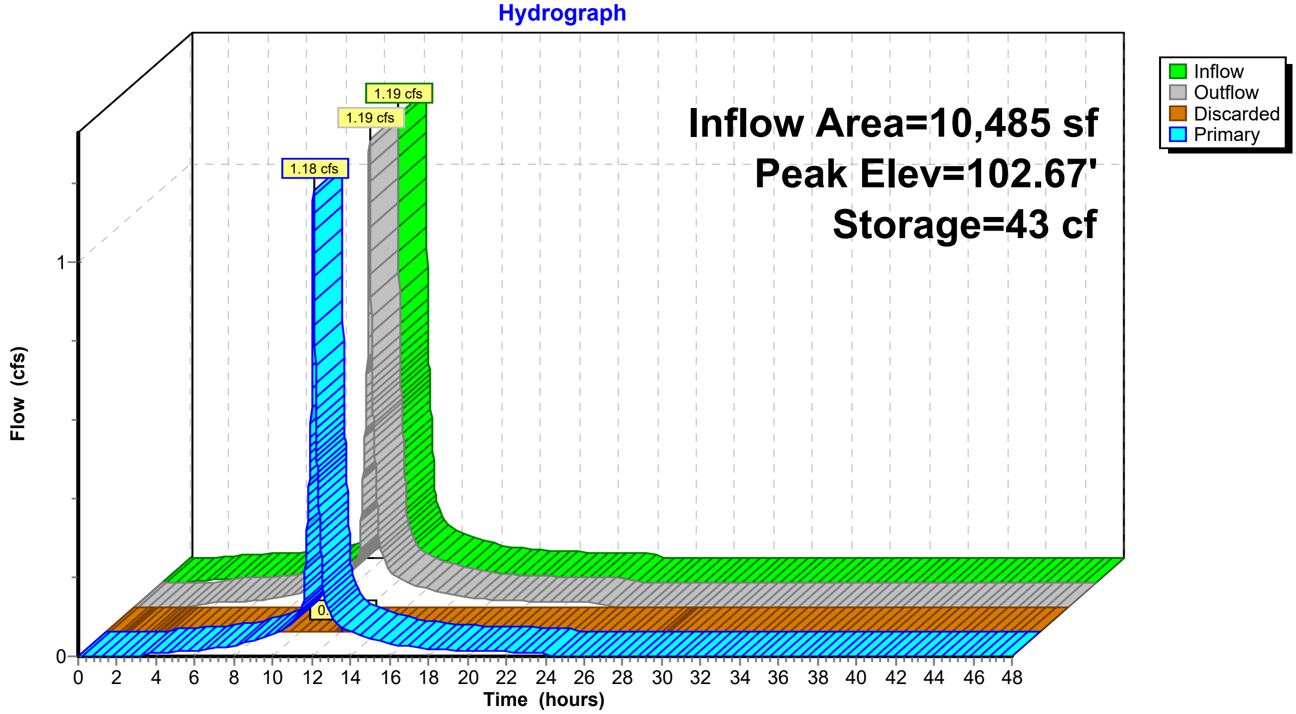
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	72	0	0
101.00	72	72	72
102.00	12	42	114
103.00	12	12	126
104.00	12	12	138
105.00	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	101.18'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.18' / 101.13' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.18'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=102.67' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.88 cfs @ 12.08 hrs HW=102.62' TW=102.56' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.88 cfs @ 1.13 fps)
  └─**3=Custom Weir/Orifice** (Passes 0.88 cfs of 2.69 cfs potential flow)

Pond 12P: Tree Box



Summary for Pond 13P: Tree Box

Inflow Area = 10,798 sf,100.00% Impervious, Inflow Depth = 4.80" for 10-Year event
Inflow = 1.22 cfs @ 12.08 hrs, Volume= 4,322 cf
Outflow = 1.22 cfs @ 12.08 hrs, Volume= 4,322 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.20 hrs, Volume= 170 cf
Primary = 1.22 cfs @ 12.08 hrs, Volume= 4,152 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.34' @ 12.20 hrs Surf.Area= 12 sf Storage= 41 cf

Plug-Flow detention time= 6.7 min calculated for 4,321 cf (100% of inflow)
Center-of-Mass det. time= 6.7 min (754.6 - 747.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

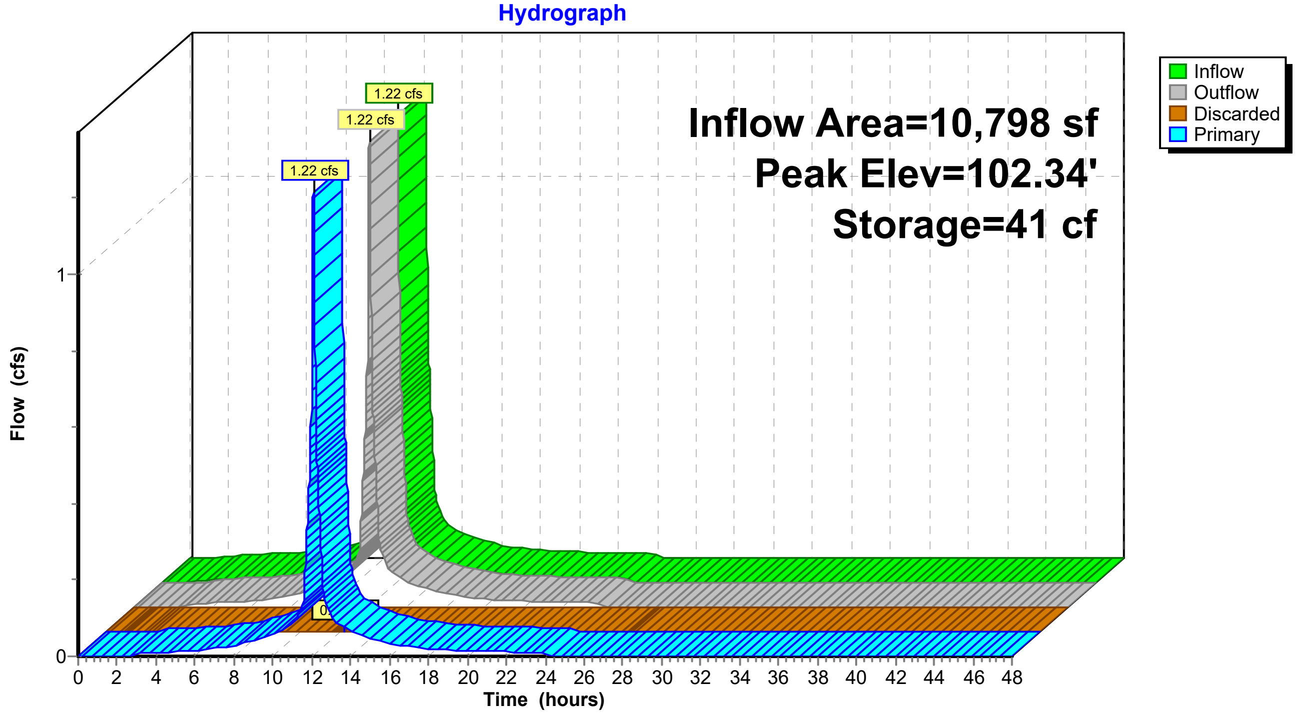
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	72	0	0
101.00	72	72	72
102.00	12	42	114
103.00	12	12	126
104.00	12	12	138
105.00	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	100.65'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.65' / 100.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.65'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.20 hrs HW=102.34' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.22 cfs @ 12.08 hrs HW=102.17' TW=102.07' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.22 cfs @ 1.55 fps)
  └─**3=Custom Weir/Orifice** (Passes 1.22 cfs of 4.15 cfs potential flow)

Pond 13P: Tree Box



Summary for Pond 22P: Tree Box

Inflow Area = 1,945 sf,100.00% Impervious, Inflow Depth = 4.80" for 10-Year event
Inflow = 0.22 cfs @ 12.08 hrs, Volume= 779 cf
Outflow = 0.22 cfs @ 12.09 hrs, Volume= 779 cf, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 98 cf
Primary = 0.22 cfs @ 12.09 hrs, Volume= 681 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.55' @ 12.09 hrs Surf.Area= 43 sf Storage= 20 cf

Plug-Flow detention time= 27.8 min calculated for 778 cf (100% of inflow)
Center-of-Mass det. time= 27.9 min (775.8 - 747.9)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	69 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 196 cf Overall x 35.0% Voids

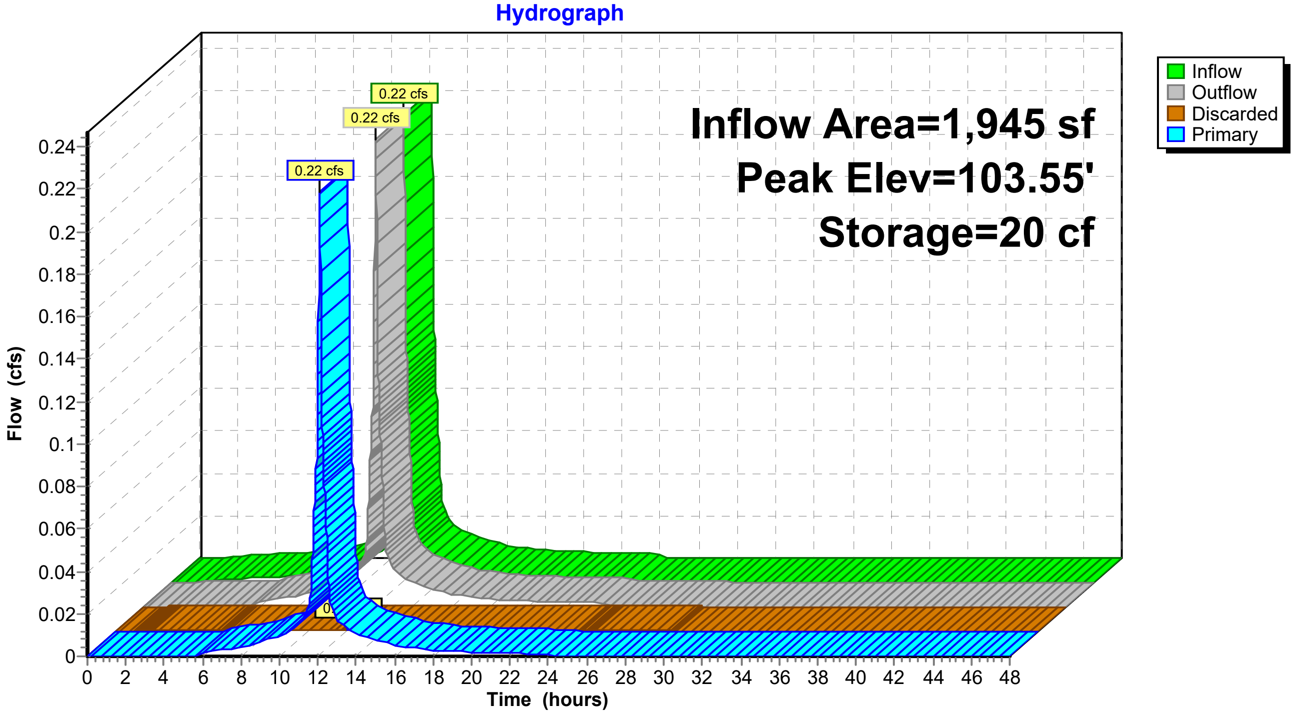
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	36	0	0
103.00	36	36	36
104.00	48	42	78
105.00	60	54	132
106.00	68	64	196

Device	Routing	Invert	Outlet Devices
#1	Primary	103.25'	**12.0" Round Culvert** L= 125.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 103.25' / 102.63' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	102.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	103.25'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=103.55' (Free Discharge)
└—**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.22 cfs @ 12.09 hrs HW=103.55' TW=102.95' (Dynamic Tailwater)
└—**1=Culvert** (Passes 0.22 cfs of 0.27 cfs potential flow)
  └—**3=Custom Weir/Orifice** (Weir Controls 0.22 cfs @ 1.71 fps)

Pond 22P: Tree Box



Summary for Pond 23P: Tree Box

Inflow Area = 10,400 sf,100.00% Impervious, Inflow Depth = 4.80" for 10-Year event
Inflow = 1.18 cfs @ 12.08 hrs, Volume= 4,163 cf
Outflow = 1.18 cfs @ 12.08 hrs, Volume= 4,163 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 84 cf
Primary = 1.18 cfs @ 12.08 hrs, Volume= 4,079 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.43' @ 12.09 hrs Surf.Area= 41 sf Storage= 18 cf

Plug-Flow detention time= 3.2 min calculated for 4,162 cf (100% of inflow)
Center-of-Mass det. time= 3.3 min (751.1 - 747.9)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	69 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 196 cf Overall x 35.0% Voids

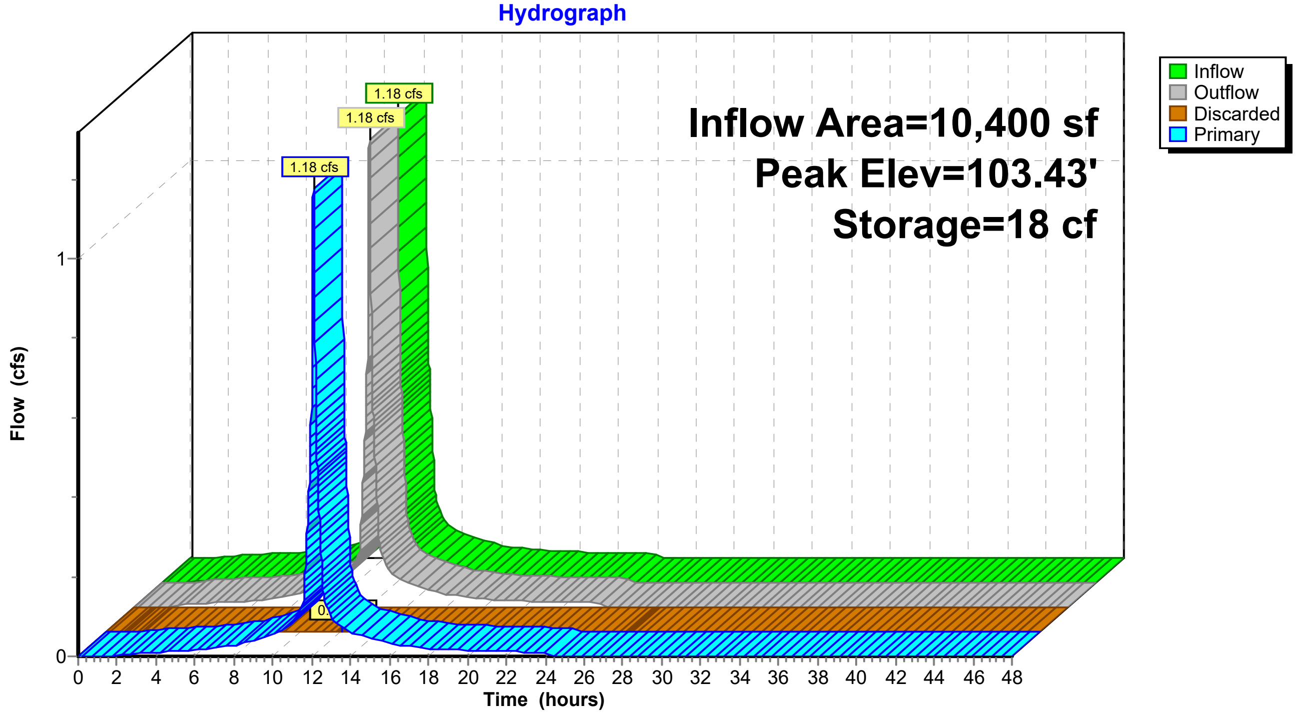
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	36	0	0
103.00	36	36	36
104.00	48	42	78
105.00	60	54	132
106.00	68	64	196

Device	Routing	Invert	Outlet Devices
#1	Primary	102.65'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.65' / 102.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	102.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	102.65'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=103.43' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.17 cfs @ 12.08 hrs HW=103.43' TW=102.95' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.17 cfs of 1.45 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 1.17 cfs @ 2.52 fps)

Pond 23P: Tree Box



Summary for Pond 24P: (new Pond)

Inflow Area =	6,920 sf,100.00% Impervious,	Inflow Depth = 4.80"	for 10-Year event	
Inflow =	0.78 cfs @	12.08 hrs, Volume=	2,770 cf	
Outflow =	0.49 cfs @	12.18 hrs, Volume=	2,770 cf,	Atten= 37%, Lag= 5.9 min
Discarded =	0.05 cfs @	12.18 hrs, Volume=	2,357 cf	
Secondary =	0.44 cfs @	12.18 hrs, Volume=	413 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 107.03' @ 12.18 hrs Surf.Area= 2,000 sf Storage= 723 cf

Plug-Flow detention time= 88.5 min calculated for 2,769 cf (100% of inflow)
Center-of-Mass det. time= 88.5 min (836.3 - 747.9)

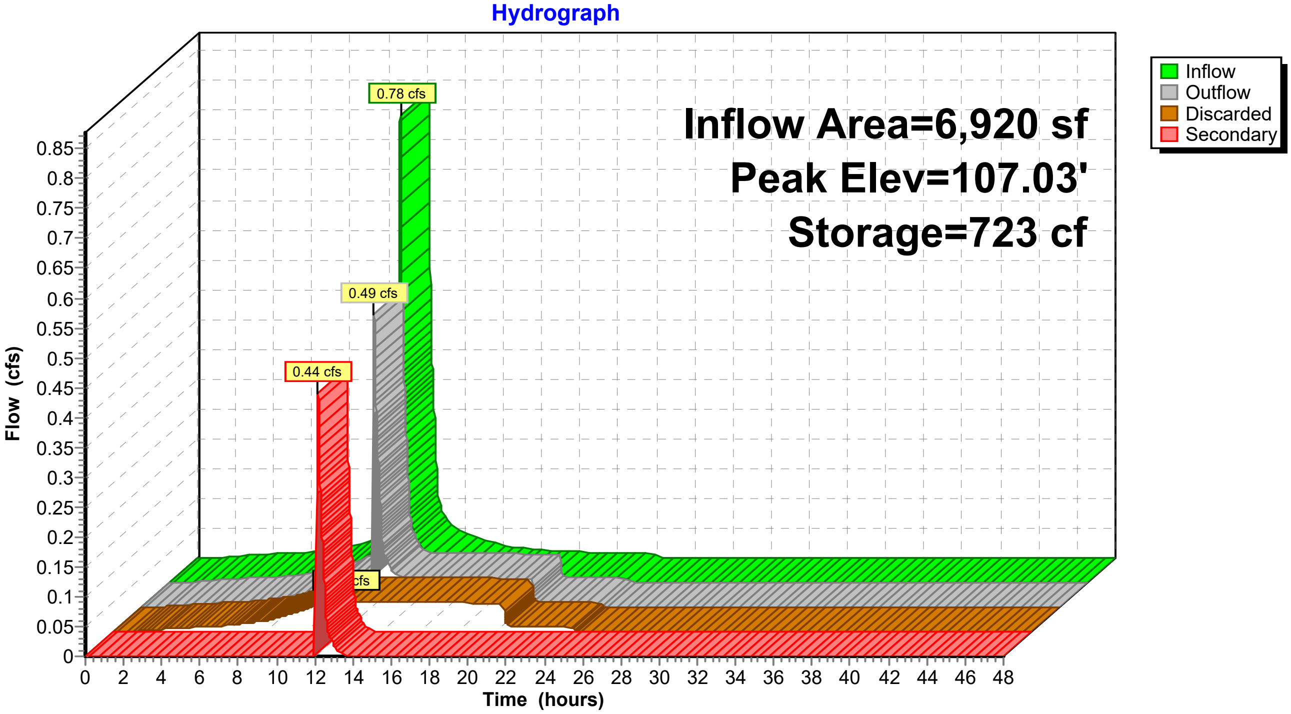
Volume	Invert	Avail.Storage	Storage Description
#1	106.00'	1,120 cf	**40.00'W x 50.00'L x 1.60'H Prismatoid** 3,200 cf Overall x 35.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Secondary	107.00'	**30.0' 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
#2	Discarded	106.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=0.05 cfs @ 12.18 hrs HW=107.03' (Free Discharge)
└─**2=Exfiltration** (Controls 0.05 cfs)

Secondary OutFlow Max=0.44 cfs @ 12.18 hrs HW=107.03' TW=102.57' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 0.44 cfs @ 0.45 fps)

Pond 24P: (new Pond)



Summary for Pond 26P: Tree Box

Inflow Area = 16,145 sf,100.00% Impervious, Inflow Depth = 4.80" for 10-Year event
Inflow = 1.83 cfs @ 12.08 hrs, Volume= 6,462 cf
Outflow = 1.83 cfs @ 12.09 hrs, Volume= 6,462 cf, Atten= 0%, Lag= 0.3 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 100 cf
Primary = 1.83 cfs @ 12.09 hrs, Volume= 6,362 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.86' @ 12.08 hrs Surf.Area= 56 sf Storage= 39 cf

Plug-Flow detention time= 3.6 min calculated for 6,461 cf (100% of inflow)
Center-of-Mass det. time= 3.7 min (751.6 - 747.9)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	96 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 274 cf Overall x 35.0% Voids

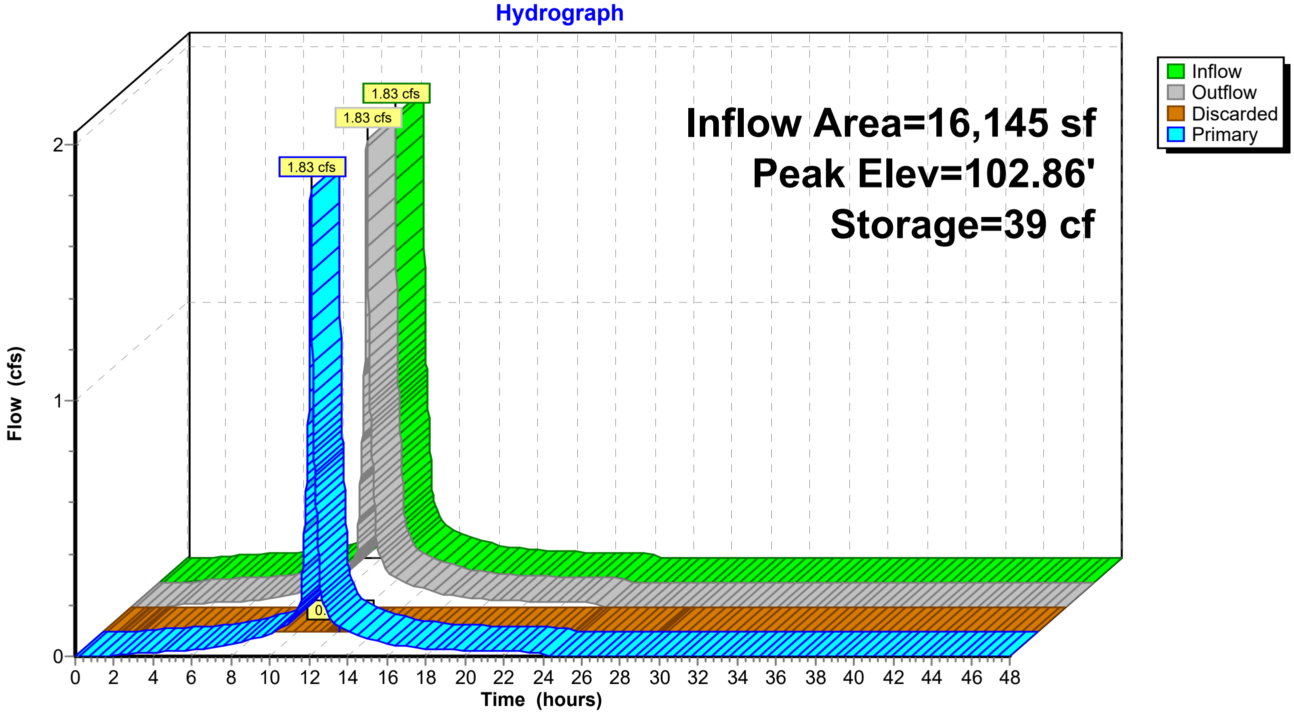
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	36	0	0
101.20	36	36	36
102.20	48	42	78
103.20	60	54	132
104.20	72	66	198
105.20	80	76	274

Device	Routing	Invert	Outlet Devices
#1	Primary	101.30'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.30' / 101.25' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.30'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=102.86' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.83 cfs @ 12.09 hrs HW=102.86' TW=102.63' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.83 cfs @ 2.33 fps)
  └─**3=Custom Weir/Orifice** (Passes 1.83 cfs of 6.14 cfs potential flow)

Pond 26P: Tree Box



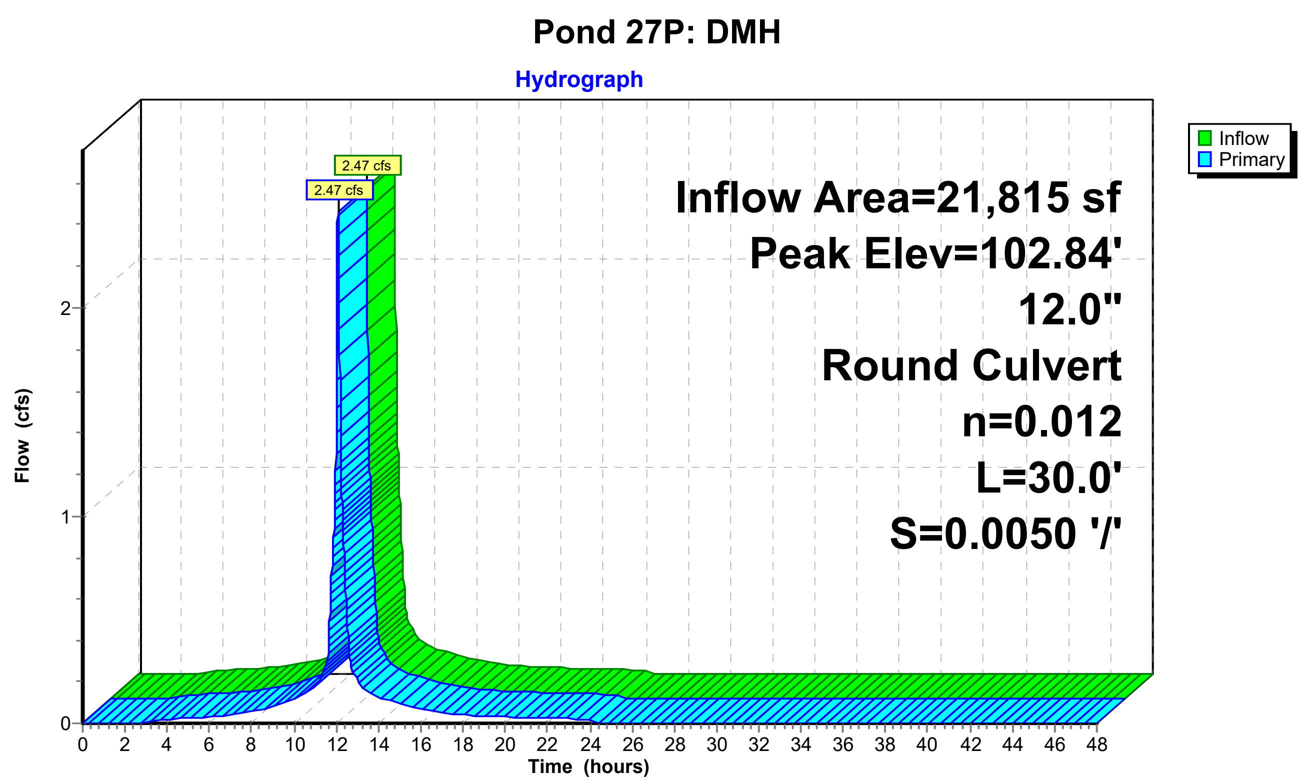
Summary for Pond 27P: DMH

Inflow Area =	21,815 sf,100.00% Impervious,	Inflow Depth = 4.62" for 10-Year event			
Inflow =	2.47 cfs @	12.09 hrs,	Volume=	8,393 cf	
Outflow =	2.47 cfs @	12.09 hrs,	Volume=	8,393 cf,	Atten= 0%, Lag= 0.0 min
Primary =	2.47 cfs @	12.09 hrs,	Volume=	8,393 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.84' @ 12.09 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.70'	**12.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.70' / 101.55' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.47 cfs @ 12.09 hrs HW=102.84' TW=102.41' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.47 cfs @ 3.14 fps)



Summary for Pond 29P: DMH

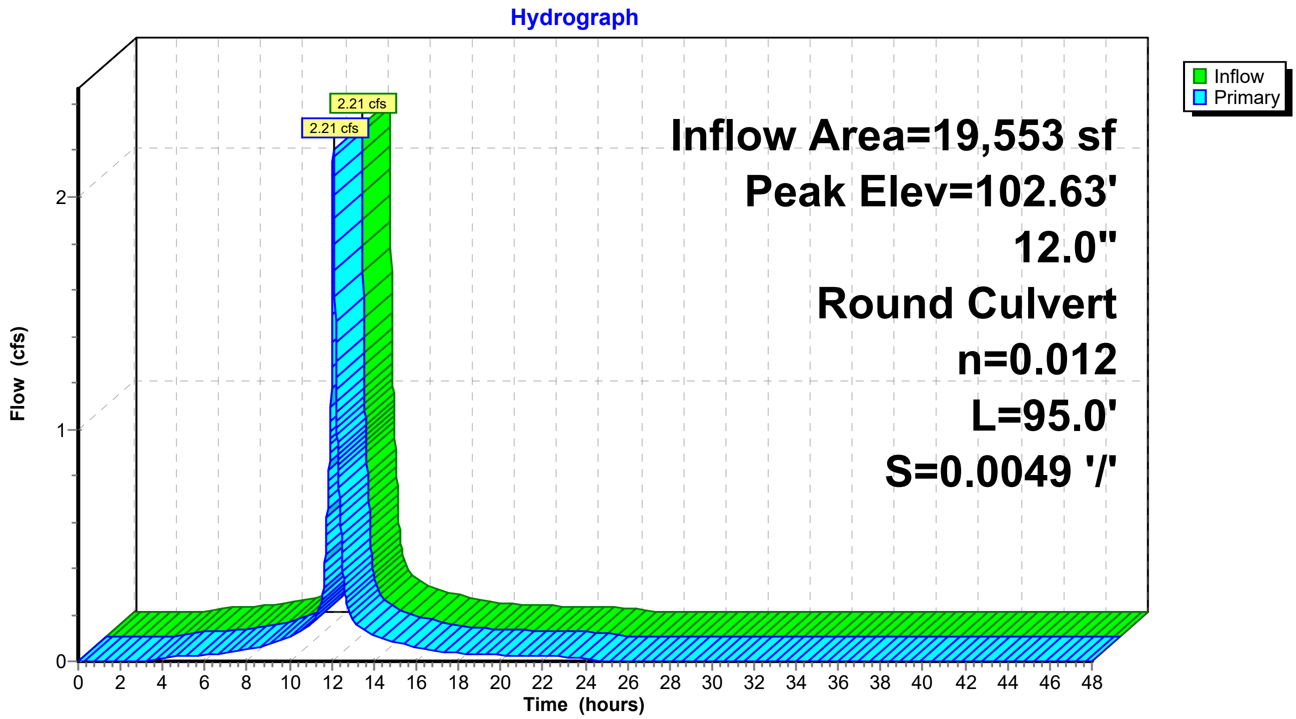
Inflow Area =	19,553 sf,100.00% Impervious,	Inflow Depth = 4.57"	for 10-Year event	
Inflow =	2.21 cfs @	12.08 hrs, Volume=	7,446 cf	
Outflow =	2.21 cfs @	12.08 hrs, Volume=	7,446 cf,	Atten= 0%, Lag= 0.0 min
Primary =	2.21 cfs @	12.08 hrs, Volume=	7,446 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.63' @ 12.11 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.08'	**12.0" Round Culvert** L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.08' / 100.61' S= 0.0049 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.20 cfs @ 12.08 hrs HW=102.56' TW=102.07' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 2.20 cfs @ 2.80 fps)

Pond 29P: DMH



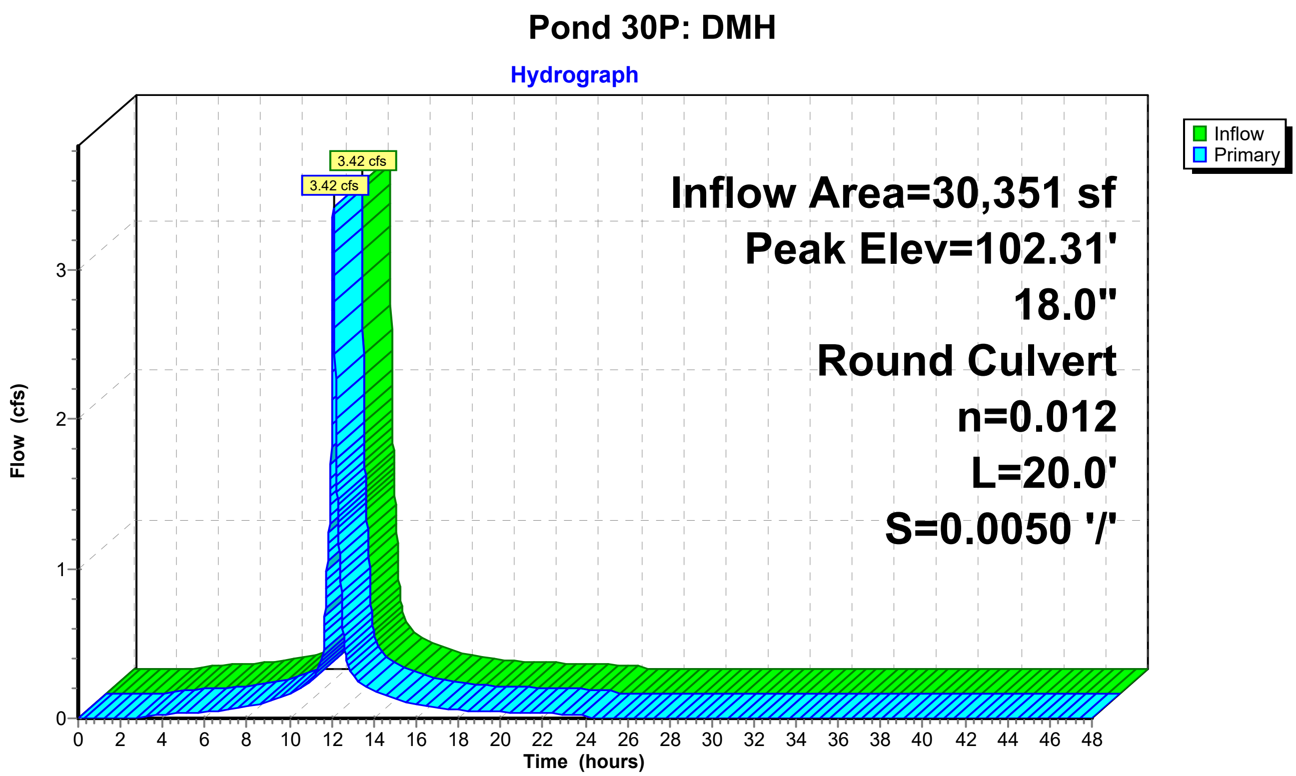
Summary for Pond 30P: DMH

Inflow Area = 30,351 sf,100.00% Impervious, Inflow Depth = 4.59" for 10-Year event
Inflow = 3.42 cfs @ 12.08 hrs, Volume= 11,598 cf
Outflow = 3.42 cfs @ 12.08 hrs, Volume= 11,598 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.42 cfs @ 12.08 hrs, Volume= 11,598 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.31' @ 12.22 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.60'	**18.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.60' / 100.50' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.43 cfs @ 12.08 hrs HW=102.07' TW=101.90' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 3.43 cfs @ 2.47 fps)



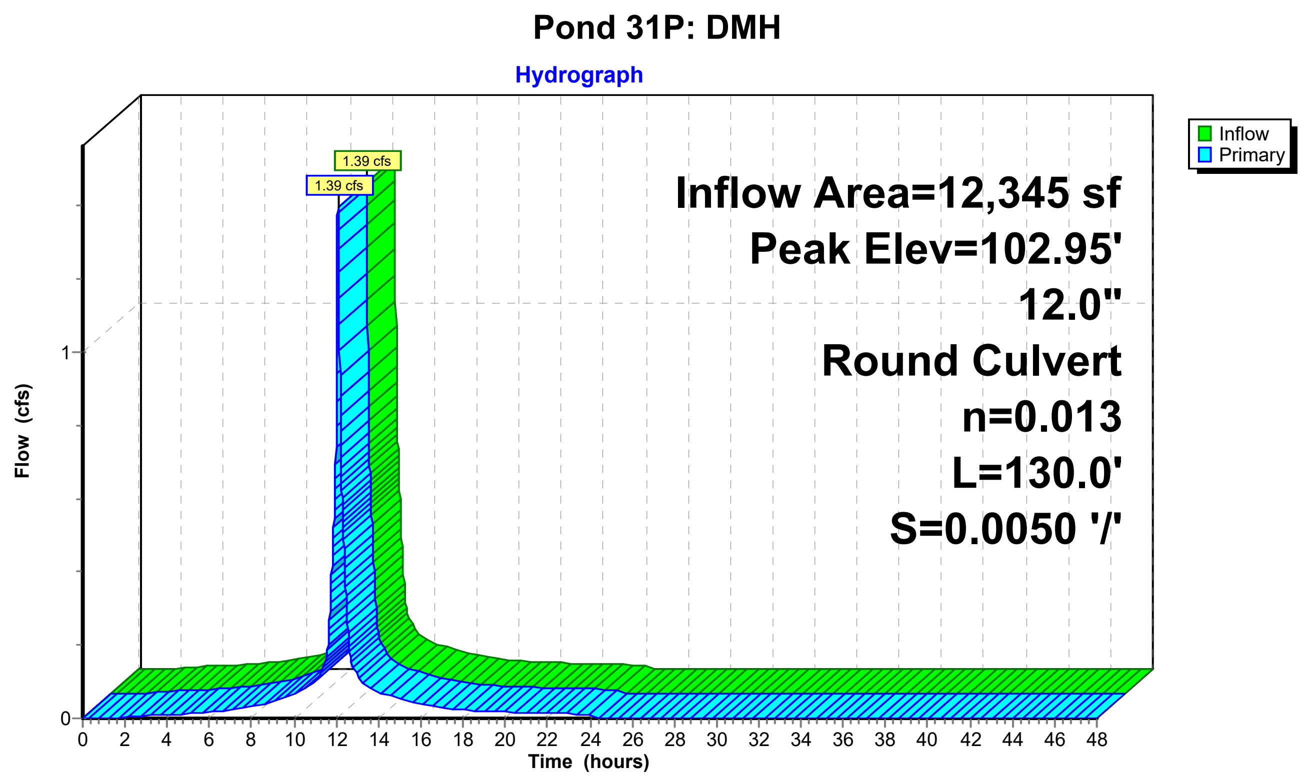
Summary for Pond 31P: DMH

Inflow Area =	12,345 sf,100.00% Impervious,	Inflow Depth = 4.63"	for 10-Year event	
Inflow =	1.39 cfs @	12.09 hrs, Volume=	4,760 cf	
Outflow =	1.39 cfs @	12.09 hrs, Volume=	4,760 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.39 cfs @	12.09 hrs, Volume=	4,760 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.95' @ 12.08 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.90'	**12.0" Round Culvert** L= 130.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.90' / 101.25' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.39 cfs @ 12.09 hrs HW=102.95' TW=102.63' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.39 cfs @ 2.11 fps)



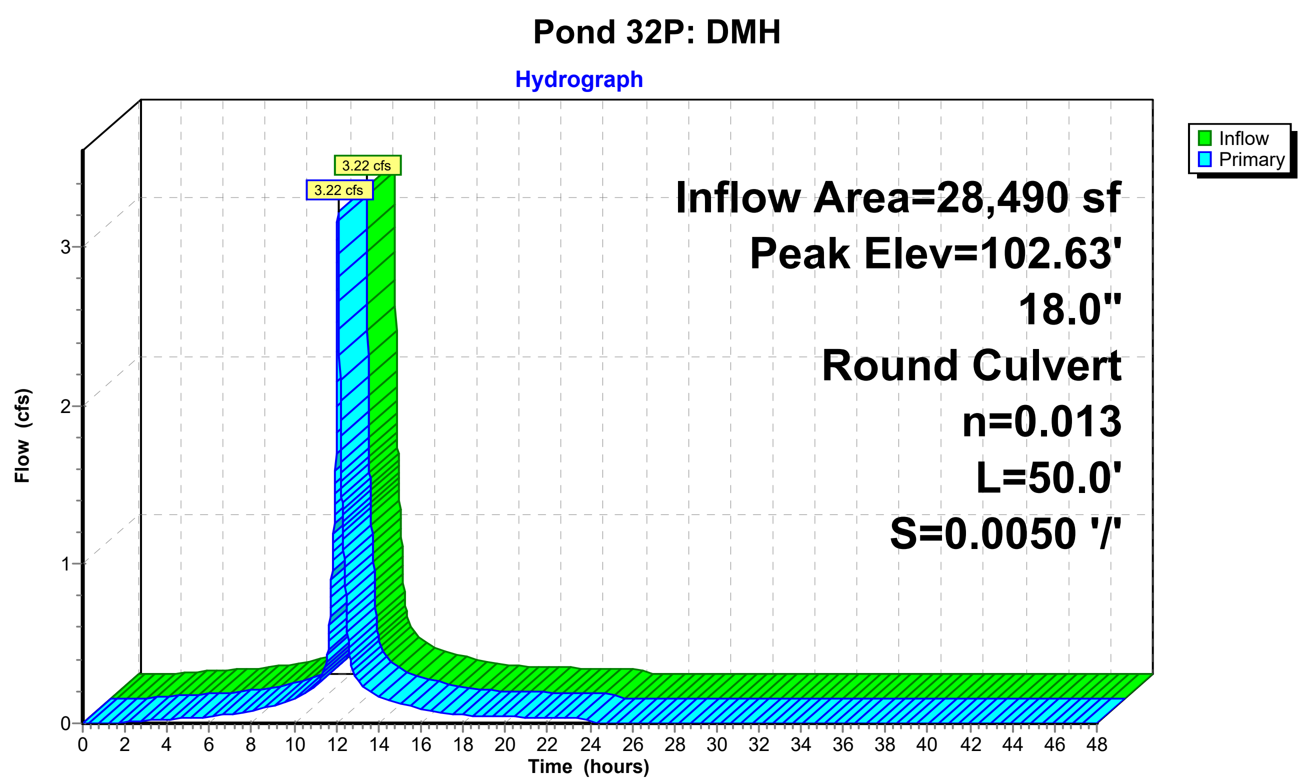
Summary for Pond 32P: DMH

Inflow Area = 28,490 sf,100.00% Impervious, Inflow Depth = 4.68" for 10-Year event
Inflow = 3.22 cfs @ 12.09 hrs, Volume= 11,122 cf
Outflow = 3.22 cfs @ 12.09 hrs, Volume= 11,122 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.22 cfs @ 12.09 hrs, Volume= 11,122 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.63' @ 12.09 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.25'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.25' / 101.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.23 cfs @ 12.09 hrs HW=102.63' TW=102.41' (Dynamic Tailwater)
1=Culvert (Outlet Controls 3.23 cfs @ 2.49 fps)



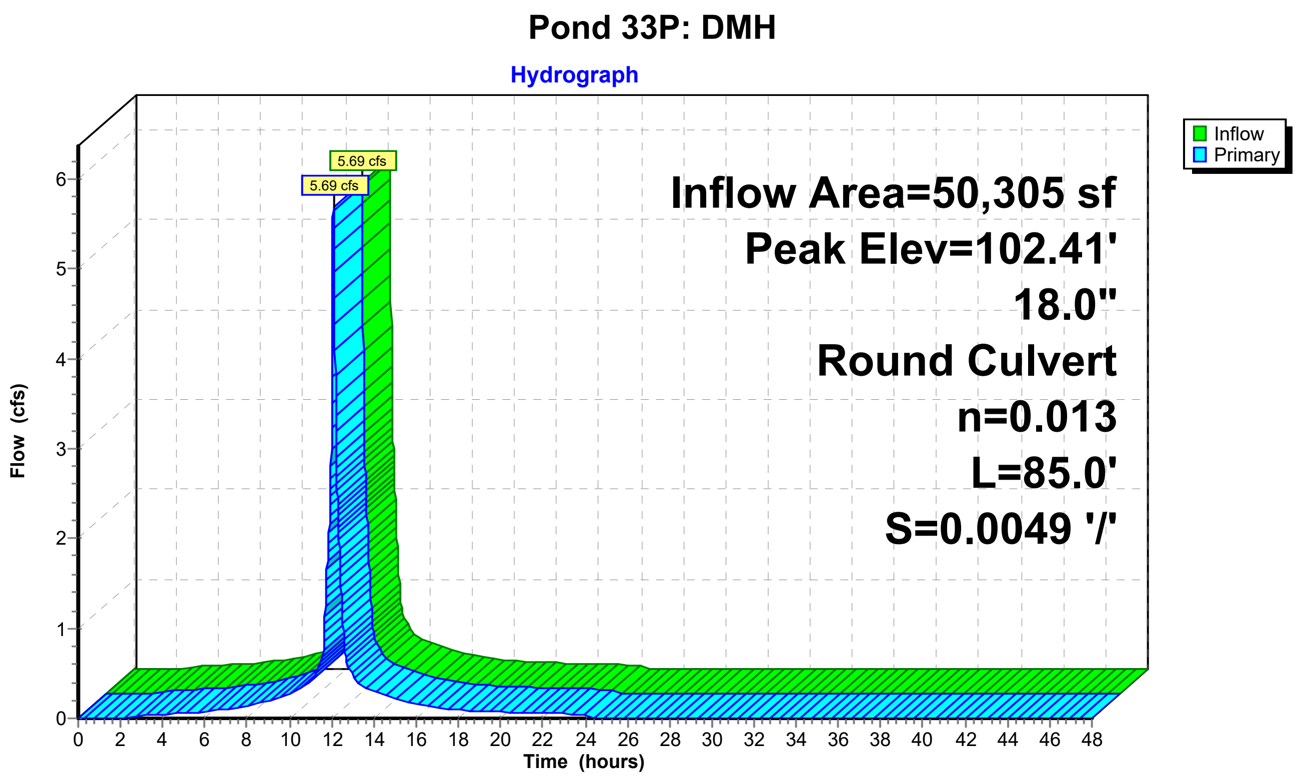
Summary for Pond 33P: DMH

Inflow Area = 50,305 sf,100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 5.69 cfs @ 12.09 hrs, Volume= 19,514 cf
Outflow = 5.69 cfs @ 12.09 hrs, Volume= 19,514 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.69 cfs @ 12.09 hrs, Volume= 19,514 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.41' @ 12.09 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.00'	**18.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.00' / 100.58' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.68 cfs @ 12.09 hrs HW=102.41' TW=101.56' (Dynamic Tailwater)
1=Culvert (Barrel Controls 5.68 cfs @ 4.26 fps)



Summary for Pond 34P: Tree Box

Inflow Area = 11,350 sf,100.00% Impervious, Inflow Depth = 4.80" for 10-Year event
Inflow = 1.28 cfs @ 12.08 hrs, Volume= 4,543 cf
Outflow = 1.28 cfs @ 12.08 hrs, Volume= 4,543 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 178 cf
Primary = 1.28 cfs @ 12.08 hrs, Volume= 4,365 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.37' @ 12.08 hrs Surf.Area= 26 sf Storage= 38 cf
Flood Elev= 107.00' Surf.Area= 8 sf Storage= 52 cf

Plug-Flow detention time= 8.2 min calculated for 4,542 cf (100% of inflow)
Center-of-Mass det. time= 8.3 min (756.2 - 747.9)

Volume	Invert	Avail.Storage	Storage Description
#1	101.60'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

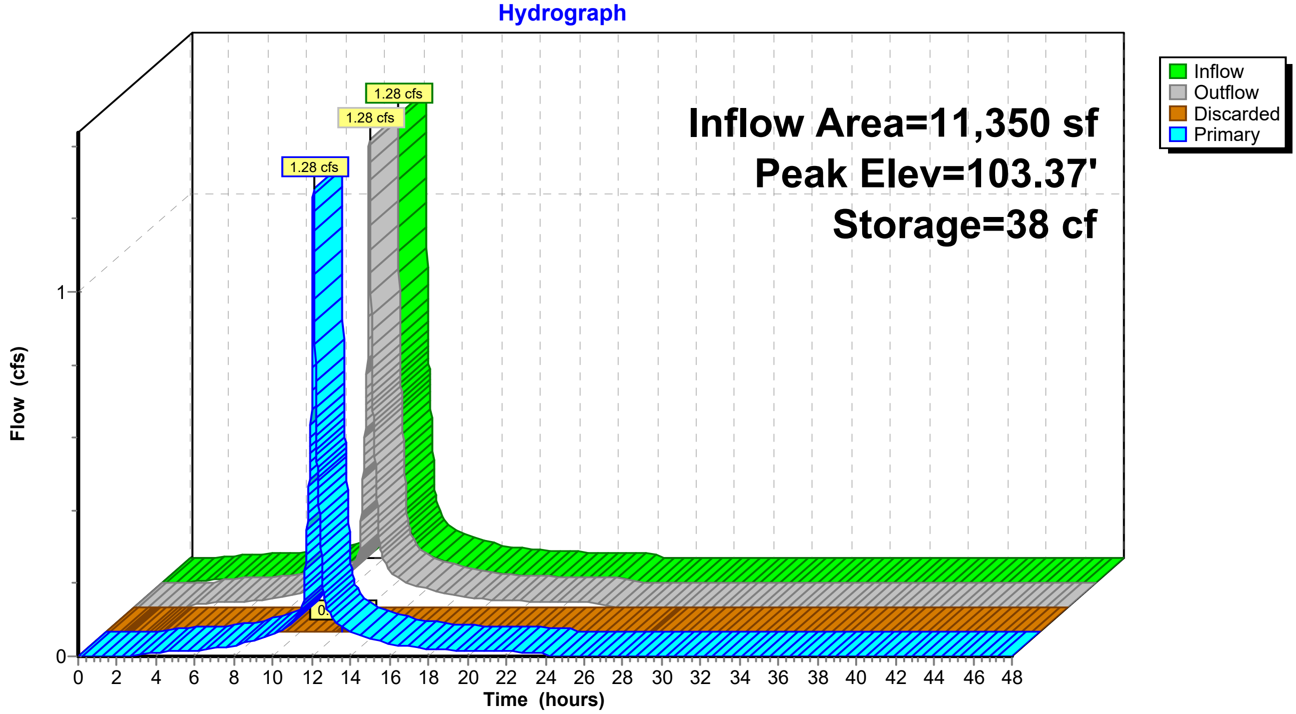
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.60	72	0	0
102.60	72	72	72
103.60	12	42	114
104.60	12	12	126
105.60	12	12	138
106.60	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	102.55'	**12.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.55' / 102.05' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	101.60'	**1.020 in/hr Exfiltration over Horizontal area above 101.55'** Conductivity to Groundwater Elevation = 90.00' Excluded Horizontal area = 0 sf Phase-In= 0.01'
#3	Device 1	102.55'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=103.37' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.28 cfs @ 12.08 hrs HW=103.37' TW=102.84' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.28 cfs of 1.52 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 1.28 cfs @ 2.59 fps)

Pond 34P: Tree Box



Summary for Pond 36P: Tree Box

Inflow Area = 10,465 sf,100.00% Impervious, Inflow Depth = 4.80" for 10-Year event
Inflow = 1.18 cfs @ 12.08 hrs, Volume= 4,189 cf
Outflow = 1.19 cfs @ 12.09 hrs, Volume= 4,189 cf, Atten= 0%, Lag= 0.3 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 161 cf
Primary = 1.18 cfs @ 12.09 hrs, Volume= 4,028 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.04' @ 12.08 hrs Surf.Area= 46 sf Storage= 34 cf
Flood Elev= 106.00' Surf.Area= 10 sf Storage= 50 cf

Plug-Flow detention time= 4.9 min calculated for 4,188 cf (100% of inflow)
Center-of-Mass det. time= 5.0 min (752.9 - 747.9)

Volume	Invert	Avail.Storage	Storage Description
#1	101.60'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

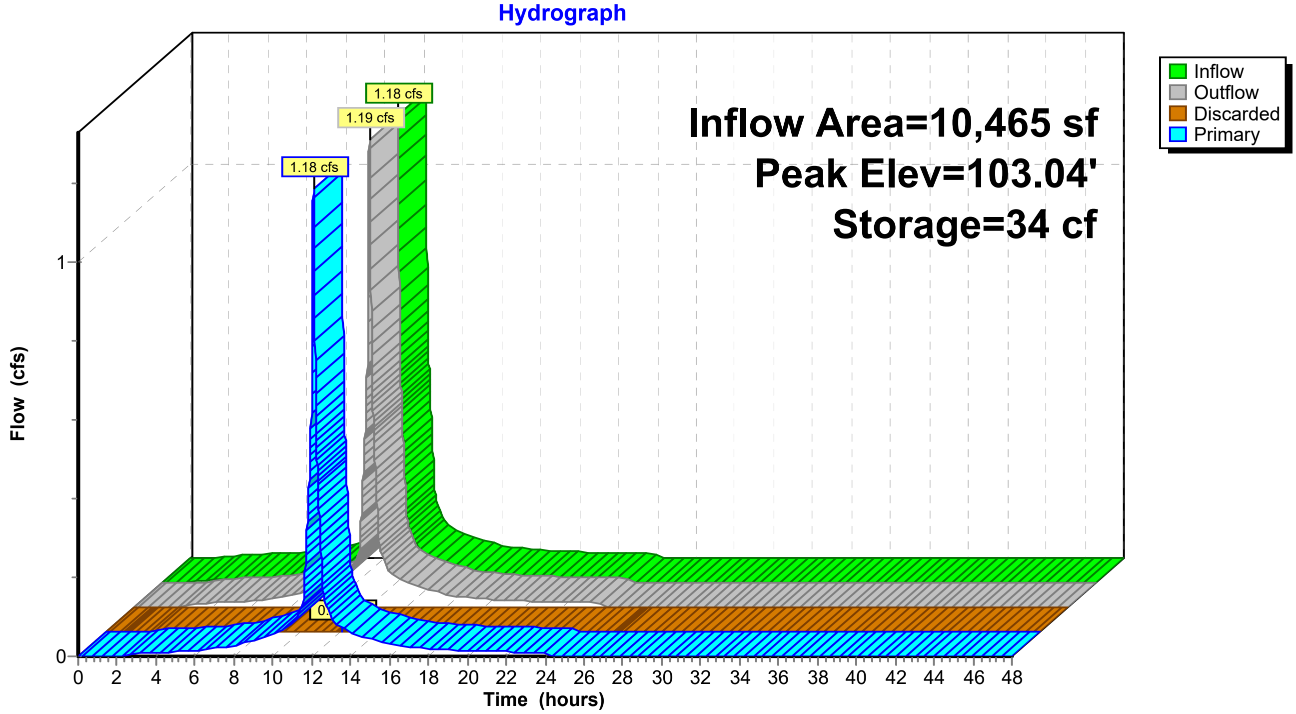
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.60	72	0	0
102.60	72	72	72
103.60	12	42	114
104.60	12	12	126
105.60	12	12	138
106.60	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	102.10'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.10' / 101.60' S= 0.0500 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	101.60'	**1.020 in/hr Exfiltration over Horizontal area above 101.10'** Conductivity to Groundwater Elevation = 90.00' Excluded Horizontal area = 0 sf Phase-In= 0.01'
#3	Device 1	102.10'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=103.04' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.18 cfs @ 12.09 hrs HW=103.03' TW=102.84' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.18 cfs of 1.61 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 1.18 cfs @ 1.97 fps)

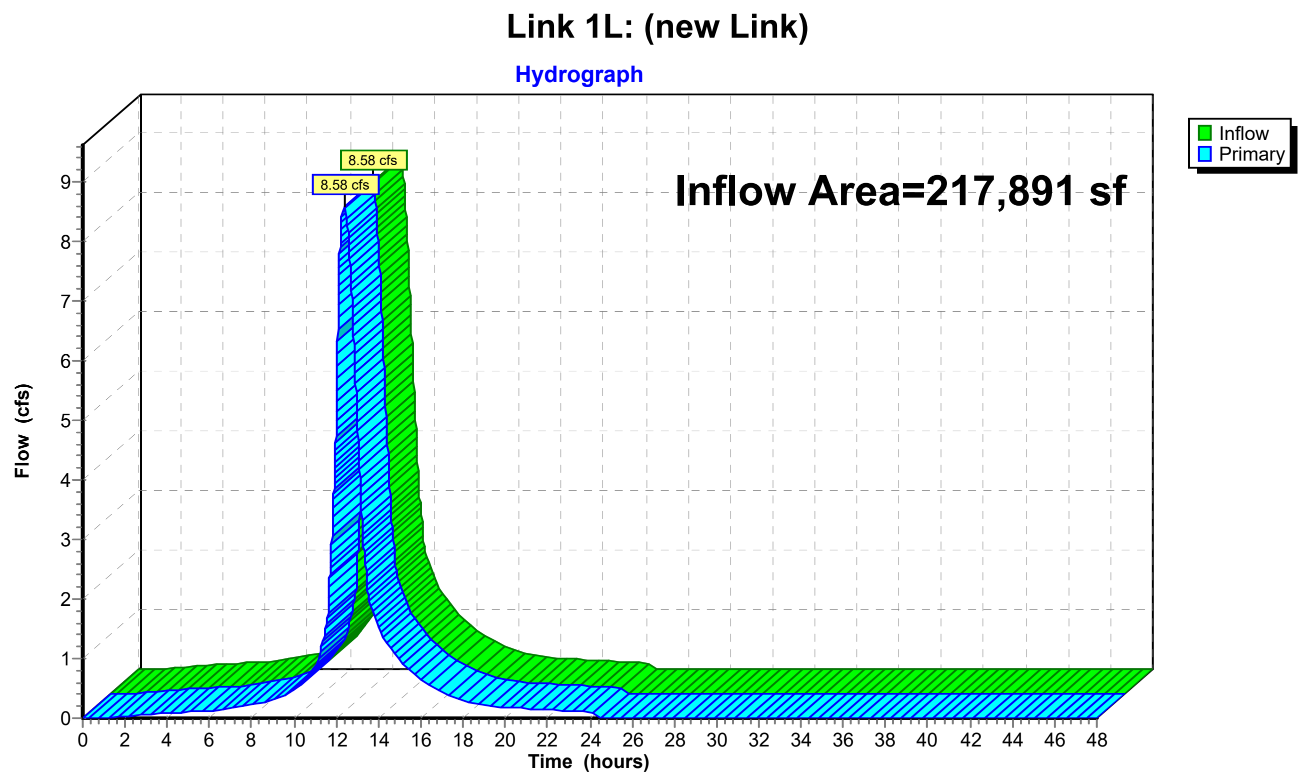
Pond 36P: Tree Box



Summary for Link 1L: (new Link)

Inflow Area = 217,891 sf, 82.73% Impervious, Inflow Depth = 3.52" for 10-Year event
Inflow = 8.58 cfs @ 12.37 hrs, Volume= 63,992 cf
Primary = 8.58 cfs @ 12.37 hrs, Volume= 63,992 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs



Summary for Subcatchment 2S: Open Space

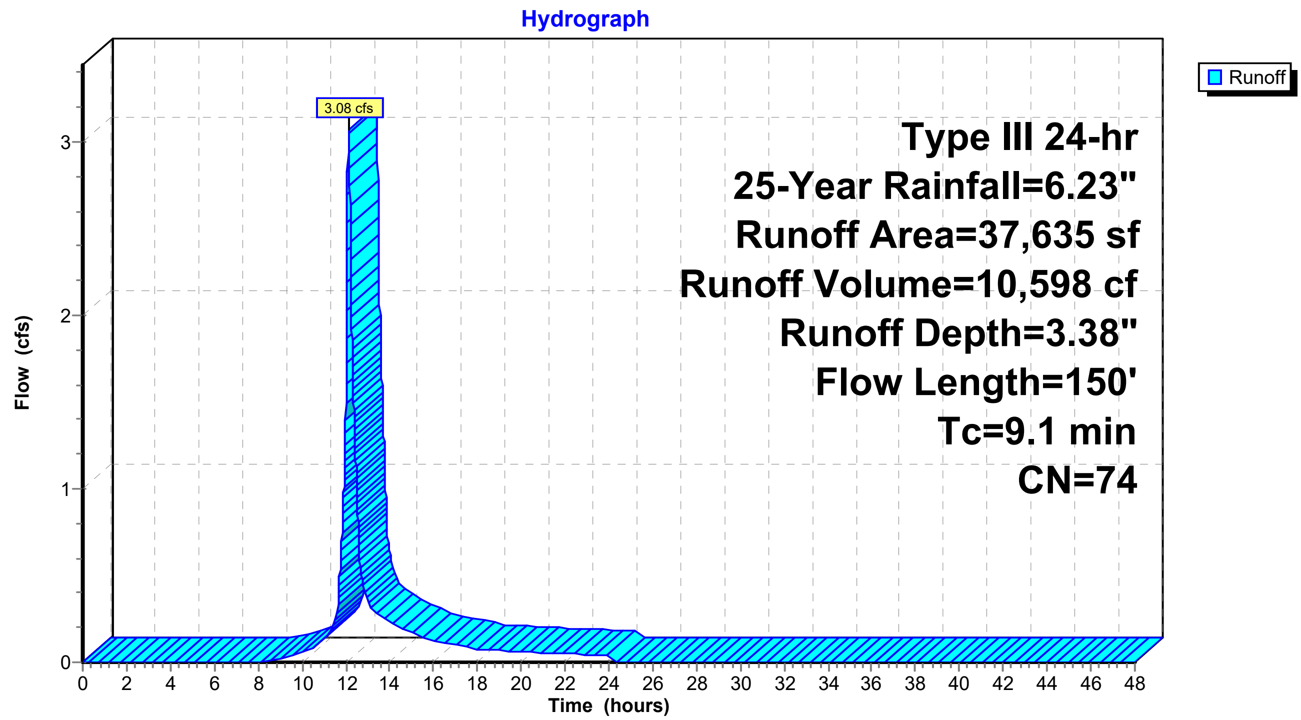
Runoff = 3.08 cfs @ 12.13 hrs, Volume= 10,598 cf, Depth= 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
37,635	74	>75% Grass cover, Good, HSG C
37,635	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow, Open Space** Grass: Dense n= 0.240 P2= 3.30"
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Open Space** Grassed Waterway Kv= 15.0 fps
0.6	50	0.0400	1.40		**Shallow Concentrated Flow, Open Space** Short Grass Pasture Kv= 7.0 fps
9.1	150	Total			

Subcatchment 2S: Open Space



Summary for Subcatchment 3S: Brewery Roof

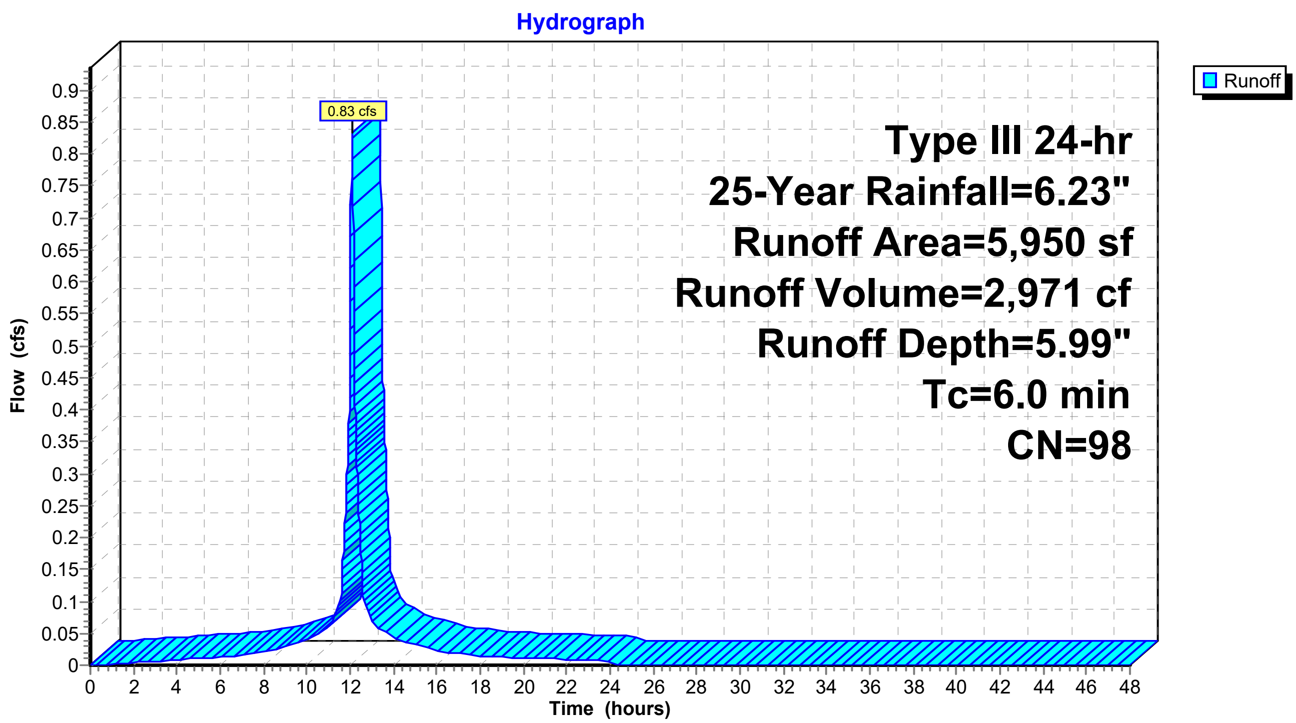
Runoff = 0.83 cfs @ 12.08 hrs, Volume= 2,971 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
5,950	98	Roofs, HSG D
5,950	98	100.00% Impervious Area

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

Subcatchment 3S: Brewery Roof



Summary for Subcatchment 5Sa: Athletic Roof

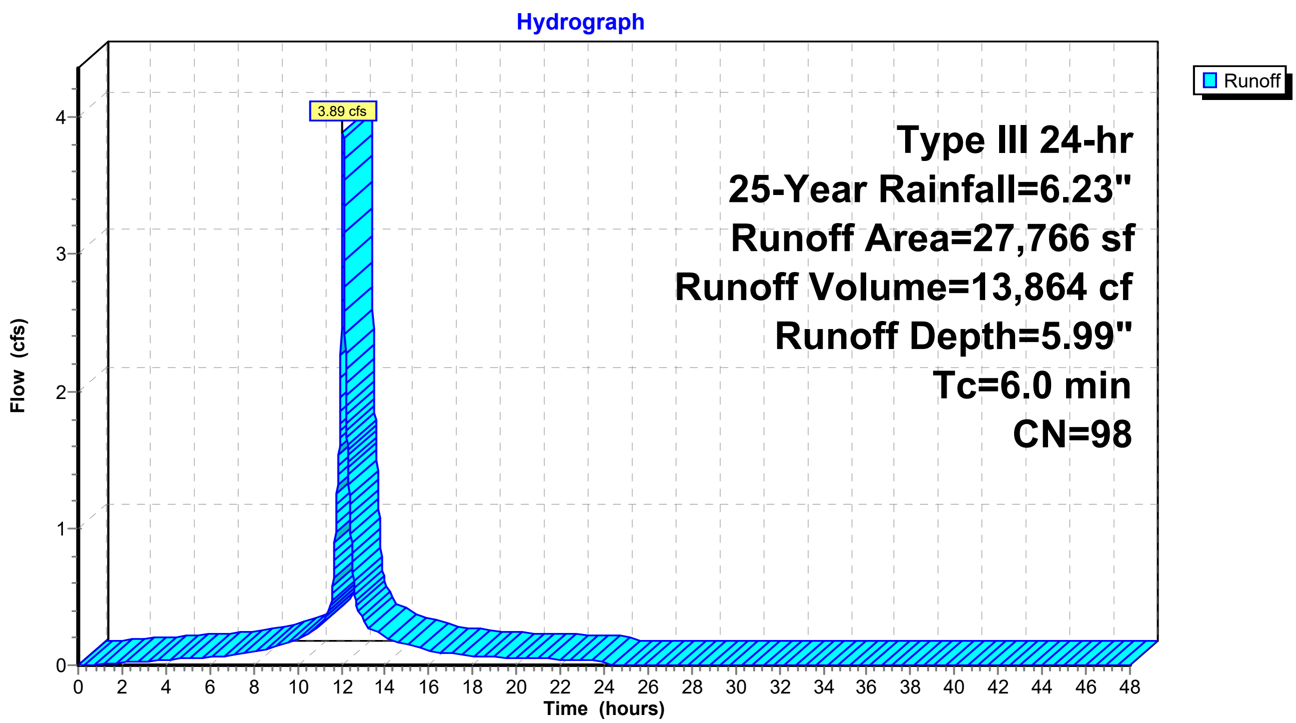
Runoff = 3.89 cfs @ 12.08 hrs, Volume= 13,864 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
27,766	98	Roofs, HSG D
27,766	98	100.00% Impervious Area

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

Subcatchment 5Sa: Athletic Roof



Summary for Subcatchment 5Sb: Athletic Roof

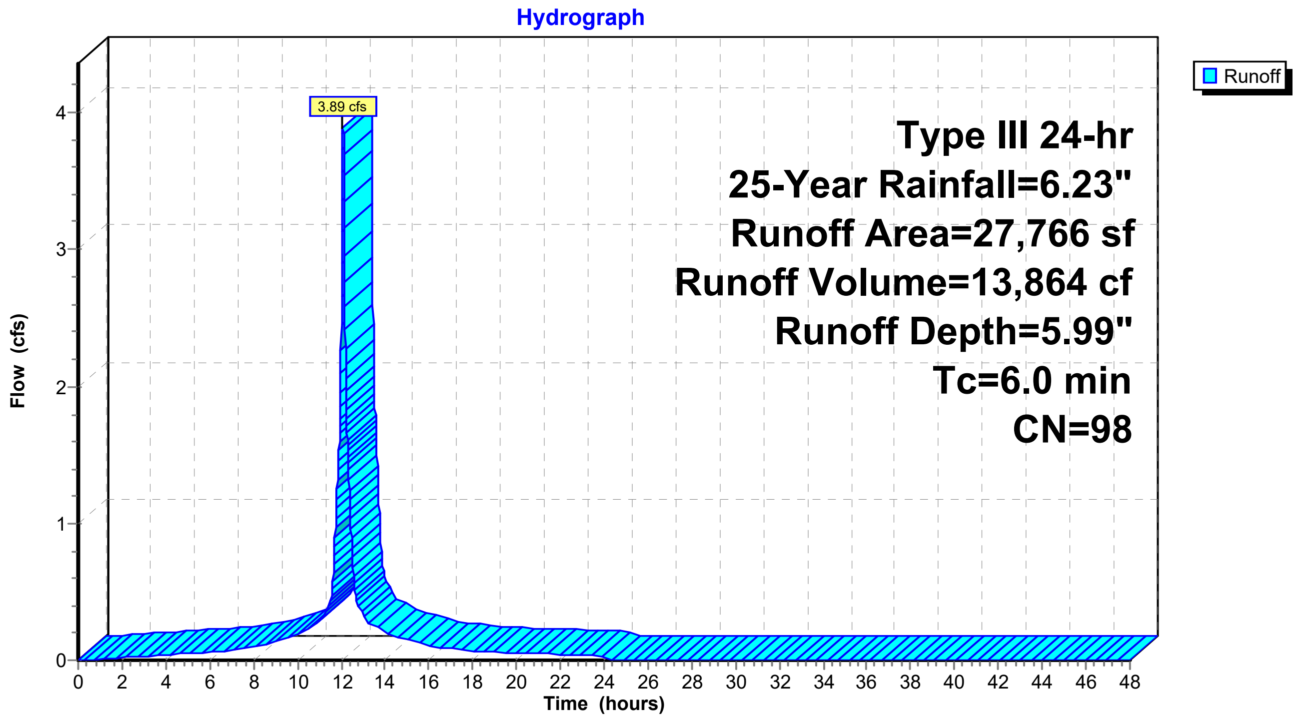
Runoff = 3.89 cfs @ 12.08 hrs, Volume= 13,864 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
27,766	98	Roofs, HSG D
27,766	98	100.00% Impervious Area

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

Subcatchment 5Sb: Athletic Roof



Summary for Subcatchment 6S: Residential Roof

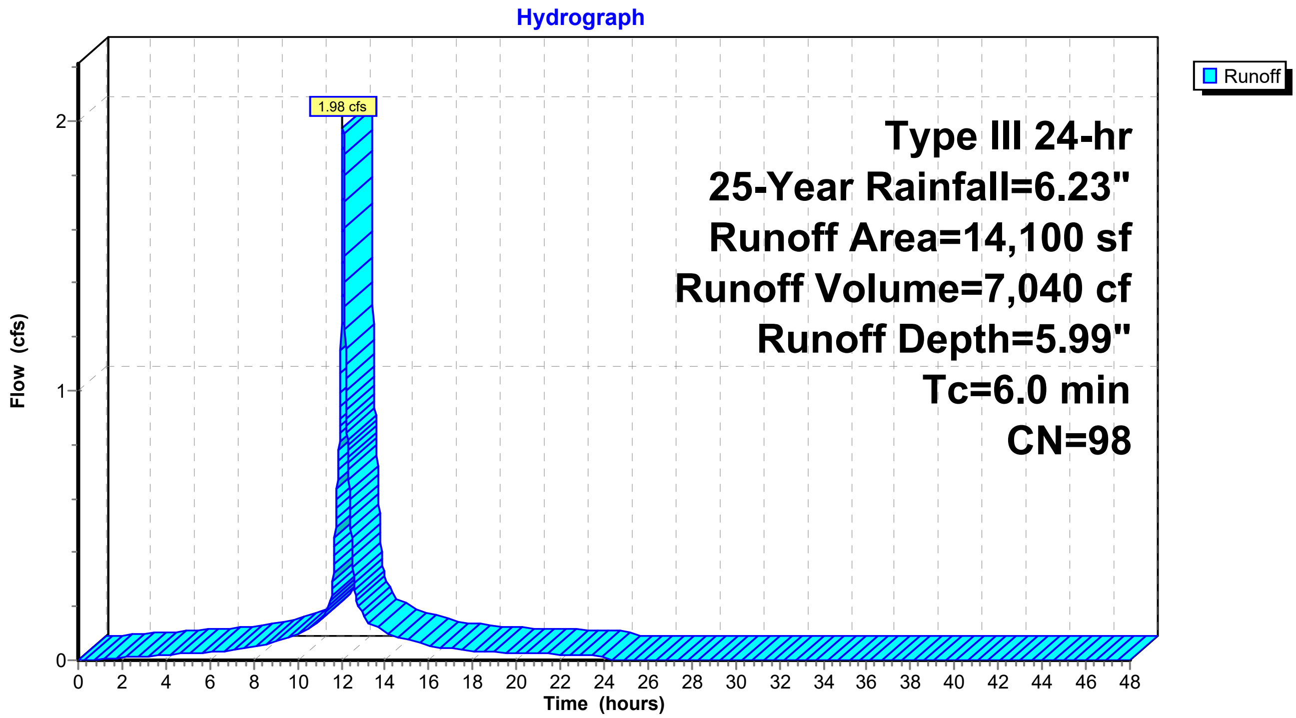
Runoff = 1.98 cfs @ 12.08 hrs, Volume= 7,040 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
14,100	98	Roofs, HSG D
14,100	98	100.00% Impervious Area

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

Subcatchment 6S: Residential Roof



Summary for Subcatchment 11S: Parking/Pavement

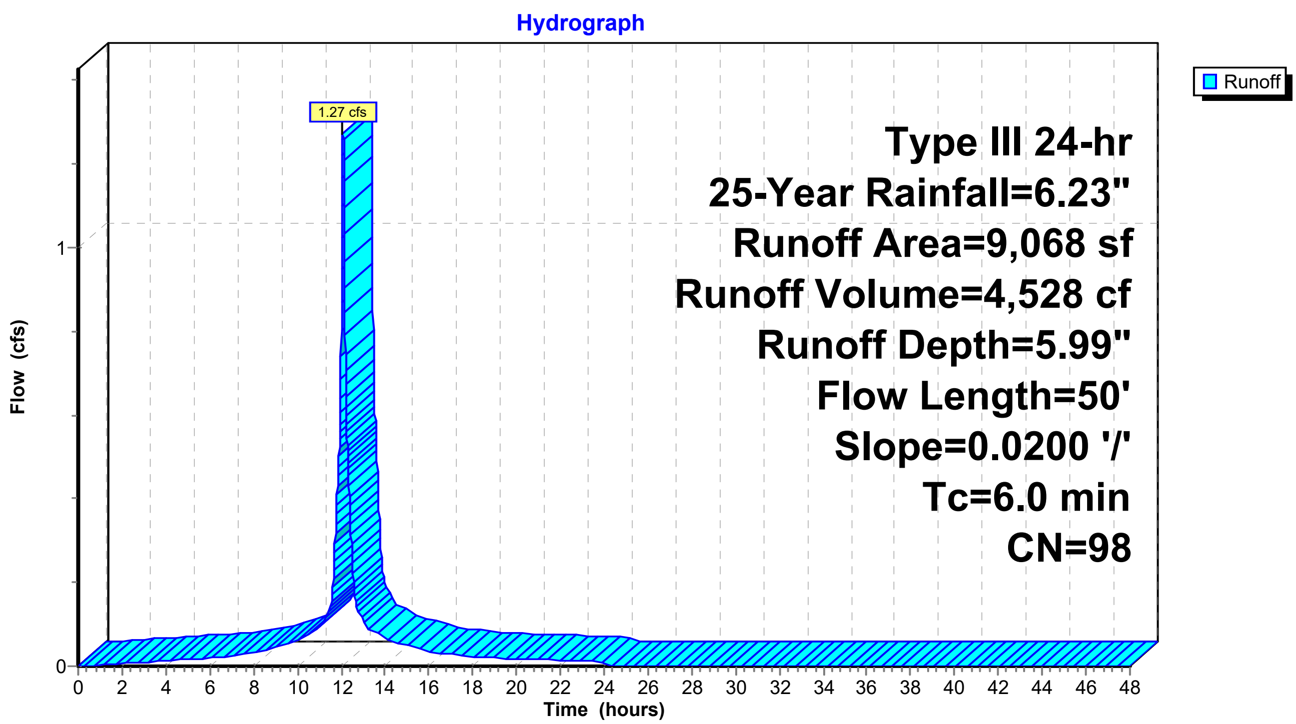
Runoff = 1.27 cfs @ 12.08 hrs, Volume= 4,528 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
9,068	98	Paved parking, HSG C
9,068	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 11S: Parking/Pavement



Summary for Subcatchment 12S: Parking/Pavement

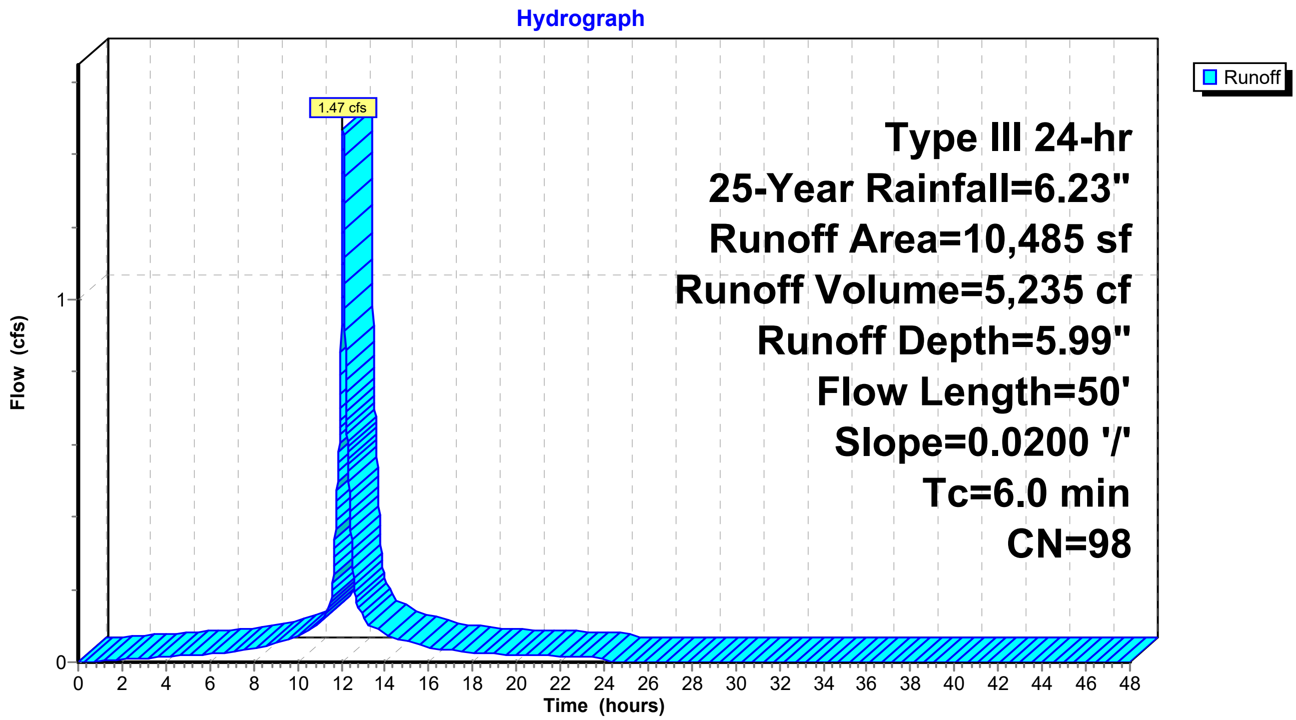
Runoff = 1.47 cfs @ 12.08 hrs, Volume= 5,235 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
10,485	98	Paved parking, HSG C
10,485	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 12S: Parking/Pavement



Summary for Subcatchment 13S: Parking/Pavement

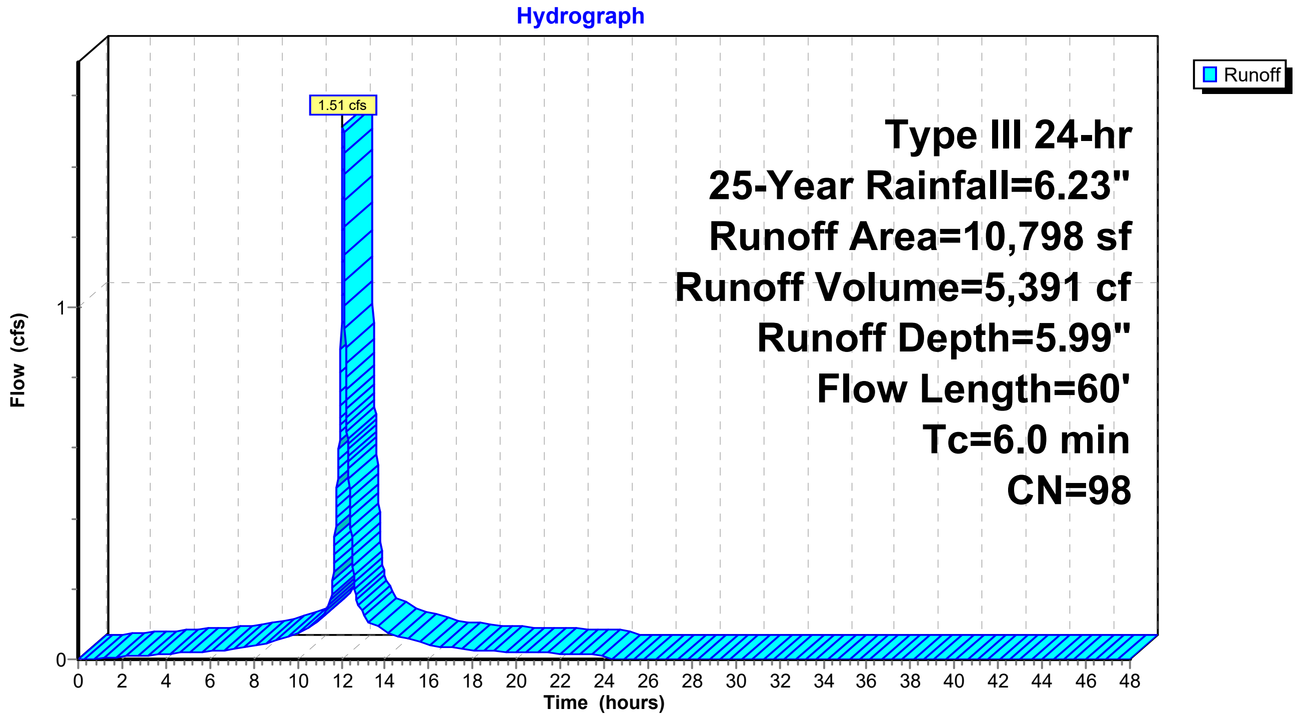
Runoff = 1.51 cfs @ 12.08 hrs, Volume= 5,391 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
10,798	98	Paved parking, HSG C
10,798	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	10	0.0050	0.04		**Sheet Flow, Landscapeing** Grass: Dense n= 0.240 P2= 3.30"
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
4.6	60	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S: Parking/Pavement



Summary for Subcatchment 15S: Parking/Pavement

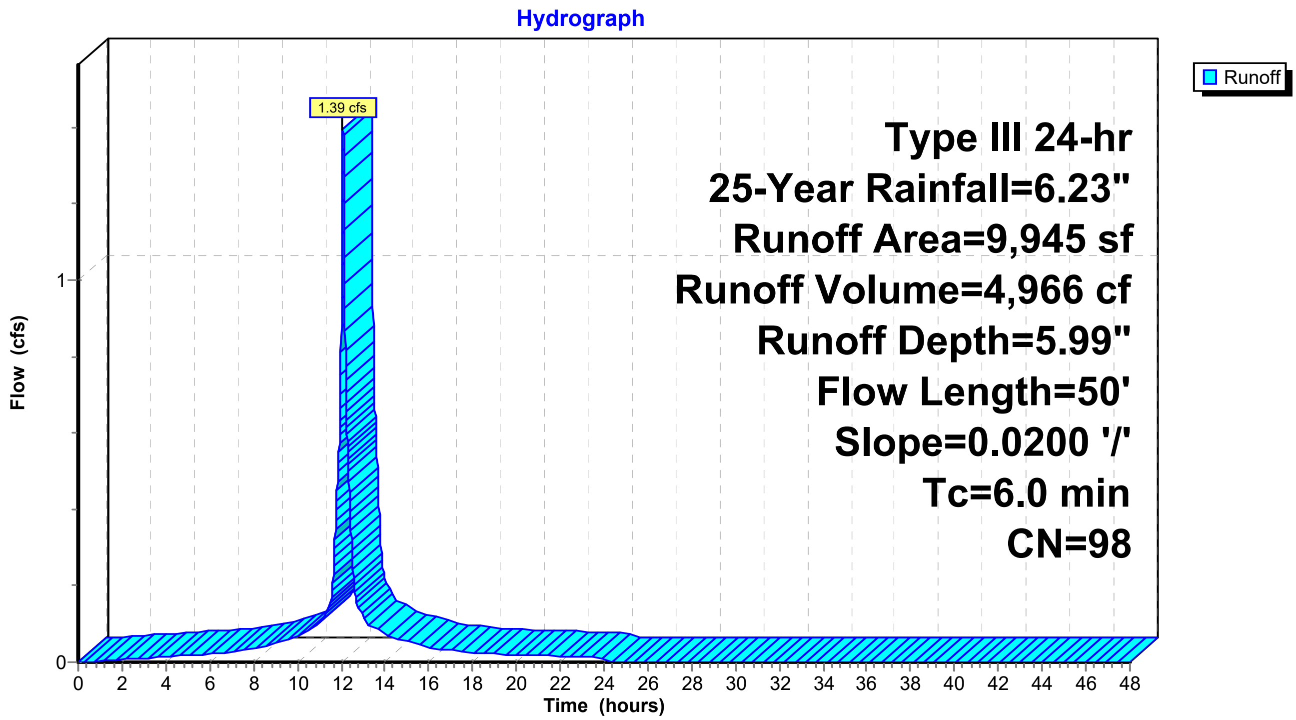
Runoff = 1.39 cfs @ 12.08 hrs, Volume= 4,966 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
9,945	98	Paved parking, HSG C
9,945	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total,	Increased to minimum Tc = 6.0 min		

Subcatchment 15S: Parking/Pavement



Summary for Subcatchment 16S: Parking/Pavement

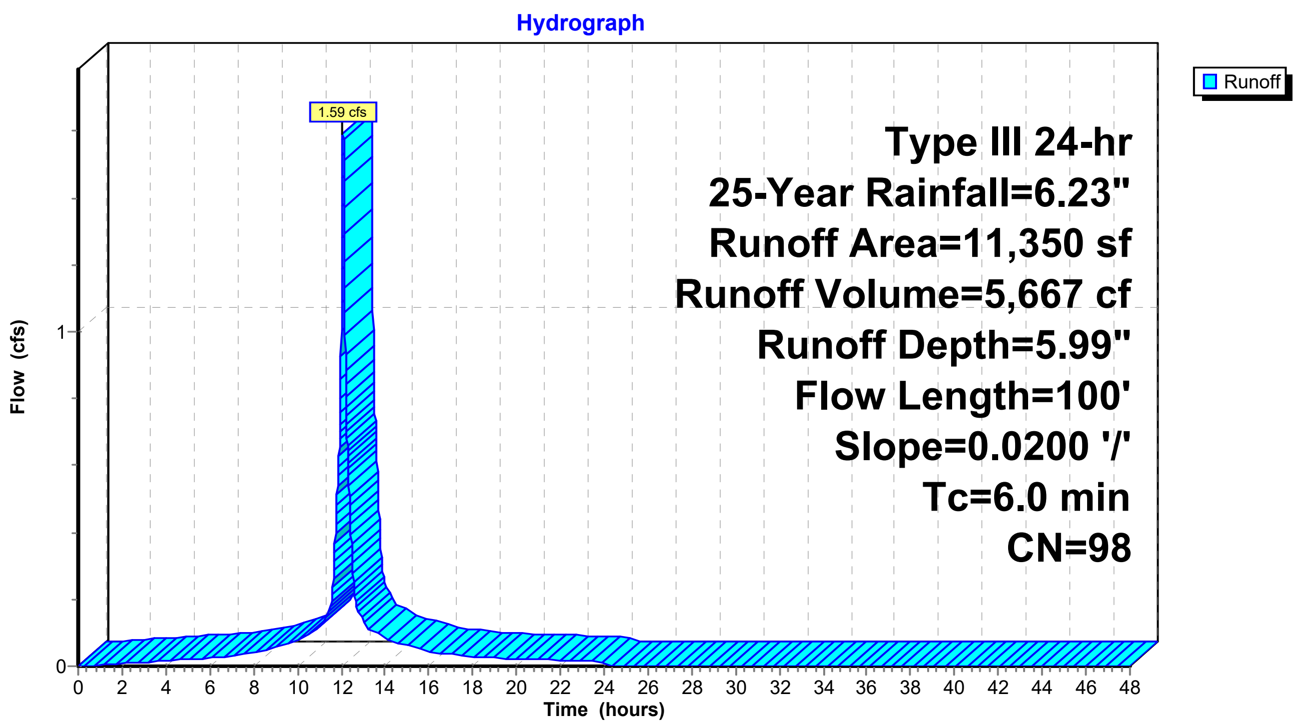
Runoff = 1.59 cfs @ 12.08 hrs, Volume= 5,667 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
11,350	98	Paved parking, HSG C
11,350	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 16S: Parking/Pavement



Summary for Subcatchment 17S: Parking/Pavement

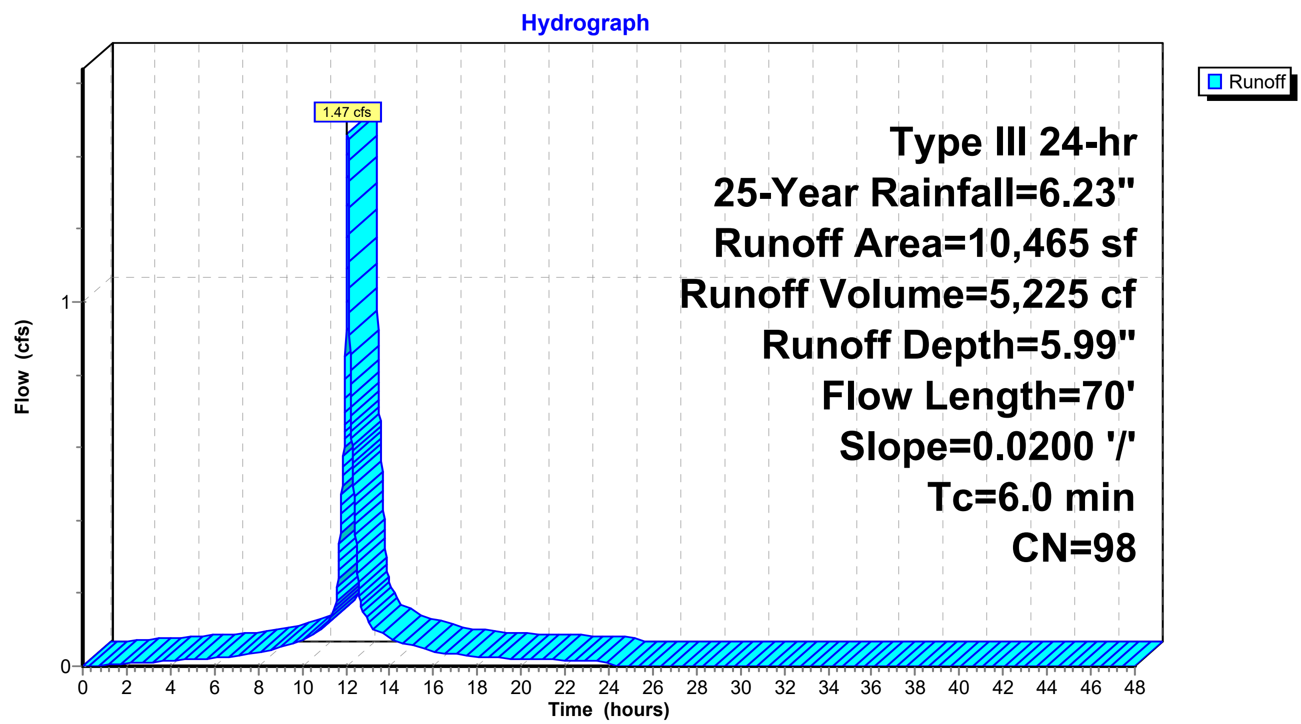
Runoff = 1.47 cfs @ 12.08 hrs, Volume= 5,225 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
10,465	98	Paved parking, HSG C
10,465	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	70	0.0200	1.30		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.9	70	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 17S: Parking/Pavement



Summary for Subcatchment 18S: Parking/Pavement

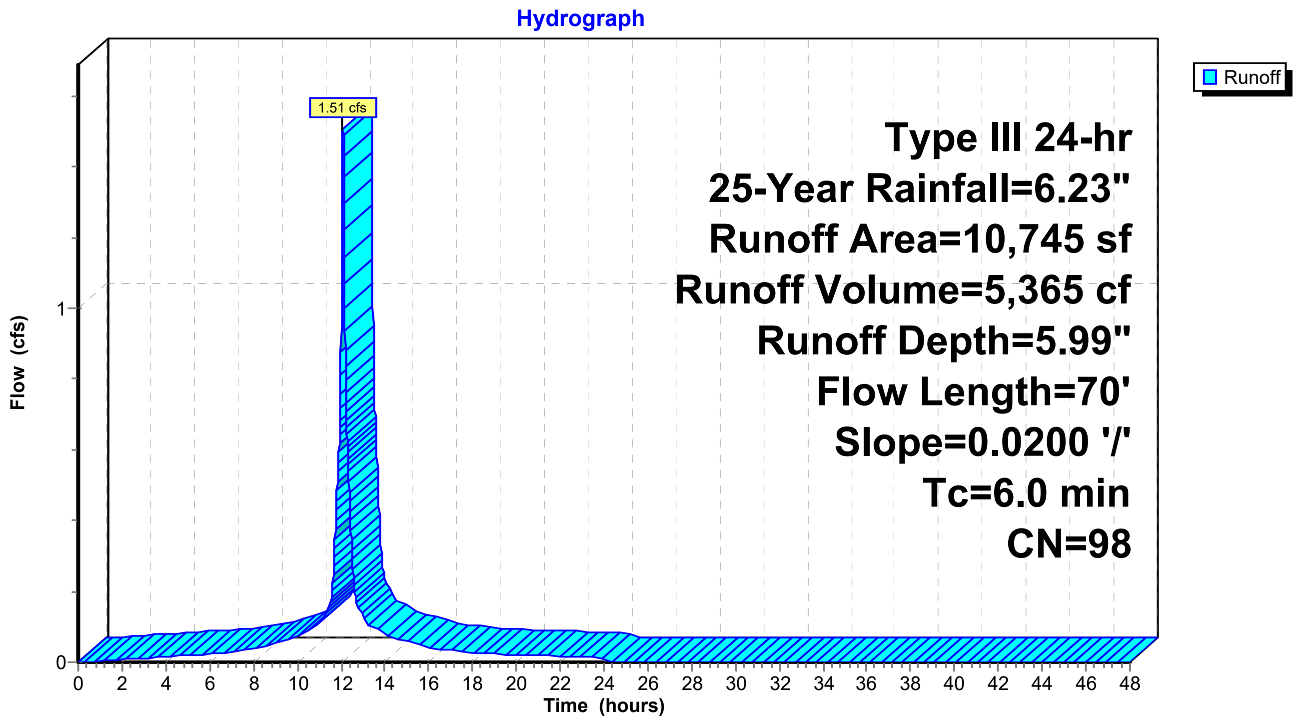
Runoff = 1.51 cfs @ 12.08 hrs, Volume= 5,365 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
10,745	98	Paved parking, HSG C
10,745	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	70	0.0200	1.30		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.9	70	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 18S: Parking/Pavement



Summary for Subcatchment 19S: Parking/Pavement

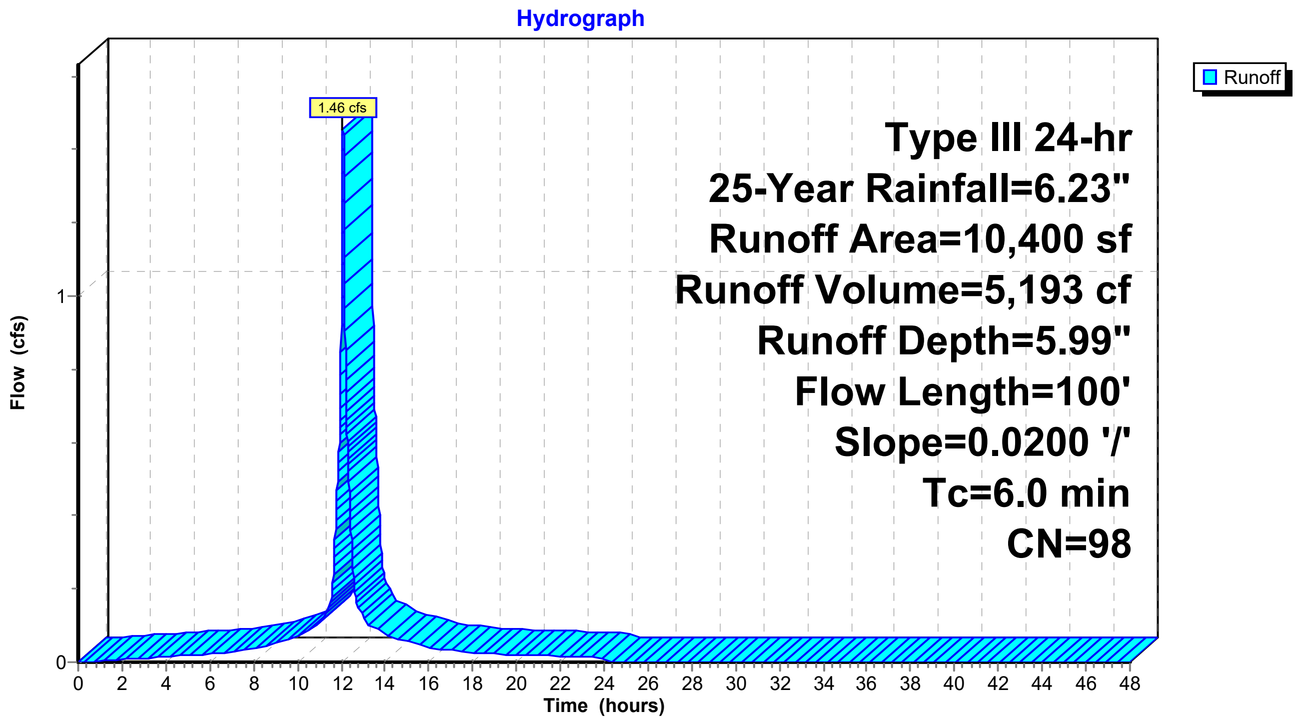
Runoff = 1.46 cfs @ 12.08 hrs, Volume= 5,193 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
10,400	98	Paved parking, HSG C
10,400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 19S: Parking/Pavement



Summary for Subcatchment 20S: Parking/Pavement

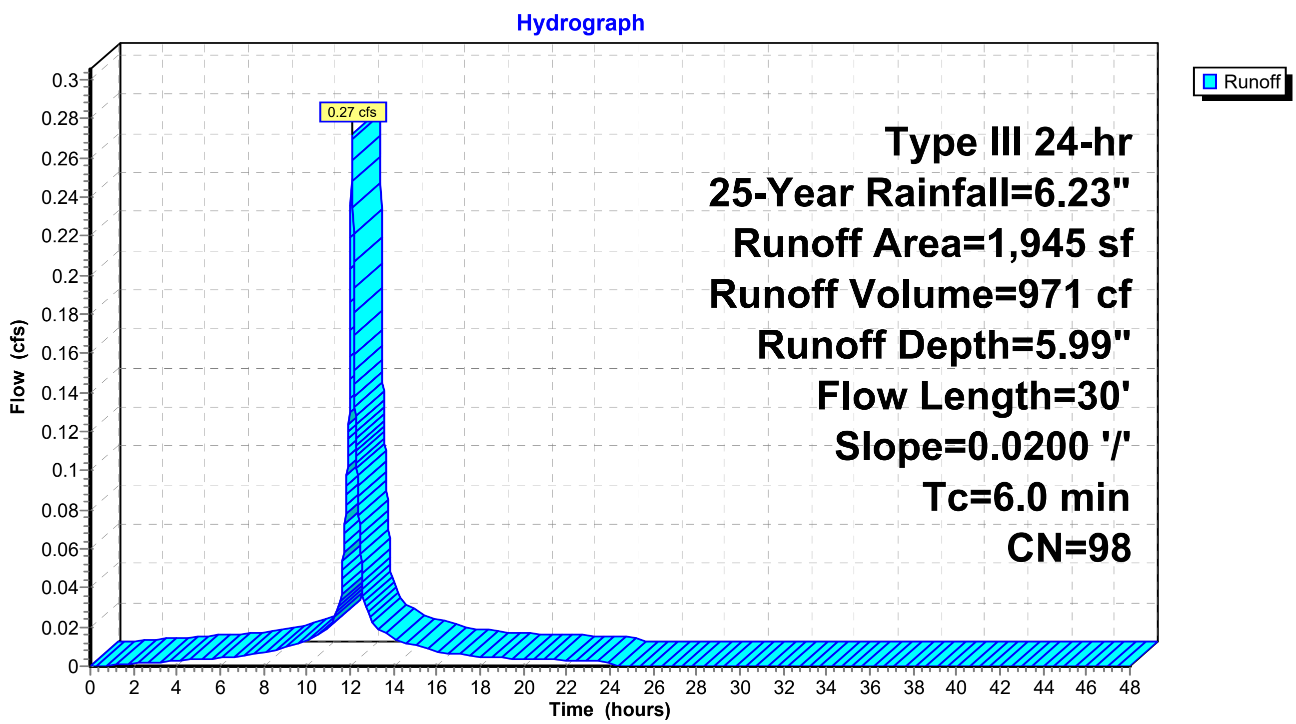
Runoff = 0.27 cfs @ 12.08 hrs, Volume= 971 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
1,945	98	Paved parking, HSG C
1,945	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	30	0.0200	1.10		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.5	30	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 20S: Parking/Pavement



Summary for Subcatchment 21S: Parking/Pavement

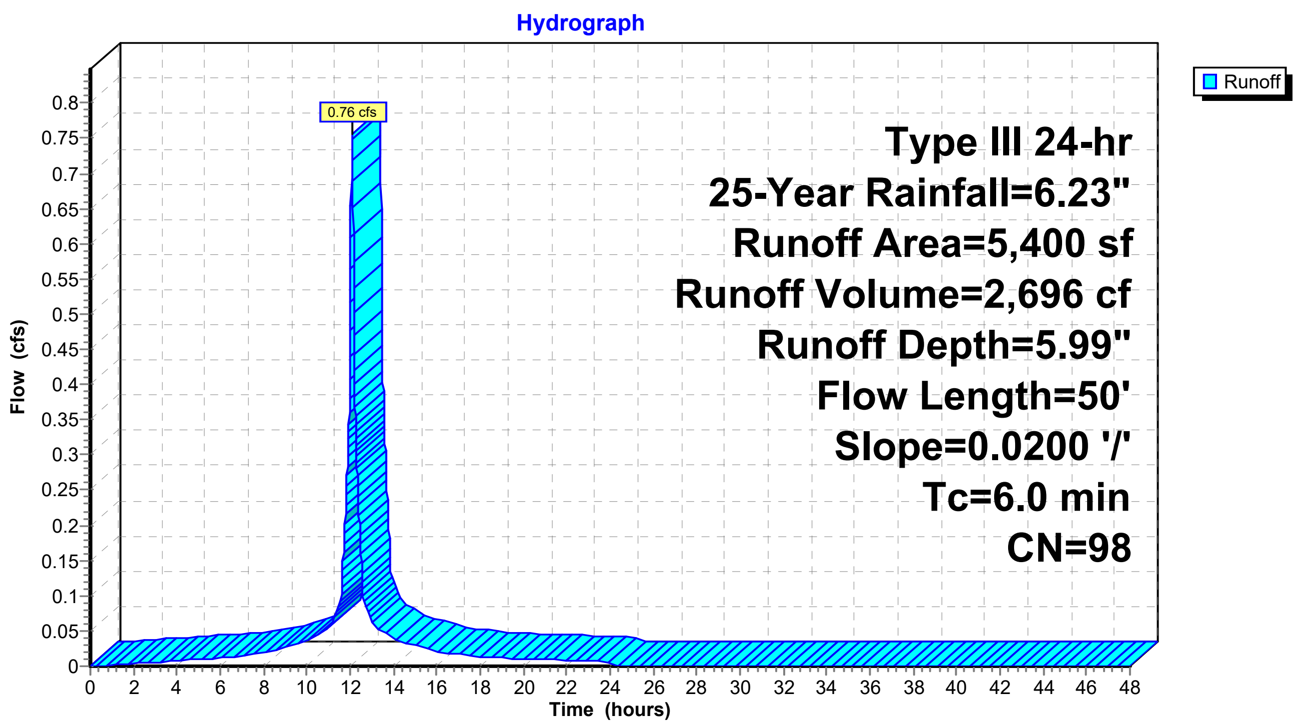
Runoff = 0.76 cfs @ 12.08 hrs, Volume= 2,696 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
5,400	98	Paved parking, HSG C
5,400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 21S: Parking/Pavement



Summary for Subcatchment 22: Parking/Pavement

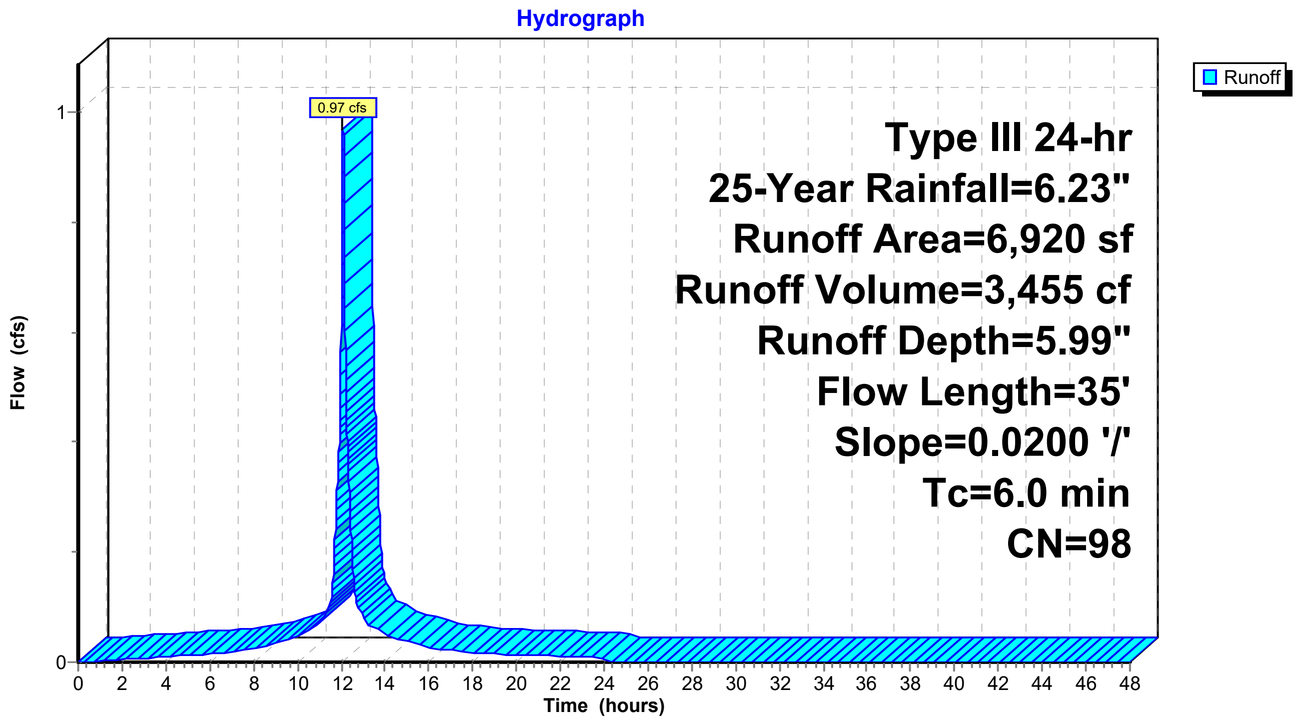
Runoff = 0.97 cfs @ 12.08 hrs, Volume= 3,455 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
6,920	98	Paved parking, HSG C
6,920	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	35	0.0200	1.13		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
0.5	35	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 22: Parking/Pavement



Summary for Subcatchment 23S: Parking/Pavement

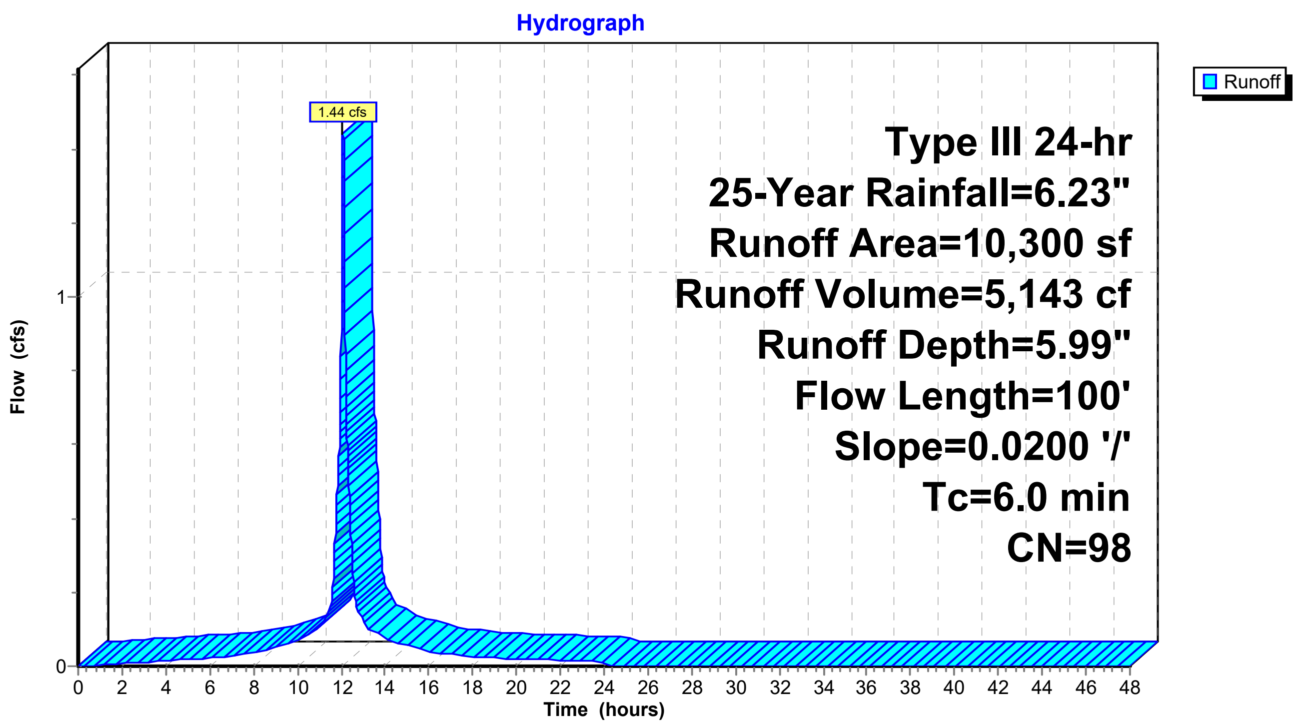
Runoff = 1.44 cfs @ 12.08 hrs, Volume= 5,143 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
10,300	98	Paved parking, HSG C
10,300	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 23S: Parking/Pavement



Summary for Subcatchment 37S: Grocery Roof

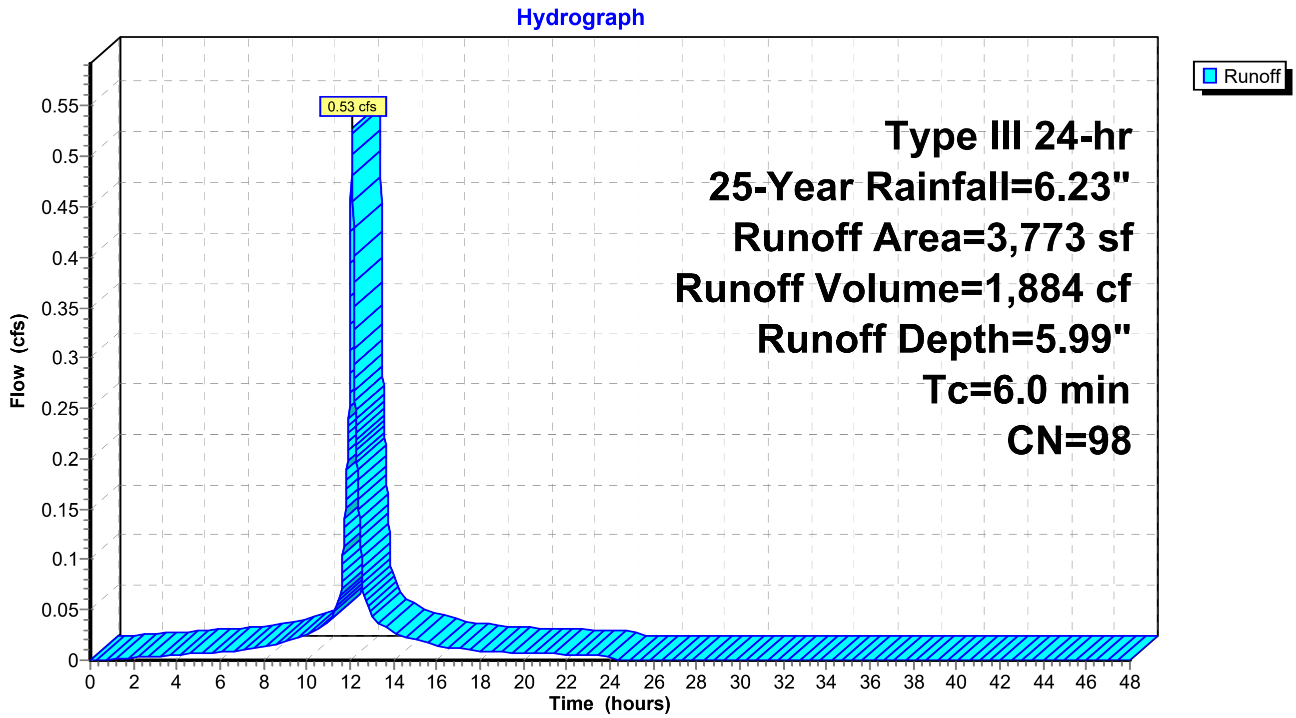
Runoff = 0.53 cfs @ 12.08 hrs, Volume= 1,884 cf, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
3,773	98	Roofs, HSG D
3,773	98	100.00% Impervious Area

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

Subcatchment 37S: Grocery Roof



Summary for Pond 1P: Area behind levee - Facemate

Inflow Area = 217,891 sf, 82.73% Impervious, Inflow Depth = 4.62" for 25-Year event
Inflow = 19.00 cfs @ 12.11 hrs, Volume= 83,972 cf
Outflow = 10.34 cfs @ 12.42 hrs, Volume= 83,972 cf, Atten= 46%, Lag= 18.4 min
Primary = 10.34 cfs @ 12.42 hrs, Volume= 83,972 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 91.15' @ 12.42 hrs Surf.Area= 13,505 sf Storage= 11,329 cf

Plug-Flow detention time= 9.0 min calculated for 83,972 cf (100% of inflow)
Center-of-Mass det. time= 8.9 min (782.0 - 773.1)

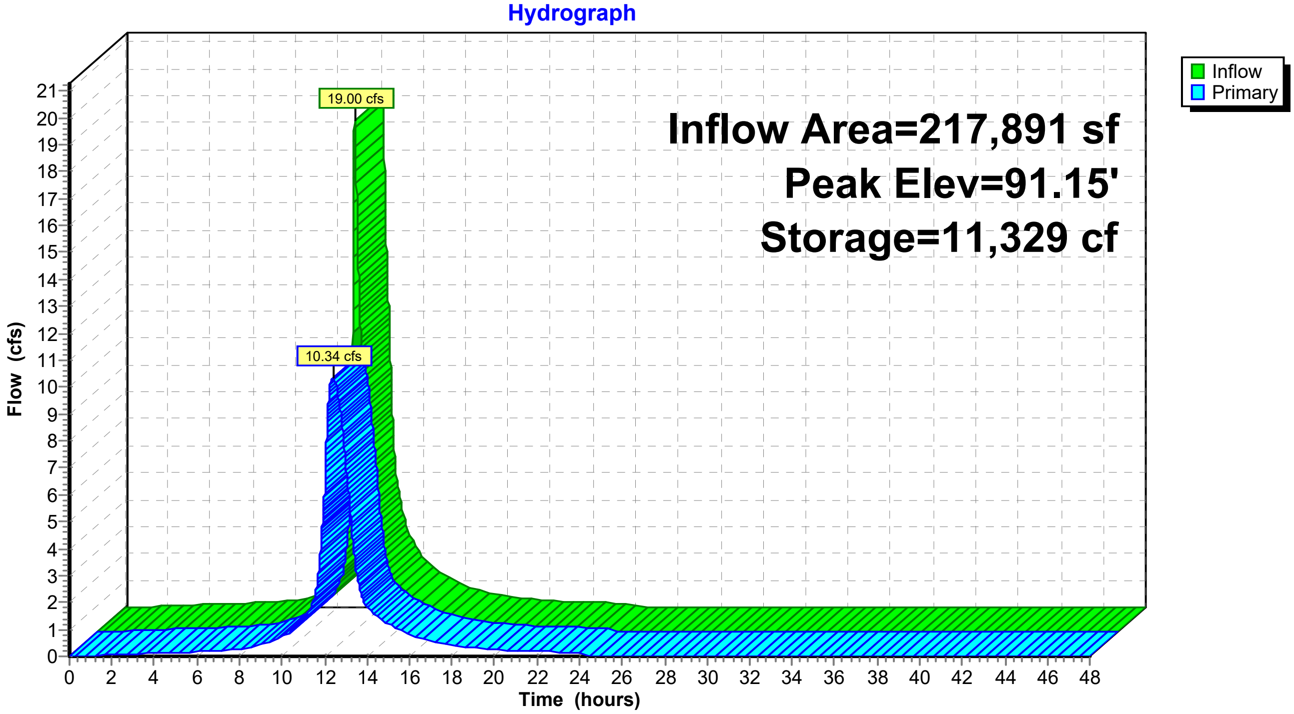
Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	90.00'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=10.34 cfs @ 12.42 hrs HW=91.15' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 5.17 cfs @ 5.17 fps)
2=Orifice/Grate (Orifice Controls 5.17 cfs @ 5.17 fps)

Pond 1P: Area behind levee - Facemate



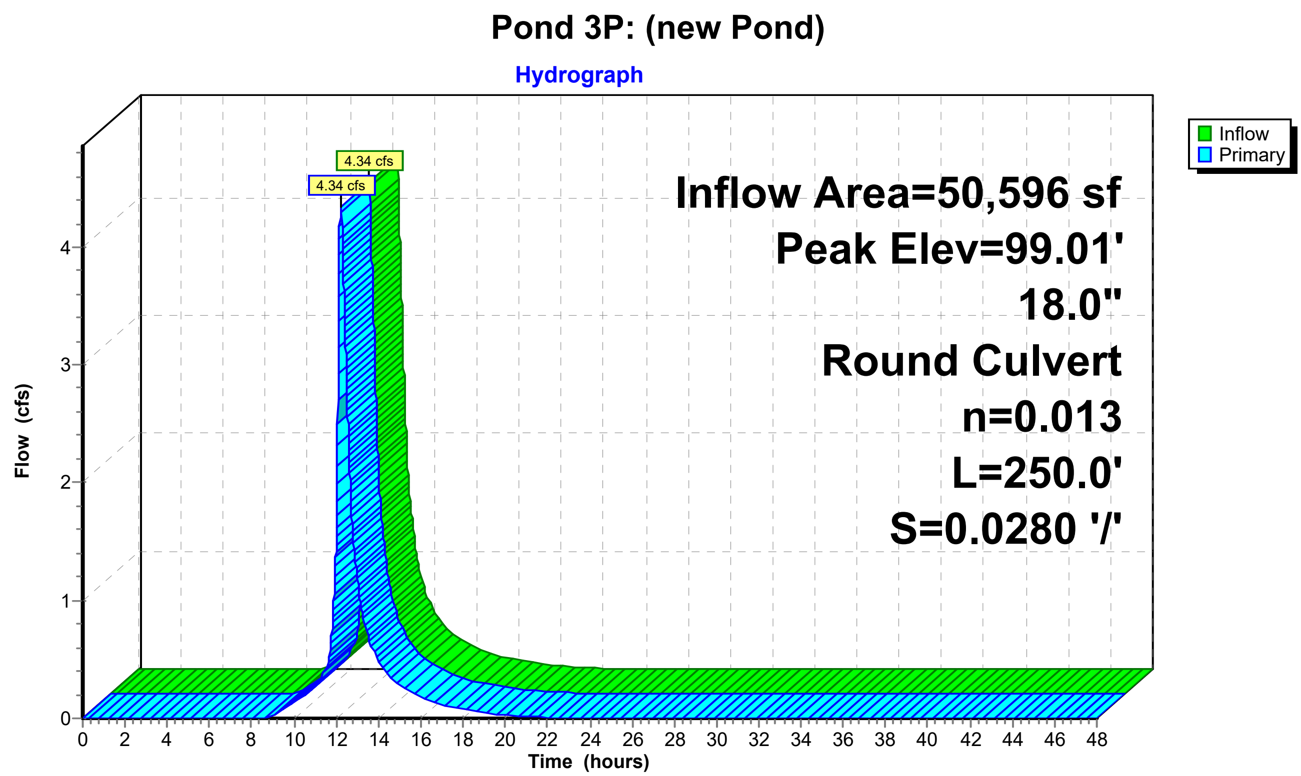
Summary for Pond 3P: (new Pond)

Inflow Area = 50,596 sf,100.00% Impervious, Inflow Depth = 4.37" for 25-Year event
Inflow = 4.34 cfs @ 12.20 hrs, Volume= 18,442 cf
Outflow = 4.34 cfs @ 12.20 hrs, Volume= 18,442 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.34 cfs @ 12.20 hrs, Volume= 18,442 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 99.01' @ 12.20 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.00'	**18.0" Round Culvert** L= 250.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 98.00' / 91.00' S= 0.0280 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.34 cfs @ 12.20 hrs HW=99.01' TW=90.99' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 4.34 cfs @ 3.42 fps)



Summary for Pond 5P: Tree Box

Inflow Area = 9,945 sf,100.00% Impervious, Inflow Depth = 6.98" for 25-Year event
Inflow = 2.25 cfs @ 12.10 hrs, Volume= 5,789 cf
Outflow = 2.20 cfs @ 12.11 hrs, Volume= 5,789 cf, Atten= 3%, Lag= 0.4 min
Discarded = 0.00 cfs @ 12.11 hrs, Volume= 85 cf
Primary = 2.20 cfs @ 12.11 hrs, Volume= 5,703 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.65' @ 12.11 hrs Surf.Area= 65 sf Storage= 56 cf

Plug-Flow detention time= 2.3 min calculated for 5,787 cf (100% of inflow)
Center-of-Mass det. time= 2.4 min (746.6 - 744.2)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	91 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 259 cf Overall x 35.0% Voids

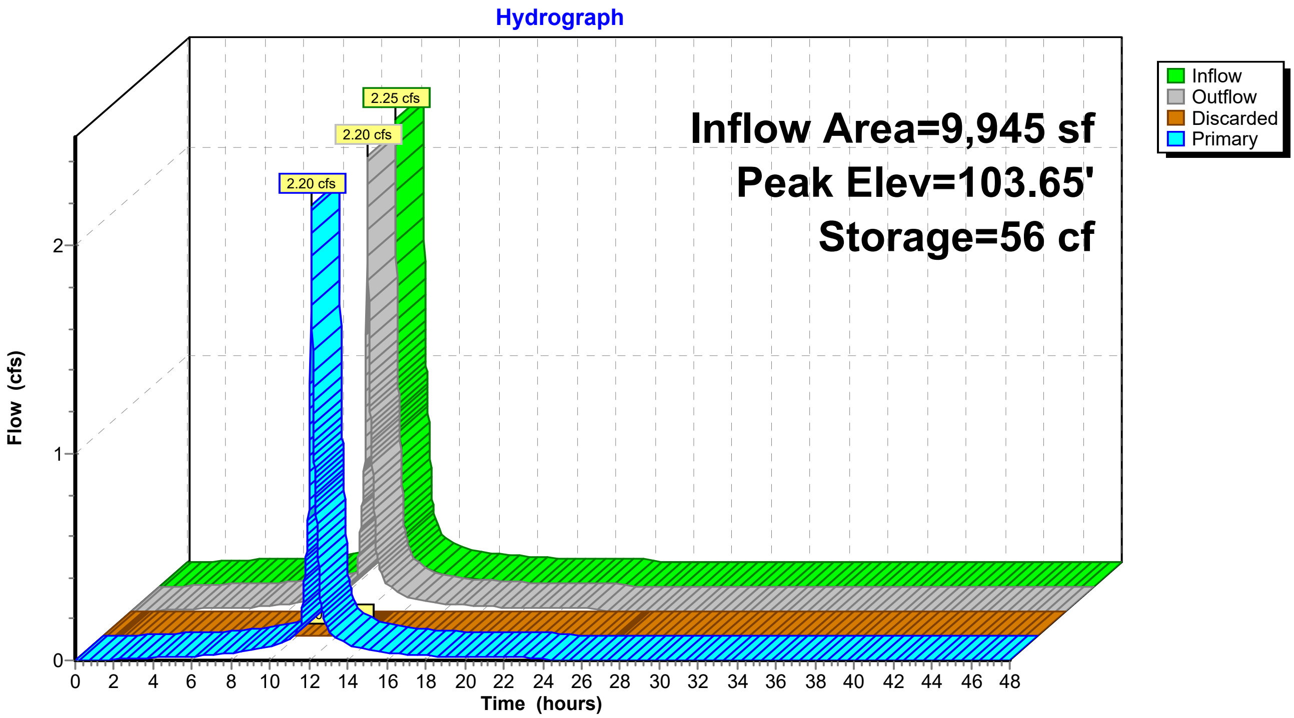
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	36	0	0
101.20	36	36	36
102.20	48	42	78
103.20	60	54	132
104.20	72	66	198
105.00	80	61	259

Device	Routing	Invert	Outlet Devices
#1	Primary	100.75'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.75' / 100.65' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.75'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=103.64' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=2.26 cfs @ 12.11 hrs HW=103.62' TW=103.27' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.26 cfs @ 2.87 fps)
  ↑—**3=Custom Weir/Orifice** (Passes 2.26 cfs of 19.54 cfs potential flow)

Pond 5P: Tree Box



Summary for Pond 6P: DMH

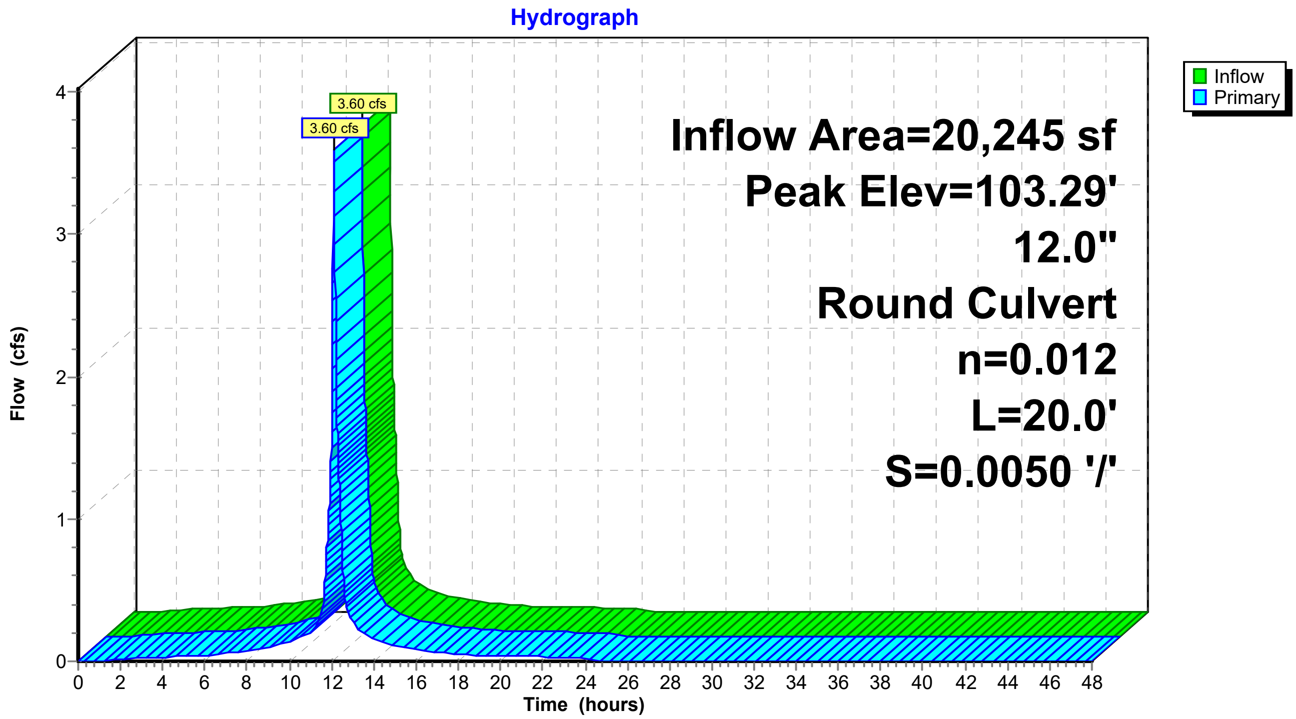
Inflow Area = 20,245 sf,100.00% Impervious, Inflow Depth = 6.43" for 25-Year event
Inflow = 3.60 cfs @ 12.10 hrs, Volume= 10,846 cf
Outflow = 3.60 cfs @ 12.10 hrs, Volume= 10,846 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.60 cfs @ 12.10 hrs, Volume= 10,846 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.29' @ 12.12 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.60'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.60' / 100.50' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.58 cfs @ 12.10 hrs HW=103.24' TW=102.35' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.58 cfs @ 4.56 fps)

Pond 6P: DMH



Summary for Pond 7P: Storage Chambers South

Inflow Area = 50,596 sf,100.00% Impervious, Inflow Depth = 6.03" for 25-Year event
Inflow = 7.75 cfs @ 12.10 hrs, Volume= 25,444 cf
Outflow = 4.44 cfs @ 12.20 hrs, Volume= 25,444 cf, Atten= 43%, Lag= 6.3 min
Discarded = 0.10 cfs @ 12.20 hrs, Volume= 7,001 cf
Primary = 4.34 cfs @ 12.20 hrs, Volume= 18,442 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.65' @ 12.20 hrs Surf.Area= 3,348 sf Storage= 6,313 cf
Flood Elev= 106.00' Surf.Area= 3,348 sf Storage= 8,592 cf

Plug-Flow detention time= 61.5 min calculated for 25,444 cf (100% of inflow)
Center-of-Mass det. time= 61.5 min (808.5 - 747.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	3,199 cf	**53.00'W x 63.17'L x 4.00'H Field A** 13,391 cf Overall - 5,393 cf Embedded = 7,998 cf x 40.0% Voids
#2A	100.50'	5,393 cf	**Cultec R-360HD** x 144 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 144 Chambers in 9 Rows Cap Storage= +6.5 cf x 2 x 9 rows = 116.3 cf
		8,592 cf	Total Available Storage

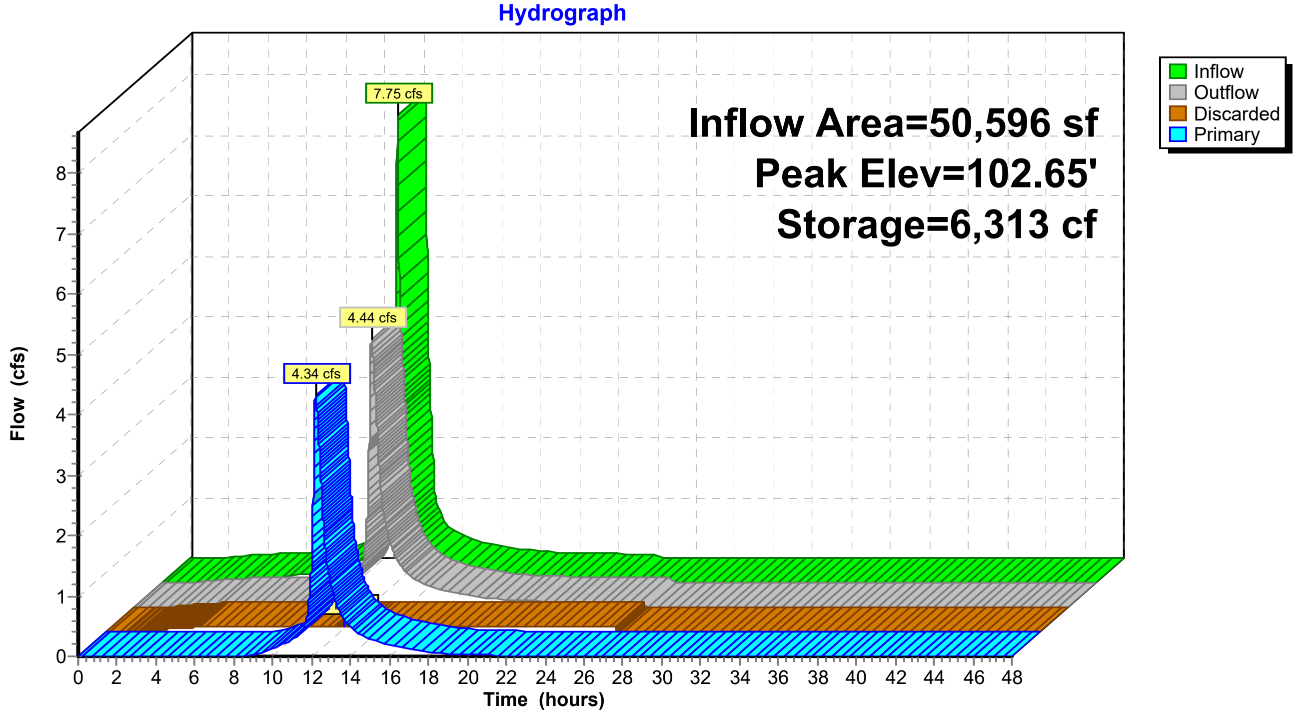
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	99.00'	**18.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 99.00' / 96.00' S= 0.1500 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.25 1.25 2.50 2.50 3.00 Width (feet) 0.33 0.33 0.66 0.66 2.00 2.00

Discarded OutFlow Max=0.10 cfs @ 12.20 hrs HW=102.65' (Free Discharge)
└─**2=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=4.34 cfs @ 12.20 hrs HW=102.65' TW=99.01' (Dynamic Tailwater)
└─**1=Culvert** (Passes 4.34 cfs of 14.49 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 4.34 cfs @ 4.30 fps)

Pond 7P: Storage Chambers South



Summary for Pond 8P: Storage Chambers North

Inflow Area = 50,305 sf,100.00% Impervious, Inflow Depth = 5.84" for 25-Year event
Inflow = 7.04 cfs @ 12.09 hrs, Volume= 24,489 cf
Outflow = 3.02 cfs @ 12.27 hrs, Volume= 24,489 cf, Atten= 57%, Lag= 11.1 min
Discarded = 0.14 cfs @ 12.27 hrs, Volume= 9,179 cf
Primary = 2.88 cfs @ 12.27 hrs, Volume= 15,310 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.25' @ 12.27 hrs Surf.Area= 4,786 sf Storage= 7,603 cf

Plug-Flow detention time= 77.9 min calculated for 24,489 cf (100% of inflow)
Center-of-Mass det. time= 77.9 min (824.7 - 746.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	4,622 cf	**116.25'W x 41.17'L x 4.00'H Field A** 19,143 cf Overall - 7,587 cf Embedded = 11,555 cf x 40.0% Voids
#2A	100.50'	7,587 cf	**Cultec R-360HD** x 200 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 200 Chambers in 20 Rows Cap Storage= +6.5 cf x 2 x 20 rows = 258.4 cf
		12,209 cf	Total Available Storage

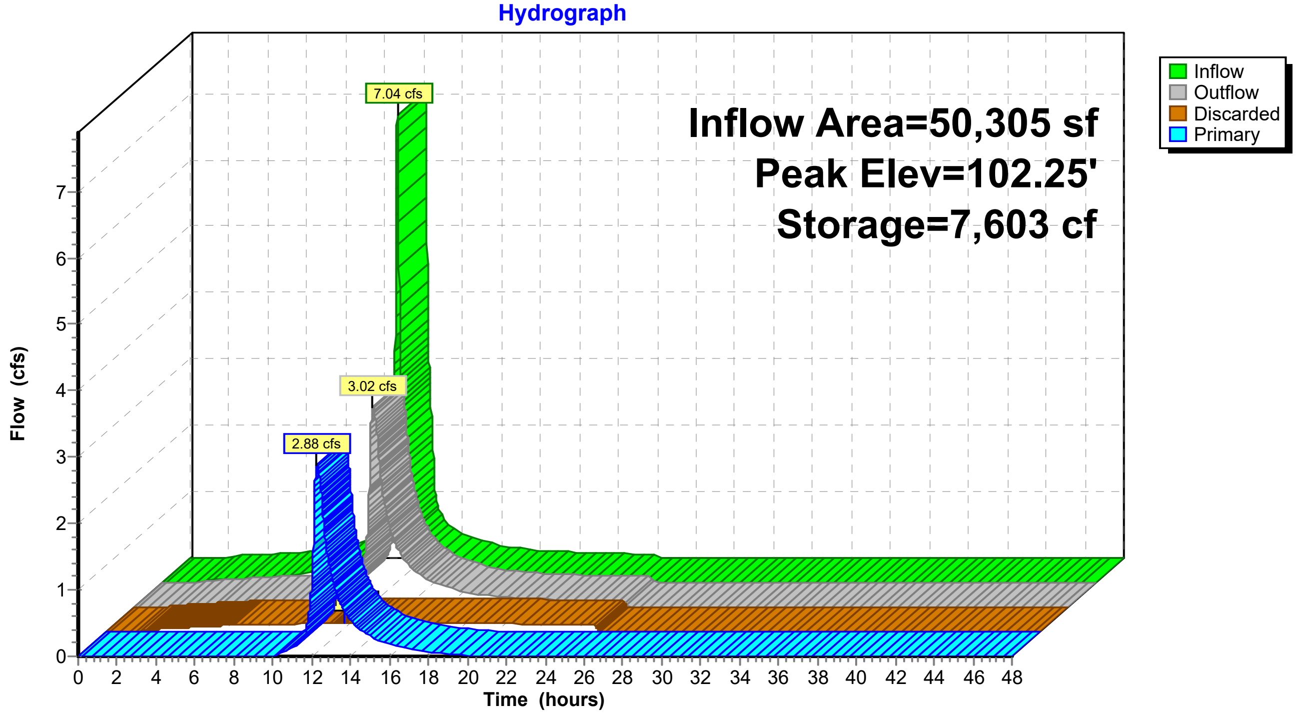
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.50'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.50' / 100.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.25 1.25 2.50 2.50 3.00 Width (feet) 0.33 0.33 0.66 0.66 2.00 2.00

Discarded OutFlow Max=0.14 cfs @ 12.27 hrs HW=102.25' (Free Discharge)
└─**2=Exfiltration** (Controls 0.14 cfs)

Primary OutFlow Max=2.88 cfs @ 12.27 hrs HW=102.25' TW=91.08' (Dynamic Tailwater)
└─**1=Culvert** (Passes 2.88 cfs of 8.50 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 2.88 cfs @ 3.88 fps)

Pond 8P: Storage Chambers North



Summary for Pond 11P: Tree Box

Inflow Area = 9,068 sf,100.00% Impervious, Inflow Depth = 5.99" for 25-Year event
Inflow = 1.27 cfs @ 12.08 hrs, Volume= 4,528 cf
Outflow = 1.26 cfs @ 12.08 hrs, Volume= 4,528 cf, Atten= 1%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.11 hrs, Volume= 194 cf
Primary = 1.26 cfs @ 12.08 hrs, Volume= 4,333 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.38' @ 12.11 hrs Surf.Area= 12 sf Storage= 45 cf
Flood Elev= 105.00' Surf.Area= 8 sf Storage= 51 cf

Plug-Flow detention time= 11.0 min calculated for 4,528 cf (100% of inflow)
Center-of-Mass det. time= 11.0 min (755.6 - 744.6)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	51 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 146 cf Overall x 35.0% Voids

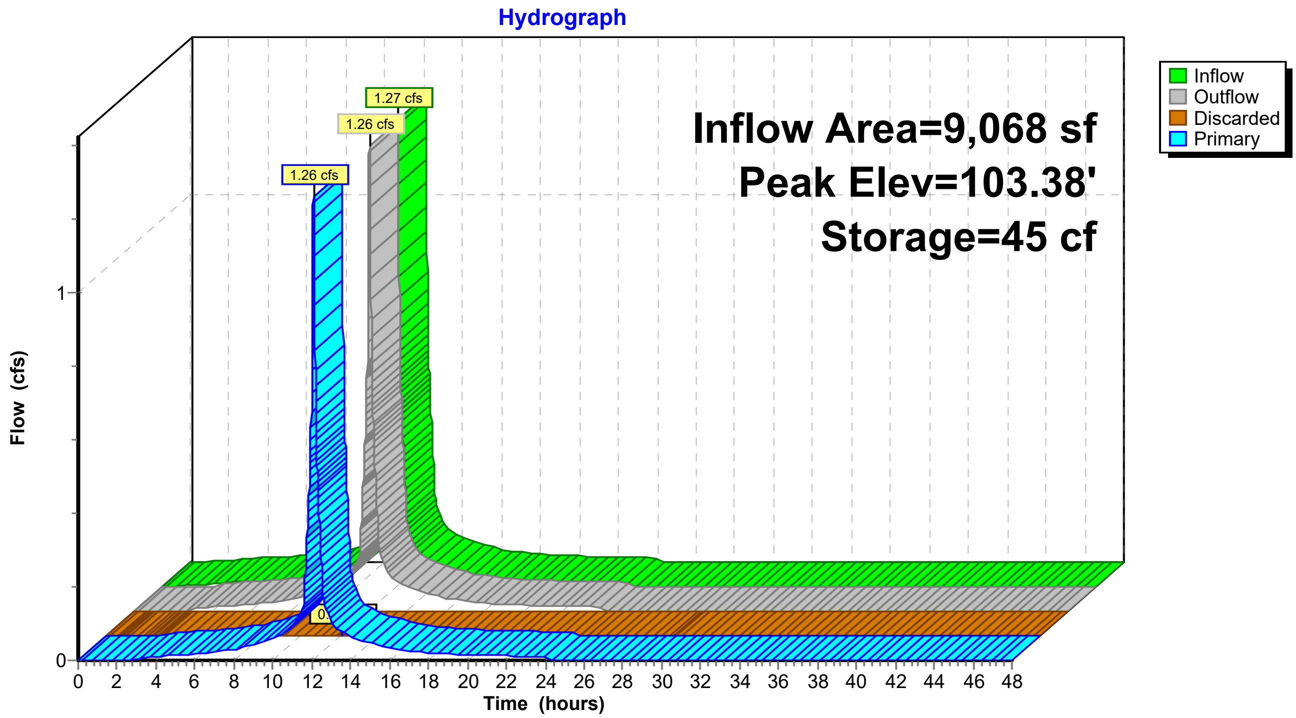
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	72	0	0
101.20	72	72	72
102.20	12	42	114
103.20	12	12	126
104.20	12	12	138
105.00	8	8	146

Device	Routing	Invert	Outlet Devices
#1	Primary	101.53'	**12.0" Round Culvert** L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.53' / 101.08' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.53'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=103.38' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.96 cfs @ 12.08 hrs HW=103.32' TW=103.23' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 0.96 cfs @ 1.22 fps)
  └─**3=Custom Weir/Orifice** (Passes 0.96 cfs of 5.45 cfs potential flow)

Pond 11P: Tree Box



Summary for Pond 12P: Tree Box

Inflow Area = 10,485 sf,100.00% Impervious, Inflow Depth = 5.99" for 25-Year event
Inflow = 1.47 cfs @ 12.08 hrs, Volume= 5,235 cf
Outflow = 1.46 cfs @ 12.08 hrs, Volume= 5,235 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.11 hrs, Volume= 191 cf
Primary = 1.46 cfs @ 12.08 hrs, Volume= 5,045 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.38' @ 12.11 hrs Surf.Area= 12 sf Storage= 46 cf

Plug-Flow detention time= 8.9 min calculated for 5,235 cf (100% of inflow)
Center-of-Mass det. time= 8.9 min (753.5 - 744.6)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

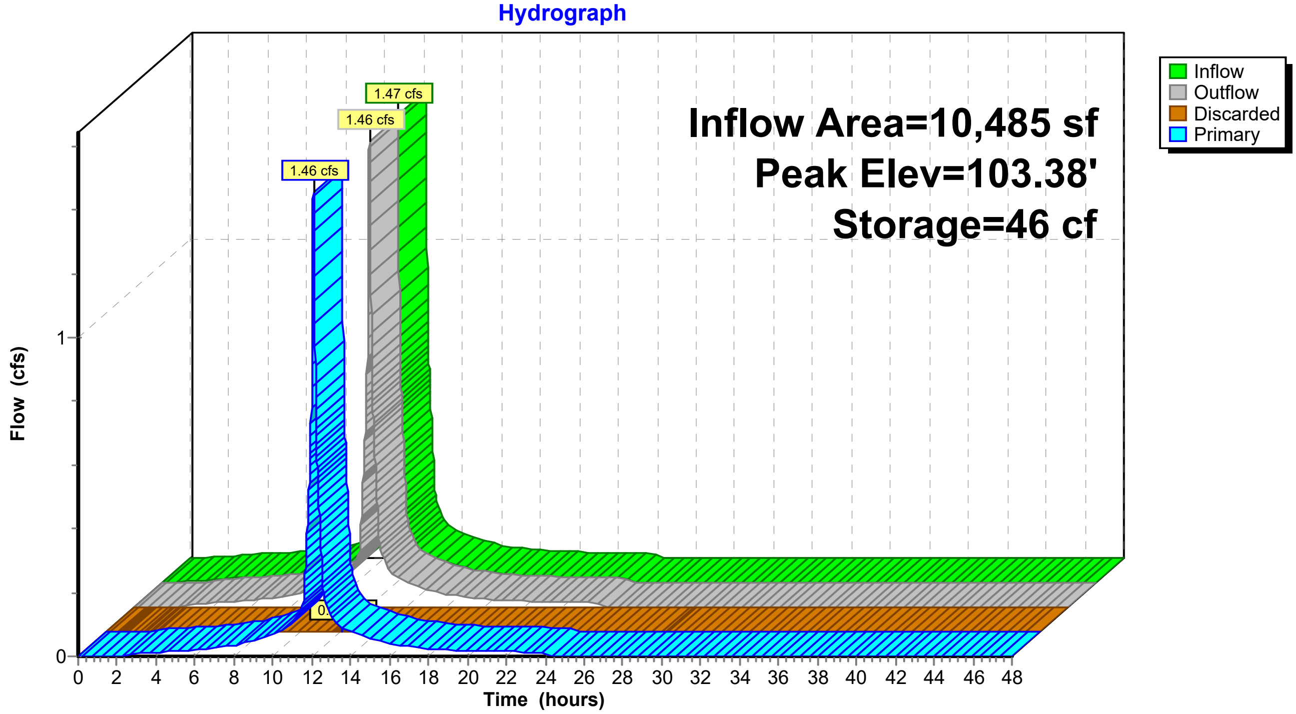
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	72	0	0
101.00	72	72	72
102.00	12	42	114
103.00	12	12	126
104.00	12	12	138
105.00	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	101.18'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.18' / 101.13' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.18'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=103.37' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.09 cfs @ 12.08 hrs HW=103.31' TW=103.23' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.09 cfs @ 1.39 fps)
  └─**3=Custom Weir/Orifice** (Passes 1.09 cfs of 7.18 cfs potential flow)

Pond 12P: Tree Box



Summary for Pond 13P: Tree Box

Inflow Area = 10,798 sf,100.00% Impervious, Inflow Depth = 5.99" for 25-Year event
Inflow = 1.51 cfs @ 12.08 hrs, Volume= 5,391 cf
Outflow = 1.51 cfs @ 12.09 hrs, Volume= 5,391 cf, Atten= 1%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.15 hrs, Volume= 172 cf
Primary = 1.50 cfs @ 12.09 hrs, Volume= 5,220 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.82' @ 12.15 hrs Surf.Area= 12 sf Storage= 43 cf

Plug-Flow detention time= 5.7 min calculated for 5,391 cf (100% of inflow)
Center-of-Mass det. time= 5.7 min (750.3 - 744.6)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

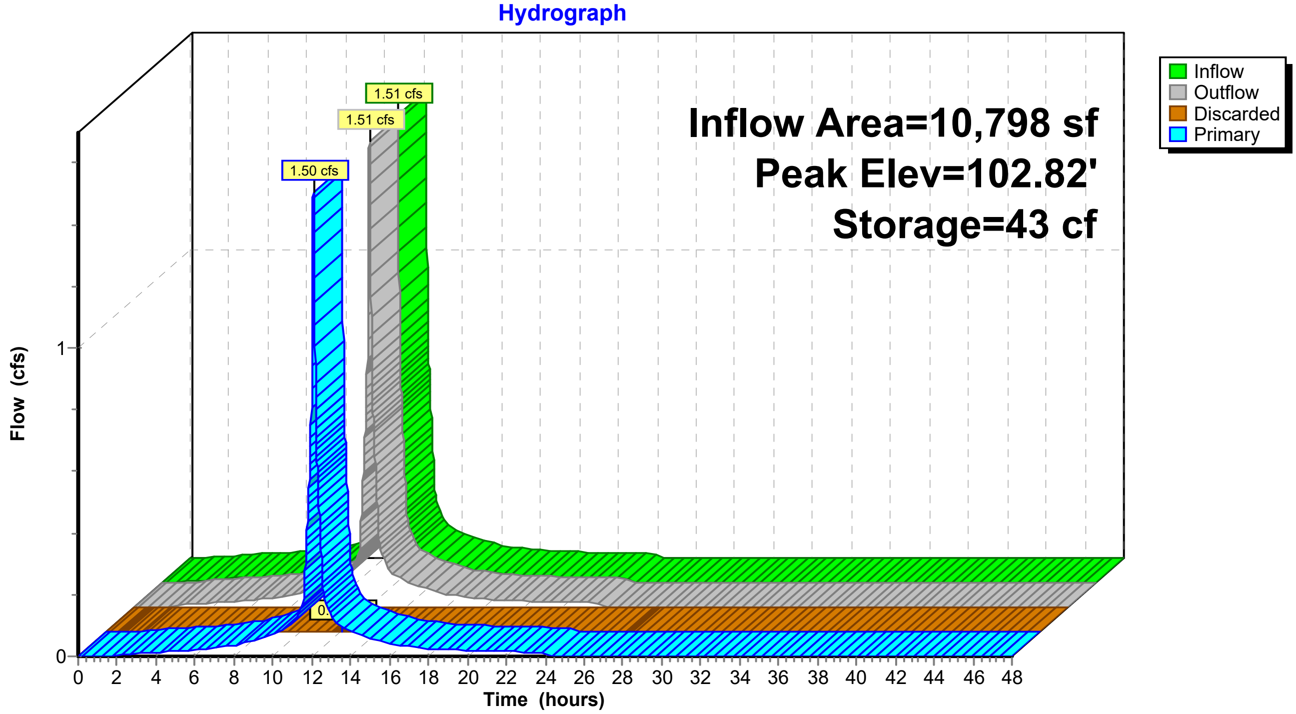
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	72	0	0
101.00	72	72	72
102.00	12	42	114
103.00	12	12	126
104.00	12	12	138
105.00	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	100.65'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.65' / 100.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.65'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.15 hrs HW=102.82' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.52 cfs @ 12.09 hrs HW=102.63' TW=102.47' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.52 cfs @ 1.93 fps)
↑—**3=Custom Weir/Orifice** (Passes 1.52 cfs of 8.65 cfs potential flow)

Pond 13P: Tree Box



Summary for Pond 22P: Tree Box

Inflow Area = 1,945 sf,100.00% Impervious, Inflow Depth = 5.99" for 25-Year event
Inflow = 0.27 cfs @ 12.08 hrs, Volume= 971 cf
Outflow = 0.27 cfs @ 12.09 hrs, Volume= 971 cf, Atten= 0%, Lag= 0.5 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 99 cf
Primary = 0.27 cfs @ 12.09 hrs, Volume= 872 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.61' @ 12.09 hrs Surf.Area= 43 sf Storage= 21 cf

Plug-Flow detention time= 23.3 min calculated for 971 cf (100% of inflow)
Center-of-Mass det. time= 23.4 min (768.0 - 744.6)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	69 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 196 cf Overall x 35.0% Voids

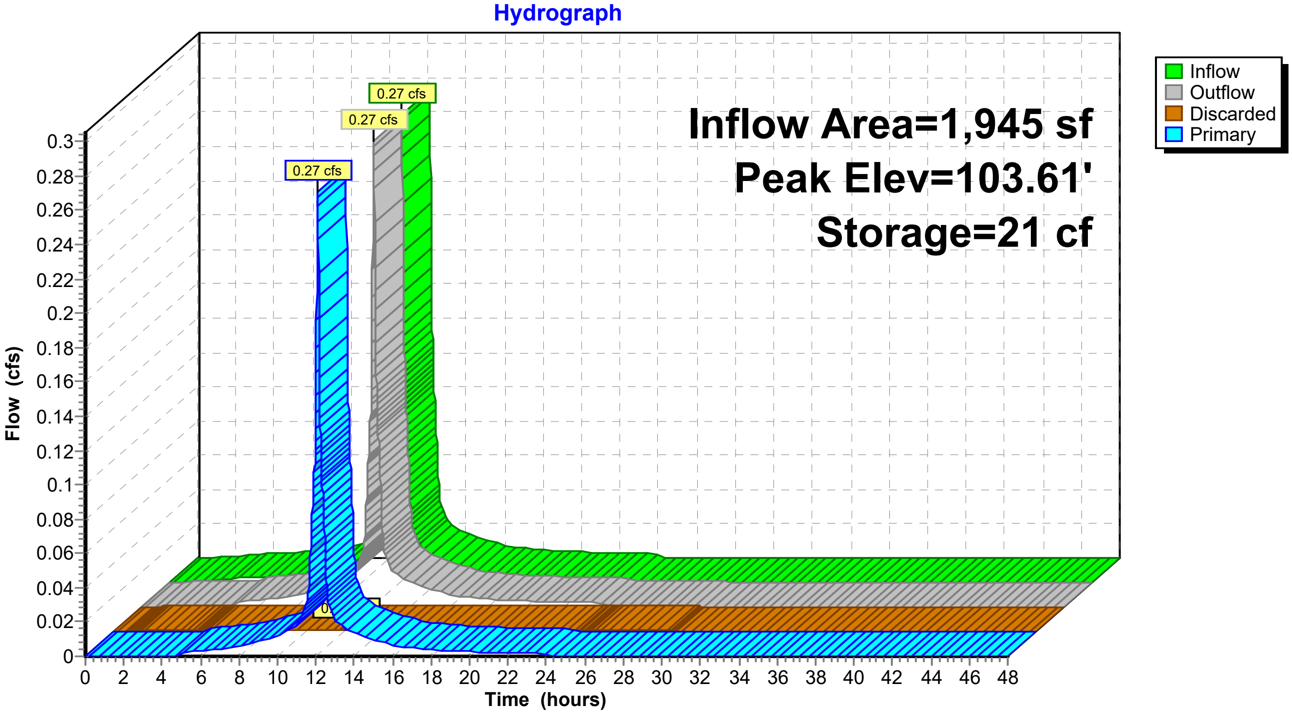
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	36	0	0
103.00	36	36	36
104.00	48	42	78
105.00	60	54	132
106.00	68	64	196

Device	Routing	Invert	Outlet Devices
#1	Primary	103.25'	**12.0" Round Culvert** L= 125.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 103.25' / 102.63' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	102.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	103.25'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=103.61' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.27 cfs @ 12.09 hrs HW=103.61' TW=103.31' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 0.27 cfs @ 1.58 fps)
  └─**3=Custom Weir/Orifice** (Passes 0.27 cfs of 0.30 cfs potential flow)

Pond 22P: Tree Box



Summary for Pond 23P: Tree Box

Inflow Area = 10,400 sf,100.00% Impervious, Inflow Depth = 5.99" for 25-Year event
Inflow = 1.46 cfs @ 12.08 hrs, Volume= 5,193 cf
Outflow = 1.46 cfs @ 12.09 hrs, Volume= 5,193 cf, Atten= 0%, Lag= 0.3 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 85 cf
Primary = 1.45 cfs @ 12.09 hrs, Volume= 5,108 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.61' @ 12.09 hrs Surf.Area= 43 sf Storage= 21 cf

Plug-Flow detention time= 2.7 min calculated for 5,193 cf (100% of inflow)
Center-of-Mass det. time= 2.7 min (747.3 - 744.6)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	69 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 196 cf Overall x 35.0% Voids

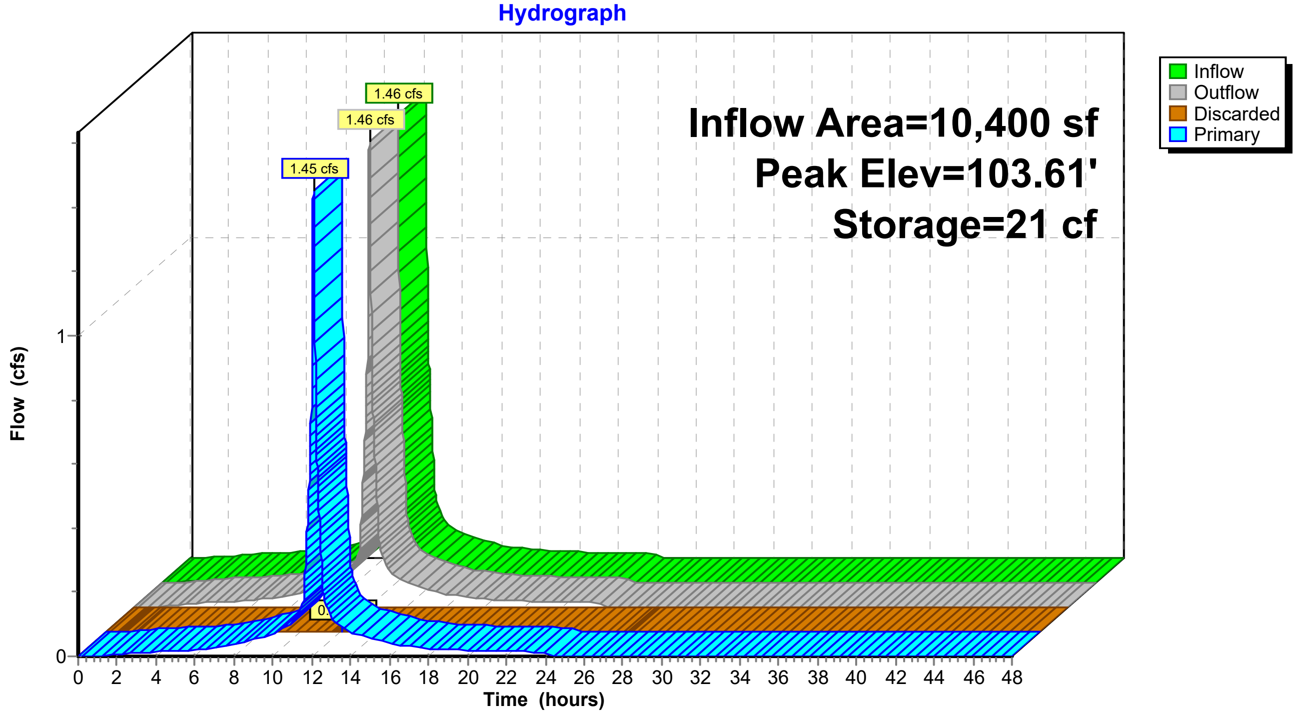
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	36	0	0
103.00	36	36	36
104.00	48	42	78
105.00	60	54	132
106.00	68	64	196

Device	Routing	Invert	Outlet Devices
#1	Primary	102.65'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.65' / 102.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	102.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	102.65'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=103.61' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.44 cfs @ 12.09 hrs HW=103.61' TW=103.31' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.44 cfs of 2.00 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 1.44 cfs @ 2.30 fps)

Pond 23P: Tree Box



Summary for Pond 24P: (new Pond)

Inflow Area = 6,920 sf,100.00% Impervious, Inflow Depth = 5.99" for 25-Year event
Inflow = 0.97 cfs @ 12.08 hrs, Volume= 3,455 cf
Outflow = 0.95 cfs @ 12.10 hrs, Volume= 3,455 cf, Atten= 2%, Lag= 1.3 min
Discarded = 0.05 cfs @ 12.10 hrs, Volume= 2,632 cf
Secondary = 0.90 cfs @ 12.10 hrs, Volume= 823 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 107.05' @ 12.10 hrs Surf.Area= 2,000 sf Storage= 737 cf

Plug-Flow detention time= 81.7 min calculated for 3,454 cf (100% of inflow)
Center-of-Mass det. time= 81.7 min (826.3 - 744.6)

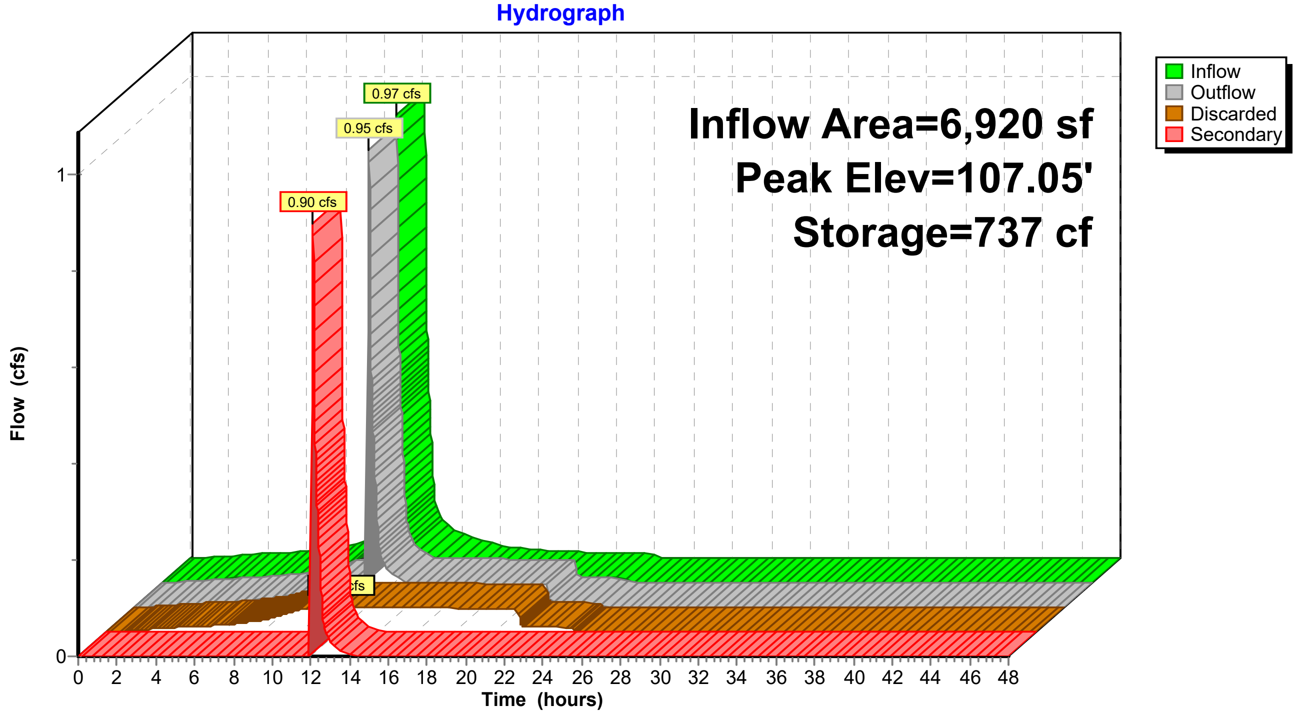
Volume	Invert	Avail.Storage	Storage Description
#1	106.00'	1,120 cf	**40.00'W x 50.00'L x 1.60'H Prismatoid** 3,200 cf Overall x 35.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Secondary	107.00'	**30.0' 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
#2	Discarded	106.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=0.05 cfs @ 12.10 hrs HW=107.05' (Free Discharge)
└─**2=Exfiltration** (Controls 0.05 cfs)

Secondary OutFlow Max=0.89 cfs @ 12.10 hrs HW=107.05' TW=103.60' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 0.89 cfs @ 0.57 fps)

Pond 24P: (new Pond)



Summary for Pond 26P: Tree Box

Inflow Area = 16,145 sf,100.00% Impervious, Inflow Depth = 5.99" for 25-Year event
Inflow = 2.26 cfs @ 12.08 hrs, Volume= 8,061 cf
Outflow = 2.27 cfs @ 12.09 hrs, Volume= 8,061 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 102 cf
Primary = 2.26 cfs @ 12.09 hrs, Volume= 7,959 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.25' @ 12.08 hrs Surf.Area= 61 sf Storage= 47 cf

Plug-Flow detention time= 3.1 min calculated for 8,061 cf (100% of inflow)
Center-of-Mass det. time= 3.1 min (747.7 - 744.6)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	96 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 274 cf Overall x 35.0% Voids

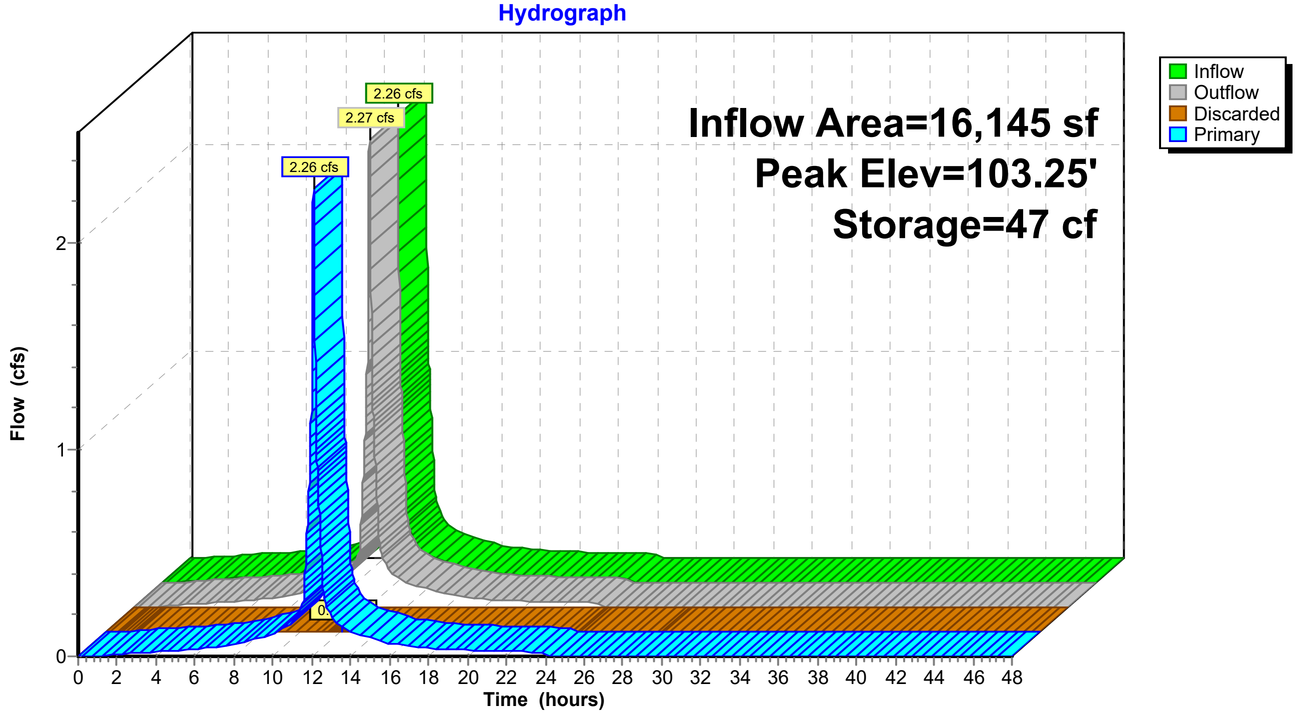
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	36	0	0
101.20	36	36	36
102.20	48	42	78
103.20	60	54	132
104.20	72	66	198
105.20	80	76	274

Device	Routing	Invert	Outlet Devices
#1	Primary	101.30'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.30' / 101.25' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.30'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=103.25' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=2.22 cfs @ 12.09 hrs HW=103.25' TW=102.90' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.22 cfs @ 2.83 fps)
  └─**3=Custom Weir/Orifice** (Passes 2.22 cfs of 11.56 cfs potential flow)

Pond 26P: Tree Box



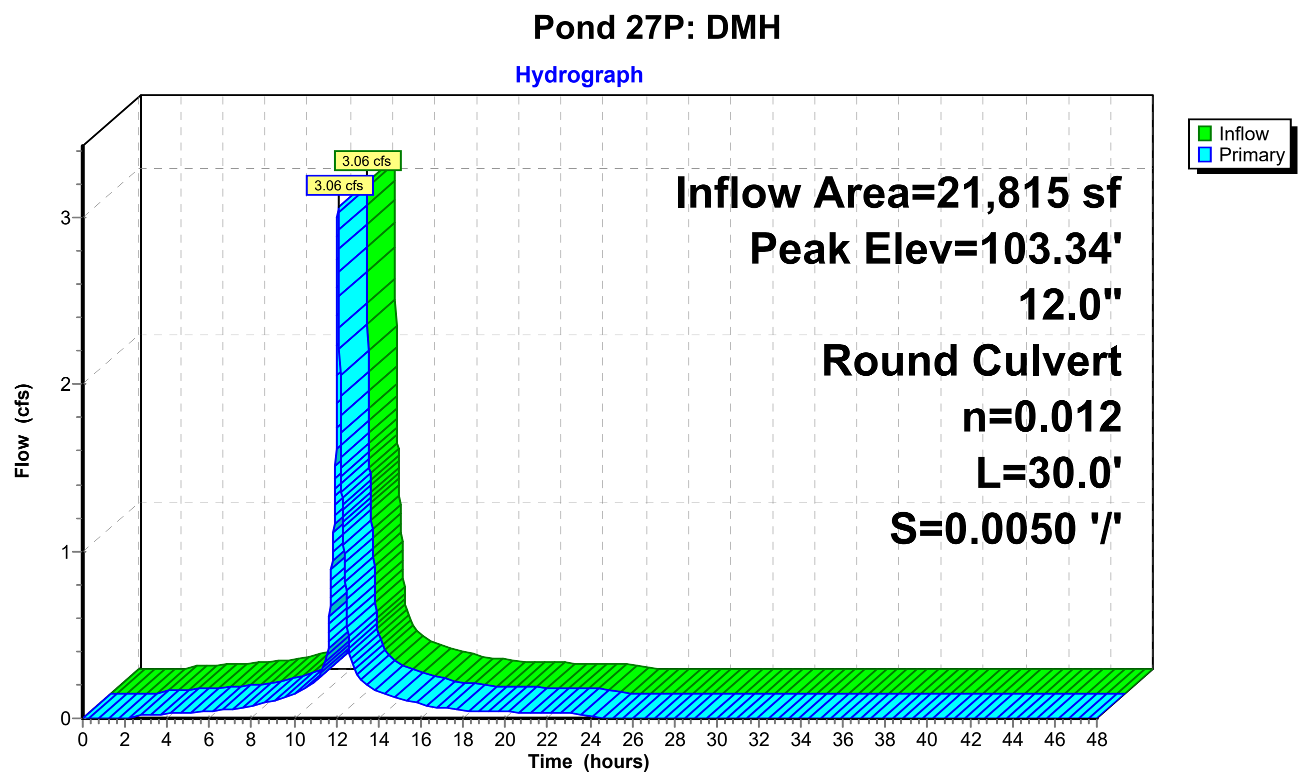
Summary for Pond 27P: DMH

Inflow Area = 21,815 sf,100.00% Impervious, Inflow Depth = 5.80" for 25-Year event
Inflow = 3.06 cfs @ 12.08 hrs, Volume= 10,550 cf
Outflow = 3.06 cfs @ 12.08 hrs, Volume= 10,550 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.06 cfs @ 12.08 hrs, Volume= 10,550 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.34' @ 12.09 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.70'	**12.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.70' / 101.55' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.06 cfs @ 12.08 hrs HW=103.33' TW=102.68' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.06 cfs @ 3.90 fps)



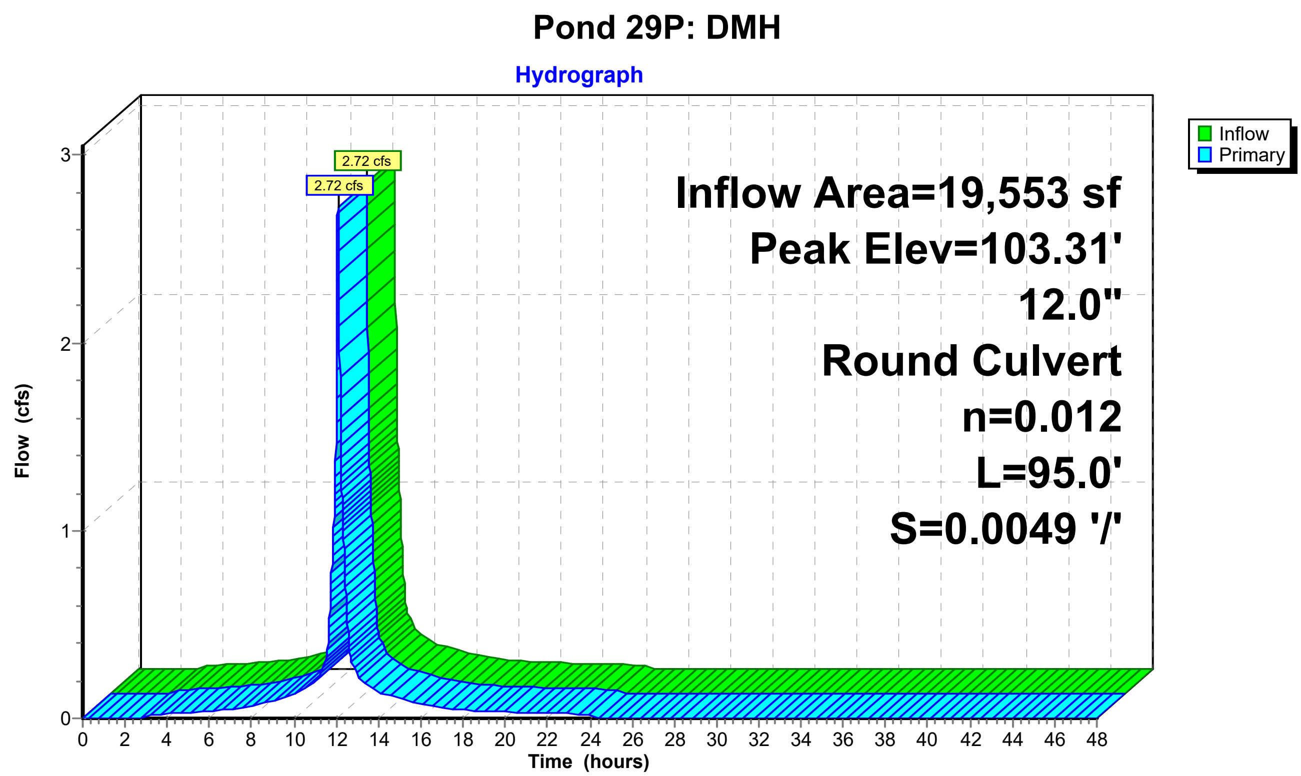
Summary for Pond 29P: DMH

Inflow Area =	19,553 sf,100.00% Impervious,	Inflow Depth = 5.76"	for 25-Year event		
Inflow =	2.72 cfs @	12.08 hrs,	Volume=	9,378 cf	
Outflow =	2.72 cfs @	12.08 hrs,	Volume=	9,378 cf,	Atten= 0%, Lag= 0.0 min
Primary =	2.72 cfs @	12.08 hrs,	Volume=	9,378 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.31' @ 12.11 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.08'	**12.0" Round Culvert** L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.08' / 100.61' S= 0.0049 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.72 cfs @ 12.08 hrs HW=103.23' TW=102.47' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 2.72 cfs @ 3.47 fps)



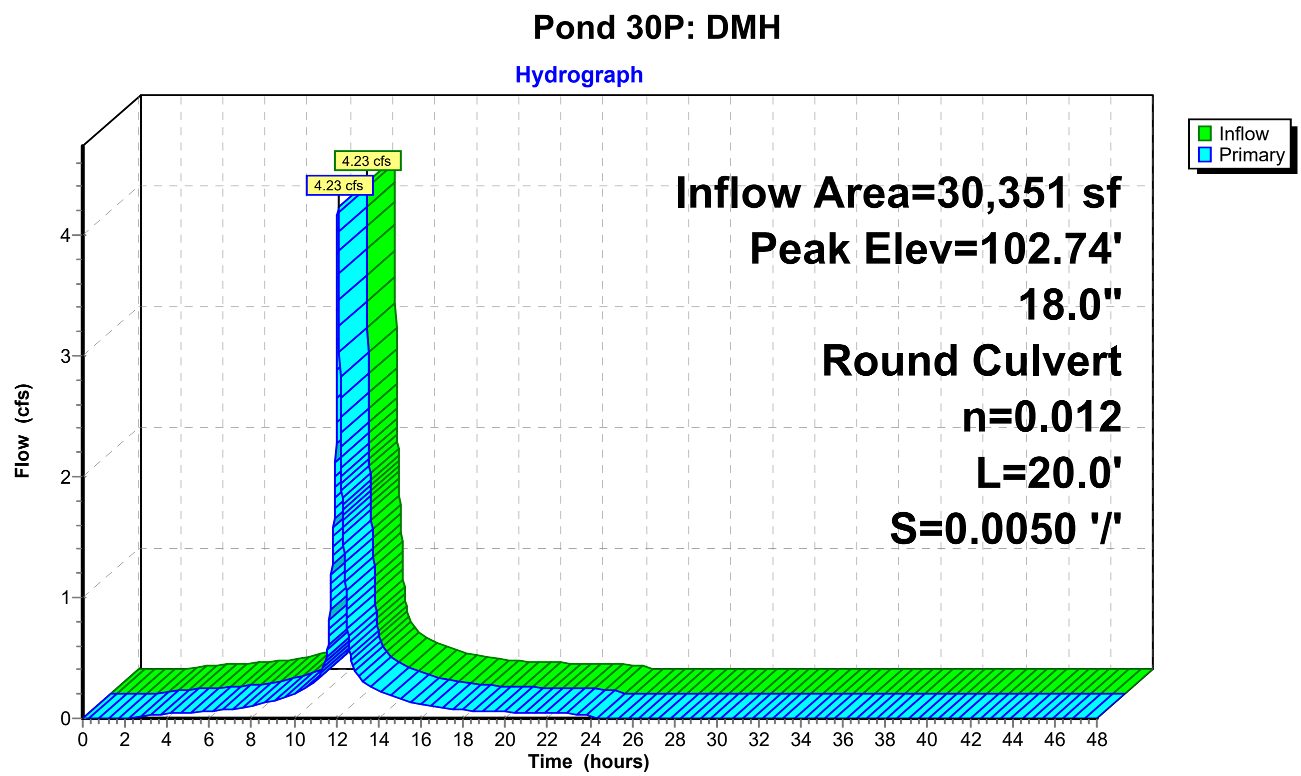
Summary for Pond 30P: DMH

Inflow Area = 30,351 sf,100.00% Impervious, Inflow Depth = 5.77" for 25-Year event
Inflow = 4.23 cfs @ 12.08 hrs, Volume= 14,598 cf
Outflow = 4.23 cfs @ 12.08 hrs, Volume= 14,598 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.23 cfs @ 12.08 hrs, Volume= 14,598 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.74' @ 12.17 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.60'	**18.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.60' / 100.50' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.22 cfs @ 12.08 hrs HW=102.47' TW=102.23' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.22 cfs @ 2.39 fps)



Summary for Pond 31P: DMH

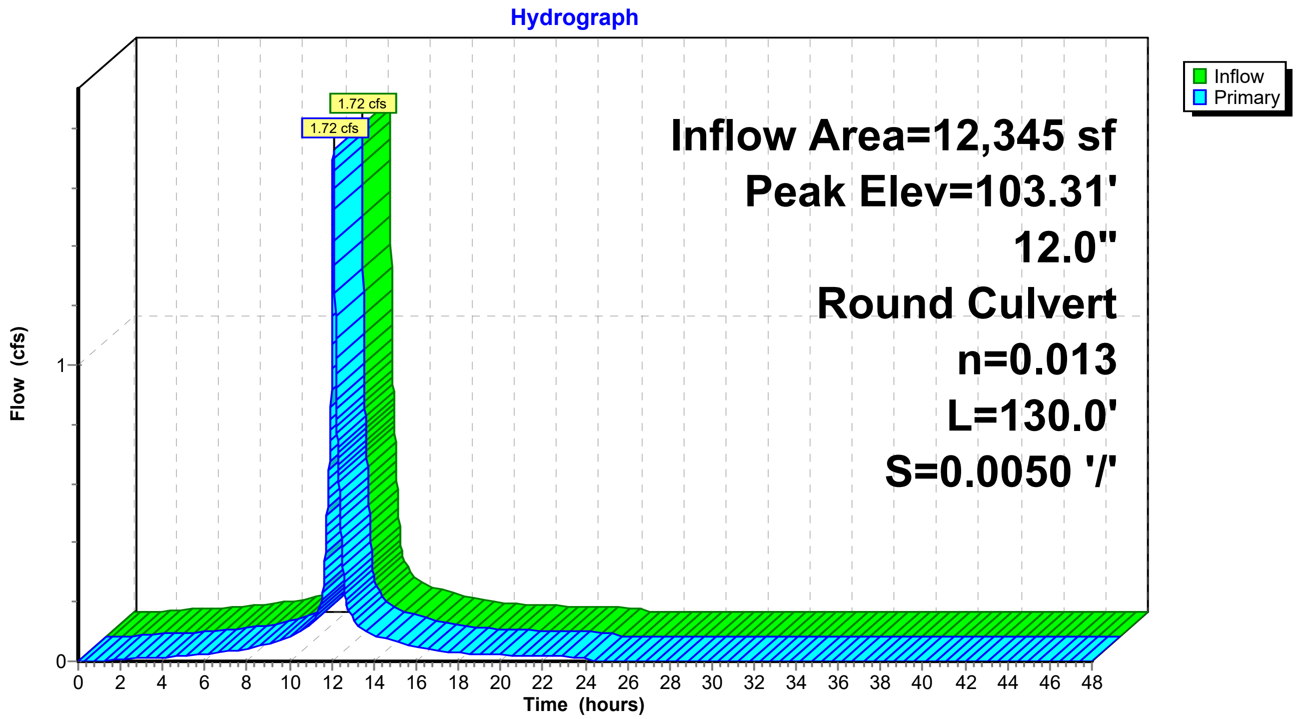
Inflow Area =	12,345 sf,100.00% Impervious,	Inflow Depth = 5.81"	for 25-Year event	
Inflow =	1.72 cfs @	12.09 hrs, Volume=	5,980 cf	
Outflow =	1.72 cfs @	12.09 hrs, Volume=	5,980 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.72 cfs @	12.09 hrs, Volume=	5,980 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.31' @ 12.09 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.90'	**12.0" Round Culvert** L= 130.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.90' / 101.25' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.68 cfs @ 12.09 hrs HW=103.31' TW=102.91' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.68 cfs @ 2.14 fps)

Pond 31P: DMH



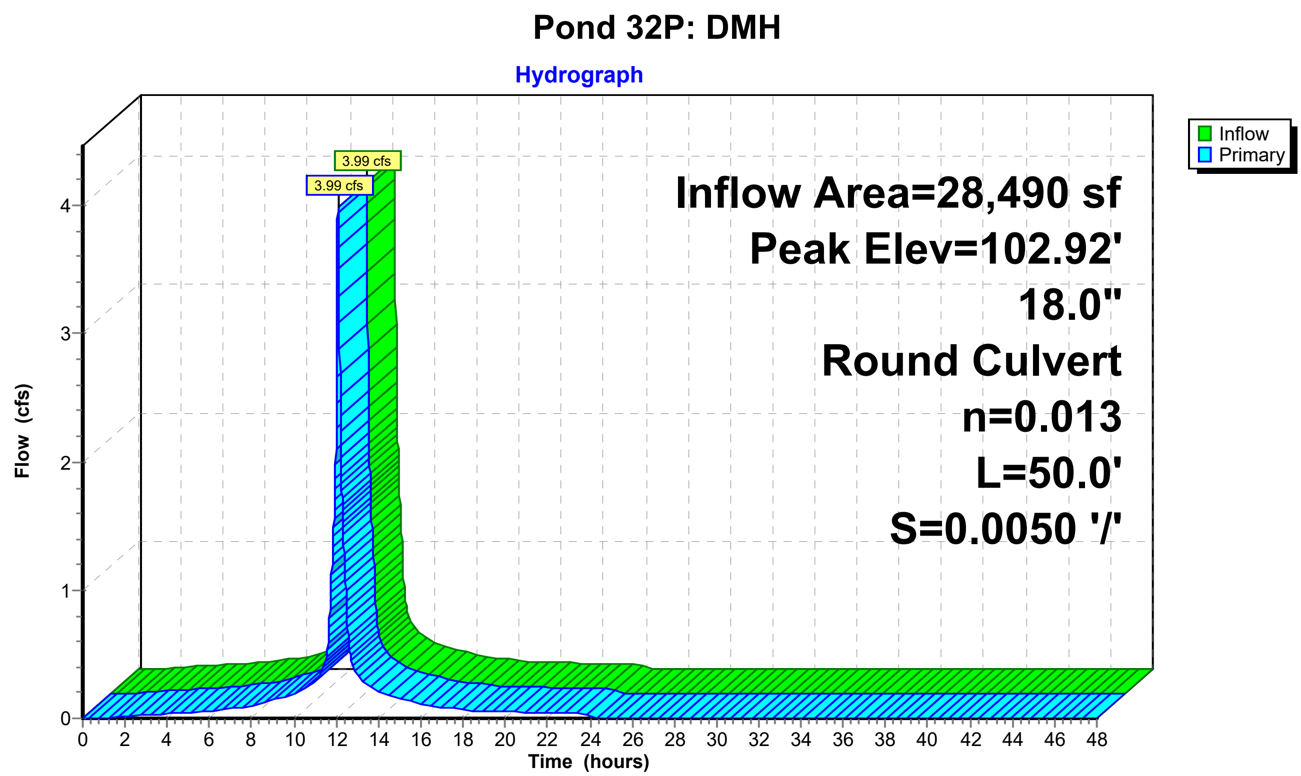
Summary for Pond 32P: DMH

Inflow Area =	28,490 sf,100.00% Impervious,	Inflow Depth = 5.87"	for 25-Year event		
Inflow =	3.99 cfs @	12.09 hrs, Volume=	13,939 cf		
Outflow =	3.99 cfs @	12.09 hrs, Volume=	13,939 cf,	Atten= 0%,	Lag= 0.0 min
Primary =	3.99 cfs @	12.09 hrs, Volume=	13,939 cf		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.92' @ 12.10 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.25'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.25' / 101.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.00 cfs @ 12.09 hrs HW=102.91' TW=102.69' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 4.00 cfs @ 2.55 fps)



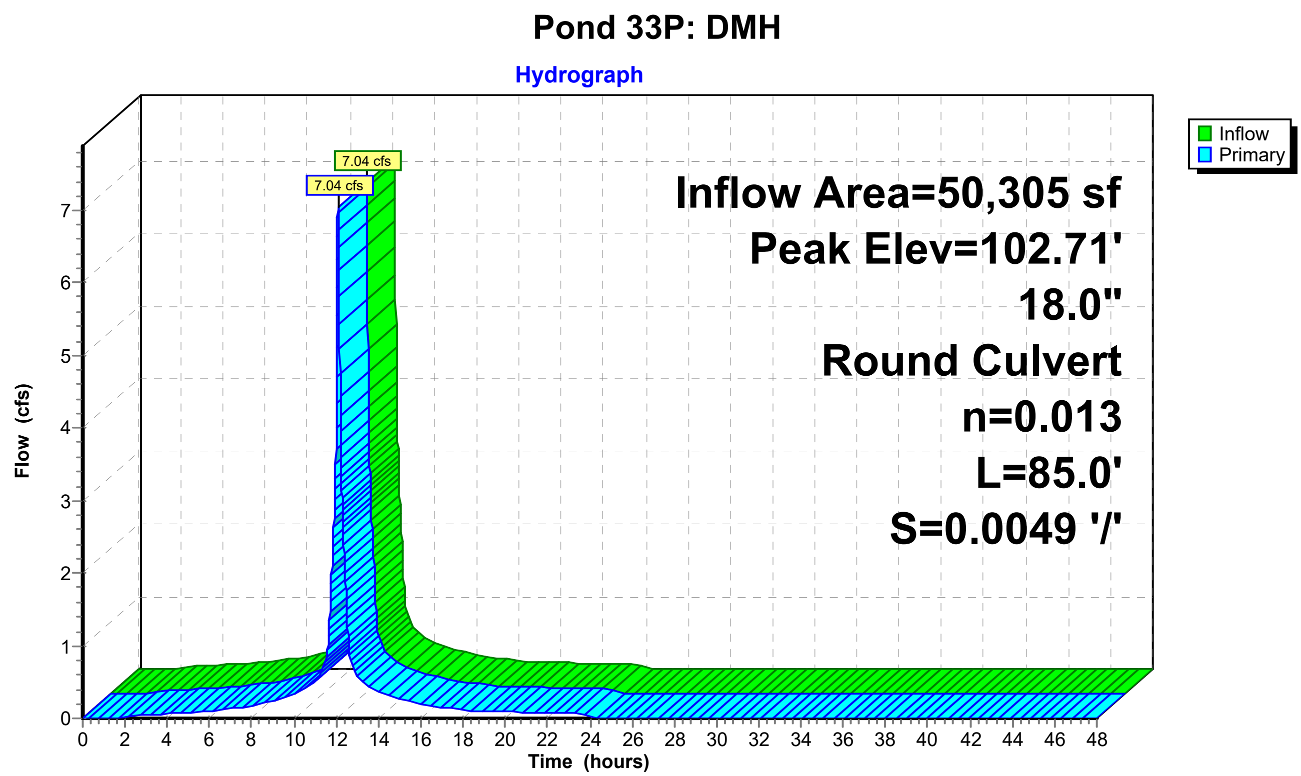
Summary for Pond 33P: DMH

Inflow Area =	50,305 sf,100.00% Impervious,		Inflow Depth = 5.84"	for 25-Year event	
Inflow =	7.04 cfs @	12.09 hrs,	Volume=	24,489 cf	
Outflow =	7.04 cfs @	12.09 hrs,	Volume=	24,489 cf,	Atten= 0%, Lag= 0.0 min
Primary =	7.04 cfs @	12.09 hrs,	Volume=	24,489 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.71' @ 12.11 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.00'	**18.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.00' / 100.58' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.03 cfs @ 12.09 hrs HW=102.68' TW=101.86' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 7.03 cfs @ 4.43 fps)



Summary for Pond 34P: Tree Box

Inflow Area = 11,350 sf,100.00% Impervious, Inflow Depth = 5.99" for 25-Year event
Inflow = 1.59 cfs @ 12.08 hrs, Volume= 5,667 cf
Outflow = 1.59 cfs @ 12.08 hrs, Volume= 5,667 cf, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 180 cf
Primary = 1.59 cfs @ 12.08 hrs, Volume= 5,487 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.63' @ 12.08 hrs Surf.Area= 12 sf Storage= 40 cf
Flood Elev= 107.00' Surf.Area= 8 sf Storage= 52 cf

Plug-Flow detention time= 6.9 min calculated for 5,667 cf (100% of inflow)
Center-of-Mass det. time= 6.8 min (751.4 - 744.6)

Volume	Invert	Avail.Storage	Storage Description
#1	101.60'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

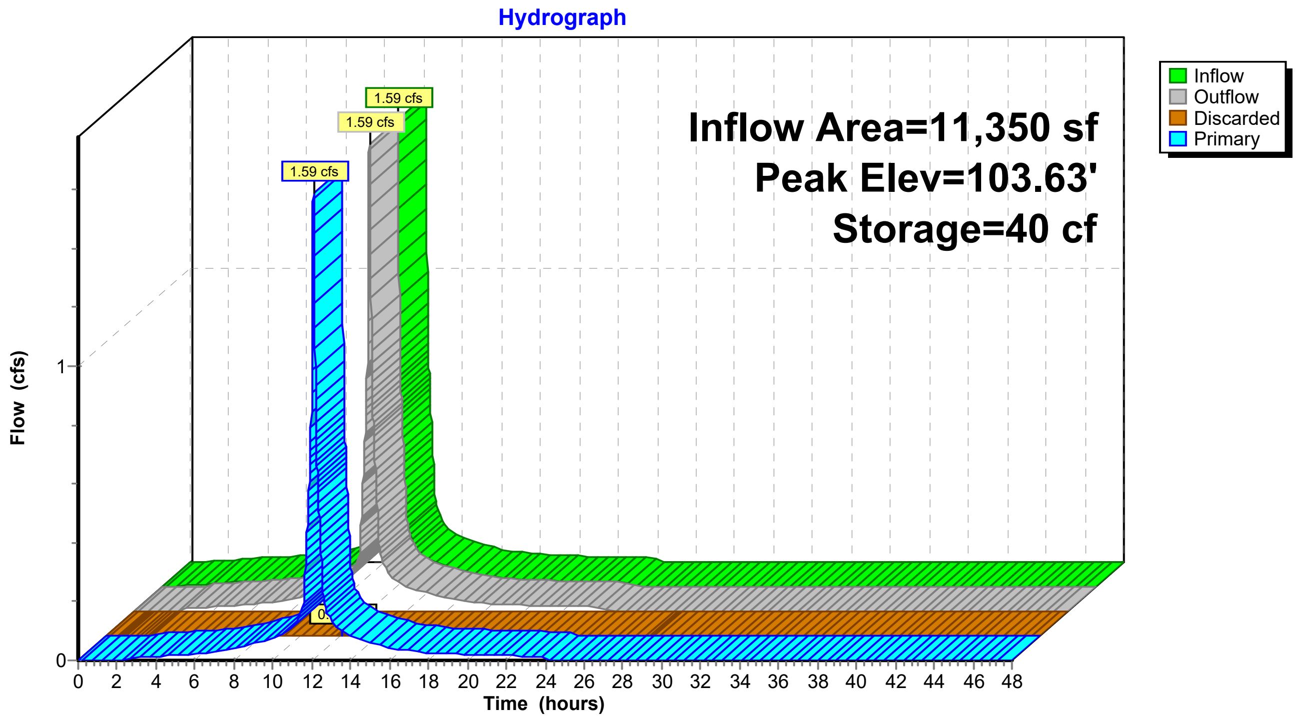
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.60	72	0	0
102.60	72	72	72
103.60	12	42	114
104.60	12	12	126
105.60	12	12	138
106.60	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	102.55'	**12.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.55' / 102.05' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	101.60'	**1.020 in/hr Exfiltration over Horizontal area above 101.55'** Conductivity to Groundwater Elevation = 90.00' Excluded Horizontal area = 0 sf Phase-In= 0.01'
#3	Device 1	102.55'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=103.63' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.57 cfs @ 12.08 hrs HW=103.63' TW=103.33' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 1.57 cfs @ 2.32 fps)
  └─**3=Custom Weir/Orifice** (Passes 1.57 cfs of 1.93 cfs potential flow)

Pond 34P: Tree Box



Summary for Pond 36P: Tree Box

Inflow Area = 10,465 sf,100.00% Impervious, Inflow Depth = 5.99" for 25-Year event
Inflow = 1.47 cfs @ 12.08 hrs, Volume= 5,225 cf
Outflow = 1.47 cfs @ 12.09 hrs, Volume= 5,225 cf, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 163 cf
Primary = 1.47 cfs @ 12.09 hrs, Volume= 5,062 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.48' @ 12.08 hrs Surf.Area= 19 sf Storage= 39 cf
Flood Elev= 106.00' Surf.Area= 10 sf Storage= 50 cf

Plug-Flow detention time= 4.1 min calculated for 5,224 cf (100% of inflow)
Center-of-Mass det. time= 4.2 min (748.7 - 744.6)

Volume	Invert	Avail.Storage	Storage Description
#1	101.60'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

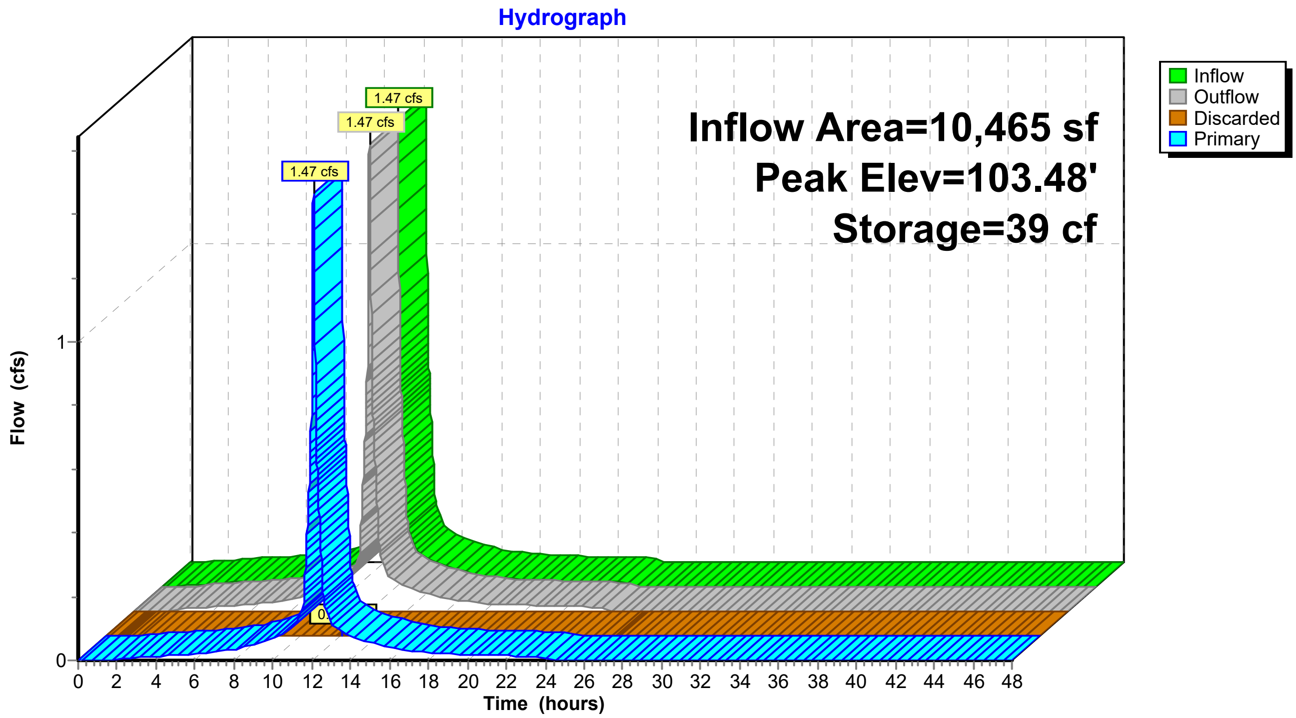
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.60	72	0	0
102.60	72	72	72
103.60	12	42	114
104.60	12	12	126
105.60	12	12	138
106.60	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	102.10'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.10' / 101.60' S= 0.0500 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	101.60'	**1.020 in/hr Exfiltration over Horizontal area above 101.10'** Conductivity to Groundwater Elevation = 90.00' Excluded Horizontal area = 0 sf Phase-In= 0.01'
#3	Device 1	102.10'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=103.48' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.40 cfs @ 12.09 hrs HW=103.47' TW=103.34' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.40 cfs @ 1.78 fps)
  └─**3=Custom Weir/Orifice** (Passes 1.40 cfs of 3.59 cfs potential flow)

Pond 36P: Tree Box

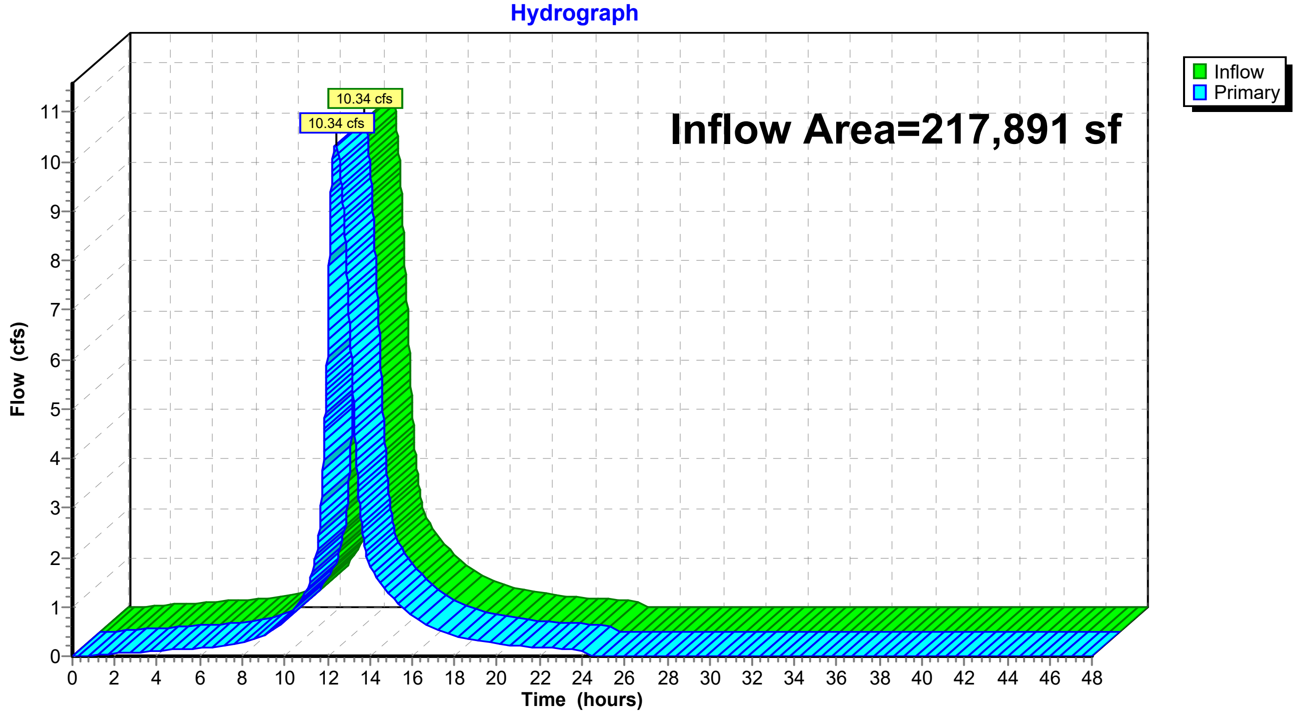


Summary for Link 1L: (new Link)

Inflow Area =	217,891 sf,	82.73% Impervious,	Inflow Depth = 4.62"	for 25-Year event	
Inflow =	10.34 cfs @	12.42 hrs,	Volume=	83,972 cf	
Primary =	10.34 cfs @	12.42 hrs,	Volume=	83,972 cf,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 1L: (new Link)



Summary for Subcatchment 2S: Open Space

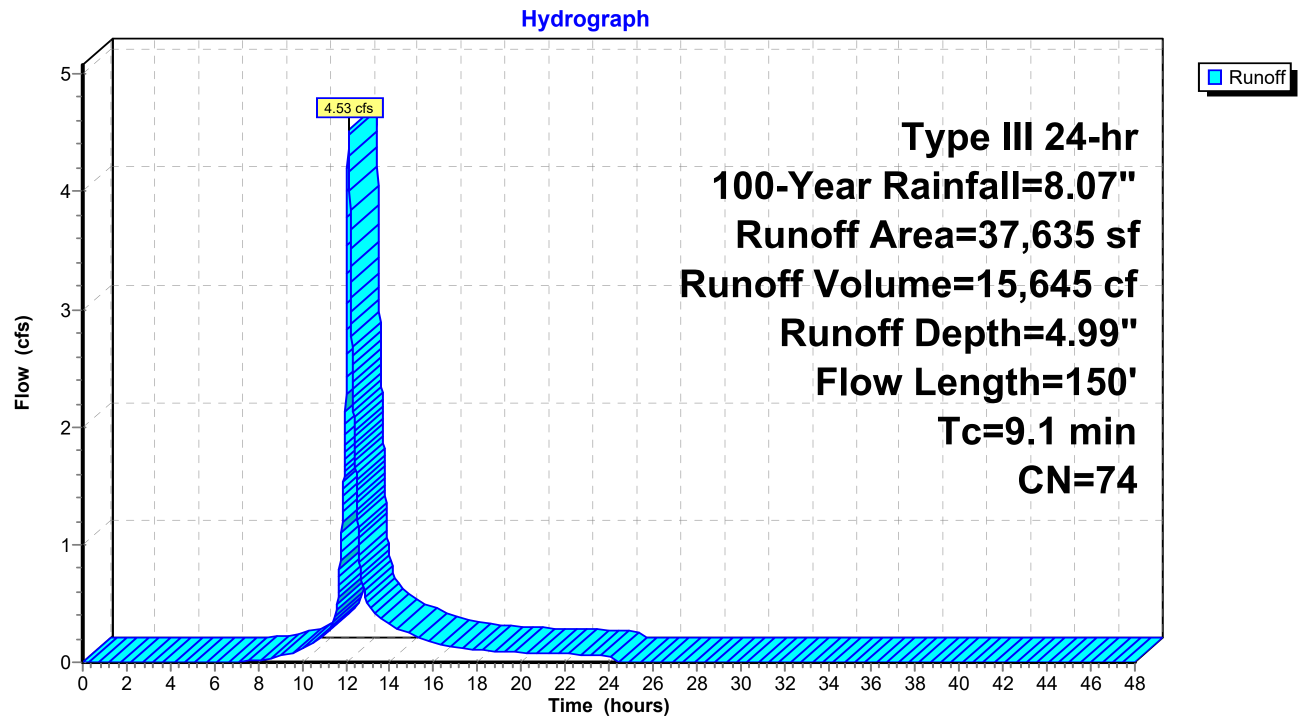
Runoff = 4.53 cfs @ 12.13 hrs, Volume= 15,645 cf, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
37,635	74	>75% Grass cover, Good, HSG C
37,635	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow, Open Space** Grass: Dense n= 0.240 P2= 3.30"
0.4	50	0.0200	2.12		**Shallow Concentrated Flow, Open Space** Grassed Waterway Kv= 15.0 fps
0.6	50	0.0400	1.40		**Shallow Concentrated Flow, Open Space** Short Grass Pasture Kv= 7.0 fps
9.1	150	Total			

Subcatchment 2S: Open Space



Summary for Subcatchment 3S: Brewery Roof

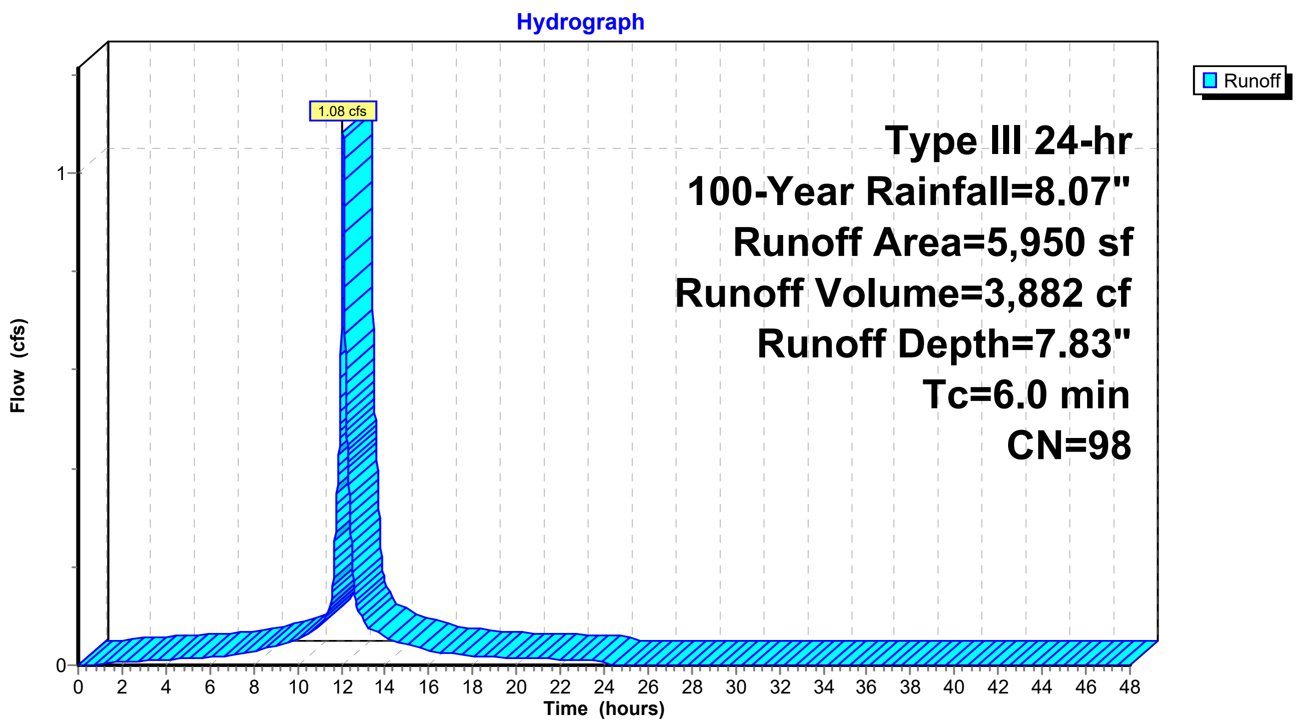
Runoff = 1.08 cfs @ 12.08 hrs, Volume= 3,882 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
5,950	98	Roofs, HSG D
5,950	98	100.00% Impervious Area

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

Subcatchment 3S: Brewery Roof



Summary for Subcatchment 5Sa: Athletic Roof

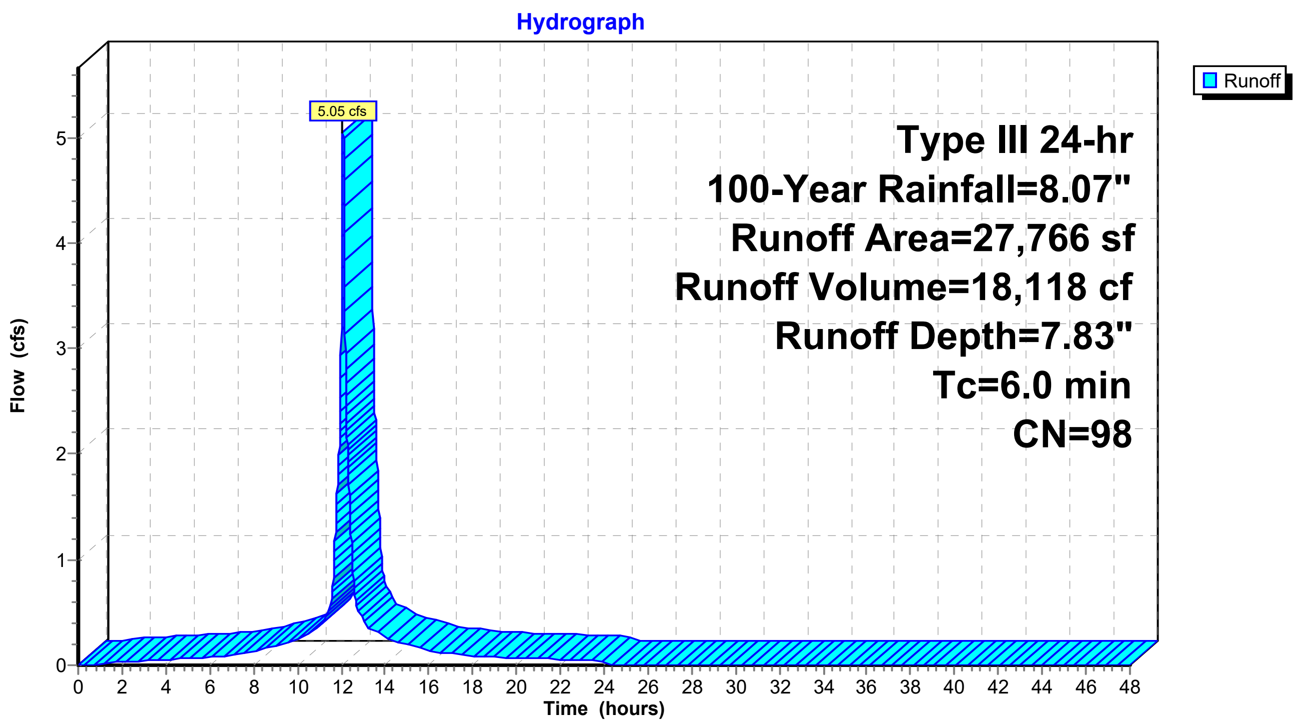
Runoff = 5.05 cfs @ 12.08 hrs, Volume= 18,118 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
27,766	98	Roofs, HSG D
27,766	98	100.00% Impervious Area

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

Subcatchment 5Sa: Athletic Roof



Summary for Subcatchment 5Sb: Athletic Roof

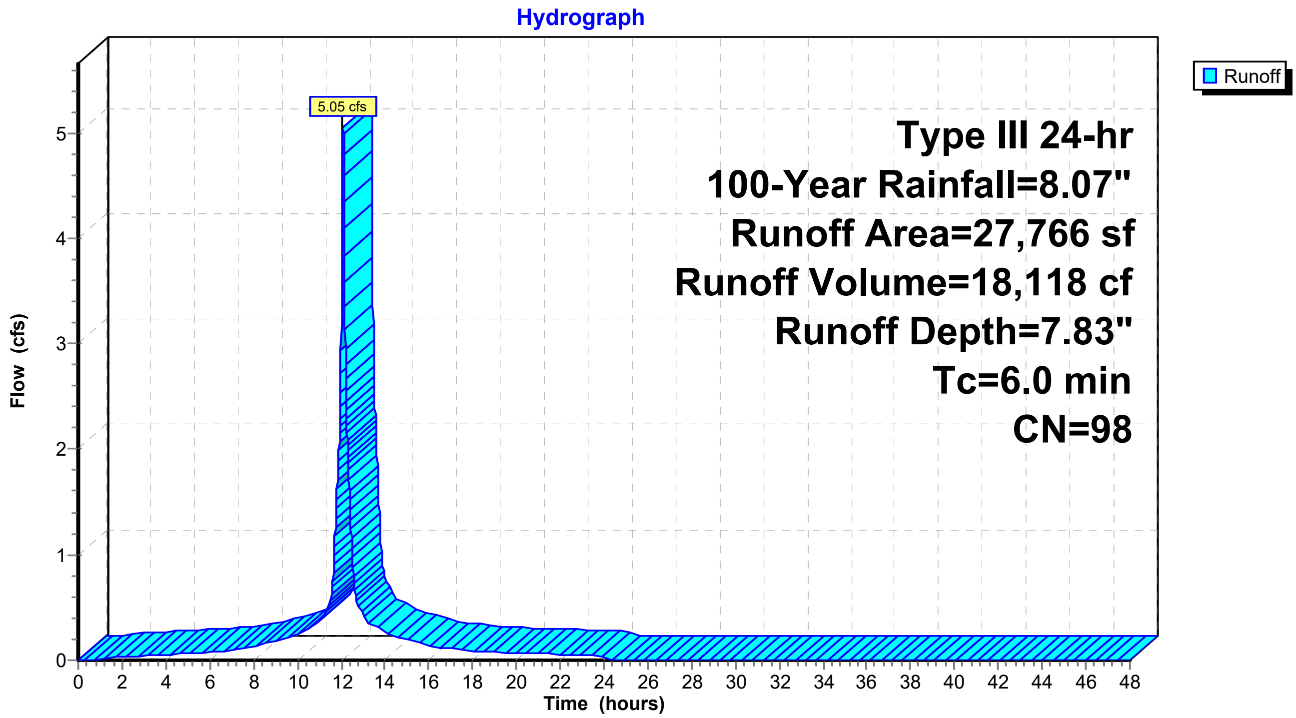
Runoff = 5.05 cfs @ 12.08 hrs, Volume= 18,118 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
27,766	98	Roofs, HSG D
27,766	98	100.00% Impervious Area

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

Subcatchment 5Sb: Athletic Roof



Summary for Subcatchment 6S: Residential Roof

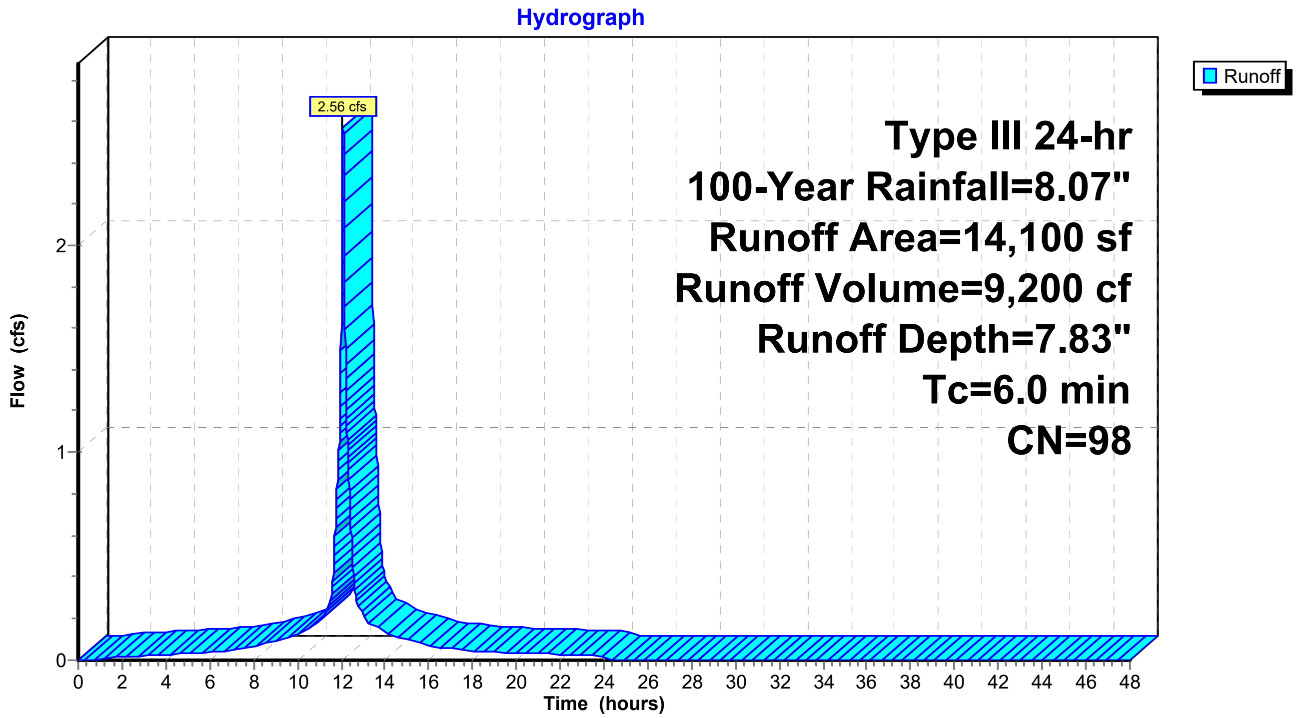
Runoff = 2.56 cfs @ 12.08 hrs, Volume= 9,200 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
14,100	98	Roofs, HSG D
14,100	98	100.00% Impervious Area

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

Subcatchment 6S: Residential Roof



Summary for Subcatchment 11S: Parking/Pavement

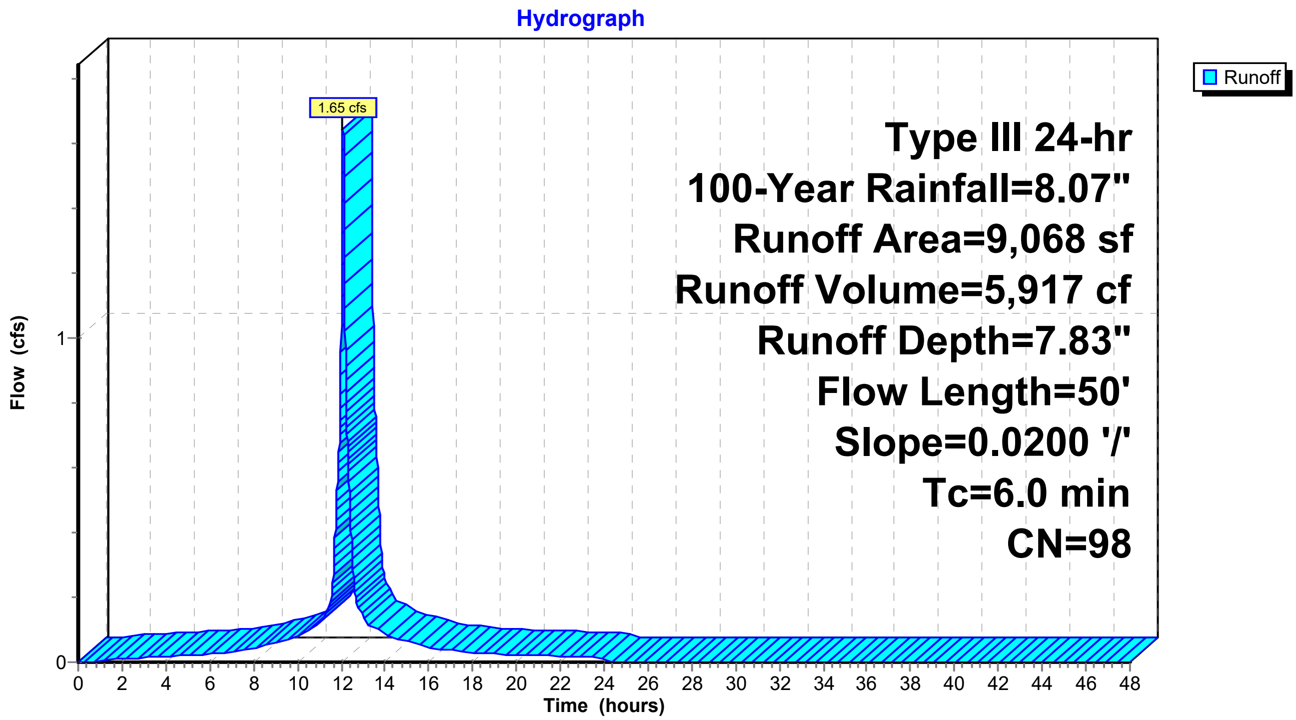
Runoff = 1.65 cfs @ 12.08 hrs, Volume= 5,917 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
9,068	98	Paved parking, HSG C
9,068	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total,	Increased to minimum Tc = 6.0 min		

Subcatchment 11S: Parking/Pavement



Summary for Subcatchment 12S: Parking/Pavement

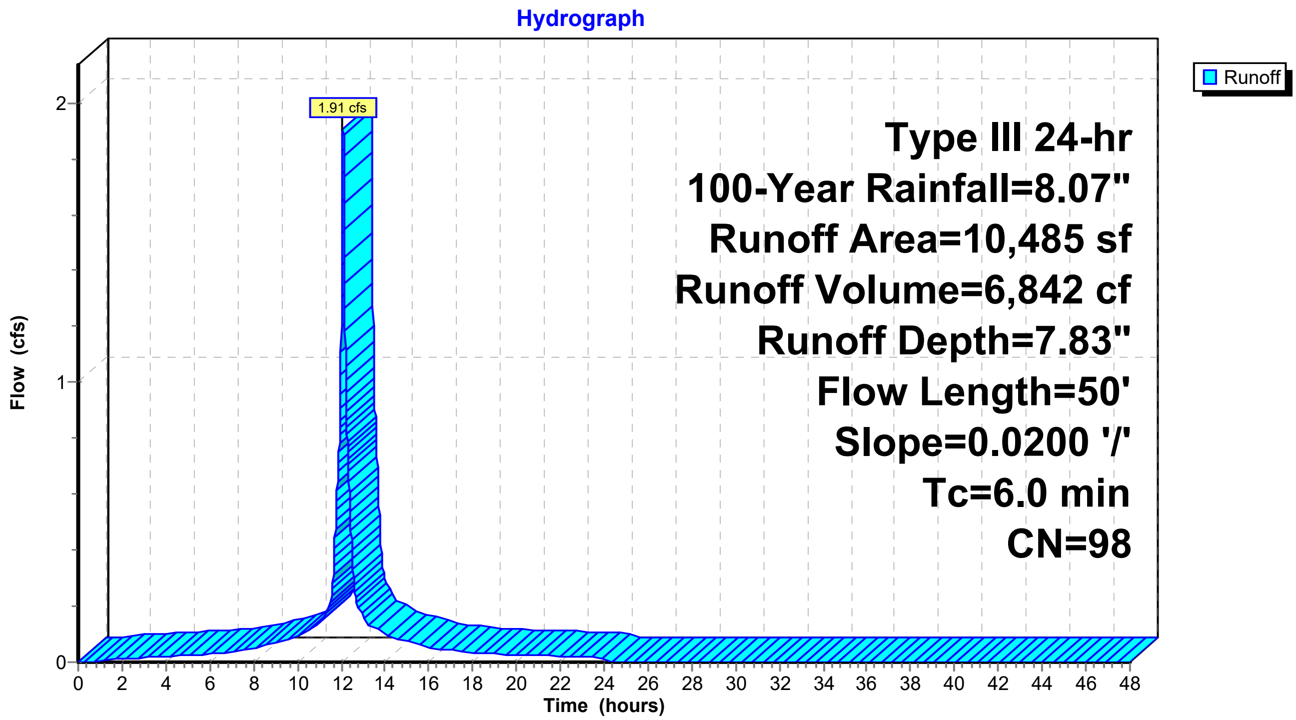
Runoff = 1.91 cfs @ 12.08 hrs, Volume= 6,842 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
10,485	98	Paved parking, HSG C
10,485	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total,	Increased to minimum Tc = 6.0 min		

Subcatchment 12S: Parking/Pavement



Summary for Subcatchment 13S: Parking/Pavement

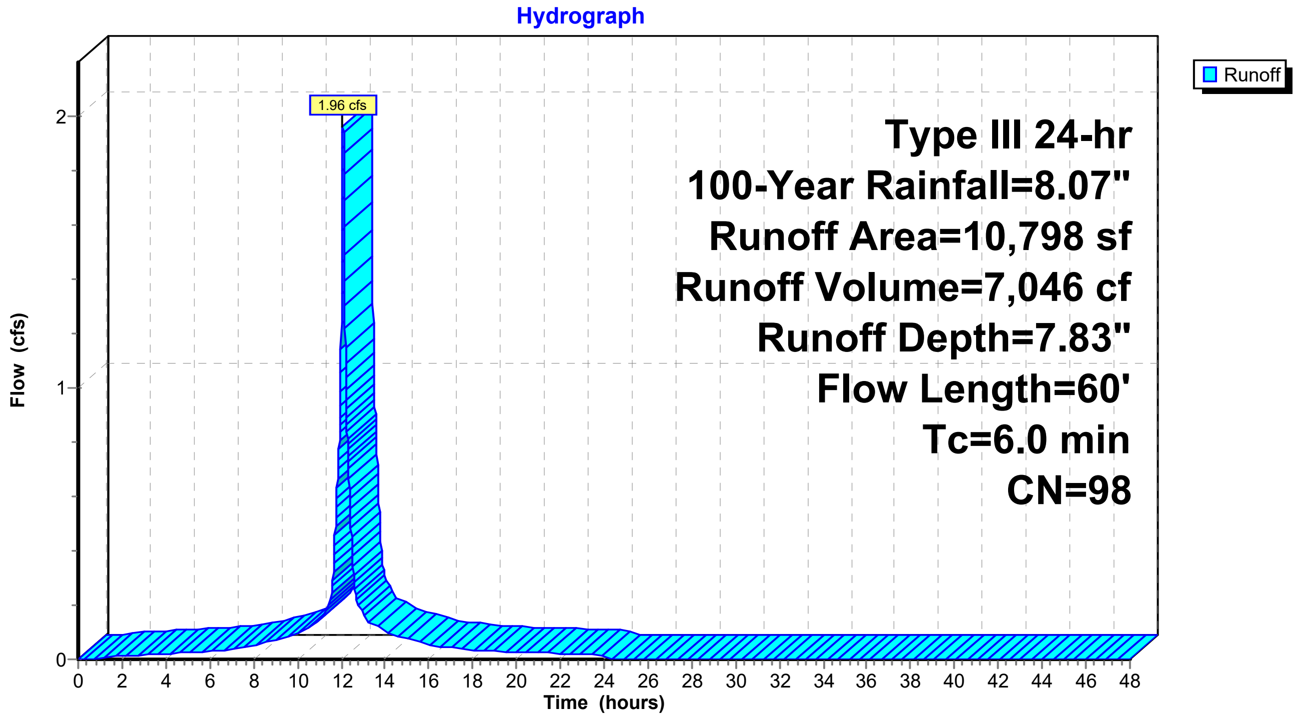
Runoff = 1.96 cfs @ 12.08 hrs, Volume= 7,046 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
10,798	98	Paved parking, HSG C
10,798	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	10	0.0050	0.04		**Sheet Flow, Landscapeing** Grass: Dense n= 0.240 P2= 3.30"
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
4.6	60	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S: Parking/Pavement



Summary for Subcatchment 15S: Parking/Pavement

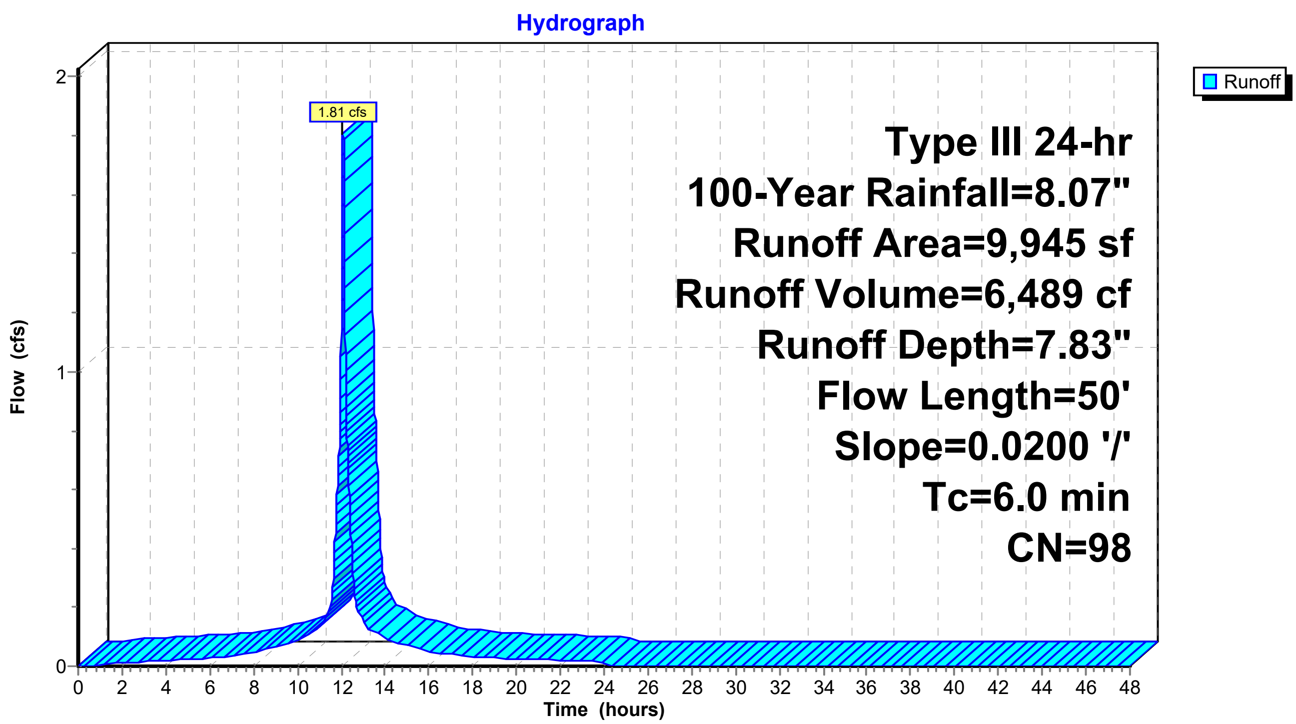
Runoff = 1.81 cfs @ 12.08 hrs, Volume= 6,489 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
9,945	98	Paved parking, HSG C
9,945	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 15S: Parking/Pavement



Summary for Subcatchment 16S: Parking/Pavement

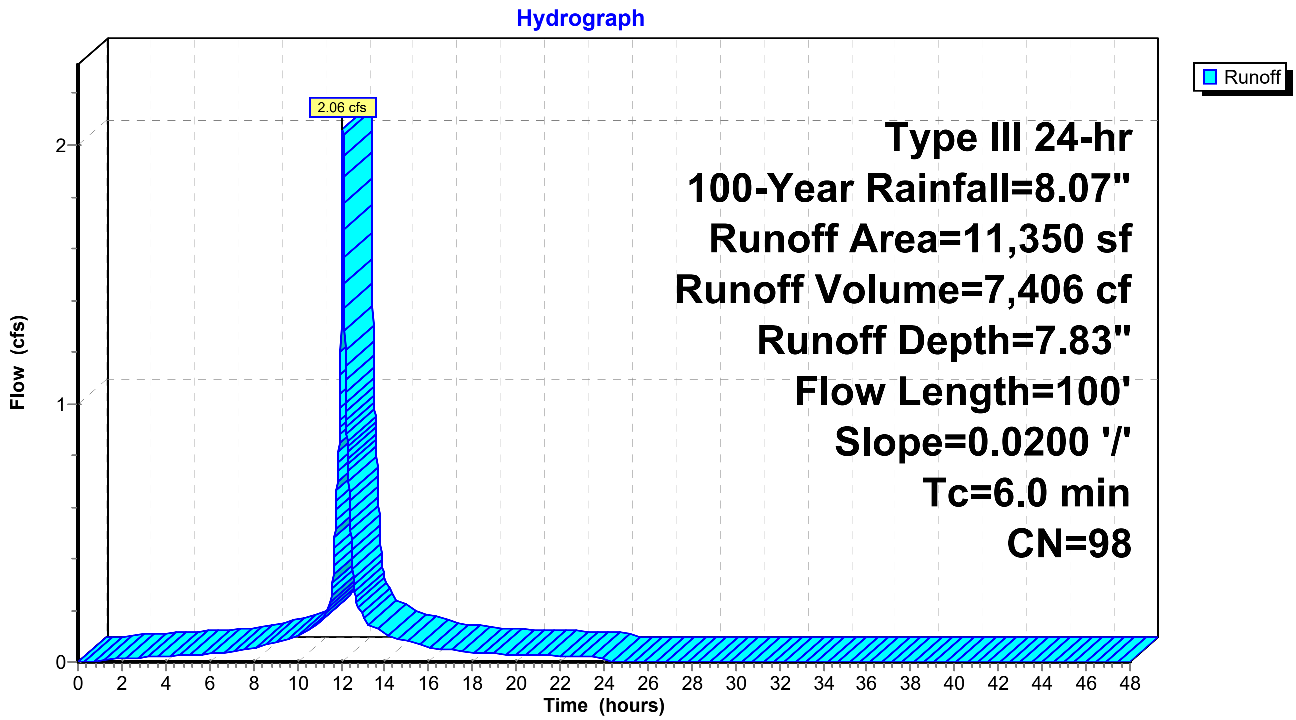
Runoff = 2.06 cfs @ 12.08 hrs, Volume= 7,406 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
11,350	98	Paved parking, HSG C
11,350	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 16S: Parking/Pavement



Summary for Subcatchment 17S: Parking/Pavement

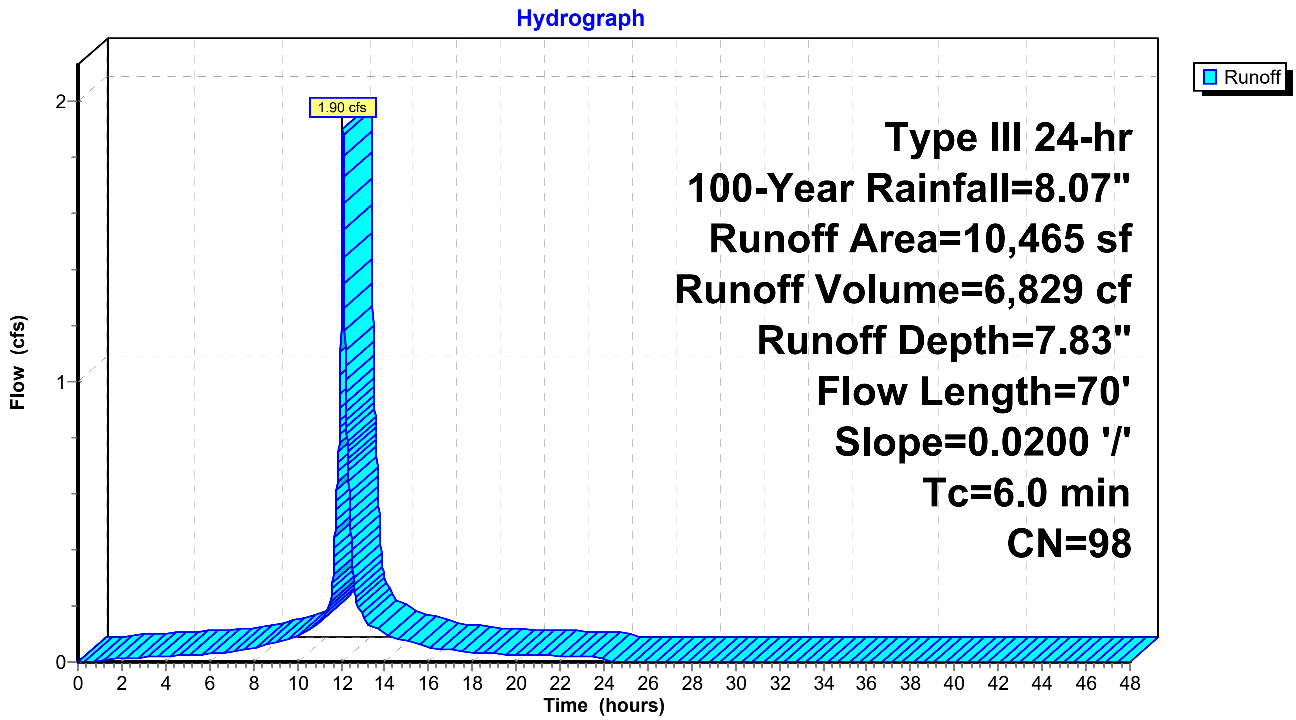
Runoff = 1.90 cfs @ 12.08 hrs, Volume= 6,829 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
10,465	98	Paved parking, HSG C
10,465	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	70	0.0200	1.30		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.9	70	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 17S: Parking/Pavement



Summary for Subcatchment 18S: Parking/Pavement

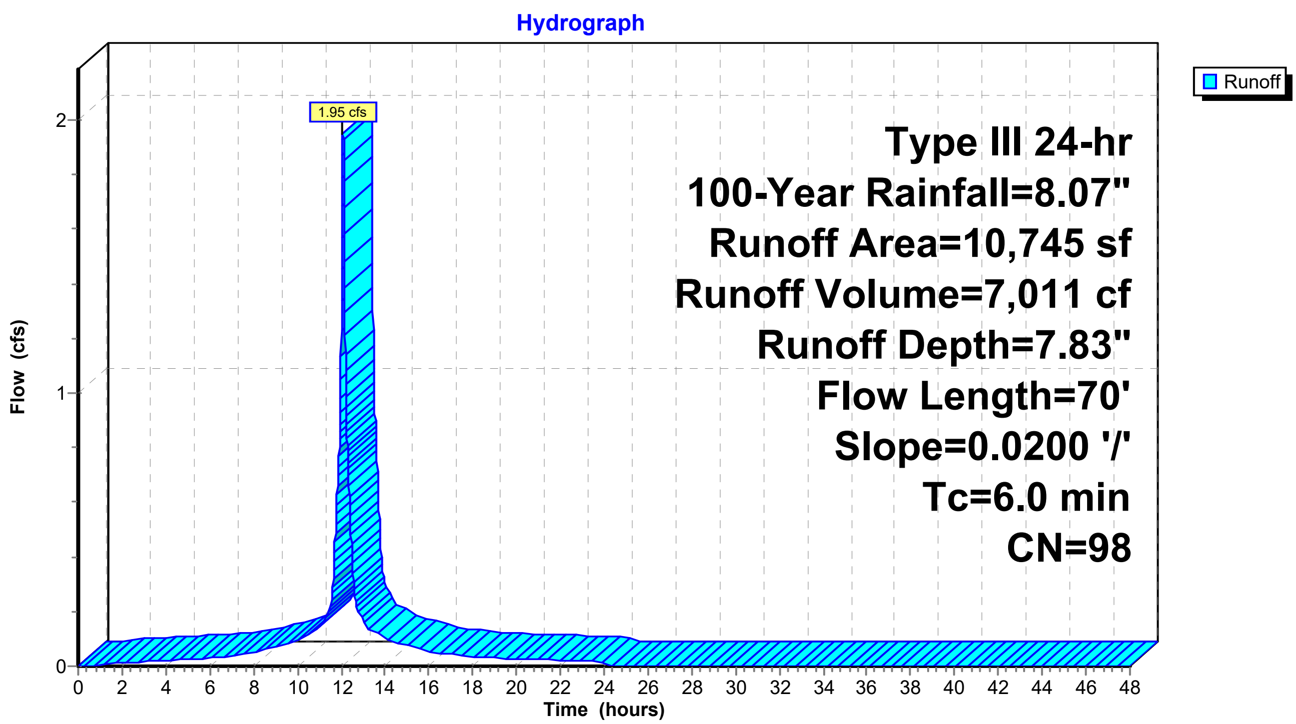
Runoff = 1.95 cfs @ 12.08 hrs, Volume= 7,011 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
10,745	98	Paved parking, HSG C
10,745	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	70	0.0200	1.30		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.9	70	Total,	Increased to minimum Tc = 6.0 min		

Subcatchment 18S: Parking/Pavement



Summary for Subcatchment 19S: Parking/Pavement

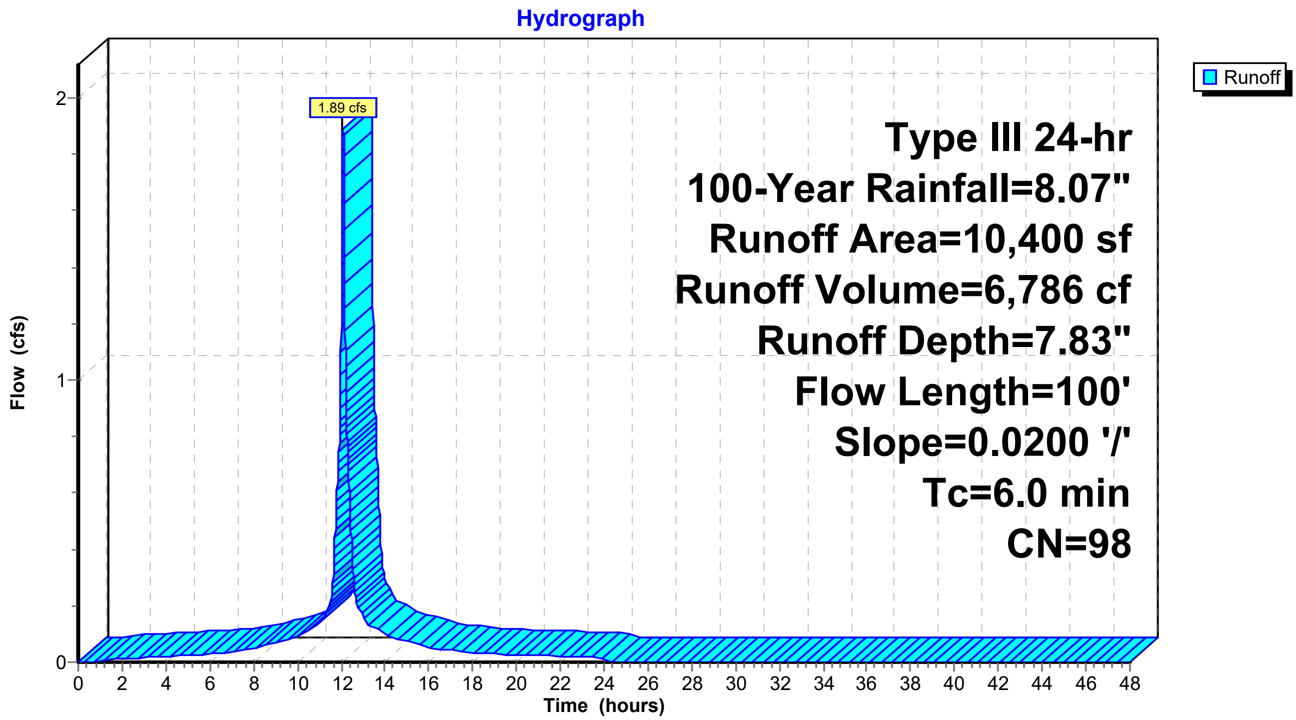
Runoff = 1.89 cfs @ 12.08 hrs, Volume= 6,786 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
10,400	98	Paved parking, HSG C
10,400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 19S: Parking/Pavement



Summary for Subcatchment 20S: Parking/Pavement

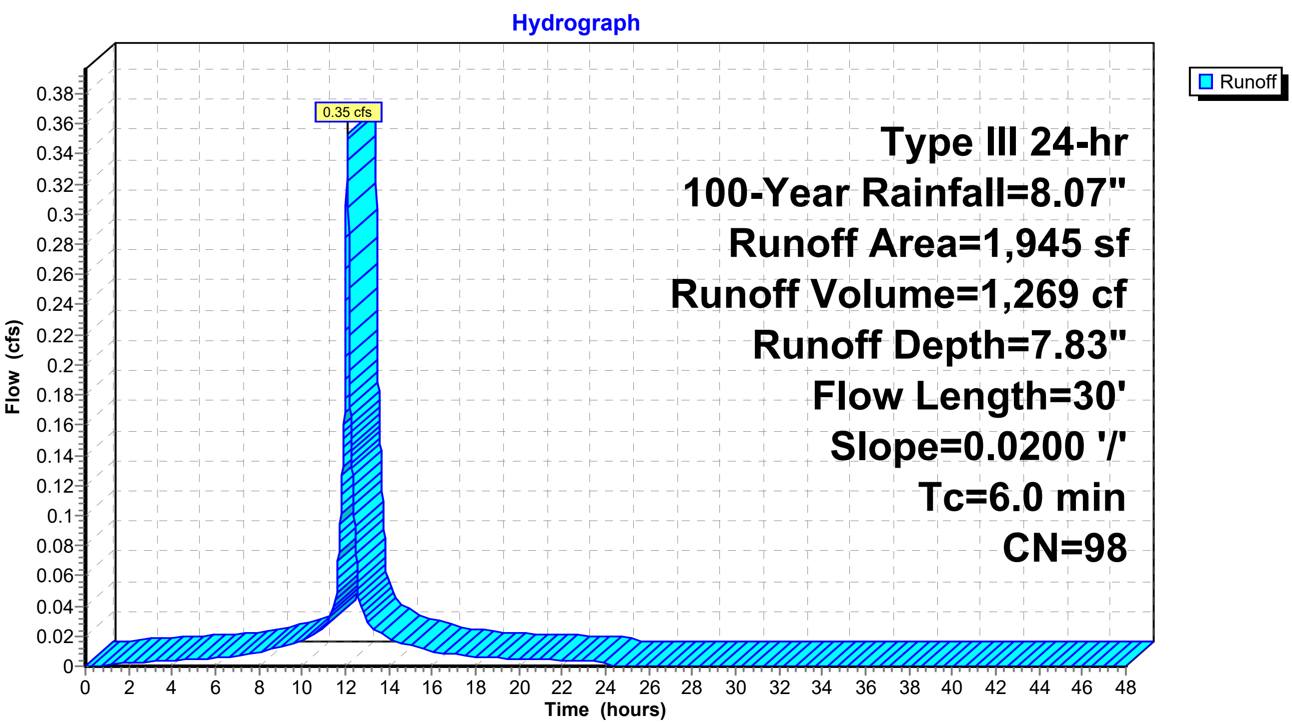
Runoff = 0.35 cfs @ 12.08 hrs, Volume= 1,269 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
1,945	98	Paved parking, HSG C
1,945	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	30	0.0200	1.10		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.5	30	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 20S: Parking/Pavement



Summary for Subcatchment 21S: Parking/Pavement

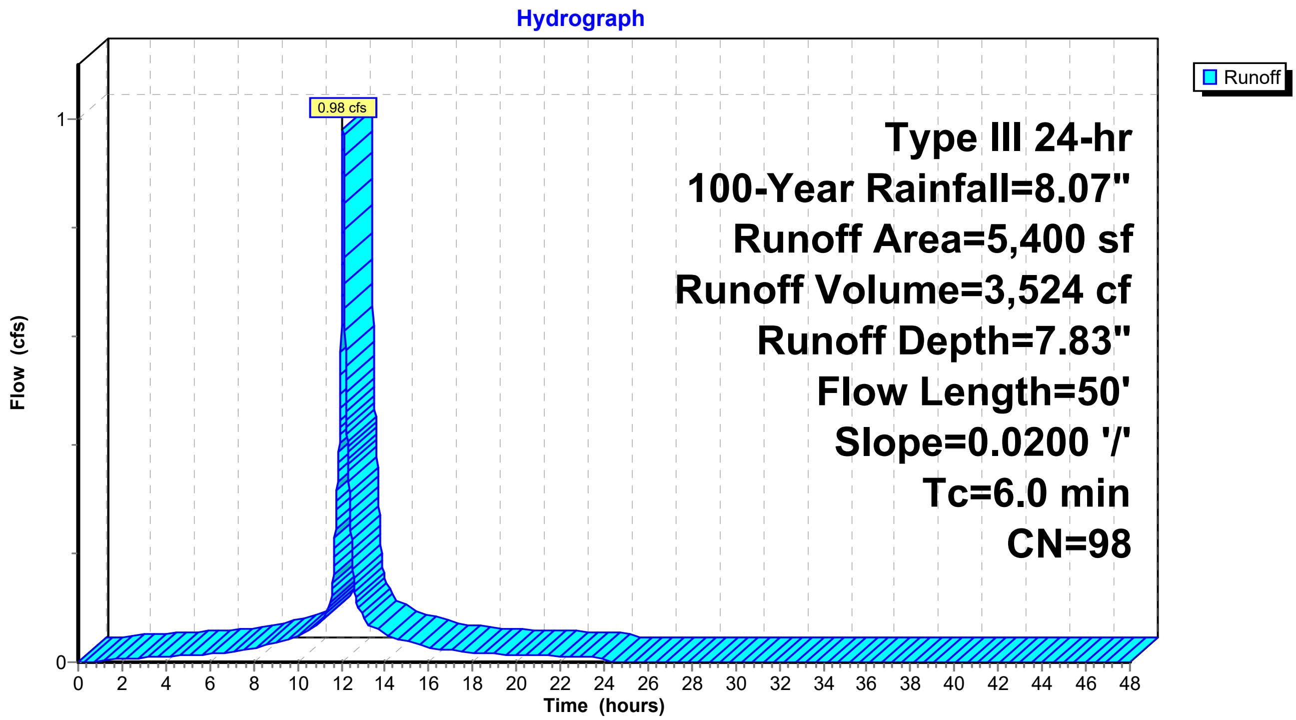
Runoff = 0.98 cfs @ 12.08 hrs, Volume= 3,524 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
5,400	98	Paved parking, HSG C
5,400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.22		**Sheet Flow, Pavement/Parking** Smooth surfaces n= 0.011 P2= 3.30"
0.7	50	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 21S: Parking/Pavement



Summary for Subcatchment 22: Parking/Pavement

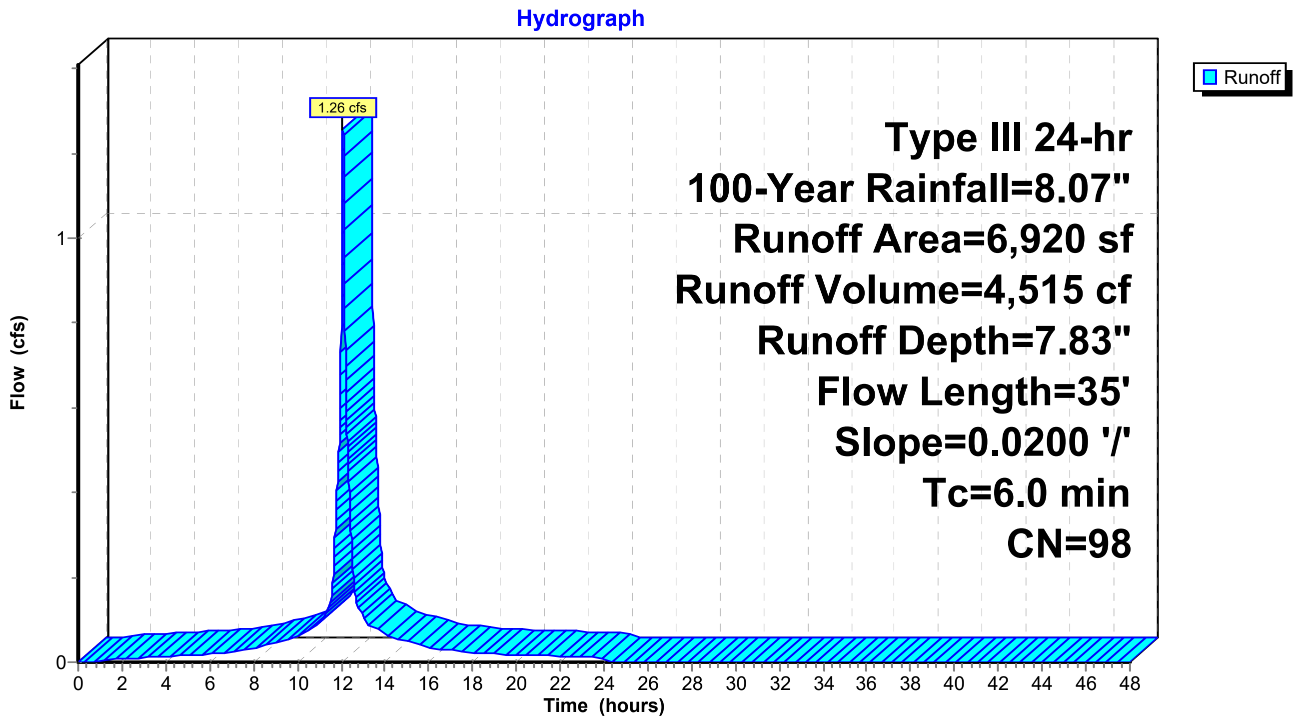
Runoff = 1.26 cfs @ 12.08 hrs, Volume= 4,515 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
6,920	98	Paved parking, HSG C
6,920	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	35	0.0200	1.13		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
0.5	35	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 22: Parking/Pavement



Summary for Subcatchment 23S: Parking/Pavement

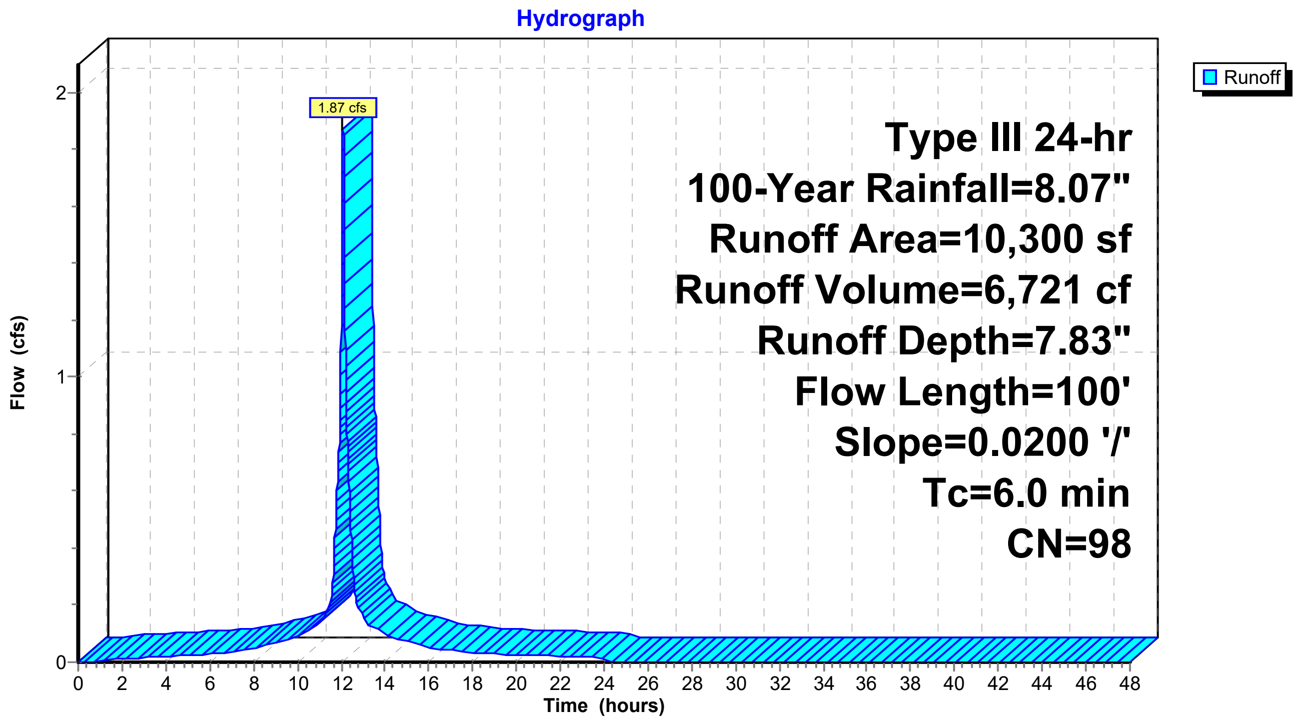
Runoff = 1.87 cfs @ 12.08 hrs, Volume= 6,721 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
10,300	98	Paved parking, HSG C
10,300	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.40		**Sheet Flow, pavement/parking** Smooth surfaces n= 0.011 P2= 3.30"
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 23S: Parking/Pavement



Summary for Subcatchment 37S: Grocery Roof

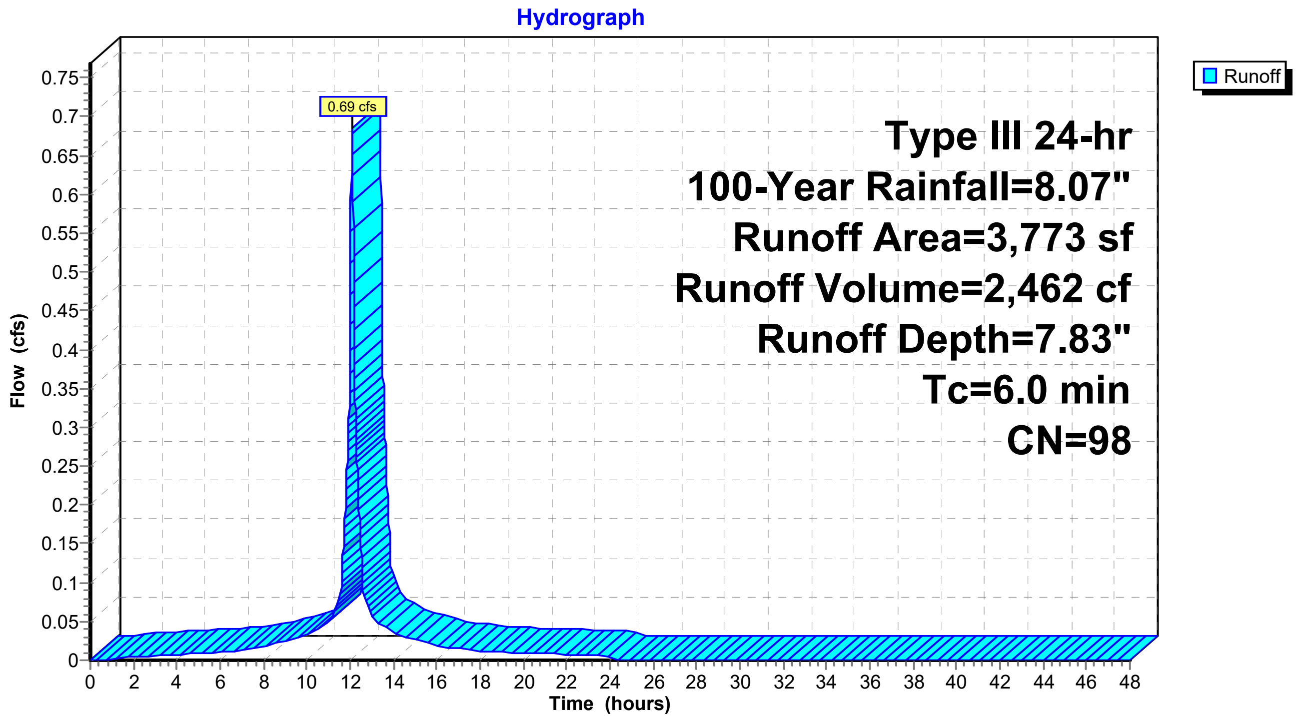
Runoff = 0.69 cfs @ 12.08 hrs, Volume= 2,462 cf, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
3,773	98	Roofs, HSG D
3,773	98	100.00% Impervious Area

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

Subcatchment 37S: Grocery Roof



Summary for Pond 1P: Area behind levee - Facemate

Inflow Area = 217,891 sf, 82.73% Impervious, Inflow Depth = 6.38" for 100-Year event
Inflow = 27.20 cfs @ 12.11 hrs, Volume= 115,896 cf
Outflow = 12.55 cfs @ 12.46 hrs, Volume= 115,896 cf, Atten= 54%, Lag= 20.7 min
Primary = 12.55 cfs @ 12.46 hrs, Volume= 115,896 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 91.70' @ 12.46 hrs Surf.Area= 16,979 sf Storage= 19,622 cf

Plug-Flow detention time= 12.0 min calculated for 115,896 cf (100% of inflow)
Center-of-Mass det. time= 11.9 min (782.4 - 770.5)

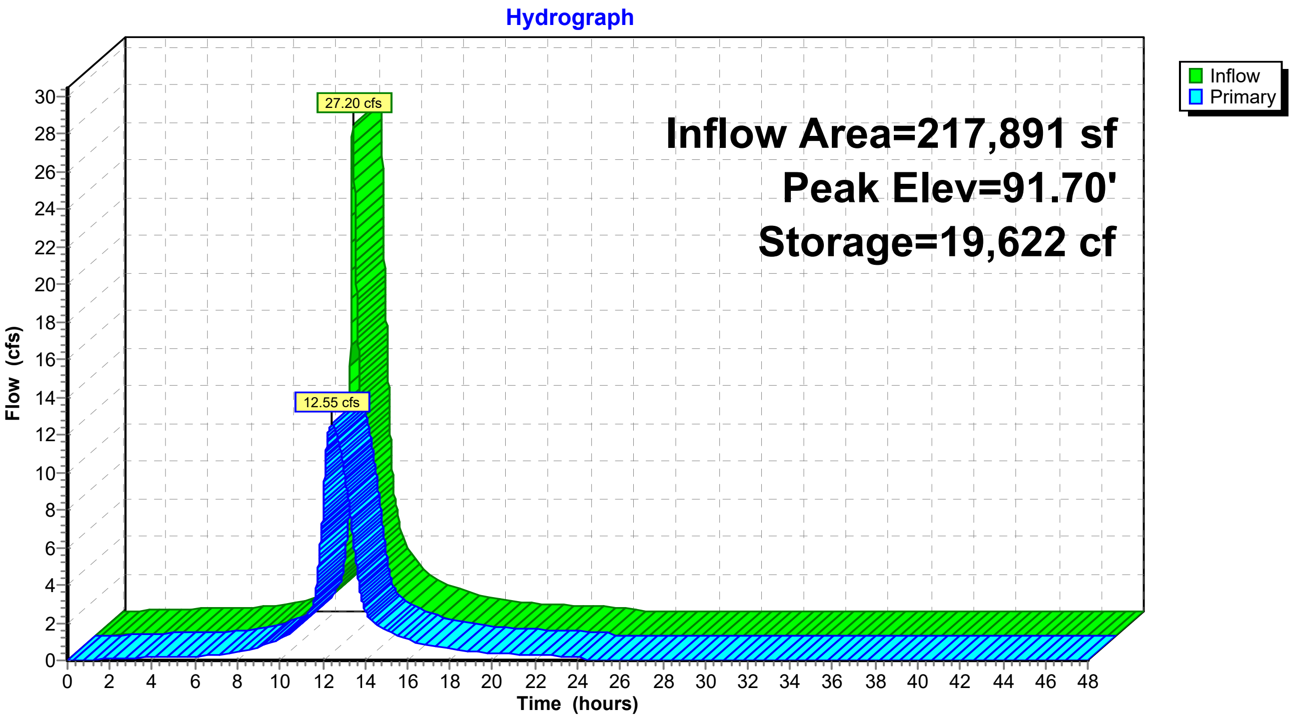
Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	90.00'	**2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns** X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=12.55 cfs @ 12.46 hrs HW=91.70' TW=0.00' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 6.27 cfs @ 6.27 fps)
└─**2=Orifice/Grate** (Orifice Controls 6.27 cfs @ 6.27 fps)

Pond 1P: Area behind levee - Facemate



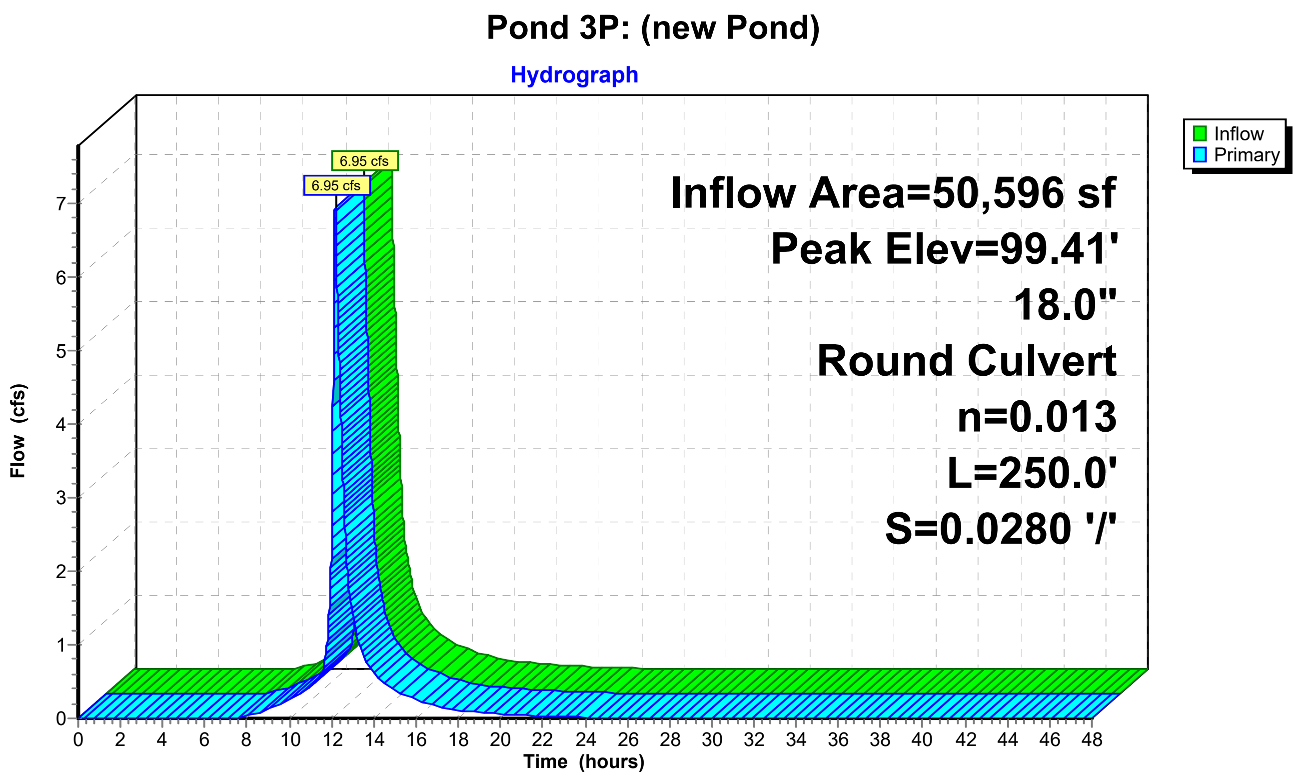
Summary for Pond 3P: (new Pond)

Inflow Area =	50,596 sf,100.00% Impervious,	Inflow Depth = 6.26"	for 100-Year event
Inflow =	6.95 cfs @ 12.17 hrs, Volume=	26,398 cf	
Outflow =	6.95 cfs @ 12.17 hrs, Volume=	26,398 cf,	Atten= 0%, Lag= 0.0 min
Primary =	6.95 cfs @ 12.17 hrs, Volume=	26,398 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 99.41' @ 12.17 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	98.00'	**18.0" Round Culvert** L= 250.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 98.00' / 91.00' S= 0.0280 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.95 cfs @ 12.17 hrs HW=99.41' TW=91.32' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 6.95 cfs @ 4.04 fps)



Summary for Pond 5P: Tree Box

Inflow Area = 9,945 sf,100.00% Impervious, Inflow Depth = 9.68" for 100-Year event
Inflow = 3.01 cfs @ 12.09 hrs, Volume= 8,020 cf
Outflow = 3.06 cfs @ 12.10 hrs, Volume= 8,020 cf, Atten= 0%, Lag= 0.7 min
Discarded = 0.00 cfs @ 12.10 hrs, Volume= 87 cf
Primary = 3.06 cfs @ 12.10 hrs, Volume= 7,933 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 105.22' @ 12.10 hrs Surf.Area= 80 sf Storage= 91 cf

Plug-Flow detention time= 1.9 min calculated for 8,018 cf (100% of inflow)
Center-of-Mass det. time= 1.9 min (743.2 - 741.3)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	91 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 259 cf Overall x 35.0% Voids

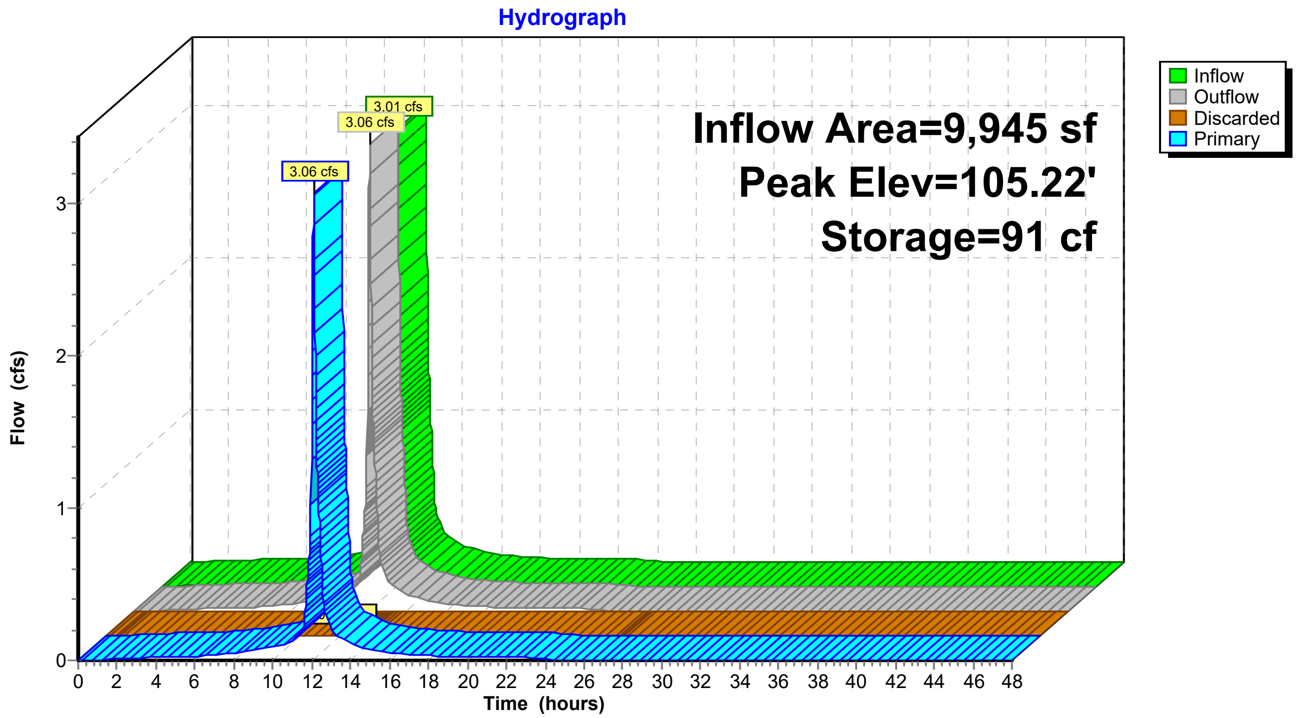
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	36	0	0
101.20	36	36	36
102.20	48	42	78
103.20	60	54	132
104.20	72	66	198
105.00	80	61	259

Device	Routing	Invert	Outlet Devices
#1	Primary	100.75'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.75' / 100.65' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.75'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.10 hrs HW=105.21' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=3.04 cfs @ 12.10 hrs HW=105.18' TW=104.54' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.04 cfs @ 3.87 fps)
  └─**3=Custom Weir/Orifice** (Passes 3.04 cfs of 26.31 cfs potential flow)

Pond 5P: Tree Box



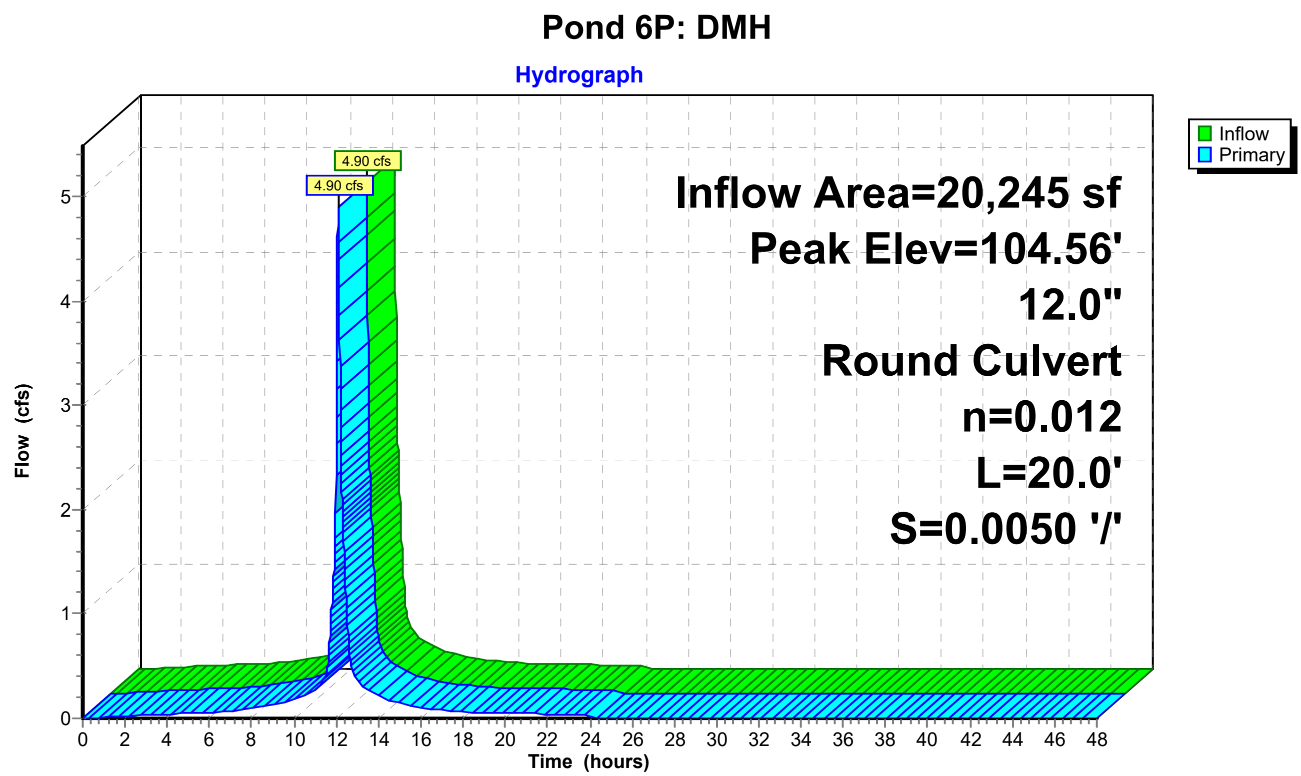
Summary for Pond 6P: DMH

Inflow Area =	20,245 sf,100.00% Impervious,	Inflow Depth = 8.69"	for 100-Year event		
Inflow =	4.90 cfs @	12.10 hrs,	Volume=	14,654 cf	
Outflow =	4.90 cfs @	12.10 hrs,	Volume=	14,654 cf,	Atten= 0%, Lag= 0.0 min
Primary =	4.90 cfs @	12.10 hrs,	Volume=	14,654 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 104.56' @ 12.10 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.60'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.60' / 100.50' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.86 cfs @ 12.10 hrs HW=104.52' TW=102.87' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.86 cfs @ 6.19 fps)



Summary for Pond 7P: Storage Chambers South

Inflow Area = 50,596 sf,100.00% Impervious, Inflow Depth = 8.04" for 100-Year event
Inflow = 10.33 cfs @ 12.10 hrs, Volume= 33,894 cf
Outflow = 7.06 cfs @ 12.17 hrs, Volume= 33,894 cf, Atten= 32%, Lag= 4.5 min
Discarded = 0.10 cfs @ 12.17 hrs, Volume= 7,496 cf
Primary = 6.95 cfs @ 12.17 hrs, Volume= 26,398 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.18' @ 12.17 hrs Surf.Area= 3,348 sf Storage= 7,425 cf
Flood Elev= 106.00' Surf.Area= 3,348 sf Storage= 8,592 cf

Plug-Flow detention time= 56.6 min calculated for 33,887 cf (100% of inflow)
Center-of-Mass det. time= 56.6 min (799.9 - 743.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	3,199 cf	**53.00'W x 63.17'L x 4.00'H Field A** 13,391 cf Overall - 5,393 cf Embedded = 7,998 cf x 40.0% Voids
#2A	100.50'	5,393 cf	**Cultec R-360HD** x 144 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 144 Chambers in 9 Rows Cap Storage= +6.5 cf x 2 x 9 rows = 116.3 cf
		8,592 cf	Total Available Storage

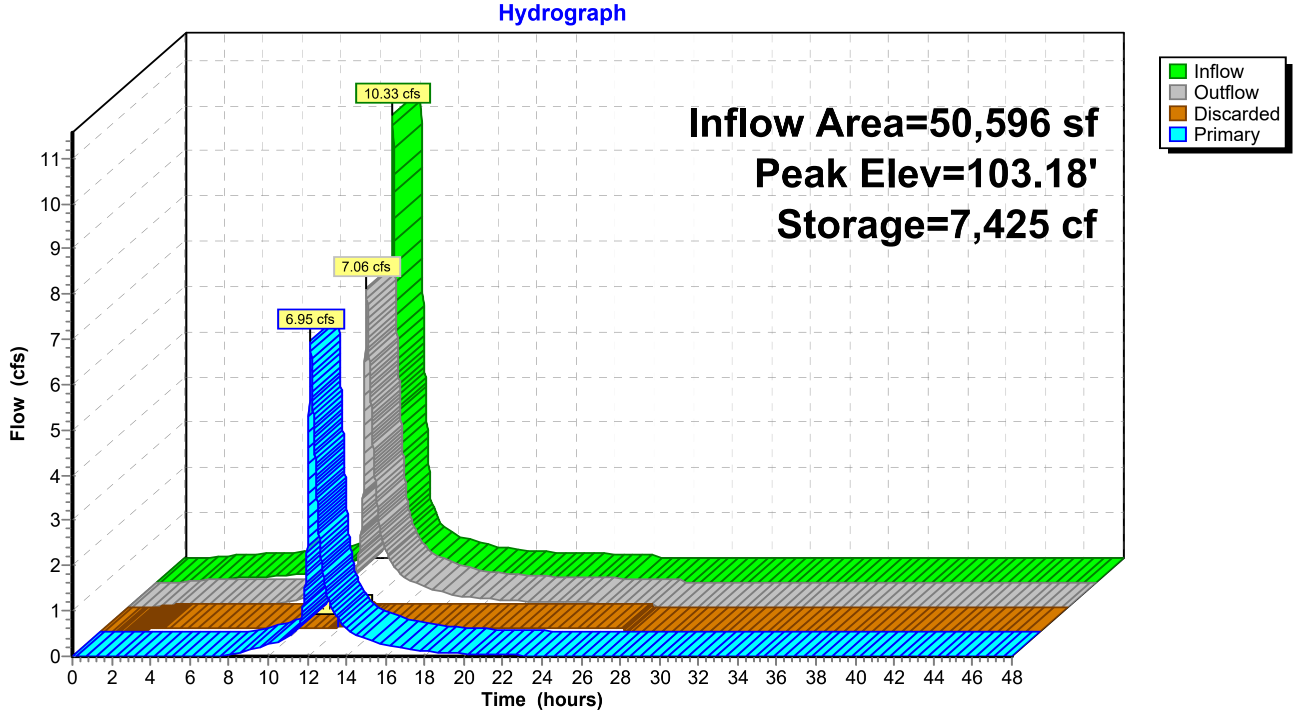
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	99.00'	**18.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 99.00' / 96.00' S= 0.1500 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.25 1.25 2.50 2.50 3.00 Width (feet) 0.33 0.33 0.66 0.66 2.00 2.00

Discarded OutFlow Max=0.10 cfs @ 12.17 hrs HW=103.18' (Free Discharge)
└─**2=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=6.95 cfs @ 12.17 hrs HW=103.18' TW=99.41' (Dynamic Tailwater)
└─**1=Culvert** (Passes 6.95 cfs of 15.77 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 6.95 cfs @ 4.33 fps)

Pond 7P: Storage Chambers South



Summary for Pond 8P: Storage Chambers North

Inflow Area = 50,305 sf,100.00% Impervious, Inflow Depth = 7.68" for 100-Year event
Inflow = 9.05 cfs @ 12.09 hrs, Volume= 32,206 cf
Outflow = 4.61 cfs @ 12.23 hrs, Volume= 32,206 cf, Atten= 49%, Lag= 8.2 min
Discarded = 0.14 cfs @ 12.23 hrs, Volume= 10,134 cf
Primary = 4.47 cfs @ 12.23 hrs, Volume= 22,072 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.68' @ 12.23 hrs Surf.Area= 4,786 sf Storage= 9,068 cf

Plug-Flow detention time= 73.7 min calculated for 32,200 cf (100% of inflow)
Center-of-Mass det. time= 73.7 min (816.7 - 743.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	100.00'	4,622 cf	**116.25'W x 41.17'L x 4.00'H Field A** 19,143 cf Overall - 7,587 cf Embedded = 11,555 cf x 40.0% Voids
#2A	100.50'	7,587 cf	**Cultec R-360HD** x 200 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 200 Chambers in 20 Rows Cap Storage= +6.5 cf x 2 x 20 rows = 258.4 cf
		12,209 cf	Total Available Storage

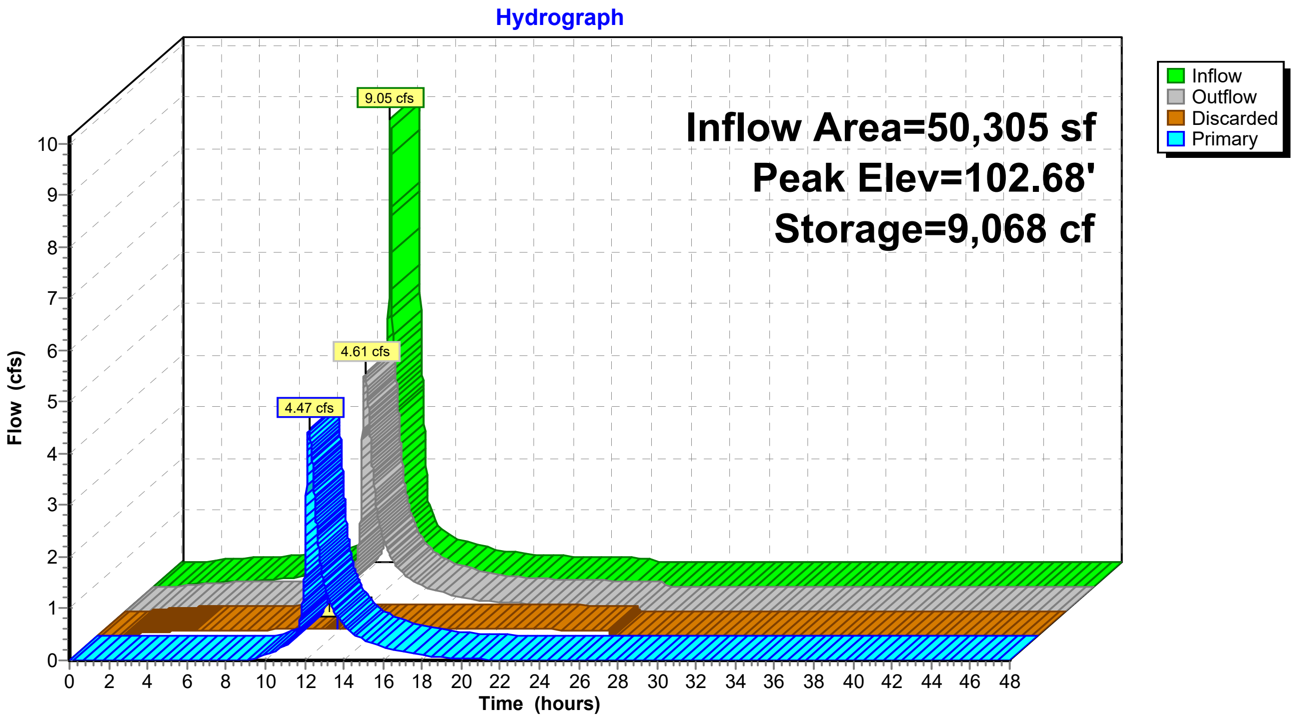
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	100.50'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.50' / 100.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.50'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.25 1.25 2.50 2.50 3.00 Width (feet) 0.33 0.33 0.66 0.66 2.00 2.00

Discarded OutFlow Max=0.14 cfs @ 12.23 hrs HW=102.68' (Free Discharge)
└─**2=Exfiltration** (Controls 0.14 cfs)

Primary OutFlow Max=4.47 cfs @ 12.23 hrs HW=102.68' TW=91.48' (Dynamic Tailwater)
└─**1=Culvert** (Passes 4.47 cfs of 9.93 cfs potential flow)
  └─**3=Custom Weir/Orifice** (Weir Controls 4.47 cfs @ 4.34 fps)

Pond 8P: Storage Chambers North



Summary for Pond 11P: Tree Box

Inflow Area = 9,068 sf,100.00% Impervious, Inflow Depth = 7.83" for 100-Year event
Inflow = 1.65 cfs @ 12.08 hrs, Volume= 5,917 cf
Outflow = 1.64 cfs @ 12.09 hrs, Volume= 5,917 cf, Atten= 1%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.10 hrs, Volume= 197 cf
Primary = 1.64 cfs @ 12.09 hrs, Volume= 5,720 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 104.69' @ 12.10 hrs Surf.Area= 10 sf Storage= 50 cf
Flood Elev= 105.00' Surf.Area= 8 sf Storage= 51 cf

Plug-Flow detention time= 8.7 min calculated for 5,917 cf (100% of inflow)
Center-of-Mass det. time= 8.7 min (749.8 - 741.1)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	51 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 146 cf Overall x 35.0% Voids

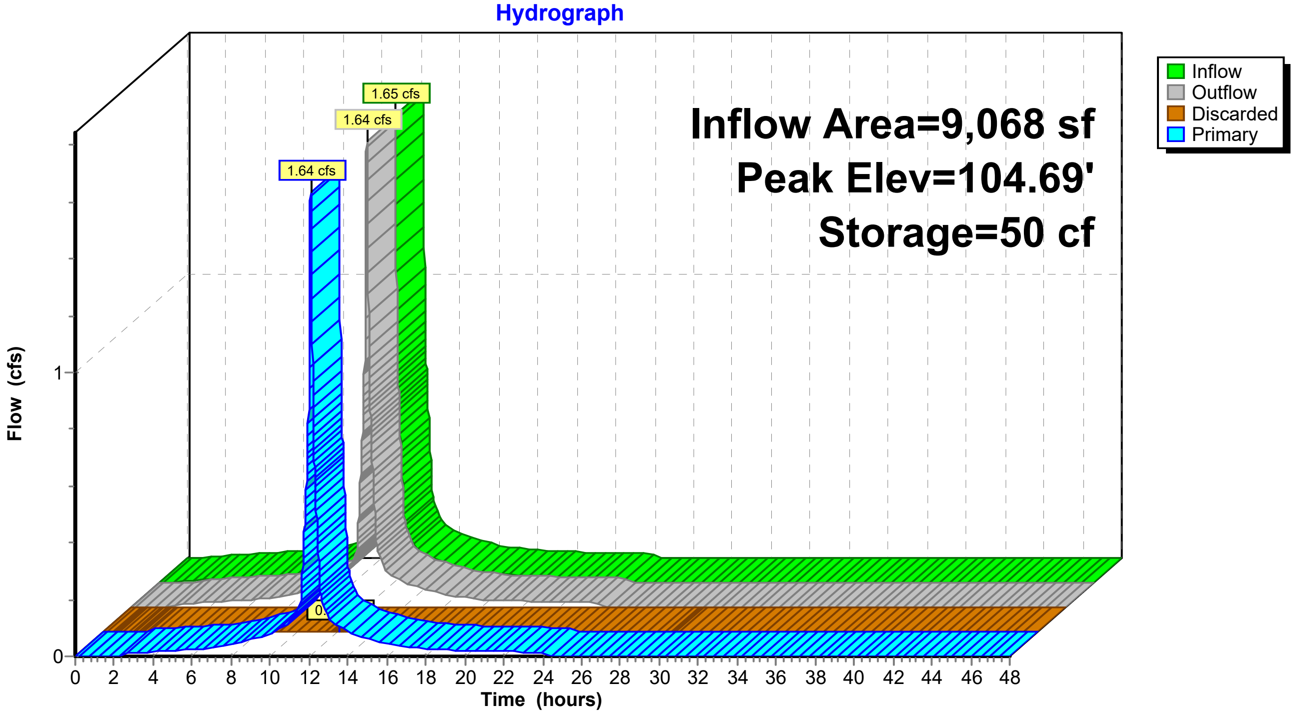
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	72	0	0
101.20	72	72	72
102.20	12	42	114
103.20	12	12	126
104.20	12	12	138
105.00	8	8	146

Device	Routing	Invert	Outlet Devices
#1	Primary	101.53'	**12.0" Round Culvert** L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.53' / 101.08' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.53'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.10 hrs HW=104.69' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.34 cfs @ 12.09 hrs HW=104.62' TW=104.45' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 1.34 cfs @ 1.71 fps)
  └─**3=Custom Weir/Orifice** (Passes 1.34 cfs of 13.77 cfs potential flow)

Pond 11P: Tree Box



Summary for Pond 12P: Tree Box

Inflow Area = 10,485 sf,100.00% Impervious, Inflow Depth = 7.83" for 100-Year event
Inflow = 1.91 cfs @ 12.08 hrs, Volume= 6,842 cf
Outflow = 1.90 cfs @ 12.09 hrs, Volume= 6,842 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 12.10 hrs, Volume= 193 cf
Primary = 1.90 cfs @ 12.09 hrs, Volume= 6,649 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 104.68' @ 12.10 hrs Surf.Area= 9 sf Storage= 51 cf

Plug-Flow detention time= 7.1 min calculated for 6,842 cf (100% of inflow)
Center-of-Mass det. time= 7.1 min (748.2 - 741.1)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

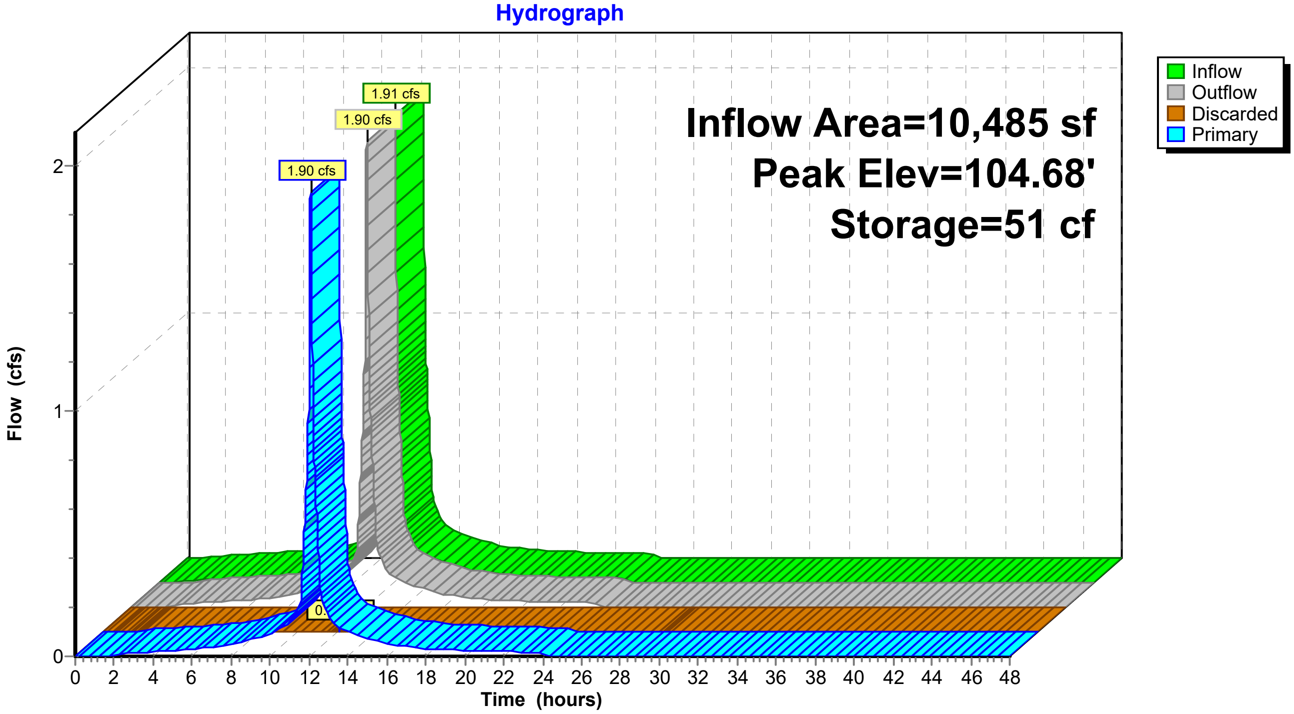
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	72	0	0
101.00	72	72	72
102.00	12	42	114
103.00	12	12	126
104.00	12	12	138
105.00	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	101.18'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.18' / 101.13' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.18'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.10 hrs HW=104.68' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.53 cfs @ 12.09 hrs HW=104.62' TW=104.45' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.53 cfs @ 1.95 fps)
  └─**3=Custom Weir/Orifice** (Passes 1.53 cfs of 13.27 cfs potential flow)

Pond 12P: Tree Box



Summary for Pond 13P: Tree Box

Inflow Area = 10,798 sf,100.00% Impervious, Inflow Depth = 7.83" for 100-Year event
Inflow = 1.96 cfs @ 12.08 hrs, Volume= 7,046 cf
Outflow = 1.95 cfs @ 12.08 hrs, Volume= 7,046 cf, Atten= 1%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.12 hrs, Volume= 174 cf
Primary = 1.95 cfs @ 12.08 hrs, Volume= 6,872 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.61' @ 12.12 hrs Surf.Area= 12 sf Storage= 47 cf

Plug-Flow detention time= 4.6 min calculated for 7,044 cf (100% of inflow)
Center-of-Mass det. time= 4.6 min (745.7 - 741.1)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

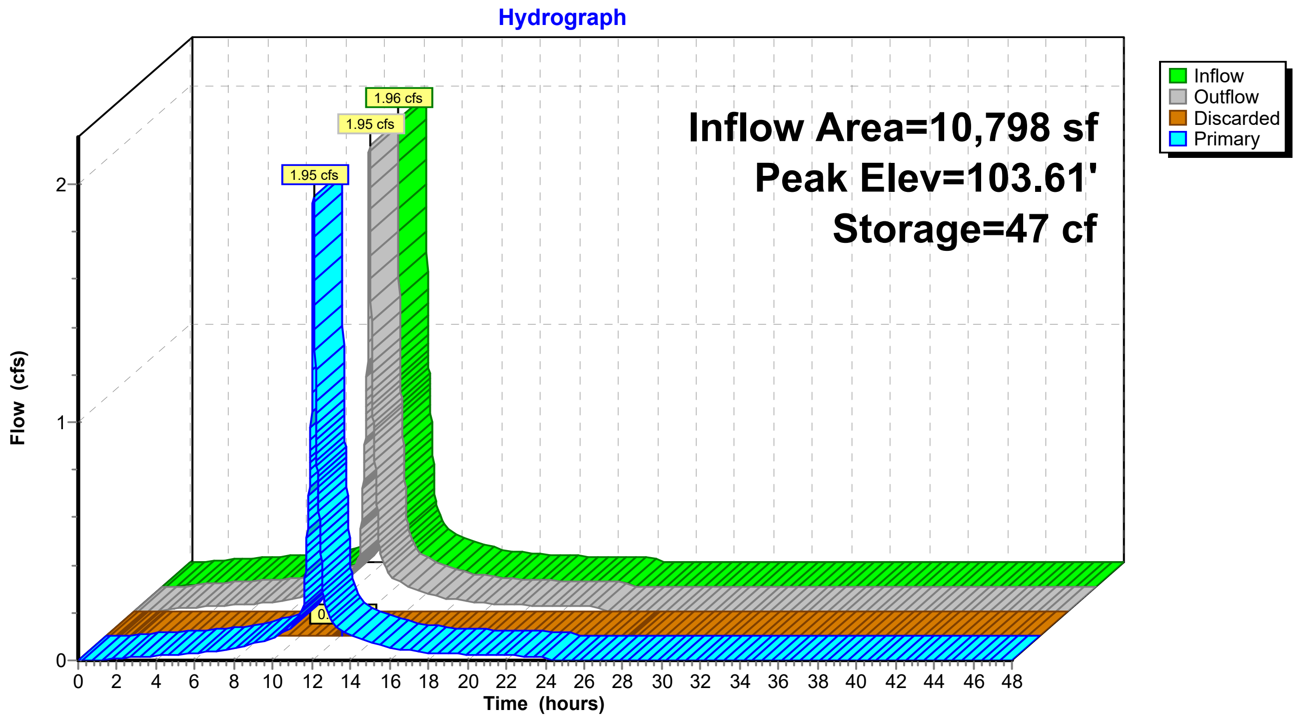
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	72	0	0
101.00	72	72	72
102.00	12	42	114
103.00	12	12	126
104.00	12	12	138
105.00	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	100.65'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.65' / 100.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	100.65'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=103.60' (Free Discharge)
└—**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.96 cfs @ 12.08 hrs HW=103.44' TW=103.17' (Dynamic Tailwater)
└—**1=Culvert** (Inlet Controls 1.96 cfs @ 2.50 fps)
  └—**3=Custom Weir/Orifice** (Passes 1.96 cfs of 17.00 cfs potential flow)

Pond 13P: Tree Box



Summary for Pond 22P: Tree Box

Inflow Area = 1,945 sf,100.00% Impervious, Inflow Depth = 7.83" for 100-Year event
Inflow = 0.35 cfs @ 12.08 hrs, Volume= 1,269 cf
Outflow = 0.71 cfs @ 12.15 hrs, Volume= 1,269 cf, Atten= 0%, Lag= 4.0 min
Discarded = 0.00 cfs @ 12.13 hrs, Volume= 101 cf
Primary = 0.71 cfs @ 12.15 hrs, Volume= 1,187 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 104.65' @ 12.13 hrs Surf.Area= 56 sf Storage= 39 cf

Plug-Flow detention time= 18.7 min calculated for 1,269 cf (100% of inflow)
Center-of-Mass det. time= 18.8 min (759.9 - 741.1)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	69 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 196 cf Overall x 35.0% Voids

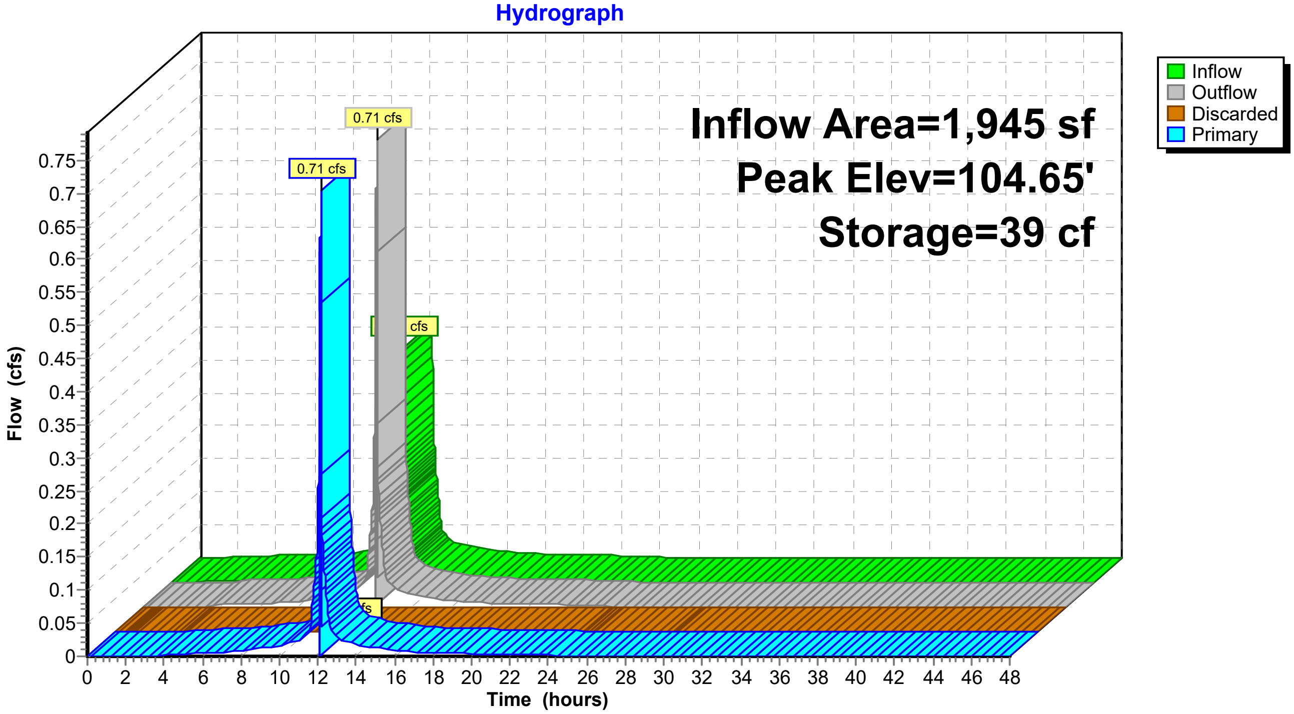
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	36	0	0
103.00	36	36	36
104.00	48	42	78
105.00	60	54	132
106.00	68	64	196

Device	Routing	Invert	Outlet Devices
#1	Primary	103.25'	**12.0" Round Culvert** L= 125.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 103.25' / 102.63' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	102.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	103.25'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.13 hrs HW=104.64' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 12.15 hrs HW=104.39' TW=104.55' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)
  └─**3=Custom Weir/Orifice** (Controls 0.00 cfs)

Pond 22P: Tree Box



Summary for Pond 23P: Tree Box

Inflow Area = 10,400 sf,100.00% Impervious, Inflow Depth = 7.83" for 100-Year event
Inflow = 1.89 cfs @ 12.08 hrs, Volume= 6,786 cf
Outflow = 1.98 cfs @ 12.11 hrs, Volume= 6,786 cf, Atten= 0%, Lag= 1.6 min
Discarded = 0.00 cfs @ 12.12 hrs, Volume= 86 cf
Primary = 1.98 cfs @ 12.11 hrs, Volume= 6,701 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 104.88' @ 12.12 hrs Surf.Area= 59 sf Storage= 44 cf

Plug-Flow detention time= 2.2 min calculated for 6,786 cf (100% of inflow)
Center-of-Mass det. time= 2.2 min (743.3 - 741.1)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	69 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 196 cf Overall x 35.0% Voids

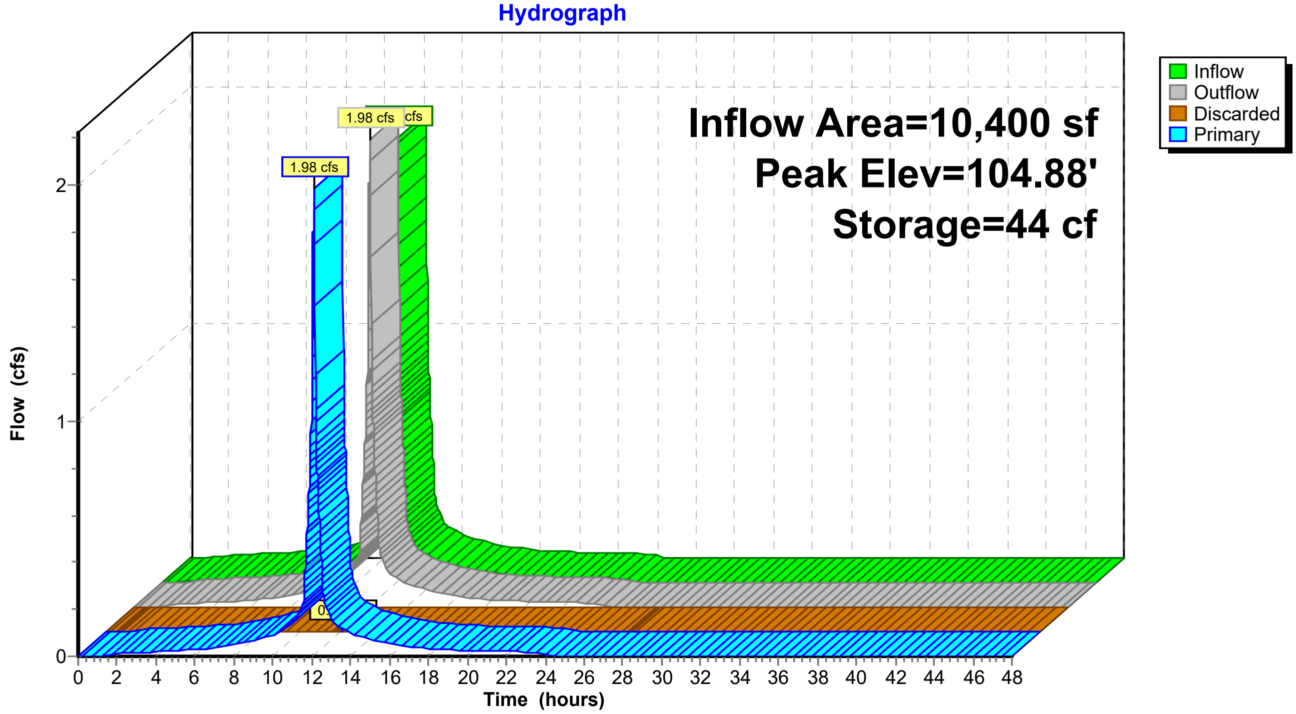
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.00	36	0	0
103.00	36	36	36
104.00	48	42	78
105.00	60	54	132
106.00	68	64	196

Device	Routing	Invert	Outlet Devices
#1	Primary	102.65'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.65' / 102.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	102.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	102.65'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.12 hrs HW=104.88' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 12.11 hrs HW=104.84' TW=104.94' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)
  └─**3=Custom Weir/Orifice** (Controls 0.00 cfs)

Pond 23P: Tree Box



Summary for Pond 24P: (new Pond)

Inflow Area = 6,920 sf,100.00% Impervious, Inflow Depth = 7.83" for 100-Year event
Inflow = 1.26 cfs @ 12.08 hrs, Volume= 4,515 cf
Outflow = 1.25 cfs @ 12.09 hrs, Volume= 4,515 cf, Atten= 0%, Lag= 0.4 min
Discarded = 0.05 cfs @ 12.09 hrs, Volume= 2,985 cf
Secondary = 1.20 cfs @ 12.09 hrs, Volume= 1,530 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 107.06' @ 12.09 hrs Surf.Area= 2,000 sf Storage= 745 cf

Plug-Flow detention time= 74.8 min calculated for 4,515 cf (100% of inflow)
Center-of-Mass det. time= 74.8 min (815.9 - 741.1)

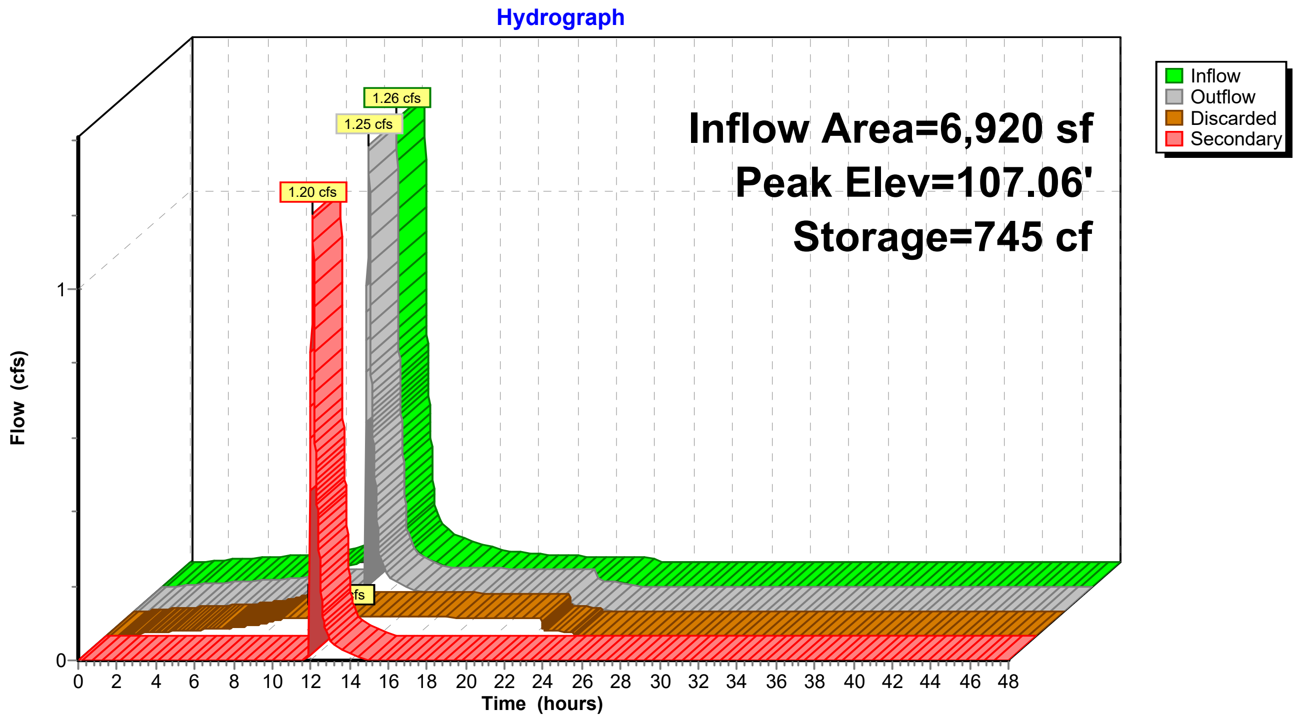
Volume	Invert	Avail.Storage	Storage Description
#1	106.00'	1,120 cf	**40.00'W x 50.00'L x 1.60'H Prismatoid** 3,200 cf Overall x 35.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Secondary	107.00'	**30.0' 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
#2	Discarded	106.00'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=0.05 cfs @ 12.09 hrs HW=107.06' (Free Discharge)
└─**2=Exfiltration** (Controls 0.05 cfs)

Secondary OutFlow Max=1.20 cfs @ 12.09 hrs HW=107.06' TW=105.01' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 1.20 cfs @ 0.63 fps)

Pond 24P: (new Pond)



Summary for Pond 26P: Tree Box

Inflow Area = 16,145 sf,100.00% Impervious, Inflow Depth = 7.83" for 100-Year event
Inflow = 2.94 cfs @ 12.08 hrs, Volume= 10,535 cf
Outflow = 3.01 cfs @ 12.10 hrs, Volume= 10,535 cf, Atten= 0%, Lag= 0.9 min
Discarded = 0.00 cfs @ 12.11 hrs, Volume= 104 cf
Primary = 3.00 cfs @ 12.10 hrs, Volume= 10,431 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 104.48' @ 12.11 hrs Surf.Area= 74 sf Storage= 76 cf

Plug-Flow detention time= 2.4 min calculated for 10,533 cf (100% of inflow)
Center-of-Mass det. time= 2.5 min (743.6 - 741.1)

Volume	Invert	Avail.Storage	Storage Description
#1	100.20'	96 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 274 cf Overall x 35.0% Voids

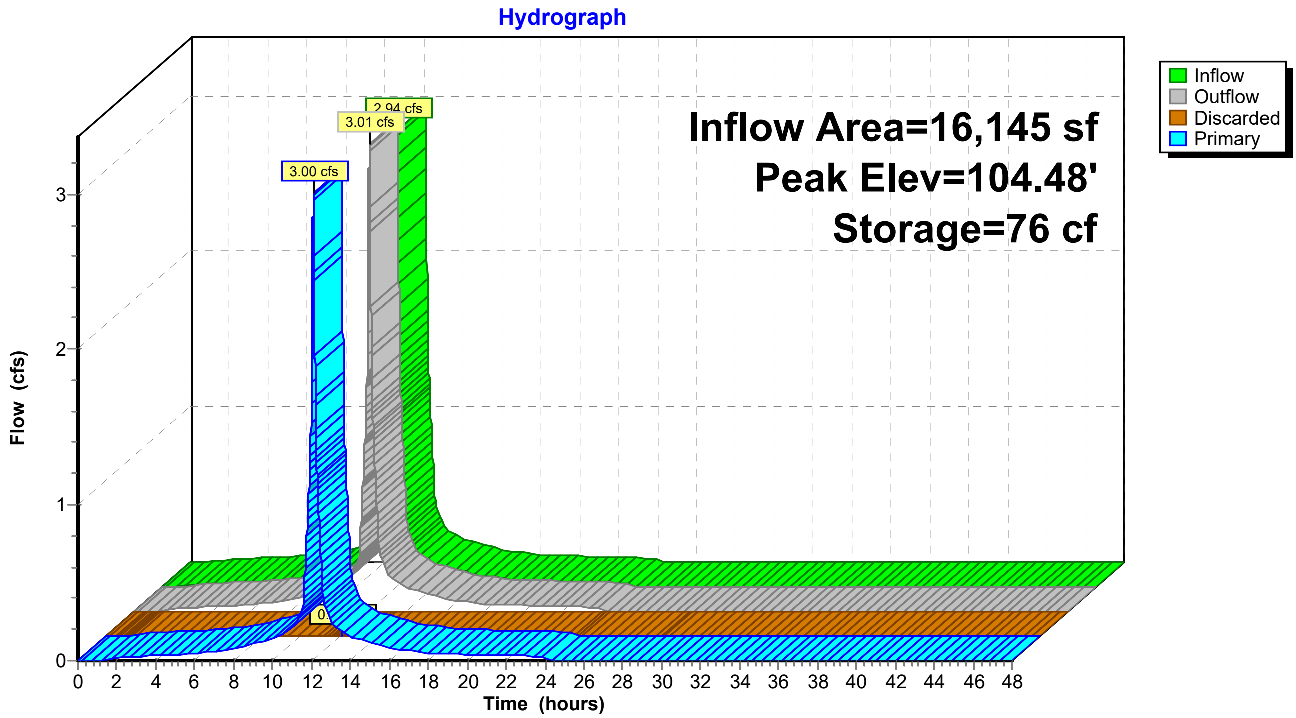
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.20	36	0	0
101.20	36	36	36
102.20	48	42	78
103.20	60	54	132
104.20	72	66	198
105.20	80	76	274

Device	Routing	Invert	Outlet Devices
#1	Primary	101.30'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.30' / 101.25' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	100.20'	**1.020 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'
#3	Device 1	101.30'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=104.47' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=2.66 cfs @ 12.10 hrs HW=104.40' TW=103.91' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.66 cfs @ 3.38 fps)
  └─**3=Custom Weir/Orifice** (Passes 2.66 cfs of 23.02 cfs potential flow)

Pond 26P: Tree Box



Summary for Pond 27P: DMH

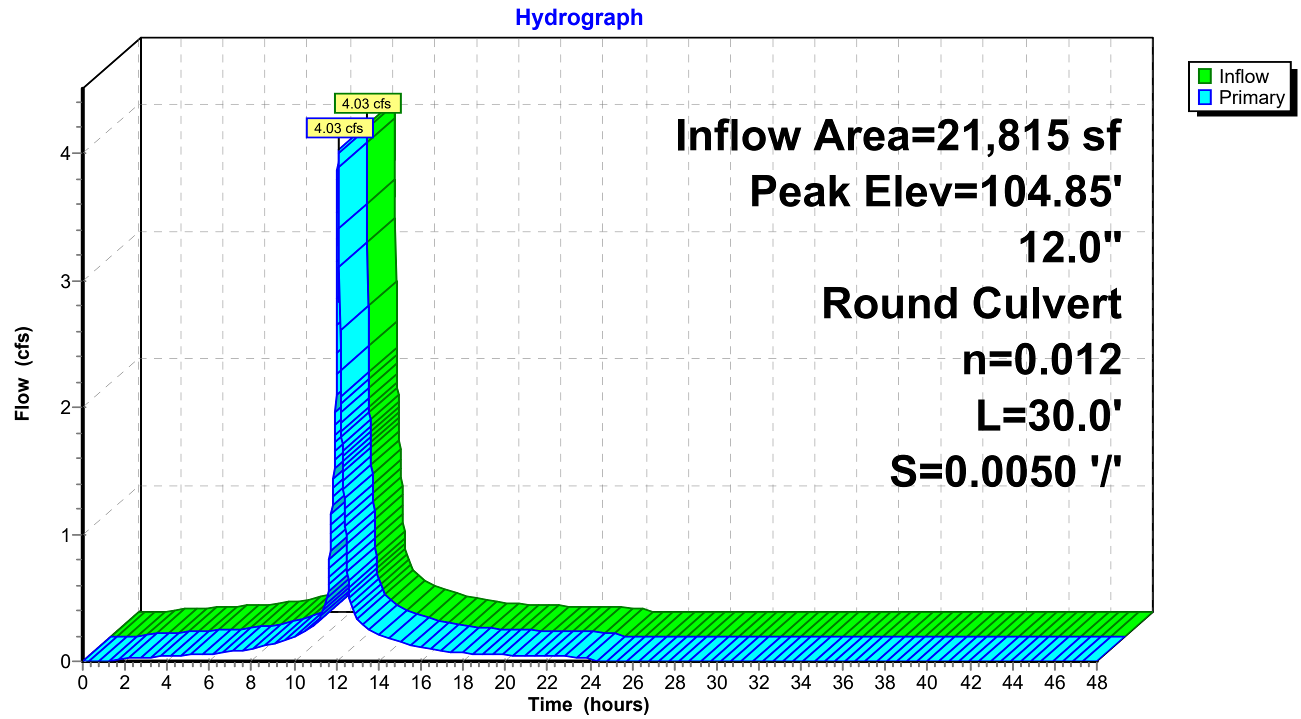
Inflow Area = 21,815 sf,100.00% Impervious, Inflow Depth = 7.64" for 100-Year event
Inflow = 4.03 cfs @ 12.10 hrs, Volume= 13,888 cf
Outflow = 4.03 cfs @ 12.10 hrs, Volume= 13,888 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.03 cfs @ 12.10 hrs, Volume= 13,888 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 104.85' @ 12.12 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.70'	**12.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.70' / 101.55' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.16 cfs @ 12.10 hrs HW=104.69' TW=103.48' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 4.16 cfs @ 5.29 fps)

Pond 27P: DMH



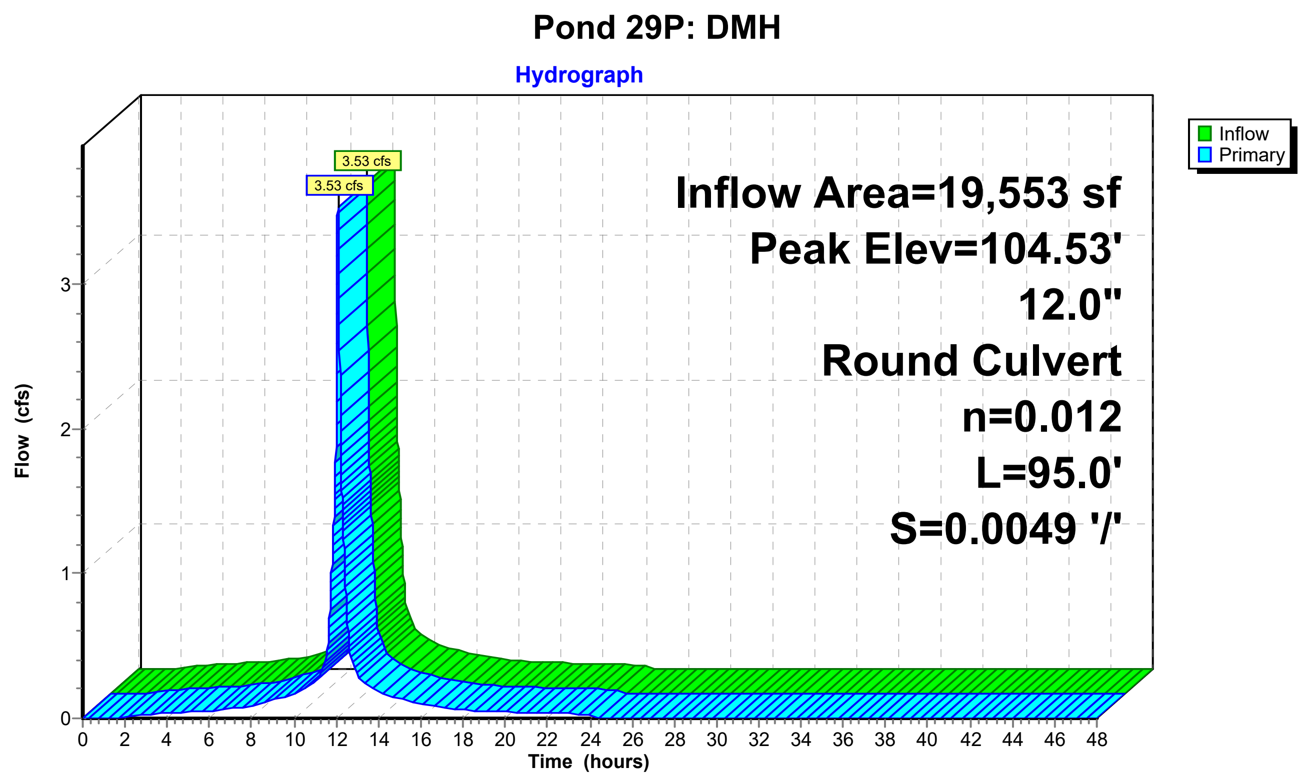
Summary for Pond 29P: DMH

Inflow Area =	19,553 sf,100.00% Impervious,	Inflow Depth = 7.59"	for 100-Year event		
Inflow =	3.53 cfs @	12.09 hrs,	Volume=	12,369 cf	
Outflow =	3.53 cfs @	12.09 hrs,	Volume=	12,369 cf,	Atten= 0%, Lag= 0.0 min
Primary =	3.53 cfs @	12.09 hrs,	Volume=	12,369 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 104.53' @ 12.10 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.08'	**12.0" Round Culvert** L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.08' / 100.61' S= 0.0049 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.53 cfs @ 12.09 hrs HW=104.45' TW=103.18' (Dynamic Tailwater)
1=Culvert (Outlet Controls 3.53 cfs @ 4.50 fps)



Summary for Pond 30P: DMH

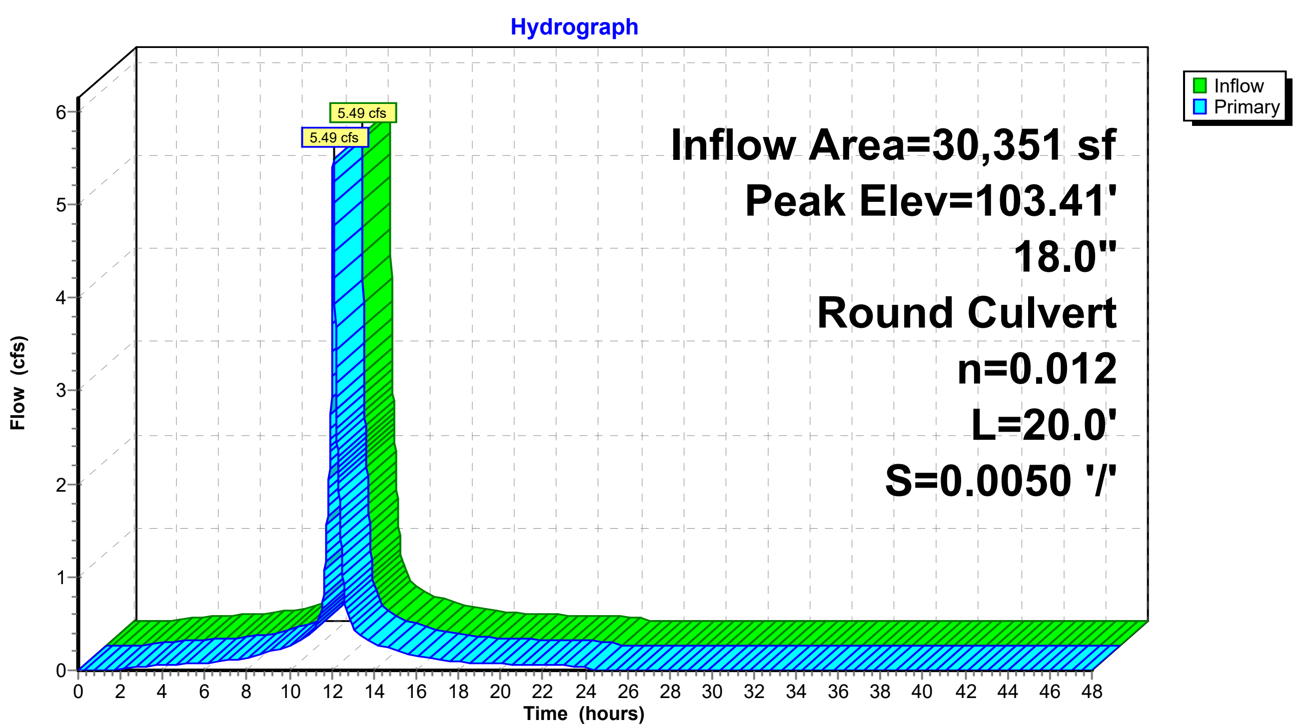
Inflow Area =	30,351 sf,100.00% Impervious,	Inflow Depth = 7.61"	for 100-Year event	
Inflow =	5.49 cfs @	12.08 hrs, Volume=	19,241 cf	
Outflow =	5.49 cfs @	12.08 hrs, Volume=	19,241 cf,	Atten= 0%, Lag= 0.0 min
Primary =	5.49 cfs @	12.08 hrs, Volume=	19,241 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.41' @ 12.14 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.60'	**18.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.60' / 100.50' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.48 cfs @ 12.08 hrs HW=103.18' TW=102.76' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 5.48 cfs @ 3.10 fps)

Pond 30P: DMH



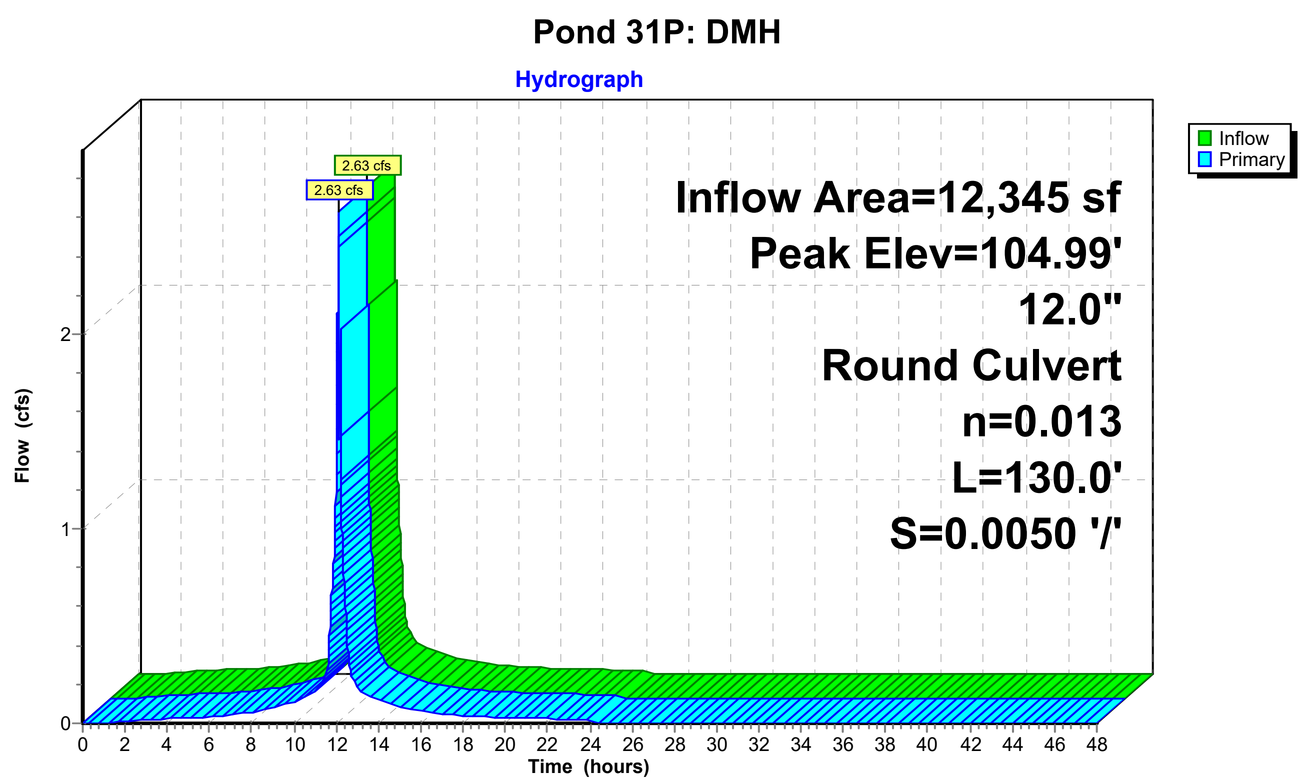
Summary for Pond 31P: DMH

Inflow Area = 12,345 sf,100.00% Impervious, Inflow Depth = 7.67" for 100-Year event
Inflow = 2.63 cfs @ 12.11 hrs, Volume= 7,887 cf
Outflow = 2.63 cfs @ 12.11 hrs, Volume= 7,887 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.63 cfs @ 12.11 hrs, Volume= 7,887 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 104.99' @ 12.11 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.90'	**12.0" Round Culvert** L= 130.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.90' / 101.25' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.69 cfs @ 12.11 hrs HW=104.90' TW=103.88' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 2.69 cfs @ 3.43 fps)



Summary for Pond 32P: DMH

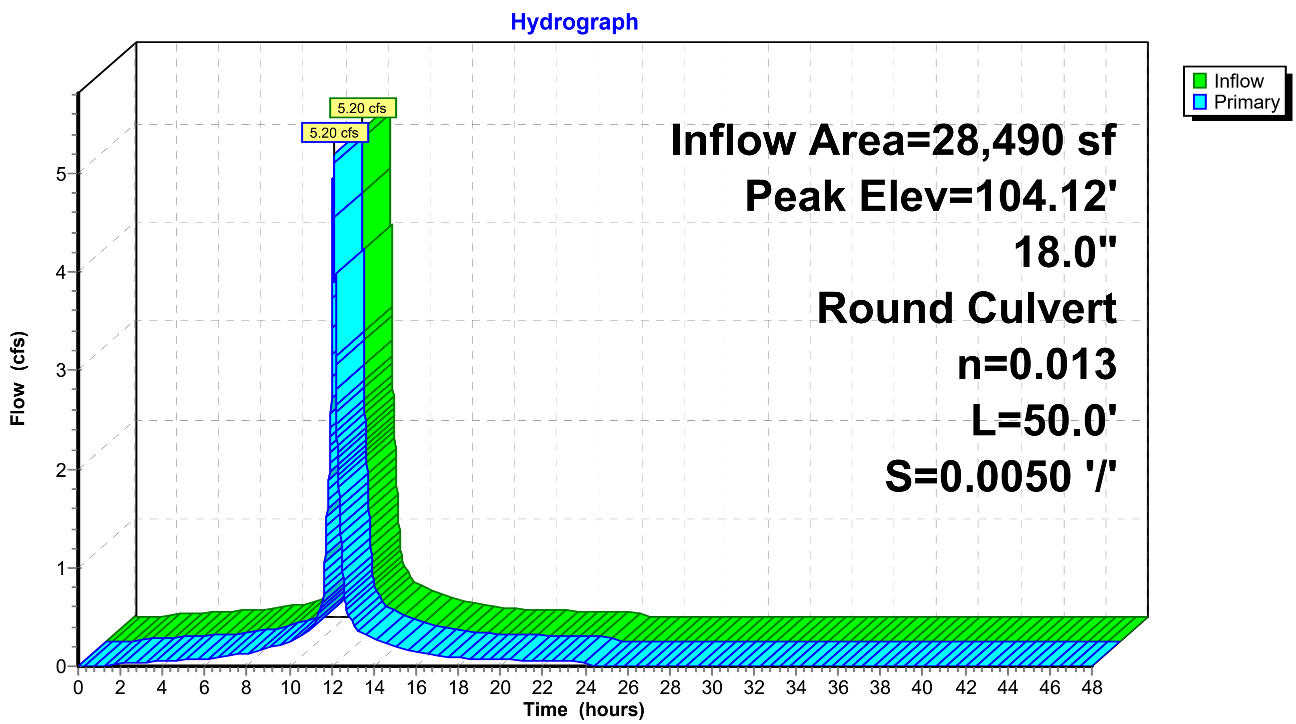
Inflow Area =	28,490 sf,100.00% Impervious,	Inflow Depth = 7.72"	for 100-Year event		
Inflow =	5.20 cfs @	12.11 hrs,	Volume=	18,318 cf	
Outflow =	5.20 cfs @	12.11 hrs,	Volume=	18,318 cf,	Atten= 0%, Lag= 0.0 min
Primary =	5.20 cfs @	12.11 hrs,	Volume=	18,318 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 104.12' @ 12.12 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.25'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.25' / 101.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.94 cfs @ 12.11 hrs HW=103.91' TW=103.58' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.94 cfs @ 2.79 fps)

Pond 32P: DMH



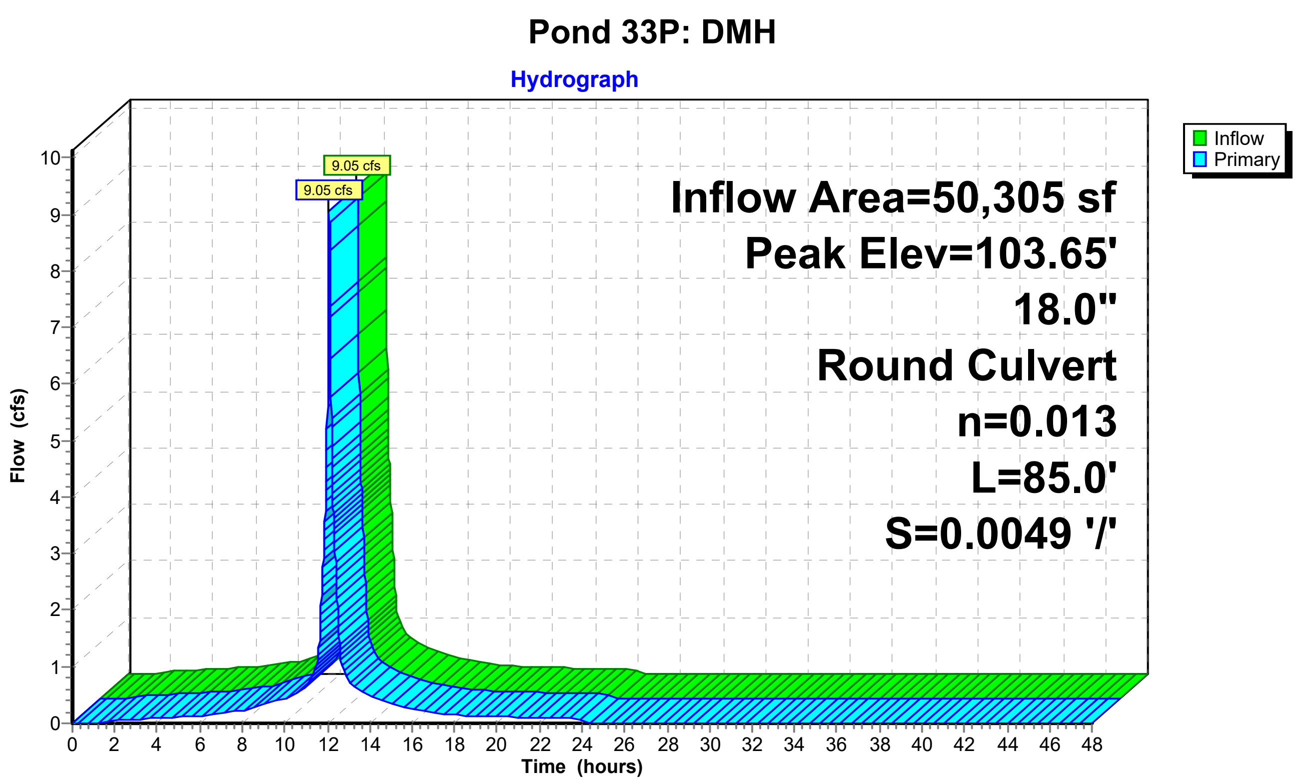
Summary for Pond 33P: DMH

Inflow Area =	50,305 sf,100.00% Impervious,	Inflow Depth = 7.68"	for 100-Year event	
Inflow =	9.05 cfs @	12.09 hrs, Volume=	32,206 cf	
Outflow =	9.05 cfs @	12.09 hrs, Volume=	32,206 cf,	Atten= 0%, Lag= 0.0 min
Primary =	9.05 cfs @	12.09 hrs, Volume=	32,206 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 103.65' @ 12.12 hrs
Flood Elev= 106.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.00'	**18.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.00' / 100.58' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=9.00 cfs @ 12.09 hrs HW=103.51' TW=102.28' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 9.00 cfs @ 5.10 fps)



Summary for Pond 34P: Tree Box

Inflow Area = 11,350 sf,100.00% Impervious, Inflow Depth = 7.83" for 100-Year event
Inflow = 2.06 cfs @ 12.08 hrs, Volume= 7,406 cf
Outflow = 2.10 cfs @ 12.10 hrs, Volume= 7,406 cf, Atten= 0%, Lag= 0.8 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 182 cf
Primary = 2.09 cfs @ 12.10 hrs, Volume= 7,224 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 105.06' @ 12.09 hrs Surf.Area= 12 sf Storage= 46 cf
Flood Elev= 107.00' Surf.Area= 8 sf Storage= 52 cf

Plug-Flow detention time= 5.4 min calculated for 7,406 cf (100% of inflow)
Center-of-Mass det. time= 5.4 min (746.5 - 741.1)

Volume	Invert	Avail.Storage	Storage Description
#1	101.60'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

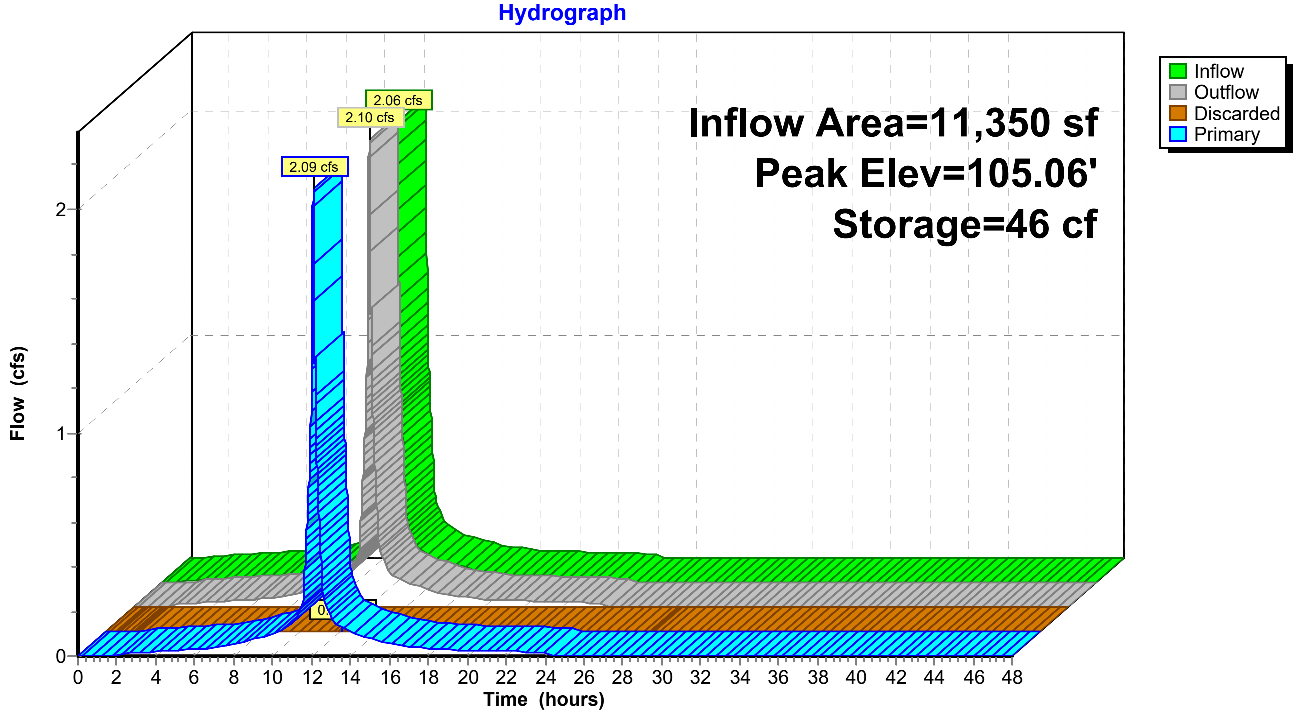
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.60	72	0	0
102.60	72	72	72
103.60	12	42	114
104.60	12	12	126
105.60	12	12	138
106.60	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	102.55'	**12.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.55' / 102.05' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	101.60'	**1.020 in/hr Exfiltration over Horizontal area above 101.55'** Conductivity to Groundwater Elevation = 90.00' Excluded Horizontal area = 0 sf Phase-In= 0.01'
#3	Device 1	102.55'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=105.06' (Free Discharge)
└─**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.62 cfs @ 12.10 hrs HW=104.96' TW=104.69' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 1.62 cfs @ 2.06 fps)
  └─**3=Custom Weir/Orifice** (Passes 1.62 cfs of 15.30 cfs potential flow)

Pond 34P: Tree Box



Summary for Pond 36P: Tree Box

Inflow Area = 10,465 sf,100.00% Impervious, Inflow Depth = 7.83" for 100-Year event
Inflow = 1.90 cfs @ 12.08 hrs, Volume= 6,829 cf
Outflow = 1.94 cfs @ 12.10 hrs, Volume= 6,829 cf, Atten= 0%, Lag= 0.8 min
Discarded = 0.00 cfs @ 12.11 hrs, Volume= 165 cf
Primary = 1.94 cfs @ 12.10 hrs, Volume= 6,664 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 104.88' @ 12.11 hrs Surf.Area= 12 sf Storage= 45 cf
Flood Elev= 106.00' Surf.Area= 10 sf Storage= 50 cf

Plug-Flow detention time= 3.4 min calculated for 6,829 cf (100% of inflow)
Center-of-Mass det. time= 3.4 min (744.5 - 741.1)

Volume	Invert	Avail.Storage	Storage Description
#1	101.60'	52 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 148 cf Overall x 35.0% Voids

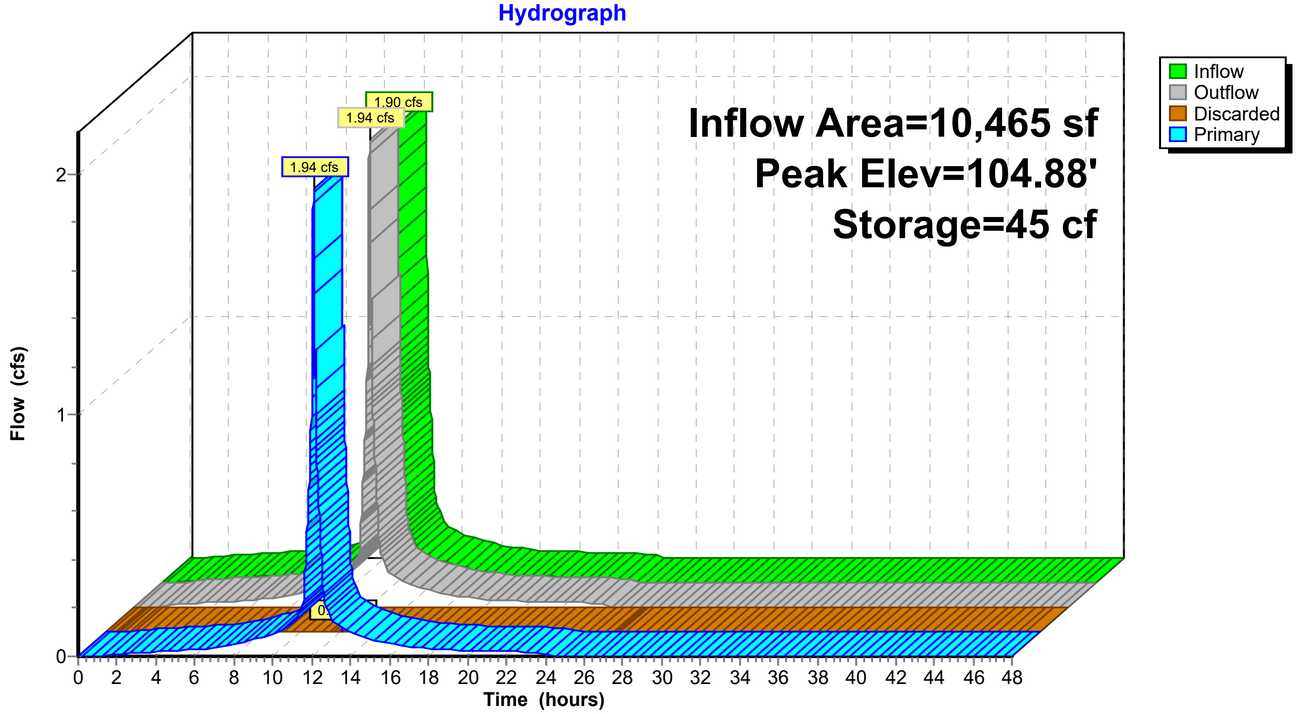
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
101.60	72	0	0
102.60	72	72	72
103.60	12	42	114
104.60	12	12	126
105.60	12	12	138
106.60	8	10	148

Device	Routing	Invert	Outlet Devices
#1	Primary	102.10'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 102.10' / 101.60' S= 0.0500 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Discarded	101.60'	**1.020 in/hr Exfiltration over Horizontal area above 101.10'** Conductivity to Groundwater Elevation = 90.00' Excluded Horizontal area = 0 sf Phase-In= 0.01'
#3	Device 1	102.10'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 1.00 2.50 Width (feet) 0.33 1.00 4.00 4.00

Discarded OutFlow Max=0.00 cfs @ 12.11 hrs HW=104.88' (Free Discharge)
└—**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.03 cfs @ 12.10 hrs HW=104.77' TW=104.69' (Dynamic Tailwater)
└—**1=Culvert** (Inlet Controls 1.03 cfs @ 1.31 fps)
  └—**3=Custom Weir/Orifice** (Passes 1.03 cfs of 8.89 cfs potential flow)

Pond 36P: Tree Box

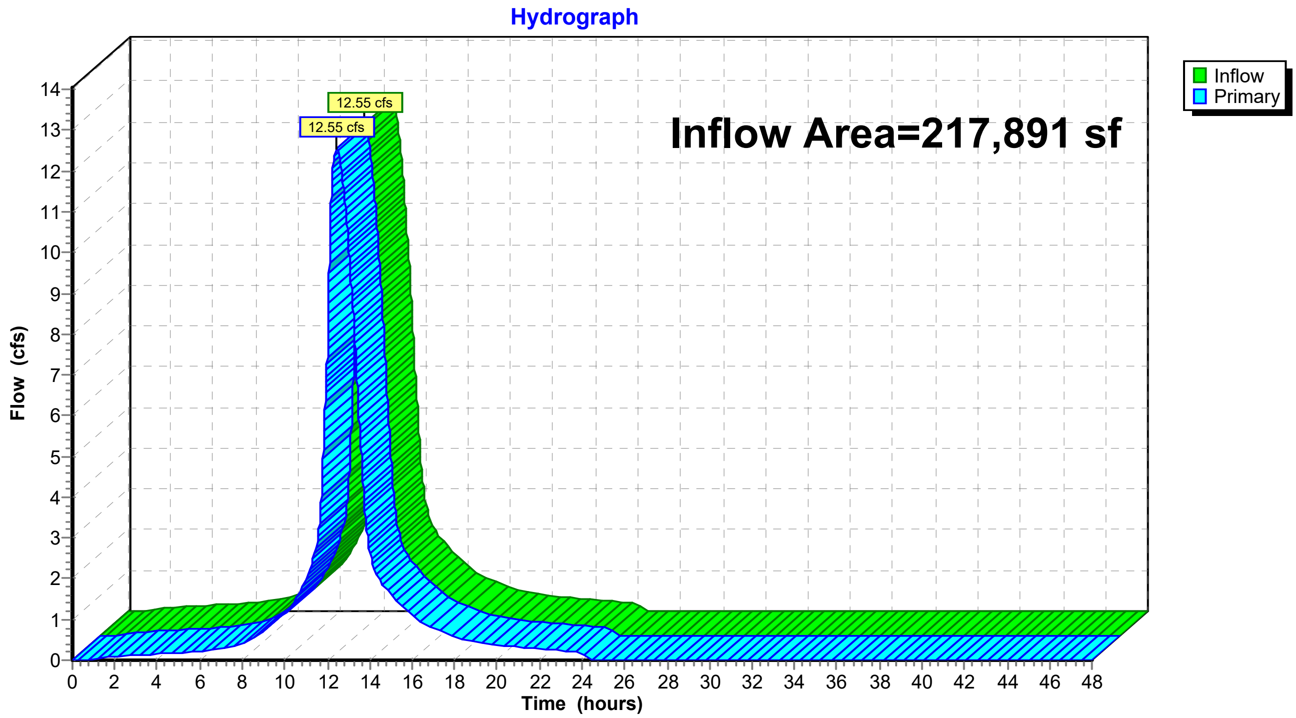


Summary for Link 1L: (new Link)

Inflow Area = 217,891 sf, 82.73% Impervious, Inflow Depth = 6.38" for 100-Year event
Inflow = 12.55 cfs @ 12.46 hrs, Volume= 115,896 cf
Primary = 12.55 cfs @ 12.46 hrs, Volume= 115,896 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 1L: (new Link)



Appendix C

Stormwater Management Checklist

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☐ New development

☒ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☒ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☒ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
  - ☐ Credit 1
  - ☐ Credit 2
  - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☒ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): ____________________

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☒ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☐ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☒ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☒ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☒ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☒ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☒ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☒ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist (continued)

Standard 4: Water Quality (continued)

☒ The BMP is sized (and calculations provided) based on:

- ☒ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☒ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☒ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☒ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☒ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☐ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☐ Description and delineation of public safety features;
- ☐ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☐ An Illicit Discharge Compliance Statement is attached;

☒ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

STORMWATER CHECKLIST NARRATIVE

Stormwater Management Standards

The proposed stormwater management Best Management Practices have been designed to meet the DEP's Stormwater Management Policy to the maximum extent practicable. Summaries of compliance with the ten DEP Stormwater Management Standards and City of Chicopee's Stormwater Management Rules are provided in the following sections.

MassDEP Stormwater Management Standards

Minimum Standard 1: No New Untreated Discharges

As a Redevelopment Project the requirements of Standard 1 are not applicable to this project. Additional information is included in the stormwater checklist.

There are no new untreated discharges from impervious areas proposed as a part of this project. The stormwater runoff from the proposed parking, walk, and roadway areas will be collected in a through surface flow into tree box filters, pre-treated, and flow through detention/infiltration systems prior to discharge. These discharges will connect to the existing storm drain system on the site.

Minimum Standard 2: Peak Rate Attenuation

The hydrologic conditions for the pre- and post-developed conditions of the site were modeled using Hydro-CAD Rel. 8.00. This is a hydrology and hydraulics program based on the SCS TR-55 and TR-20 methodology. The soil runoff curve numbers and time of concentration were developed using SCS TR-55 standard procedures for calculating travel times. The rainfall data used in the existing conditions model was an SCS Type III, 24-hour storm distribution. The rainfall data was obtained from the data published Technical Paper No. 40, prepared by the National Weather Service (NWS TP40). For all proposed conditions calculations, rainfall data obtained via NOAA Atlas-14, Volume 10, Version 3: Chicopee, MA.

For comparison of the pre- and post-development site hydrology, the design point selected is the discharge to the Min Street pump station. Tabulated below is a summary of the pre- and post-development runoff rates and volumes for the site.

Table 1: Peak Flow Rate (CFS)

Analysis Point		1-Year	2-Year	10-Year	25-Year	100-Year
Design Point 1 Main St Pump Station	**BETA - Existing**	5.76	6.76	9.42	10.38	11.81
	BETA - Proposed	3.38	4.87	7.75	9.13	10.87

	Baskin Redevelopment	**4.12**	**5.3**	**8.58**	**10.34**	**12.55**

Table 2: Runoff Volume (AC-FT)

Analysis Point		**1-Year**	**2-Year**	**10-Year**	**25-Year**	**100-Year**
Design Point 1 Main St Pump Station	**BETA - Existing**	.606	.792	1.413	1.692	2.176
	BETA - Proposed	.42	.626	1.313	1.766	2.486
	Baskin Redevelopment	**.555**	**.770**	**1.469**	**1.928**	**2.660**

The above table demonstrates the pre- and post-development runoff rates remain similar before and after development. The inclusion of best management practices slows and infiltrates storm water to mitigate increases due to the development of impervious areas within the site.

Minimum Standard 3: Recharge

The project is a redevelopment project and the site is made up of Urban Fill type soils, as depicted on the soil map provided in Appendix A. The current stormwater design relies on U.S. National Resources Conservation Service (NRCS) soil mapping and utilizes conservative infiltration rates for the mapped soils.

Minimum Standard 4: Water Quality

As a Redevelopment Project with more than 40% existing impervious coverage, the requirements of Standard 4 are not applicable to this project.

Standard 4 of the 2008 Massachusetts Stormwater Standards requires that new stormwater management systems be designed to achieve an 80% TSS removal rate before discharge. The Massachusetts Department of Environmental Protections has published presumed removal rates for each of the BMP’s featured in their design guidelines.

This site has been designed so that all runoff from the new parking and ingress/egress surfaces are directed into tree box filters which have a removal rate of 80% for TSS when designed and maintained in accordance with the handbook. From the tree box filters, stormwater is then piped to one of the two proposed underground storage system or detention basins. No TSS removal credit is requested for either the infiltration systems or detention basins.

Minimum Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

The Site includes former mill buildings known to contain potentially hazardous substances. Ongoing remediation efforts may involve handling of these materials, and measures to prevent spills or exposure will be required of each remediation plan. Backfill operations under this project may include contaminated materials which will be handled in accordance with the Massachusetts Contingency Plan (MCP) and other local, state, and federal guidelines. These pollutant sources are anticipated only during the construction period, and in the long-term the project Site will not be classified as a LUHPPL. A basic Spill control and prevention plan is included in Appendix B.

Minimum Standard 6: Critical Areas

The project does not propose discharges to a critical area.

Minimum Standard 7: Redevelopments and Other Projects Subject to the Standards Only to the Maximum Extent Practicable

The project is a redevelopment project under the definition of (2) "Development, rehabilitation, expansion, and phased projects on previously developed sites, provided the redevelopment results in no net increase in impervious area." Certain standards have been met only to the maximum extent practicable as noted.

Minimum Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

Construction Period Pollution Prevention and Erosion and Sedimentation control measures are included on the Site Plans and in the Stormwater Operations and Maintenance Plan included in Appendix E of the Stormwater Report. In addition, a separate Construction Period Pollution Prevention Plan is included with this Stormwater report in located Appendix F.

Minimum Standard 9: Operation and Maintenance Plan

The Stormwater Operations and Maintenance Plan included in Appendix E of the Stormwater Report. A separate Construction Period Pollution Prevention Plan is included with this Stormwater report in Appendix F. Construction Period Pollution Prevention and Erosion and Sedimentation control measures will be provided on the Site Plans.

Minimum Standard 10: Construction Erosion and Sedimentation Control

No illicit discharges associated with the proposed access road construction or long-term use of the roadway will exist. Further discussion of illicit discharge prevention is included in the Long Term Pollution Prevention Plan included with this report in Appendix H.

Chicopee Stormwater Management (Chapter 231)

The following summary has been prepared to illustrate the project's conformance with the fourteen objectives detailed in Chapter 231 of the City of Chicopee bylaw.

Objective 1: Reduce the adverse water quality impacts of stormwater and combined sewer overflow discharges to rivers, lakes, reservoirs, and streams in order to attain federal water quality standards.

The existing and original proposed stormwater is directed to the Chicopee River and the Main Street Pump Station. The proposed Baskin Redevelopment continues this overall stormwater management design objective with discharge to these locations. A net decrease in runoff volume and peak discharge rate is anticipated up to the 100-year storm; at the 100-yr event there is a slight increase in rate and volume. The project has been designed to maintain the required water quality volume, and TSS removal will be improved compared to existing conditions.

Objective 2: Prevent the Discharge of Pollutants, including hazardous chemicals into stormwater runoff.

The proposed design incorporates tree filter box structures and subsurface infiltration structures to minimize the risk of pollution to stormwater runoff from the Site. No hazardous chemicals are anticipated to be present at the Site during normal operation.

Objective 3: Minimize the volume and rate of stormwater which is discharged to rivers, streams, reservoirs, lakes, and combined sewers.

The proposed design incorporates tree box filters and two large subsurface infiltration basins to capture, store, and control runoff associated with e increased developed impervious area. A net decrease in peak runoff rate and volume from all watersheds up to the 100-year storm is anticipated as part of the project; at the 100-yr event there is a slight increase in rate and volume.

Objective 4: Prevent erosion and sedimentation form improper land development, and reduce stream channel erosion caused by increased runoff.

The proposed design incorporates basic erosion controls consisting of straw wattles, stabilized construction entrance, and inlet protection minimize sedimentation and erosion from the Site. The project will disturb greater than one acre and will require the development of a detailed Stormwater Pollution Prevention Plan (SWPPP) prior to construction.

Objective 5: Provide for recharge of groundwater aquifers and maintain the base flow of streams.

The project proposes an increase in impervious area over the present existing conditions but is a redevelopment project. Throughout the project development measures to offset impervious surfaces and promote infiltration have been introduced including tree box filters throughout the parking areas and two subsurface stormwater detention/infiltration structures. As a result, an improvement in recharge potential is anticipated.

Objective 6: Provide stormwater facilities that are attractive, maintain the natural integrity of the environment, and are designed to protect public safety.

Throughout the project measures to offset impervious surfaces and promote infiltration have been introduced including tree box filters throughout the parking areas and two subsurface stormwater detention/infiltration structures.

Objective 7: Maintain or reduce predevelopment runoff characteristics after development to

the extent feasible.

Both pre- and post-development runoff characteristics are maintained with similar overall site drainage patterns. The discharge facilities and locations are the same.

Objective 8: Minimize damage to public and private property from flooding.

The proposed stormwater management system has been designed to capture up to the 100-year storm and manage the peak flows and volumes below pre-development values, and at the 100-year event slightly above the existing based on the current higher precipitation data.

Objective 9: To prevent pollutants from entering Chicopee's municipal separate storm sewer system (MS4).

The project does not propose any alterations near to the City's MS4 system. Inlet protection is proposed at existing catch basins near the Site.

Objective 10: To prohibit illicit connections and unauthorized discharges to the MS4 and; Objective 11: To require the removal of all such illicit connections.

There are currently no known non-stormwater illicit discharges within the project limits and new discharges are prohibited.

Objective 12: To comply with state and federal statutes and regulations relating to stormwater discharges.

The proposed stormwater management Best Management Practices have been designed to fully meet the DEP's Stormwater Management Policy to the maximum extent practical for a redevelopment project.

Objective 13: To establish the legal authority to ensure compliance through inspection, monitoring, and enforcement.

The responsible party for operation and maintenance of the stormwater design is The City of Chicopee. A long-term operation and maintenance plan is provided as Appendix D.

Objective 14: To prevent contamination to drinking water supplies

No private drinking water wells are located within 500 feet of the Site. The Site is not within an Interim Wellhead Protection Area, Zone II, or Potentially Productive Aquifer. No risk of contamination to drinking water supplies is anticipated as part of this project.

Conclusion

In conclusion, the proposed Baskin Redevelopment meets the requirements for a redevelopment project and Standards 2, 3, and 7-11. Additionally, the stormwater management system maintains similar flow characteristics within the hydrologic analysis area for the design storm events evaluated to maintain existing conditions. There is a reduction in peak flow rate to the main street pump station, up to the 100-year event with only a slight increase during that event. The stormwater management system has also been designed to promote total suspended solids removal and to improve the overall water quality to downstream resources and offsite areas.

Appendix D

Long Term Pollution Prevention Plan

LONG TERM POLLUTION PREVENTION PLAN

1.1 Project Description

The proposed project will be redevelopment of the former Baskins Mills site at 75 West Main Street in Chicopee, Massachusetts.

After completion of construction and final stabilization, this long-term pollution prevention plan, as required by the 2008 Massachusetts Stormwater Standards, outlines the continuing measures that will be taken to ensure that there are no negative impacts to stormwater from this redevelopment project. Many of the long term pollution prevention measures are also discussed in the proposed Stormwater Operations & Maintenance Plan included in Appendix D.

1.2 Contact Information

In case of an emergency, please contact:

Facility Manager of
Brisa Development
2009 Flatbush Avenue
Brooklyn, NY 11234

Owner
Facility Manager of
Brisa Development
2009 Flatbush Avenue
Brooklyn, NY 11234

Brisa Development (Brisa) or their representative will be responsible for implementation of the long-term pollution prevention plan. Brisa will ensure their managers and facility personnel conducting maintenance or work required by this plan are trained in the proper implementation of these procedures.

1.3 Good Housekeeping

Good housekeeping is an important pollution prevention measure both during construction and post construction usage. The good housekeeping measures to be utilized for the proposed road include prompt cleanup of any contamination or spills, preventative maintenance, collection, removal, proper disposal of debris or trash, street sweeping, regular maintenance of drainage features and structures and repairs as necessary. A more detailed description of these measures can be found in the Stormwater Management System Operation and Maintenance Plan, located in Appendix D.

1.4 Spill Prevention and Material Storage

Following construction, there will be no material storage within the proposed roadway. Any material that may be needed for maintenance purposes will be stored at the College's maintenance facility with all applicable spill prevention and cover requirements met. Fertilizers, herbicides, and pesticides will not be used on or stored along the roadway. Following construction, there will be no vehicle washing at this site. Spill response is described in Section 1.6 below. A more detailed description of spill prevention good housekeeping procedures can be found in the Construction Period Pollution Prevention Plan, to be developed in advance of the start of construction.

1.5 Stormwater Best Management Practices

The proposed stormwater treatment system best management practices will be inspected throughout construction and following the completion of construction on a continuing and regular basis. The inspections and maintenance for the proposed access road are outlined in the Stormwater Management System Operation and Maintenance Plan in Appendix D. This plan includes the maintenance schedule for all components of the stormwater system associated with the proposed roadway.

1.6 Prevention of Illicit Discharges and Spill Response

It is not anticipated that there will be any Illicit Discharges associated with this project. No materials will be stored on site, no wastewater will be generated at, or transported through the site. No stormwater that has contacted any process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease will be released from the site. Since no material storage will occur at the site, stormwater contamination would only occur due to contact with an uncontained spill associated with vehicular travel on the proposed road. Detailed spill response procedures are outlined in the Construction Period Pollution Prevention Plan, to be developed in advance of the start of construction.

These spill response procedures will remain in effect following completion of construction with several key changes. Brisa will designate a spill response and prevention team and the facility manager will have the responsibility for contacting any off site members of the spill response team in the event of an incident. This spill prevention team will be trained in implementation of the spill response plans and in accordance with applicable requirements under the Hazardous Waste Operations and Emergency Response regulations in 29 CFR 1910.120.

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Appendix E

Operations and Maintenance Plan

OPERATIONS & MAINTENANCE

1.0 Introduction & Responsibilities

The following Operation and Maintenance Plan has been prepared for Brisa Redevelopment located at 75 West Main Street in Chicopee, Massachusetts. The purpose of the plan is to provide guidance and procedures for the proper maintenance of the stormwater management system associated with the proposed Baskins Redevelopment Project.

Although Massachusetts Department of Environmental Protection (MADEP) generally presumes that the landowner of the property on which the best management practice (BMP) is located is the entity responsible for the operation and maintenance.

Stormwater Management System Owner:

Brisa Development LLC
2009 Flatbush Avenue
Brooklyn, NY 11234

Party Responsible for Operation and Maintenance:

Brisa Development LLC
2009 Flatbush Avenue
Brooklyn, NY 11234

As part of the operation and maintenance of the stormwater management system, the responsible party shall maintain an operation and maintenance log for the past three years recording all operation and maintenance activities, including inspections, repairs, replacement and disposal (for disposal, the log shall indicate the type of material and the disposal location). Brisa will make the logs available to MADEP and the Chicopee Conservation Commission upon request. Members and agents of MADEP and the Chicopee Conservation Commission will also be allowed to enter and inspect the premises to evaluate and ensure that the responsible party complies with the operation and maintenance plan for each best management practice.

In addition to maintaining an operation and maintenance log, annual maintenance reporting will also be submitted to the City of Chicopee Engineer and Conservation Commission for a period of five years.

2.0 Pollution Prevention and Source Control

Source controls can reduce the types and concentrations of contaminants in stormwater runoff and improve water quality. The following narrative describes preventative activities that will be performed to reduce pollution.

2.1 Pavement Sweeping

Street sand/dirt accumulates on roads and parking lots and runs off in response to precipitation. Therefore, street sweeping will occur immediately after the winter snowmelt and prior to heavy spring rains to prevent accumulated sediment from reaching the storm drain system. Once removed from paved surfaces, the sweepings will be handled and disposed of properly. Street sweepings will be disposed of in accordance with MADEP Policy #BWP-94-092: Reuse & Disposal of Street Sweepings.

2.2 Snow Management

As snow melts, road salts, sand, litter and other pollutants are transported into surface water or through the soil where they may eventually reach the groundwater. To prevent increased pollutant concentrations in stormwater discharges, the amount of road salt applied will be reduced to the maximum extent practicable, while maintaining safe driving conditions. Salt and/or sand storage areas will be covered and placed on impervious surfaces in locations where stormwater is directed away from the stockpile.

The key to selecting effective snow disposal sites is to locate them adjacent to or on pervious surfaces in upland areas and away from water and wetland resources. At these locations snowmelt can filter into soil, leaving behind sand and debris that can be removed in the springtime. Stockpiling of snow on top of stormwater collection structures will be avoided as sand and debris may block the storm drain system causing localized flooding and a high volume of sediment and debris may be discharged quickly to surface waters.

2.3 Chemical and Pesticide Applications

To prevent increase pollutant concentrations in stormwater discharges, fungicides, herbicides, insecticides, and pesticides will be avoided in and around wetland resource areas and areas that lead to a storm drain. Only workers who are licensed to apply pesticides and other similar materials will be permitted to do so. All chemicals, fungicides, herbicides, insecticides, and pesticides will be purchased, stored, mixed, transported, and used in accordance with manufacturer's specifications. If chemicals and pesticides are mixed or otherwise handled outside, the licensed applicator will insure that they are not located in close proximity to surface waters or storm drains. Chemicals that must be used in and around wetland resource areas or storm drains will be mixed, stored, transported, and used in accordance with guidelines already established by the manufacturer's specifications for that intended purpose.

If an accidental or intentional release of a chemical, fungicide, herbicide, insecticide, or pesticide takes place on the property, the site manager will be immediately notified and they will notify Facilities Management. The release of chemicals will be cleaned in accordance with the 310 CMR 40.00 (Massachusetts Contingency Plan).

2.4 Motor Vehicle Fluid Release

Immediate response to any release of hazardous material from a vehicle regardless of size or function will be performed to minimize introduction into the storm drain system. Antifreeze, diesel fuel, gasoline, hydraulic fluids and oils will be managed immediately through cleanup and proper disposal.

If an improper discharge or release from a motor vehicle takes place on the property, the site manager will be immediately notified and they will notify the Facilities Management. Speedi-dry or other absorbent material will be applied to the motor vehicle fluid spill. After working the contaminants into the absorbent material, the fluid waste will be picked up using a spill containment kit and will be placed into a 30 or 55-gallon drum that has been identified for that purpose.

<u>3.0 BMP Operation & Maintenance</u>

Best management practices (BMPs) require specific maintenance for each structural control. Generally these activities include visual inspections and physical maintenance. An operation and maintenance log is also attached to track scheduled activities. The following sections describe the maintenance requirements for each BMP located on the property and include a table at the end of each section summarizing the maintenance activities and frequency.

3.1 Deep Sump Catch Basins

Deep sump catch basins will be inspected at least twice times per year. The visual inspection will ascertain whether the catch basin is functioning properly (no blockages or obstructions to the outlet and/or hood) and to measure the amount of solid materials that have accumulated in the sump. This will be done with a calibrated dipstick, tape measure or other measuring instrument so that the depth of deposition in the sump can be tracked. Inspections will be completed visually from ground level. If further investigation is warranted that requires entering the structure, applicable Confined Space Entry safety regulations and procedures will be followed per 29 CFR 1910.146.

Deep sump catch basins will be cleaned once per year or whenever the depth of sediment is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin (2 feet of sediment for sump depths of 4 feet). Cleanings will also coincide with at the end of foliage and snow removal season. Clamshell buckets may be used to remove sediment. In addition, vacuum trucks may also be used to remove trapped sediment, as they are more expedient, and are less likely to damage hoods on outlet pipes. Although catch basin debris often contains concentrations of oil and hazardous materials such as petroleum hydrocarbons and metals, MADEP classifies them as solid waste (310 CMR 19.00). Unless there is evidence that they have been contaminated by a spill or other method, MADEP does not routinely require cleanings to be tested before disposal. Contaminated catch basin cleanings will be evaluated in accordance with the Hazardous Waste Regulations (310 CMR 30.00) and handled as hazardous waste.

TABLE 1

Deep Sump Catch Basin Maintenance Activity Summary

Activity	Frequency
Inspect units	Two times per year
Clean units	Once per year or whenever the depth of sediment is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin

3.6 Subsurface Detention Structures

Access to subsurface detention structures is achieved through manholes located at each end of the structures. These large structural arches are connected via manholes and can only be accessed through these structures. The last downstream manholes have a weir to control the release rate. Inspections will occur twice per year to ensure that the subsurface detention piping is functioning and that there are no blockages or obstructions to the flow through the weir structure and outlet pipe. Sediment accumulation will also be identified during inspections. Inspections will be completed visually from ground level. If further investigation is warranted that requires entering the structure, applicable Confined Space Entry safety regulations and procedures will be followed per 29 CFR 1910.146.

The subsurface detention structures will be cleaned if large amounts of sediment are identified in the network or if sediment begins to obstruct the weir or outlet pipe. Cleaning will include the removal of any accumulated debris and sediment using a jetting system and then a vacuum truck or other catch basin cleaning device. Care will be taken to avoid washing mobilized sediment or debris through the outlet control and pipe. Sediments removed from subsurface detention structures should be disposed of in accordance with all applicable local, state, and federal regulations and laws including the Massachusetts Hazardous Waste Management Act (M.G.L. c. 21C) and Hazardous Waste Regulations (310 CMR 30.00).

TABLE 4

Subsurface Detention Structure Maintenance Activity Summary

Activity	Frequency
Inspect units	Twice per year
Clean units	Once sediment begins to obstruct small diameter outlet pipe or large amounts are identified in the pipe network

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Operation and Maintenance Log Form

Inspection Date: ____________________ Inspector Name: ___________________________

Deep Sump Catch Basin

Locations Inspected: ____

Sediment Depths: ____

Maintenance Required: □ Yes □ No

Date/Type of Maintenance Performed: ____

Subsurface Detention Structure

Locations Inspected: ____

Deficiencies Identified: ____

Maintenance Required: □ Yes □ No

Date/Type of Maintenance Performed: ____

Appendix F

Construction Pollution Prevention Plan

CONSTRUCTION PERIOD POLLUTION PREVENTION PLAN

1.1 Description of Construction Activities

The construction of the Baskin Revevelopment and associated drainage and stormwater management features will involve the following principal components:

- Construction of approximately square feet of parking with ingress/egress
- Installation of two subsurface stormwater management structures
- Installation of a new underground infiltration and detention stormwater system
- Installation of four new Continuous Deflective Separation (CDS) stormwater treatment units
- Installation of new a drainage conveyance system including catch basins, manholes, and corrugated plastic piping (CPP)
- Restoration of all surfaces outside of the proposed roadway as shown on the construction drawings
- Restoration of other items within the project limits disturbed by construction activities
- Rehabilitation of existing Baskin building
- Construction of new Athletic Facility, Grocery Store, and Residential housing units.

1.2 Construction Sequence

Construction activities for this project will be based on the Contractor's preference for installation of components and may be affected by weather, availability and progress of subcontractors, and any other adjustments deemed necessary by the contractor to complete the job in a timely manner.

In general, the work will be phased for the contract as follows:

1. Conduct a Pre-Construction meeting with the Owner, Owner's Representative, and Contractor. The meeting will include review of environmental permit requirements, construction documents and procedures, review limits of disturbance (material storage and staging areas), review restoration requirements, review schedule and phasing, and exchange of contact personnel and information.

2. Coordination with the City of Chicopee representative for the installation of erosion controls and for work within wetlands jurisdictional areas. Install erosion control barriers in advance of each phase of work as shown on the construction drawings. Install stabilized construction entrances at all points of entry or exit from the disturbed portion of the site. Install sediment and erosion controls prior to any upgradient disturbance and in locations were necessary to control release of sediments.

3. Clear and grade parking and roadway base installing all slope stabilization measures. Stockpiles shall be located within the limit of work. Provide erosion control barriers around soil stockpile areas.

4. For any construction that will require dewatering, install temporary sediment basins and erosion and sediment controls at the point of discharge.

5. Construct drainage collection and conveyance system including outfalls and connections with level controls. Provide inlet protection on all drainage structures subsequent to installation.

6. Complete construction of pavement areas including the installation of subbase and pavement courses. Install appurtenances such as curbing, walks, landscaping materials, and underground utilities.

7. Construct the stormwater management system including the subsurface system after all upstream areas have been stabilized. Structures to be cleaned of sediment and exposed areas loamed and seeded at completion of pavement and drainage system.

Once construction has been completed, permanent stabilization has occurred throughout the project, temporary erosion and sediment control devices shall be removed.

1.3 Pollution Control Measures

1.3.1 Erosion and Sediment Control

Erosion and sediment control Best Management Practices (BMPs) will be maintained throughout the project in accordance with the specifications included in the Project Manual. Implementation of specific BMPs is summarized below:

- Dust Control – Prevent dust from becoming a nuisance or hazard. Carefully monitor for fugitive dust. If noticed, control dust during the work on-site using water, calcium chloride and/or salt applied judiciously until the problem is controlled. All vehicles used to transport materials which could be a source of dust generation must be covered.

- Stockpiling of Temporarily Stored Materials – Do not store material or equipment in any wetland or environmentally sensitive area. Stockpile sites shall be level, devoid of mature stands of natural vegetation, and removed from drainage facilities and features, wetlands, and stream corridors. Stockpiles must be surrounded by hay bales and siltation fences.

- Temporary seeding and mulching – On areas that will remain disturbed but inactive for more than 14 days, provide fast germinating native seed as approved by the engineer and straw mulch crimped or tacked and anchored in place to prevent erosion.

- Preservation of existing features not to be disturbed by construction activities – No trees, shrubs or turf shall be removed unless specified by the Engineer. Check the actual locations of water, sewer, gas, electric, cable, and telephone service connection lines to avoid potential interferences.

- Hay bales and Silt Fence and/or Compost Filter Tubes – Place and maintain both hay bales and a staked filter fabric siltation fence where shown on the drawings. Install hay bales by anchoring bales butted together to existing ground with at least 2 stakes per bale. Install the siltation fence parallel and immediately adjacent to the hay bales as shown on the drawings. Siltation fences need to be buried 6 inches into trench to prevent undermining by stormwater run-off. Trapped sediment must be removed from silt fences before the deposit reaches 1/3 the height of the above ground fence height or lower based on manufacturer's specifications.

- Cleaning of New Catch Basins and Drain Manholes – Clean new manholes and catch basins of silt, debris and foreign matter of any kind, prior to final inspection.

- Permanent Seeding and Mulching – Place seed only between the periods from April 15th to June 1st, and from August 15th to October 1st, unless otherwise approved by the Engineer. Lime and starter fertilizer application rates shall be based on laboratory soil tests. The starter seed mixture shall be applied at a rate of 4 lbs/ 1000 sf.

- Inlet Protection/Tree Filter Boxes – Fit stormwater structures with sediment trapping devices to minimize the transport of sediment through the subsurface stormwater collection system.

- Stabilized Construction Entrance - Stabilized construction entrances shall be used to reduce transport of sediment on tires of vehicles leaving the construction area. Entrance shall be clean, washed, uniformly-graded stone over filter fabric of sufficient length to remove sediment from exiting vehicles. If sediment is observed off-site it is to be removed daily.

1.3.2 Control of Other Pollutants

Control of other potential pollutants will be provided as follows:

1. Waste materials - Construction debris from the site will be disposed in a legal manner. No construction waste material will be buried on the site. All personnel will receive instructions regarding the correct procedure for waste disposal including litter. Notices describing these practices shall be posted in the construction office.

2. Hazardous waste - In the event that hazardous waste is encountered, all hazardous waste materials will be disposed of in the manner specified by local, state or federal regulation or by the manufacturer.

3. Sanitary waste - Portable sanitary units will be provided throughout the course of the project for use of Contractor's employees. A licensed sanitary waste management contractor will regularly collect all sanitary waste from the portable units.

4. Off-site Tracking – Roads will be swept periodically in the area of activity to limit the extent of tracking. Stabilized construction entrances shall be used to the extent feasible to reduce mud from tires on vehicles leaving the construction area. Trucks carrying loose materials (soil, gravel, stone, debris) entering or leaving the site shall be covered.

5. Non-Stormwater Discharges – Some non-stormwater discharges will occur at the site during the construction period. A description of these discharges and how they will be mitigated if necessary are as follows:

    - Dewatering discharges - Water pumped from the construction area during dewatering operations. These discharges will be directed to structural controls to prevent migration of fines from the existing soil during the dewatering operation.

    - Pavement wash waters – Water used during pavement sweeping/cleaning. These discharges will be directed to siltation basins, catch basins with sedimentation controls or vegetative buffer strips.

- Dust Control – Water spray used during construction shall be sufficient to control dust but shall not be excessive. Such water spray will only be used during active dust generation and shall be stopped shortly after the activity has ceased.

- Vehicle wash water - Only spot washing of vehicles and construction equipment, necessary for the safe and proper operation of such equipment shall be performed. Detergents may not be used for spot washing. Cleaning solvents may be used, as long as the solvent is dispensed using a wiper or hand-held airless sprayer and all of the solvent is collected using wipers or equivalent after application.

- Storm water system flushing – Water used to flush debris and sediment in the constructed storm water system shall be clean. The discharge shall be monitored during flushing activities. If substantial sediment is observed from the system, flushing shall cease until proper sediment barriers can be erected at the outflow and the sediment can be captured and collected.

- Uncontaminated air conditioning or compressor condensate – The volume of water generated from this source is near negligible and will likely infiltrate into underlying soils or evaporate to the atmosphere.

1.3.3 Housekeeping Measures for Spill Prevention

The following good housekeeping practices shall be employed at the construction site to deter chemical spills from occurring. These measures are also described below:

1. Handling of Potential Pollutants

    1.1 Storage - Materials stored on site will be stored in a neat, orderly manner in their appropriate containers in a covered area. If storage in a covered area is not possible, the materials shall be covered with polyethylene or polypropylene sheeting to protect them from the elements.

    1.2 Labeling - Products will be stored in their original containers with the manufacturer's label affixed.

    1.3 Mixing - Substances will not be mixed with one another unless recommended by the manufacturer.

    1.4 Disposal - Whenever possible, all of a product will be used before disposal of the container. Manufacturers' recommendations for proper use and disposal will be followed.

2. Product-Specific Practices

    2.1 Petroleum products - On-site vehicles will be monitored for leaks and will receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers that are clearly labeled. Asphalt substances used on site will be applied according to the manufacturer's recommendations.

    2.2 Concrete – Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water uncontrolled at the site.

2.3 Paints and Coatings - Containers will be tightly sealed and stored when not required for use. Excess paint/coatings will be properly disposed of according to manufacturers' instructions, state and local regulations.

1.4 Spill Response

Spill response shall be implemented whenever a spill of oil or hazardous substances occurs. The objective of the spill response will be to protect human health and the environment by limiting the extent and/or toxicity of the spill. Spill responders shall be properly trained in accordance with the requirements under the Hazardous Waste Operations and Emergency Response regulations in 29 CFR 1910.120.

1. Responsibility - The Contractor shall designate his spill prevention and response team. Team members may be comprised of on-site personnel employed by the contractor or off-site contract personnel. Where off-site personnel are employed for spill response duties, the name and telephone number of the spill response organization shall be conspicuously posted.

2. Equipment - Materials and equipment necessary for spill cleanup will be present on the site at all times. Equipment and materials will include but not limited to brooms, shovels, rags, gloves, absorbent materials (sand, sawdust, etc.), and plastic or metal trash containers. The materials and equipment necessary for spill cleanup will be dependent upon the nature and quantity of the material stored on site.

3. Response - Spills will be contained and the spilled materials will be removed immediately upon discovery. All available resources at the Contractor’s disposal will be used to control the limit and extent of any emergency spills and to protect the welfare of employees and the public in and around the spill area. Dewatering activities at or near the spill area shall cease until the spilled materials are collected.

4. Decontamination – Sufficient water will be provided and used to decontaminate personnel and spill control equipment following an emergency response. Decontamination wash water may not be discharged to the storm water distribution system.

5. Safety - Personnel will wear appropriate protective clothing to prevent injury from contact with hazardous substances.

6. Reporting

   6.1 The owner or owner’s representative will be notified immediately of all spills.

   6.2 Spills of oil or hazardous substances, in excess of the state reportable quantities listed in 310 CMR 40.1600 of the Massachusetts Contingency Plan shall be reported to the DEP at 888-304-1133 within two hours of discovery.

   6.3 Spills of oil or hazardous substances, in excess of the Federal reportable quantities established in 40 CFR 110, 117 and 302, shall be reported to the National Response Center at 800-424-8802 immediately upon discovery.

6.4 Spills of oil which cause a sheen or emulsion in water (unless specifically authorized) shall be reported to the DEP and the National Response Center within the timeframes discussed in 6.2 and 6.3 above.

7. Recordkeeping - The spill prevention plan will be reviewed and modified, as appropriate, to include measures to prevent a spill from recurring as well as improved methods for cleaning up any future spills. A description of each spill, what caused it, and the cleanup measures used will be kept with the plan.

8. Incidental spills shall be collected immediately upon identification. The cause of the spill will be investigated and corrective measures will be implemented to ensure that further spills do not occur again (e.g., equipment hydraulic repair).

1.5 Listing of Materials

The following is a general list of materials anticipated on site during construction activities. Any variation or addition to this list shall require an amendment to this list by indicating the change, dated and initialed by the responsible individual making the change.

1. Bituminous concrete also known as hot mix asphalt
2. Portland cement concrete mix
3. Lumber
4. Aggregates
5. Calcium chloride (for dust control).
6. Diesel fuel and lubricating oils
7. Precast concrete structures with frame and covers
8. Bituminous dampproofing coatings
9. CCP piping
10. Lawn seed mix, lime and fertilizer
11. Cleaning solvents
12. Detergents

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Appendix G

BETA Former Uniroyal & Facemate Properties Stormwater Management Report May 2021

Chicopee, MA

Former Uniroyal & Facemate Properties

May 2021

STORMWATER MANAGEMENT REPORT

ACOE PERMIT REVIEW ONLY

BETA
1 Springfield Street
Suite 4
Chicopee, MA 01013
413.331.5326
www.BETA-Inc.com

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Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

---

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☐ New development

☒ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

☒ No disturbance to any Wetland Resource Areas

☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)

☒ Reduced Impervious Area (Redevelopment Only)

☐ Minimizing disturbance to existing trees and shrubs

☐ LID Site Design Credit Requested:

- ☐ Credit 1
- ☐ Credit 2
- ☐ Credit 3

☐ Use of "country drainage" versus curb and gutter conveyance and pipe

☐ Bioretention Cells (includes Rain Gardens)

☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)

☐ Treebox Filter

☐ Water Quality Swale

☐ Grass Channel

☐ Green Roof

☐ Other (describe): __________

Standard 1: No New Untreated Discharges

☒ No new untreated discharges

☐ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth

☐ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☒ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☐ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☐ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:
- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

  ☐ is within the Zone II or Interim Wellhead Protection Area

  ☐ is near or to other critical areas

  ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)

  ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist (continued)

Standard 4: Water Quality (continued)

☒ The BMP is sized (and calculations provided) based on:

- ☒ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☒ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☒ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☒ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☐ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☒ Description and delineation of public safety features;
- ☒ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☒ An Illicit Discharge Compliance Statement is attached;

☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

1.0 Overview

1.1 Project Purpose

Under this project, the City proposes to backfill a portion of the Chicopee Falls Local Protection Project easement and adjacent upland areas in order to facilitate future redevelopment of the former Uniroyal and Facemate properties (the "Site"). As a result of these proposed measures, existing stormwater runoff characteristics will be altered. In accordance with the Massachusetts Stormwater Handbook and best engineering practices, this Stormwater Management Report will outline the proposed modifications to the Site's stormwater management systems implemented to maintain the integrity of the Flood Control System and the Chicopee River.

1.2 Contact Information

City Chicopee
274 Front Street, 4th Floor City Hall Annex, Chicopee, MA 01013
Attn: Lee Pouliot, AICP, ASLA, Director of Planning & Development
Tel: (413) 594-1515

1.3 Project Description

The project site is a portion of the former Uniroyal Site, located at 154 Grove Street, and the former Facemate Site (also known as the "Baskin Parcel") located at 75 West Main Street, both located in the City of Chicopee, MA (the "Site"). The City of Chicopee Assessor's Office identifies the properties as Lots 124-00003, 124-00012, 143-00001, 147-00006, 147-00009, 147-00010, and 202-0015A. The properties are generally zoned as Industrial with a small strip of land zoned as Residential A (Refer to Figure 1: Site Locus).

The Site is situated along the Chicopee River, bounded by the river to the west and Front Street, Grove Street, Oak Street, and West Main Street to the east. Historic use at the Site primarily included mill buildings used for various manufacturing operations since the late 1800s. Since acquisition of the lots by the City of Chicopee circa 2009, the majority of the former mill buildings have been demolished and environmental clean-up operations are currently being conducted throughout the Site. As of July 2020, seven large buildings remain at the Site, of which two (Buildings 15 and 29) are proposed to be demolished while the rest are to be retained.

This stormwater analysis has been prepared to support a fill operation along the western boundary of the Site. The fill area is a low-lying portion of the Site adjacent to an existing flood control levee. Constructed circa 1938-1942, the levee is a portion of the "Chicopee Falls Local Protection Project" and mitigates risk of flooding from the Chicopee River. The top-of-levee elevations range from 98' +/- to 100' +/- in this area. A flood control easement is present directly east of the levee, where several drainage systems are in place to control stormwater behind the levee. Catch basins, drain inlets, interceptor drains, and a toe drain collect runoff from this low-lying area and divert it to either the Main Street Pump Station (from the Facemate Property) or the Oak Street Pump Station (from the Uniroyal Property). Both pump stations discharge stormwater runoff to the Chicopee River.

1.4 Additional Data Sources

- Report entitled "Chicopee Falls Local Protection Project," Design Memoranda No. 1 through 6. Prepared by US Army Engineer Division, New England Corps of Engineers, dated December 1962.
- Letter entitled "Chicopee Levee Slope Stability" prepared by O'Reilly, Talbot, & Okun Associates (OTO), dated May 12, 2021.

2.0 Existing Conditions Description

The existing Site is currently vacant, apart from Lot 124-00012 which is used as a business and “Building C” on Lot 143-0001 which is used as storage by the Chicopee Police Department. The majority of the Site’s land area beyond the vacant buildings is bare soil, grass, or limited vegetation. Former buildings have been remediated, demolished, and their footprints backfilled. Paved and unpaved driveways provide access to various portions of the Site. Miscellaneous site features include utility poles with overhead wire, a perimeter fence, and erosion controls.

Stormwater management is accomplished generally through several closed drainage systems throughout the Site, and include four primary discharge points:

- The Oak Street Pump Station, located on the southwestern portion of the Uniroyal Property
- The Main Street Pump Station, located approximately 570 ft. north of the Facemate Property.
- An outfall located at the southwestern corner of the Uniroyal Property which discharges to the Chicopee River (Hereafter referred to as the “South Outfall”)
- An outfall located on Lot 0202-0015A just south of the Facemate Property which discharges to the Chicopee River (Hereafter referred to as the “North Outfall”)

Stormwater runoff from the eastern (“Upper”) portions of the Uniroyal property are conveyed through a catch basin – manhole system and directed to the South Outfall. Stormwater runoff from the western (“Lower” and “Middle”) portions of the Uniroyal property is conveyed via overland flow to the area adjacent to the flood control levee. This stormwater is then collected either by catch basins associated with the “interceptor drain,” or an underground toe drain that collects groundwater. Both the toe drain and interceptor drain convey stormwater to the Oak Street Pump Station where it is discharged to the Chicopee River. Stormwater runoff from Uniroyal Buildings 26 and 27 is collected via a roof drain system and conveyed to the Oak Street Pump Station as well. Stormwater runoff in the northeastern portion of the Uniroyal property is conveyed via catch basin connections to the drainage system beneath Oak Street, but this area is outside the limit of work for this project.

Stormwater runoff from the Facemate property is conveyed via overland flow to the area adjacent to the flood control levee. This stormwater is then collected either by catch basins associated with the “interceptor drain,” or an underground toe drain that collects groundwater Both the toe drain and interceptor drain convey runoff to the Main Street Pump Station, where it is discharged to the Chicopee River. Some stormwater runoff from the eastern portions of the Facemate property may also be captured by a series of catch basins that convey flow to the North Outfall. However, the Site is generally not graded towards these drain inlets and no alterations are proposed to their catchment area.

A further description of the stormwater runoff characteristics with respect to the HydroCAD model and Watershed Plans is provided in Section 4.4 below.

Topography at the Site is generally graded to the west towards the low-lying area adjacent to the flood control levee. Due to ongoing demolition and remediation work, several areas of uneven grading are present throughout the property; however long-term grading is assumed to result in these areas being backfilled and graded westward. A portion of the Site is within the 200’ Riverfront Area associated with the Chicopee River. The area west of the levee is classified as a regulatory floodway. No wetlands or other resource areas are known to exist on the property (Refer to Figures 2 and 3).

Natural Resources Conservation Service soil maps indicate soils in the project area are considered Urban land and is not designated a Hydrologic Soil Group (HSG). As a conservative measure, HSG D has been applied to the hydrologic calculations. This ensures that proposed basins are sized to reflect a worst-case scenario. Refer to Appendix C for relevant NRCS Soil Maps.

3.0 Proposed Conditions with Mitigation

This project proposes to backfill a portion of the low-lying area behind the flood control levee in order to facilitate future redevelopment of the Site. Backfill material may include contaminated soils or other materials in accordance with the City's Fill Management Plan, to be overseen by a Licensed Site Professional (LSP). Backfill material will be "Capped" with geotextile fabric and 3' of clean fill, except where deemed unnecessary by the LSP. Clean fill material will include loam and seed to establish turf for stability and erosion control.

The Oak Street Pump Station and its associated discharge pipe are proposed to be decommissioned, partially demolished, and abandoned in place. The existing interceptor and toe drains will be abandoned in place with existing inverts plugged. The abandonment of these systems is based on the results of a geotechnical analysis by OTO indicating that levee stability will be maintained without a functioning toe drain.

To manage stormwater, the interceptor drain will be replaced with several infiltration basins proposed along the western side of the properties, generally 3' – 5' below the top of the levee. These infiltration basins will retain stormwater runoff and discharge into a new catch basin to manhole drainage system. Stormwater runoff collected within the Uniroyal Property will be conveyed to the South Outfall, while that collected within the Facemate Property will be conveyed to the Main Street Pump Station. No alterations are proposed to the upgradient portions of the Uniroyal and Facemate Properties, and the existing drainage systems in these areas will continue to function. However, stormwater runoff previously conveyed to the Oak Street Pump Station will instead be directed to the new drainage system.

Proposed perforated drain pipes connecting the manholes will be located within crushed stone. These pipes and the crushed stone are intended to capture any groundwater that may build up behind the levee per geotechnical engineer recommendations. Note that a full evaluation of pre- and post-development levee stability is to be conducted under a separate report.

The proposed system also includes the abandonment of a 24" RCP "Bypass" drain pipe located between the Facemate and Uniroyal Sites. Per discussions with the City and record plans, this pipe was used to convey process water to the Uniroyal Site. At the time of this report, the pipe has not been during the preceding 19 years and it is anticipated that the North Outfall will be sufficient to discharge any flows in the Facemate drainage system.

4.0 Calculations and Assumptions

4.1 Objectives

The calculations presented in this report are an analysis of site hydrology and stormwater runoff, including scenarios for both Pre- and Post-Development conditions. The project is considered a redevelopment project and the objective of this analysis is to demonstrate that measures have been implemented to comply with the Massachusetts Stormwater Management Standards and City of Chicopee Stormwater requirements to the maximum extent practicable. Analysis of the Existing and Proposed Conditions is included for the one (1), two (2), ten (10), twenty-five (25), and one hundred (100) year rainfall events. A description of the project and how it relates to the ten Stormwater Management Standards is included.

4.2 Calculation Methods

Stormwater runoff is analyzed using the following:

- "HydroCAD™ Stormwater Modeling System," by Applied Microcomputer Systems based upon SCS Technical Releases No. 55 and 20 for generating hydraulic calculations including peak flows and runoff volumes

4.3 Equations and Sources of Data Used

Rainfall for the Pre-development Facemate parcel obtained via Technical Paper 40 (TP-40 Hampden County) to reflect original design calculations for the Main Street Pumping Station

1 yr. = 2.50 in. 2 yr. = 3.00 in. 10 yr. = 4.60 in. 25 yr. = 5.30 in 100 yr. = 6.50 in.

For all other calculations, rainfall data obtained via NOAA Atlas-14, Volume 10, Version 3: Chicopee, MA

1 yr. = 2.48 in. 2 yr. = 3.12 in. 10 yr. = 5.04 in. 25 yr. = 6.23 in 100 yr.= 8.07 in.

Refer to Appendix G for rainfall data.

4.4 Points of Analysis

POA1L – Into an existing Interceptor Drain, towards the Main St. Pump Station.

- Receives runoff from the Facemate property (Watershed 1S or 1Sa and 1Sb).
- In the pre-development conditions, runoff is collected in a low-lying area with drain inlets (Pond 1P).
- In the post-development conditions, runoff is collected in two new infiltration basins with catch basins (Ponds 1Pa and 1Pb) and directed through a new run of HDPE pipe (Reaches 1Ra, 1Rb, and 1R).

POA2L – Into the Chicopee River, west of the Uniroyal Property

- Receives stormwater runoff from the lower/middle Uniroyal property (Watershed 2S or 2Sa, 2Sb, and 2Sc), the Upper Uniroyal property (Watershed 3S), and Buildings 26/27 (Watershed B26, B27).
- In the pre-development conditions, stormwater from Watershed 2S is collected in a low-lying area with drain inlets (Pond 2P) then directed to the Oak Street Pump Station (POA 2La) for discharge to the Chicopee River (POA 2L). Watersheds B26 and B27 convey stormwater through roof leaders and drain pipes directly to POA 2La. Watershed 3S is collected by a closed drainage system and directed through a 30" RCP outfall (Reach 3R) to the Chicopee River (POA 2L).
- In the post-development conditions, stormwater from Watershed 2Sa, 2Sb, and 2Sc is collected in three new infiltration basins (Ponds 2Pa, 2Pb, and 2Pc) then directed through new drain pipes (Reaches 2Ra, 2Rb, 2Rc) to a new discharge pipe (Reach 2R). Stormwater runoff from B26 and B27 is also directed to Reach 2R. Stormwater from Reach 2R as well as Watershed 3S (unchanged) is directed to the existing 30" RCP outfall (Reach 3R) for discharge to the Chicopee River (POA 2L).

4.5 Calculations

Refer to Appendix D for figures showing the pre- and post- development watersheds. Refer to Appendices E and F for copies of the pre- and post-development HydroCAD calculations. Additional calculations relating to the design are provided in Appendix G.

4.6 Soil Characteristics

The proposed design will include the construction of infiltration basins atop a newly backfilled area. As such, the soil directly beneath the infiltration basins will be entirely new material and existing soil characteristics cannot be used to evaluate infiltration potential.

Volume 3, Chapter 1, Page 22 of the Massachusetts Stormwater Handbook identifies the "Rawl's Rates," standard infiltration rates associated with common soil classifications. These soil classifications are detailed in the USDA soil textural triangle, provided on Volume 3, Chapter 1, Page 14 of the Massachusetts Stormwater Handbook.

The design of the infiltration basins stipulates that the basin subbase will contain a maximum clay composition of 20% and a maximum silt concentration of 50%. Based on the textural triangle, this will result in a soil classification of Sandy Loam, Loamy Sand, or Sand with infiltration rates of 1.02 in/hr. or greater.

In addition, basin drawdown will primarily be accomplished via the catch basin inlet provided in each infiltration basin, rather than depending on soil infiltration.

4.7 Assumptions and Limitations

This stormwater analysis includes only the aforementioned backfill activities and associated alterations. It does not include any future redevelopment of the Sites which would require a separate analysis.

This analysis also includes several conservative design assumptions. Firstly, it was assumed that many upgradient areas would drain into the proposed basin areas, even though they may instead be captured by local low points or catch basins. This ensures that the design will function in the event of future, minor grading activities. Secondly, the flowpaths were considered only for the portion of the Site that will be altered, as existing grading would otherwise result in a long, sinuous flowpath that may not reflect future conditions.

5.0 SUMMARY OF RESULTS

Peak Rate of Runoff		Flow (cubic feet per second)									
		1-Year Storm		2 Year Storm		10 Year Storm		25 Year Storm		100 Year Storm	
Outlet To:		Exist	Prop	Exist	Prop	Exist	Prop	Exist	Prop	Exist	Prop
POA1	Main St. Pump Sta	5.76	3.38	6.76	4.87	9.42	7.75	10.38	9.13	11.81	10.87
POA2	Chicopee River	15.73	10.40	19.41	15.36	29.98	28.13	36.17	34.72	45.39	44.38
Project Total:		21.49	13.74	26.17	20.21	39.40	35.87	46.55	43.84	57.20	55.26

Runoff Volume		Runoff Volume (Acre-Feet)									
		1-Year Storm		2 Year Storm		10 Year Storm		25 Year Storm		100 Year Storm	
Outlet To:		Exist	Prop	Exist	Prop	Exist	Prop	Exist	Prop	Exist	Prop
POA1	Main St. Pump Sta	0.606	0.420	0.792	0.626	1.413	1.313	1.692	1.766	2.176	2.486
POA2	Chicopee River	2.417	1.699	3.302	2.466	6.056	4.987	7.798	6.636	10.513	9.251
Project Total:		3.02	2.12	4.09	3.09	7.47	6.30	9.49	8.40	12.69	11.74

*Increase in runoff volume is the result of the increased precipitation rates used in the post-development model to better reflect actual site conditions (Refer to Section 4.3). If Atlas-14 rates are used for the pre-development model, the runoff volumes for these storm events are 2.067 acre-feet and 2.816 acre-feet for the 25- and 100-year storm events, respectively.

<u>Supplemental Calculations:</u>

(Refer to Appendix G)

Recharge Volume Required = 0 cu. ft. (No loss of recharge as no new impervious area proposed)
Recharge Volume Provided = 0 cu. ft. (Infiltration in basins assumed to be captured by perforated pipe)

Water Quality Volume Required:
Facemate Property: 709 cu. ft.
Uniroyal Property: 2,745 cu. ft.
Water Quality Volume Provided:
Facemate Property: 1,865 cu. ft.
Uniroyal Property: 3,235 cu. ft.

Existing TSS Removal Rate = 0 %
Proposed TSS Removal Rate = 44% (Refer to Section 7.0)

6.0 Comments and Conclusions

As a result of the proposed mitigation measures, stormwater runoff will be captured, peak flows will be controlled, and water quality volume will be provided. The provided analysis has demonstrated that there will be no adverse impacts as a result of the project. The proposed stormwater management Best Management Practices have been designed to meet the DEP's Stormwater Management Policy to the maximum extent practicable. Summaries of compliance with the ten DEP Stormwater Management Standards and City of Chicopee's Stormwater Management Rules are provided in the following sections.

7.0 Summary of Compliance with Ten Stormwater Management Standards

The City of Chicopee is proposing alterations at the Former Uniroyal and Facemate Properties in Chicopee, MA. The following summary has been prepared to illustrate the project's conformance with MassDEP's Stormwater Management Standards. Note that the project is a redevelopment project and need only meet certain standards the maximum extent practicable.

Standard 1: No New Untreated Discharges

No new stormwater conveyances (e.g., outfalls) may discharge directly untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth

No new untreated discharges to wetlands are created as part of this project. Existing site conditions currently allow runoff to flow, untreated, into the Chicopee River. The redevelopment proposes to capture and provide limited treatment of this runoff within infiltration basins and deep sump catch basins. Runoff discharged from the Uniroyal property will be conveyed to an existing outfall with outlet control protection that discharges to the Chicopee River. Runoff discharged from the Facemate property will be conveyed to the Main Street Pump Station.– project complies.

Standard 2: Peak Rate Attenuation

Stormwater management systems shall be designed so that the post-development peak discharge rates do not exceed pre-development peak discharge rates.

The proposed design results in a net decrease to impervious area to prevent an increase in peak discharge rates, and many barren areas on the Site will be revegetated. The proposed infiltration basins are designed to capture and control the release of stormwater runoff. A net decrease in peak runoff rate and runoff volume is anticipated as part of the project – project complies.

Standard 3: Recharge

Loss of annual recharge to groundwater shall be eliminated or minimized. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type.

As no new impervious areas are proposed, there will be no loss in annual recharge from the pos-development site compared to pre-development conditions. The re-vegetation of existing impervious area will improve the Site's ability to infiltrate runoff. – project complies.

Standard 4: Water Quality

Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids.

In accordance with this standard, the project is required to store a "water quality volume" equal to 0.5-inches of runoff times the total impervious area of the post-development site. The catch basins within the proposed infiltration basins have been designed to be up to 6 inches above the basin bottom to provide the required water quality volume. Appendix B includes a Long-Term Pollution Prevention Plan.

The proposed treatment train includes deep sump drainage structures to provide limited TSS removal that does not currently exist. Although infiltration basins are proposed, they have been modeled as sediment forebays in the TSS Removal Calculations as no pretreatment has been provided.

While a TSS removal of 80% has not been achieved, the post-development project site will remain vacant, and no vehicle traffic areas will discharge to the proposed BMPs. Sedimentation potential is thus limited. Future site redevelopment activities will be required to meet the 80% TSS removal requirement. – project complies to the maximum extent practicable.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

Land use with high potential pollutant loads must have source control and pollution prevention measures implemented in accordance with the Massachusetts Stormwater Handbook.

The Site includes former mill buildings known to contain potentially hazardous substances. Ongoing remediation efforts may involve handling of these materials, and measures to prevent spills or exposure will be required of each remediation plan. Backfill operations under this project may include contaminated materials which will be handled in accordance with the Massachusetts Contingency Plan (MCP) and other local, state, and federal guidelines. These pollutant sources are anticipated only during the construction period, and in the long-term the project Site will not be classified as a LUHPPL. A basic Spill control and prevention plan is included in Appendix B. - project complies to the maximum extent practicable

Standard 6: Critical Areas

Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of specific source control, pollution prevention measures.

The project does not propose discharges to a critical area. - project complies

Standard 7: Redevelopment

A redevelopment project is required to meet certain Stormwater Management Standards only to the maximum extent practicable.

The project is a redevelopment project under the definition of (2): “Development, rehabilitation, expansion, and phased projects on previously developed sites, provided the redevelopment results in no net increase in impervious area.” Certain standards have been met only to the maximum extent practicable as noted in previous sections.

Standard 8: Construction Period Pollution Prevention and Erosion and Sediment Control

A plan to control construction related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities shall be developed and implemented.

The project will disturb greater than one acre and thus will require the development of a Stormwater Pollution Prevention Plan (SWPPP) prior to construction. Note that SWPPPs have been previously prepared and submitted for the project Sites under NDPES ID MAR1000LL and MAR1000XS. These SWPPP’s may need to be updated to reflect current site conditions and proposed improvements. A Construction Period Pollution Prevention and Sediment Control Plan has been provided as Appendix A of this report.

Standard 9: Long Term Operation and Maintenance Plan

A Long-Term Operation and Maintenance Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

Operations and Maintenance of Stormwater management systems will be the responsibility of the City of Chicopee. Therefore, inspection and maintenance of the stormwater management system will be in accordance with a Regulator-Approved version of the attached Operation and Maintenance Plan.

Standard 10: Prohibition of Illicit Discharges

All illicit discharges to the stormwater management system are prohibited.

There are currently no known non-stormwater illicit discharges within the project limits and new discharges are prohibited. An illicit discharge compliance statement is attached.

8.0 Summary of Compliance with Stormwater Management Rules

The following summary has been prepared to illustrate the project's conformance with the fourteen objectives detailed in Chapter 231 of the City of Chicopee bylaw.

Objective 1: Reduce the adverse water quality impacts of stormwater and combined sewer overflow discharges to rivers, lakes, reservoirs, and streams in order to attain federal water quality standards.

Existing stormwater is currently directed to the Chicopee River and the Main Street Pump Station. The proposed design will continue to discharge to these locations. A net decrease in runoff volume and peak discharge rate is anticipated. The project has been designed to maintain the required water quality volume, and TSS removal will be improved compared to existing conditions.– project complies.

Objective 2: Prevent the Discharge of Pollutants, including hazardous chemicals into stormwater runoff.

The proposed design incorporates deep sump, hooded drainage structures and infiltration basins to minimize the risk of pollution to stormwater runoff from the Site. No hazardous chemicals are anticipated to be present at the Site during normal operation. Refer to the Illicit Discharge Compliance Statement. – project complies.

Objective 3: Minimize the volume and rate of stormwater which is discharged to rivers, streams, reservoirs, lakes, and combined sewers.

The proposed design incorporates several infiltration basins to capture, store, and control runoff coupled with a decrease in impervious area. A net decrease in peak runoff rate and volume from all watersheds up to the 100-year storm is anticipated as part of the project – project complies.

Objective 4: Prevent erosion and sedimentation form improper land development, and reduce stream channel erosion caused by increased runoff.

The proposed design incorporates basic erosion controls consisting of straw wattles, stabilized construction entrance, and inlet protection minimize sedimentation and erosion from the Site. The project will disturb greater than one acre and will require the development of a detailed Stormwater Pollution Prevention Plan (SWPPP) prior to construction. – project complies.

Objective 5: Provide for recharge of groundwater aquifers and maintain the base flow of streams.

The project proposes a reduction in impervious area. As a result, an improvement in recharge potential is anticipated. – project complies.

Objective 6: Provide stormwater facilities that are attractive, maintain the natural integrity of the environment, and are designed to protect public safety.

Proposed infiltration basins are intended to blend in with proposed topography and minimize visual impact. Basin depths are typically no greater than 4' below surrounding grades to mitigate public safety concerns – project complies.

Objective 7: Maintain or reduce predevelopment runoff characteristics after development to the extent feasible.

Both pre- and post-development runoff characteristics are directed to a low-lying area behind the flood control levee. – project complies.

Objective 8: Minimize damage to public and private property from flooding.

The proposed infiltration basins have been designed to capture the 100-year storm with a 1' freeboard. A net decrease in peak runoff rate and runoff volume is anticipated from all watersheds.– project complies.

Objective 9: To prevent pollutants from entering Chicopee's municipal separate storm sewer system (MS4).

The project does not propose any alterations near to the City's MS4 system. Inlet protection is proposed at existing catch basins near the Site. – project complies.

Objective 10: To prohibit illicit connections and unauthorized discharges to the MS4 and;

Objective 11: To require the removal of all such illicit connections.

There are currently no known non-stormwater illicit discharges within the project limits and new discharges are prohibited. Refer to attached Illicit Discharge Compliance Statement. – project complies.

Objective 12: To comply with state and federal statutes and regulations relating to stormwater discharges.

The proposed stormwater management Best Management Practices have been designed to fully meet the DEP's Stormwater Management Policy as detailed in Section 6.0. – project complies.

Objective 13: To establish the legal authority to ensure compliance through inspection, monitoring, and enforcement.

The responsible party for operation and maintenance of the stormwater design is The City of Chicopee. A long-term operation and maintenance plan is provided as Appendix B. – project complies.

Objective 14: To prevent contamination to drinking water supplies

No private drinking water wells are located within 500 feet of the Site. The Site is not within an Interim Wellhead Protection Area, Zone II, or Potentially Productive Aquifer. No risk of contamination to drinking water supplies is anticipated as part of this project. – project complies.

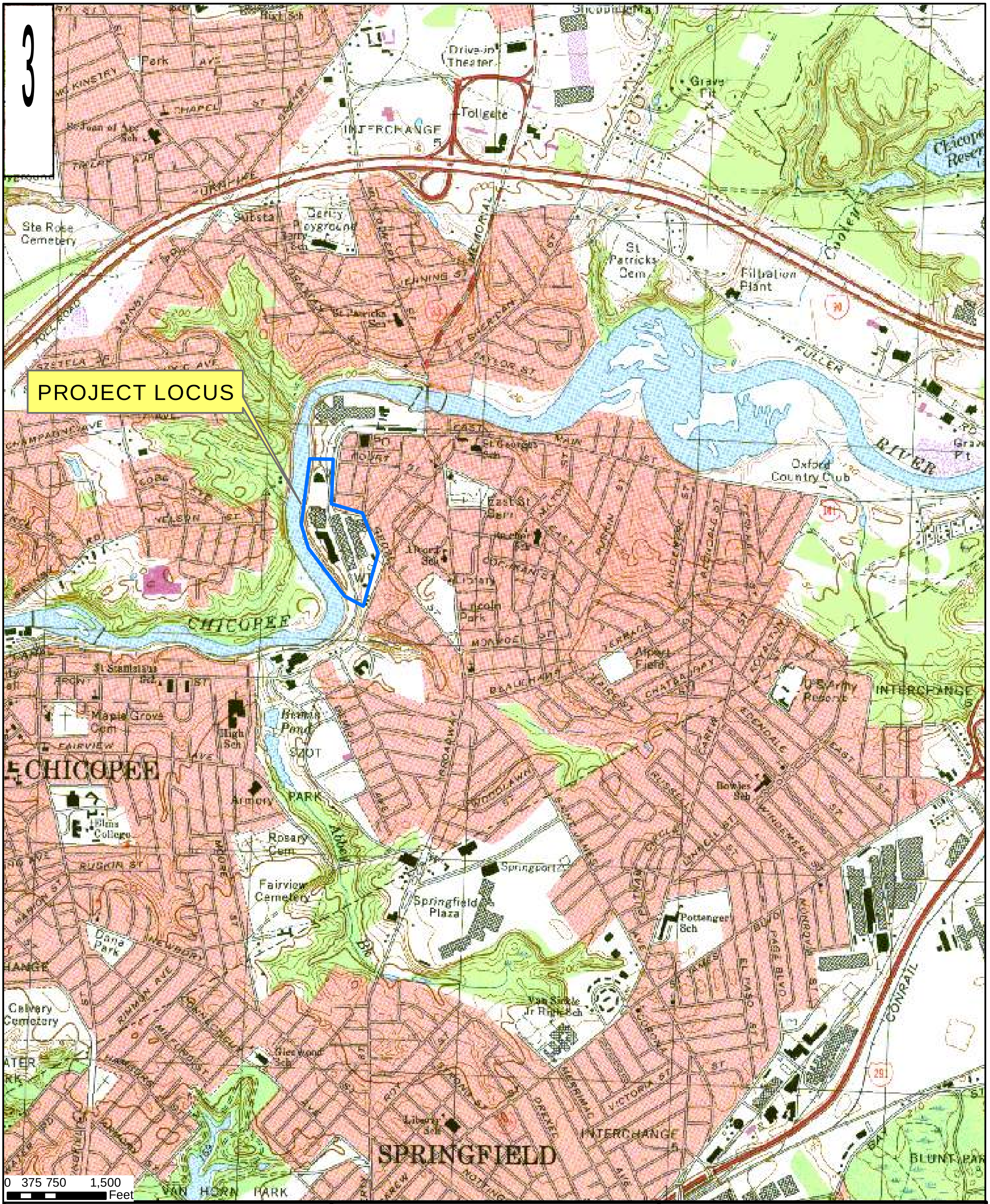
Illicit Discharge Compliance Statement

It is the intent of the Owner, the City of Chicopee to prevent illicit discharges to the stormwater management system, including wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease. To the extent of my knowledge, the proposed project does not create any illicit discharges and all illicit discharges are prohibited in the future.

____

City of Chicopee

FIGURES



BETA
www.BETA-Inc.com

Former Uniroyal and Facemate Properties

Chicopee, MA

Figure 1

Site Locus Map

MassDEP - Bureau of Waste Site Cleanup

Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

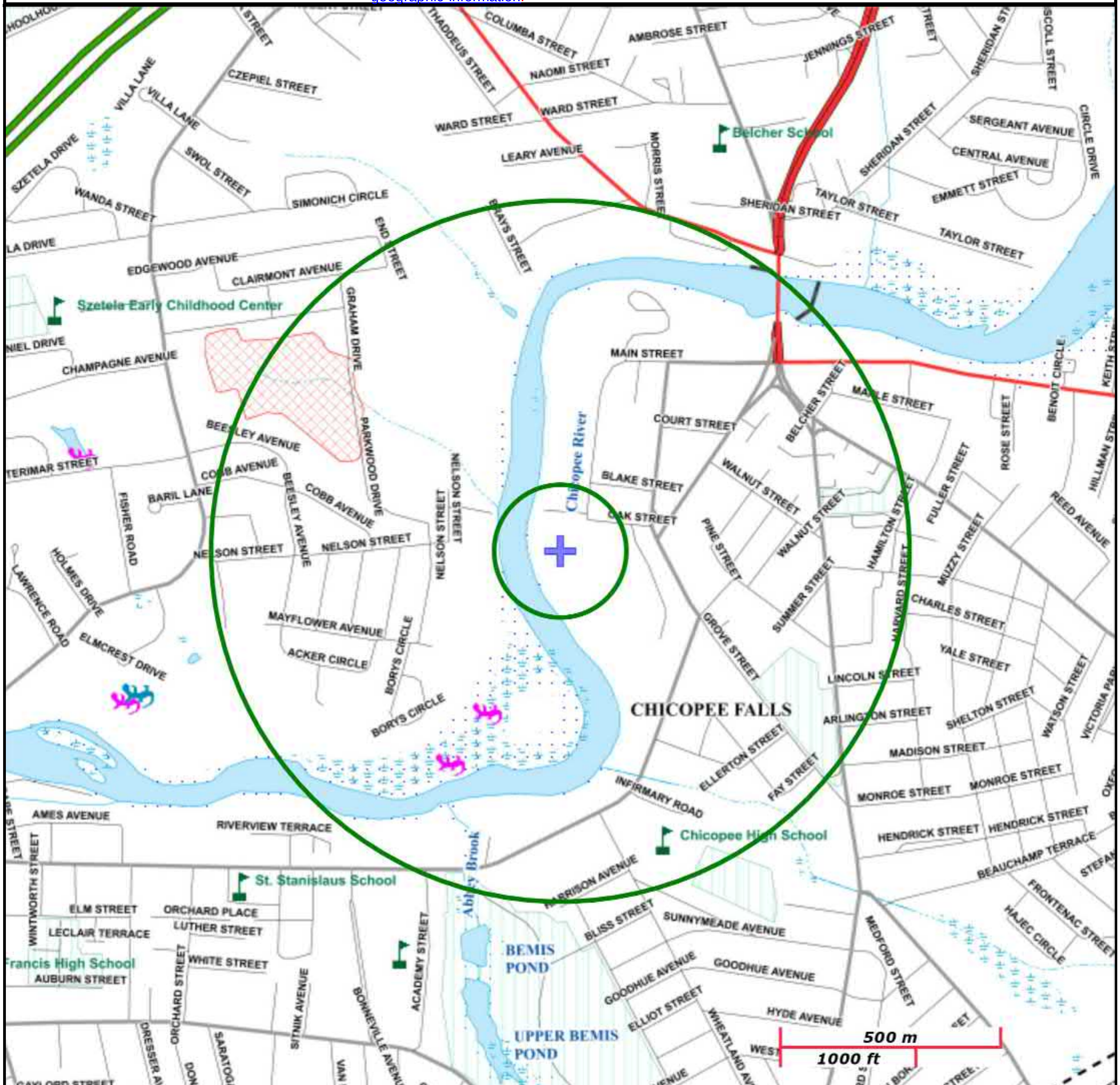
Site Information:

CHICOPEE, MA

NAD83 UTM Meters:
4669758mN , 699281mE (Zone: 18)
July 17, 2020

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at: https://www.mass.gov/orgs/massgis-bureau-of-geographic-information.

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail

Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct

Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam

Aquifers: Medium Yield, High Yield, EPA Sole Source.....

Non Potential Drinking Water Source Area: Medium, High (Yield)...

PWS Protection Areas: Zone II, IWPA, Zone A ....

Hydrography: Open Water, PWS Reservoir, Tidal Flat ....

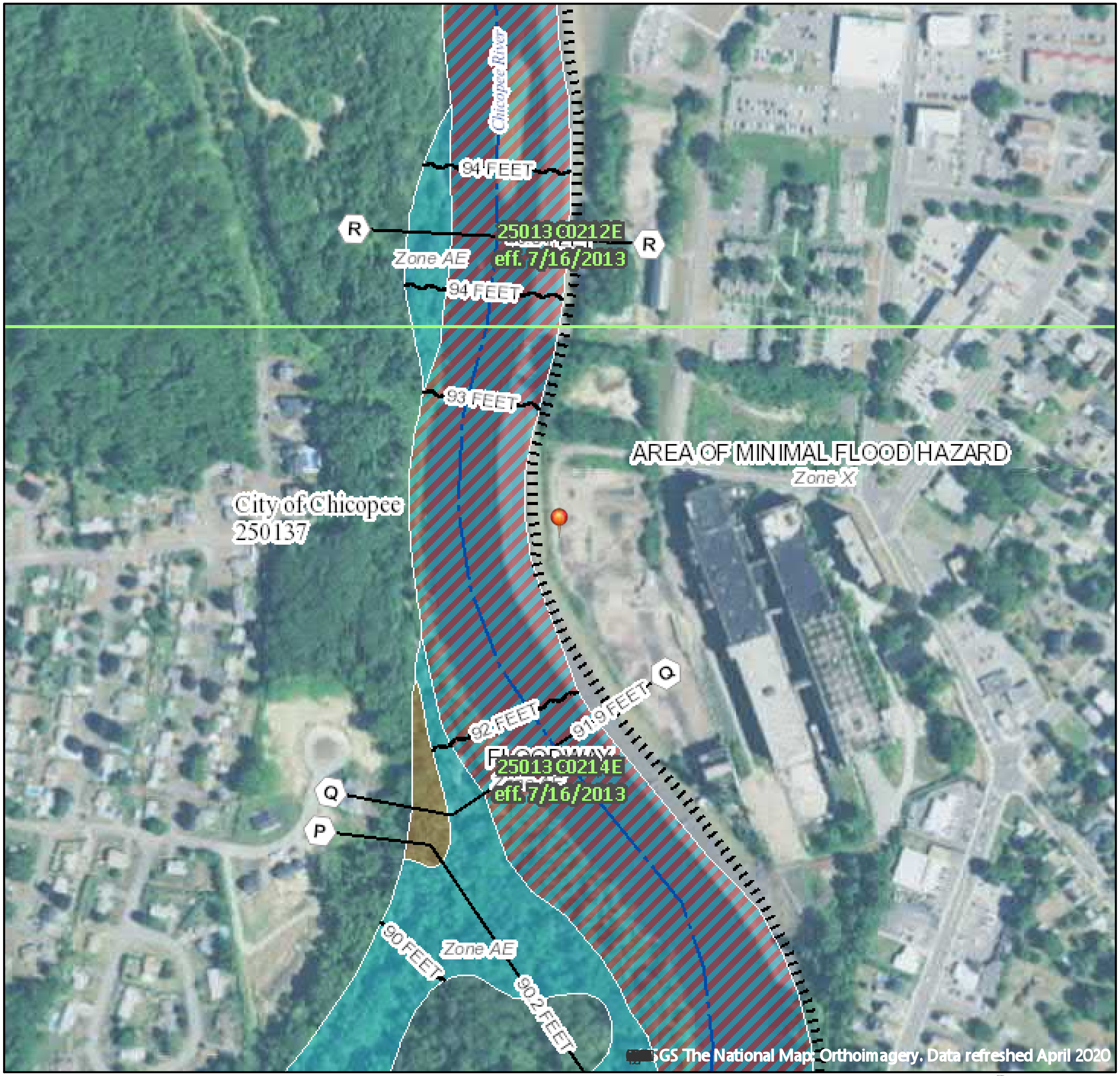
Wetlands: Freshwater, Saltwater, Cranberry Bog ....

FEMA 100yr Floodplain; Protected Open Space; ACEC ....

Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential

Solid Waste Landfill; PWS: Com.GW,SW, Emerg.,Non-Com.

FEMA



Chicopee River
94 FEET
R
25013C0212E
eff. 7/16/2013
Zone AE
94 FEET
93 FEET
AREA OF MINIMAL FLOOD HAZARD
Zone X
City of Chicopee
250137
Q
92 FEET
91.9 FEET
FLOODWAY
25013C0214E
eff. 7/16/2013
Q
P
Zone AE
90 FEET
90.2 FEET
GS The National Map: Orthoimagery. Data refreshed April 2020

0

APPENDIX A – CONSTRUCTION PERIOD POLLUTION PREVENTION AND EROSION AND SEDIMENTATION CONTROL PLAN

Construction Period Pollution Prevention and Erosion Control Plan

Former Uniroyal and Facemate Properties – Chicopee MA
ACOE Permit Review Only

Introduction

The anticipated area of disturbance during this project is greater than one acre; therefore, filing a notice of intent with EPA and development of a Stormwater Pollution Prevention Plan (SWPPP) is required. The following plan provides general guidance for the prevention of pollution and erosion and sedimentation during construction.

Potential Erosion and Sedimentation

Portions of the project involve soil disturbance; therefore, site preparation, scheduling, and construction practices need to be carefully planned to prevent construction debris and erosion from adversely impacting downstream resources. Although it is not always possible to avoid all impacts, the following guidelines shall be followed:

- Minimize land disturbance area and soil exposure to stormwater and wind erosion.
- Minimize time that area is disturbed.
- Avoid routing stormwater runoff or dewatering flows through disturbed areas.
- Inspect and maintain erosion controls until all soils are stabilized.
- Maintain good housekeeping practices.
- Stabilize disturbed soils as soon as possible to limit exposure.

Erosion and Sedimentation Plan

This Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan have been prepared in accordance with the Department of Environmental Protection's Massachusetts Erosion and Sedimentation Guidelines for Urban and Suburban Areas.

Pre-Construction and Site Preparation

- Contractor shall install all erosion control barriers in accordance with the construction documents prior to commencing any land disturbance activity.
- Inspect and maintain erosion controls until all soils are stabilized.
- Monitor weather reports daily and stabilize/prepare site if storm event in excess of the 2-year storm is expected.

Good Housekeeping

- Avoid stockpiling of soil within 100 feet of wetland resources and wellhead protection areas. If necessary, provide sufficient erosion controls to prevent migration of sediments.
- Minimize hazardous materials stored on site. All materials stored on site shall be stored in original containers and sealed.
- Refuel construction equipment off-site.
- Any spills of hazardous materials shall be reported, contained, and removed in accordance with local, State, and Federal regulations.

Construction Period Pollution Prevention and Erosion Control Plan

Former Uniroyal and Facemate Properties – Chicopee MA
ACOE Permit Review Only

Inspection and Maintenance of Erosion Controls during Construction

Inspect erosion controls weekly and after every storm event until all soils are stabilized.

- Erosion Control Barrier: Check for sedimentation accumulation, removing sediments when they reach excessive volumes (approximately 1/3 the height of the barrier). Also remove sediments when runoff ponds for 24 or more hours to prevent potential mosquito breeding habitat. Restake/replace tubes and silt fence as necessary to maintain their effectiveness.
- Stabilized Construction Entrance: Check to observe overall integrity and effectiveness of crushed stone entrance. Reshape pad as needed for drainage and runoff control, and top dress with clean stone if needed. Remove tracked-out sediment by the end of each workday.
- Catch basin Inlet Protection: Check for sedimentation accumulation, removing sediments when they reach excessive volumes.

Plans

See proposed construction drawings for locations of all proposed erosion and sedimentation controls.

Potential Construction Site Pollutants

Pollutant-Generating Activity	Pollutants or Pollutant Constituents	Location on Site
Equipment Re-fueling	Diesel Fuel, Gasoline	Staging Area*
Leaking or Broken Hydraulic Lines	Hydraulic Oil	Building Work Areas and Laydown Area
Minor Equipment Maintenance	Diesel Fuel, Gasoline, Hydraulic Oil, Motor Oil, Anti-Freeze	Staging Area*
Applying Fertilizer	Nitrogen, Phosphorous	Newly Seeded Areas
Portable Sanitary Toilets	Bacteria, Parasites and Viruses	Staging Area*
Vehicle Accident	Diesel Fuel, Gasoline	Entire Site
Trash Containers/Dumpsters	Paper, Plastic, and Food Waste	Staging Area*

*All vehicle and equipment staging to be conducted within the central and lower areas of Site.

APPENDIX B – LONG TERM OPERATION AND MAINTENANCE PLAN

Long Term Operation & Maintenance Plan
Stormwater Management Systems

Former Uniroyal and Facemate Properties – Chicopee, MA
ACOE Permit Review Only

General Information

Project Name:	Former Uniroyal and Facemate Properties
Project Type:	Site Redevelopment
Address:	154 Grove Street & 75 West Main Street, Chicopee MA
SWMS Owner:	City of Chicopee 274 Front Street, 4th Floor City Hall Annex Chicopee, MA 01013 (413) 594-1515
Responsible Party:	City of Chicopee
Contact:	Lee Pouliot, AICP, ASLA
Signature:	______________________________

This stormwater management system (SWMS) operations and maintenance plan has been prepared in accordance with the Massachusetts Department of Environmental Protection's Stormwater Management Standards.

It shall be the responsibility of the Owner to provide a revised plan indicating any change of ownership or responsible party.

Long Term Operation & Maintenance Plan
Stormwater Management Systems

Former Uniroyal and Facemate Properties – Chicopee, MA
ACOE Permit Review Only

<u>Long-Term Pollution Prevention</u>

The following measures and good housekeeping practices shall be followed at the Site to mitigate risk of pollution.

Material Storage and Handling

- Avoid stockpiling of soil or materials within 100 feet of wetland resources and wellhead protection areas. If necessary, provide sufficient erosion controls to prevent migration of sediments.
- All materials shall be stored or disposed in accordance with all local, state, and federal regulations.
- All sand piles shall be contained and stabilized to prevent the discharge of sand to wetlands or water bodies and, where feasible, covered.
- Minimize hazardous materials stored on site. All materials stored on site shall be stored in original containers and sealed.
- All solid waste, if encountered, shall be handled and disposed of in accordance with all local, state, and federal regulations.
- No snow shall be stored within waterbodies, resource areas, wellhead protection areas, or associated buffer zones.

Stormwater BMPs

- Refer to Inspection and Maintenance Procedures
- Refer to Illicit Discharge Compliance Statement

Spill Prevention and Response

- Refuel construction equipment off-site.
- Any spills of hazardous materials shall be reported, contained, and removed in accordance with local, State, and Federal regulations.
- Review on-site equipment and activities to ensure no illicit discharges are created.

Vegetation and Landscaping

- Refer to Inspection and Maintenance Procedures
- No fertilizers, pesticides, and/or herbicides shall be used at the Site.
- No road salt or sand for ice management shall be used or stored at the Site.

Long Term Operation & Maintenance Plan
Stormwater Management Systems

Former Uniroyal and Facemate Properties – Chicopee, MA
ACOE Permit Review Only

<u>Spill Prevention Plan</u>

Remediation activities conducted at the Uniroyal and Facemate properties may involve the handling of hazardous waste materials or other pollutant sources. The purpose of this plan is to outline the source control and pollution prevention measures to minimize the risk of pollution to stormwater runoff.

Predicted Release

Any potential spills at the Site are anticipated to be during remediation activities relating to the existing mill buildings. During these activities, materials will be handled and either re-used on-site or removed from the Site for disposal. Spills in this area could be conveyed via overland flow towards the proposed Infiltration Basins.

Oil and Pollutant Control

The proposed drainage system will include hoods at all proposed catch basins to control accidental releases of oil into the system. Regular maintenance will be required to remove and legally dispose of any captured oil.

Sorbent Materials, Spill Response Supplies, and Equipment

During the proposed work, spill response supplies shall be maintained within the staging area. These supplies shall include sorbent pads, booms, and granular material (i.e., Speedy Dry), and a shovel, all stored within a covered over-pack drum or similar container. The supplies shall be made readily available to be deployed during a fuel spill or release.

Inspections and recordkeeping of the spill response equipment supplies must be maintained as part of this plan, and training shall be conducted to inform the employees on where the equipment is located and the procedure for using the material as part of the oil spill response training curriculum.

Additional Requirements

All remediation activities conducted at the Site shall be conducted by workers licensed to do such work in the state of Massachusetts. Remediation shall be in accordance with local, state, and federal law including all required measures to prevent spread of hazardous materials.

Long Term Operation & Maintenance Plan
Stormwater Management Systems

Former Uniroyal and Facemate Properties – Chicopee, MA
ACOE Permit Review Only

BMP Inspection and Maintenance Procedures

Effectiveness of Best Management Practices (BMPs) is maximized when properly maintained. The following inspections schedule and maintenance required of BMPs for this project (see attached plan) shall be as outlined and documented below.

- Catch basins (CB) and Manholes (MH): Inspect and maintain after the first several rainfall events, after all major storms, and at least once every 3 months.
  - Check grates periodically and following heavy rainfall to verify that the inlet openings are not clogged by debris. Remove debris from grate.
  - Remove all accumulated debris.
  - Clean sump if it is greater than 50% full.
  - Note condition of frames, grates, concrete bricks, and hoods. Repair or replace damaged materials.
- Infiltration Basin: Inspect and maintain basin after the first several rainfall events, after all major storms, and at least once every 6 months.
  - Remove accumulated sediment, trash, debris, leaves, and grass clippings, particularly in area of trash racks.
  - Mow the buffer area, side slopes, and basin bottom.
  - Rake basin floor and remove tree or other plant seedlings before they become established.
  - Check for ponding within basin.
  - Check for erosion along basin slopes.
  - Inspect to ensure proper functioning.
- Vegetation: Monitor establishment and health of vegetation in fill area at least once a month for the first several months, then at least once every 6 months.
  - Check vegetation growth rate, health, and stability.
  - Note presence of any failing vegetation.
  - Reseed low-growth areas as necessary.

Approximate Maintenance Budget
Inspection and maintenance for this site is estimated as follows.

1. Inspections	$400
2. Infiltration Basins	$300
3. Deep Sump Catch Basin	$300
Annual Total	$1,000

Public Safety and Features

1. Provide police detail for extended occupation of roadway if traffic dictates.
2. All excavations and entry into closed structures will be completed in accordance with OSHA requirements.

Long Term Operation & Maintenance Plan
Stormwater Management Systems

Former Uniroyal and Facemate Properties – Chicopee, MA
ACOE Permit Review Only

BMP Inspection and Maintenance Documentation Form

Inspection No.: _ Date: ________________ Weather: ____________________

Date & Amount of Last Precipitation Event: ____

Inspector Name: ____________________ Inspection Signature: _______________________

BMP	Condition/Stability	Comment & Recommendations	Date Corrected
Catch Basins			
Manholes			
Infiltration Basins			
Vegetation			
Other			
Additional Comments			

BETA

APPENDIX C – SOILS DATA

Map Scale: 1:4,540 if printed on A portrait (8.5" x 11") sheet.

Meters: 0 50 100 200 300

N

Feet: 0 200 400 800 1200

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

MAP LEGEND

Area of Interest (AOI)
Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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: Hampden County, Massachusetts, Central Part
Survey Area Data: Version 14, 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: Aug 25, 2013—Sep 9, 2013

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Water		5.0	11.7%
602	Urban land		32.8	76.2%
739C	Urban land-Hinckley-Windsor association, 0 to 15 percent slopes	D	5.2	12.2%
Totals for Area of Interest			**43.1**	**100.0%**

Description

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

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

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

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

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

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

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

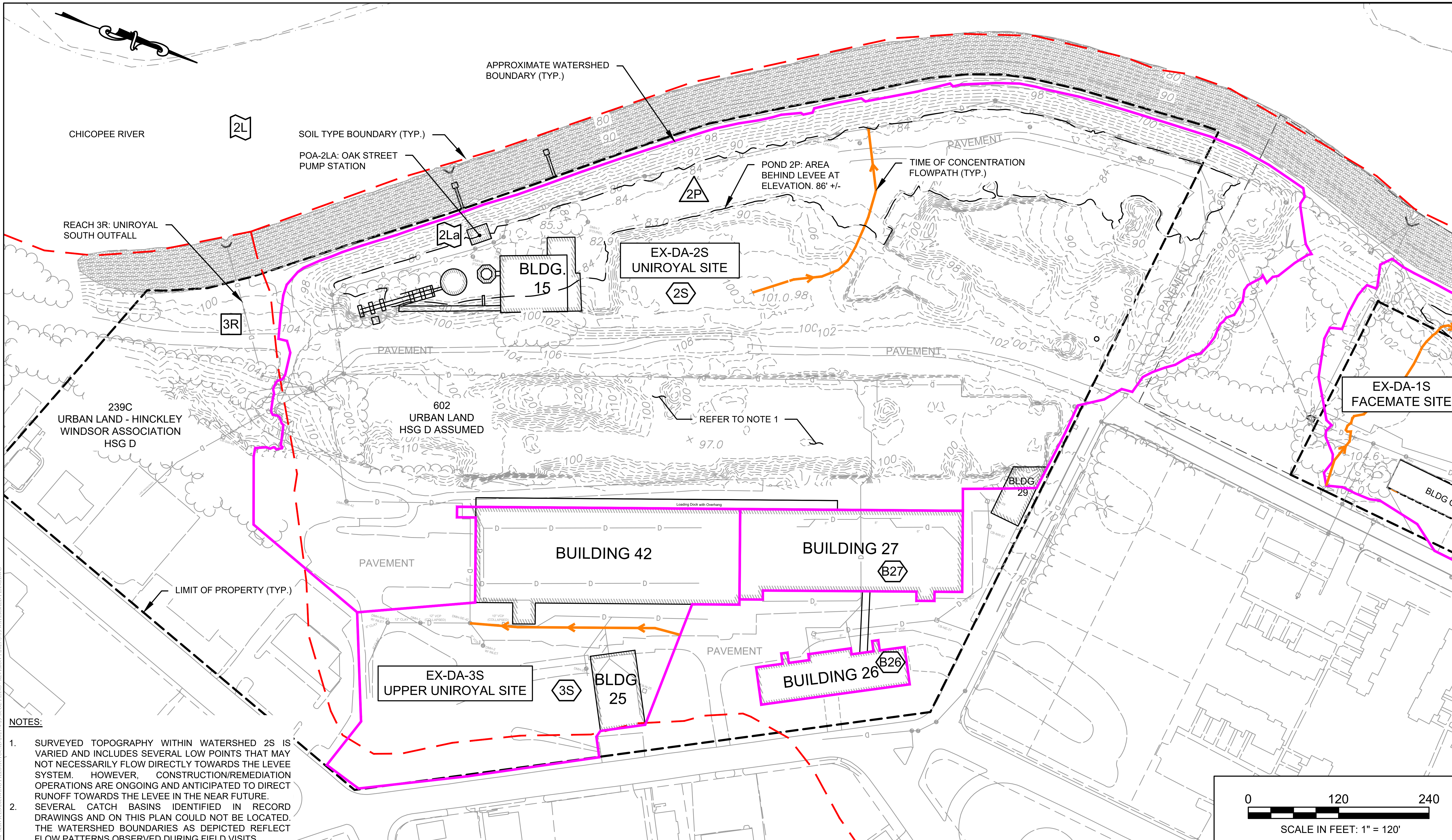
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX D – WATERSHED PLANS



NOTES:

1. SURVEYED TOPOGRAPHY WITHIN WATERSHED 2S IS VARIED AND INCLUDES SEVERAL LOW POINTS THAT MAY NOT NECESSARILY FLOW DIRECTLY TOWARDS THE LEVEE SYSTEM. HOWEVER, CONSTRUCTION/REMEDIATION OPERATIONS ARE ONGOING AND ANTICIPATED TO DIRECT RUNOFF TOWARDS THE LEVEE IN THE NEAR FUTURE.
2. SEVERAL CATCH BASINS IDENTIFIED IN RECORD DRAWINGS AND ON THIS PLAN COULD NOT BE LOCATED. THE WATERSHED BOUNDARIES AS DEPICTED REFLECT FLOW PATTERNS OBSERVED DURING FIELD VISITS.

BETA
www.BETA-Inc.com

Former Uniroyal & Facemate Properties

ACOE Permit Review Only

154 Grove Street & 75 West Main Street

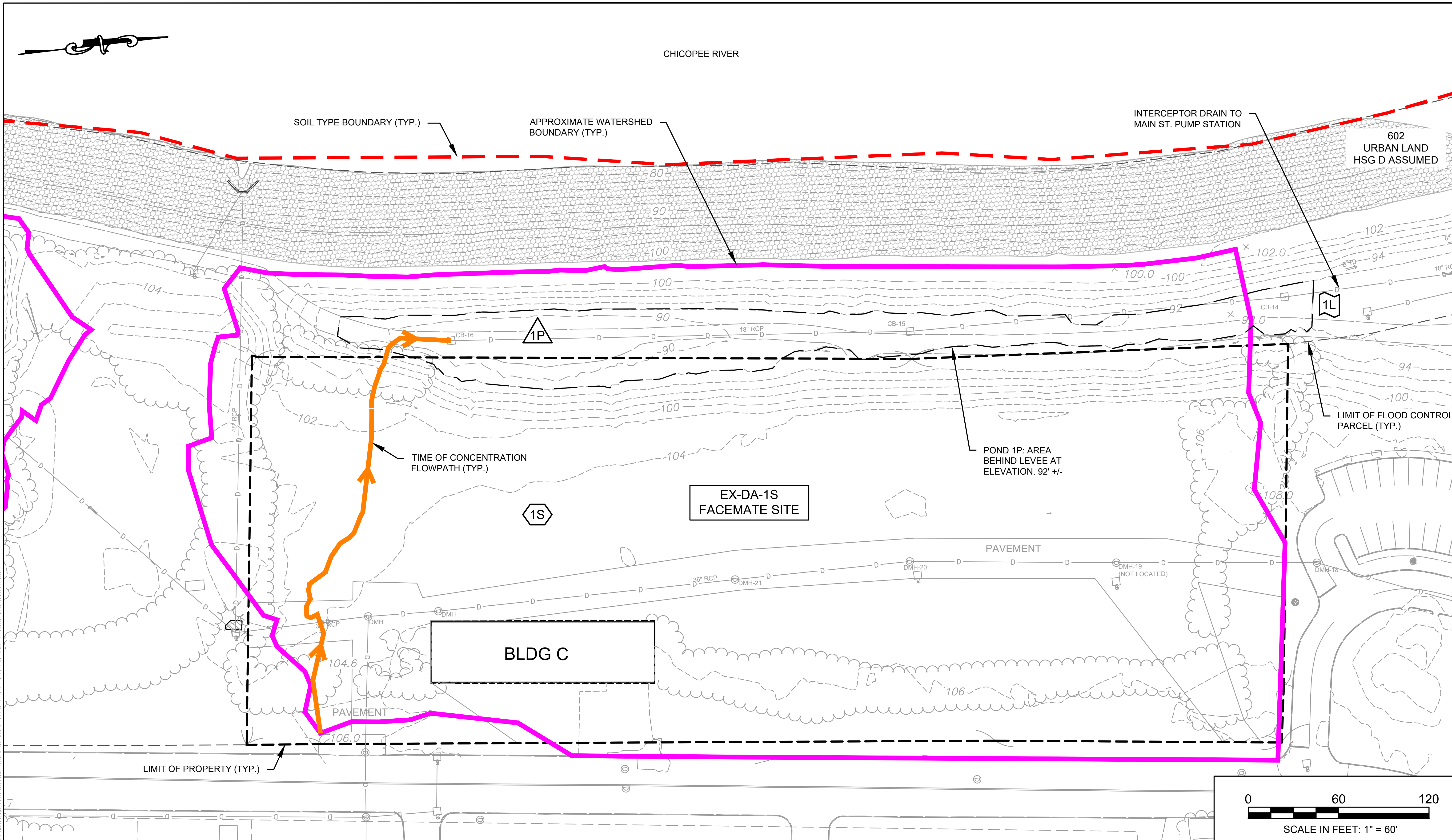
Chicopee, MA

Issue Date: 5-13-2021

Watershed Plan

Existing Conditions

Uniroyal Property



www.BETA-Inc.com

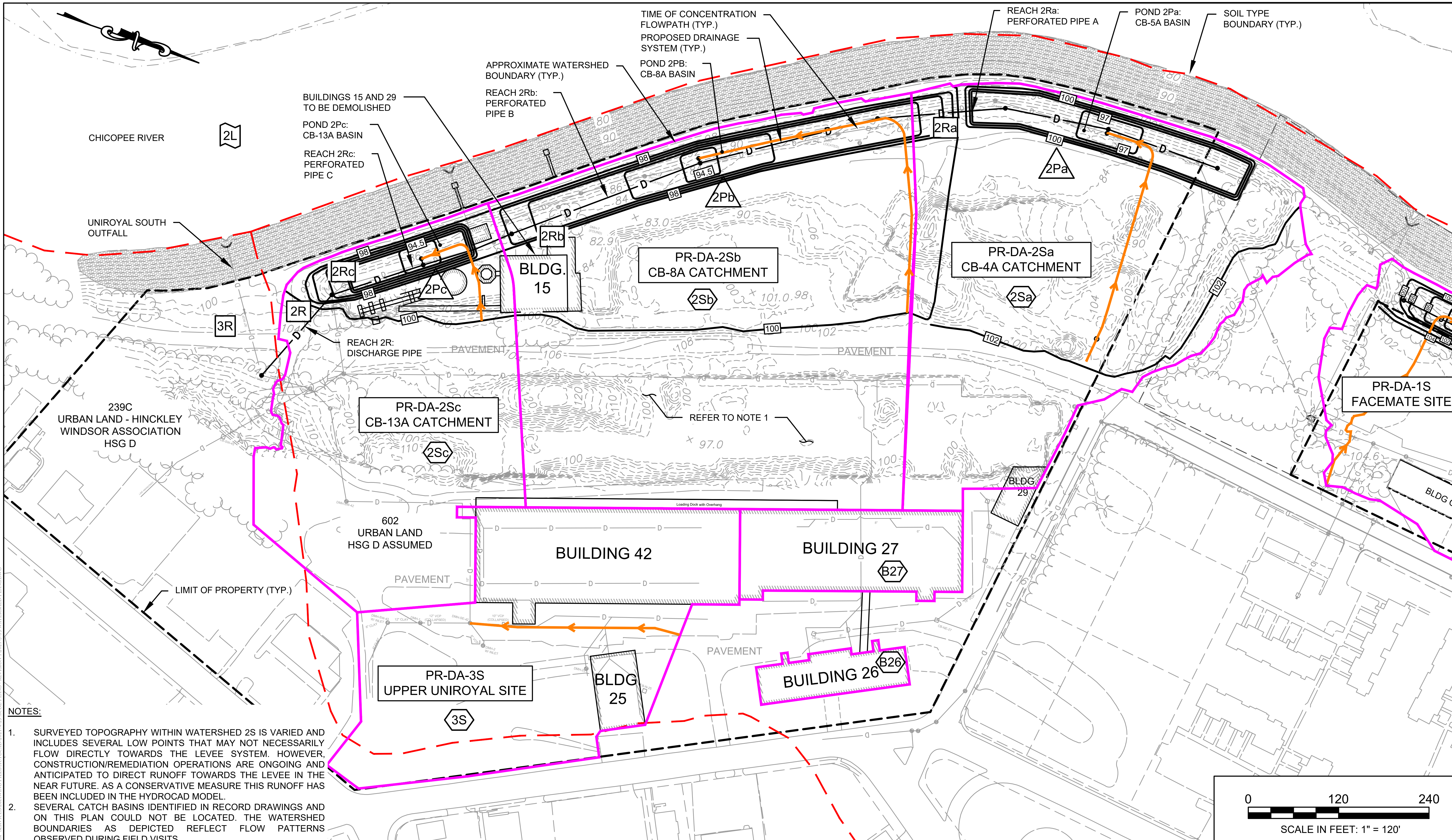
Former Uniroyal & Facemate Properties

ACOE Permit Review Only
154 Grove Street & 75 West Main Street
Chicopee, MA

Issue Date: 5-13-2021

Watershed Plan

Existing Conditions
Facemate Property



NOTES:

1. SURVEYED TOPOGRAPHY WITHIN WATERSHED 2S IS VARIED AND INCLUDES SEVERAL LOW POINTS THAT MAY NOT NECESSARILY FLOW DIRECTLY TOWARDS THE LEVEE SYSTEM. HOWEVER, CONSTRUCTION/REMEDIATION OPERATIONS ARE ONGOING AND ANTICIPATED TO DIRECT RUNOFF TOWARDS THE LEVEE IN THE NEAR FUTURE. AS A CONSERVATIVE MEASURE THIS RUNOFF HAS BEEN INCLUDED IN THE HYDROCAD MODEL.
2. SEVERAL CATCH BASINS IDENTIFIED IN RECORD DRAWINGS AND ON THIS PLAN COULD NOT BE LOCATED. THE WATERSHED BOUNDARIES AS DEPICTED REFLECT FLOW PATTERNS OBSERVED DURING FIELD VISITS.

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Former Uniroyal & Facemate Properties

ACOE Permit Review Only

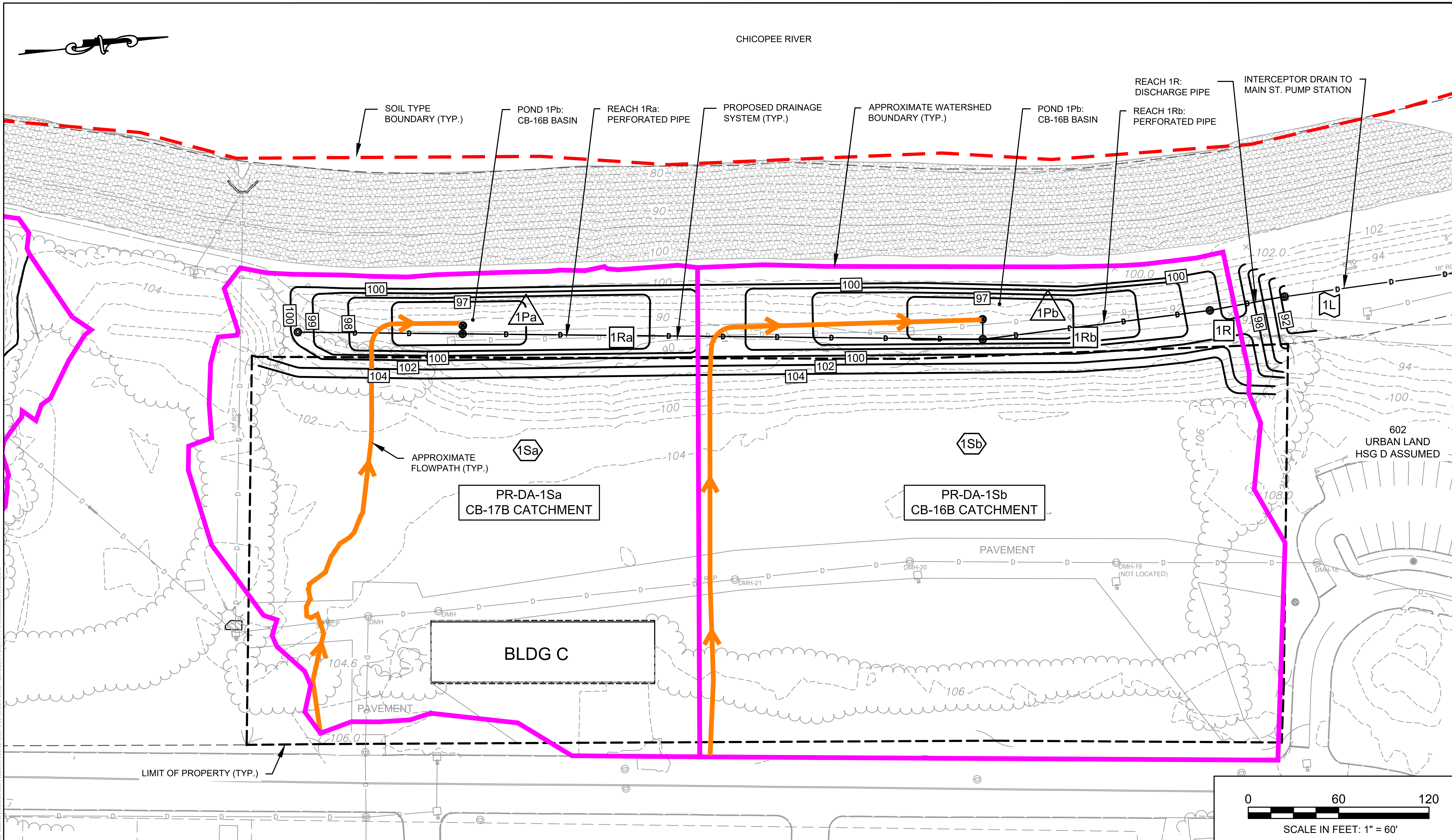
154 Grove Street & 75 West Main Street

Chicopee, MA

Issue Date: 5-13-2021

Watershed Plan

Proposed Conditions Uniroyal Property



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Former Uniroyal & Facemate Properties

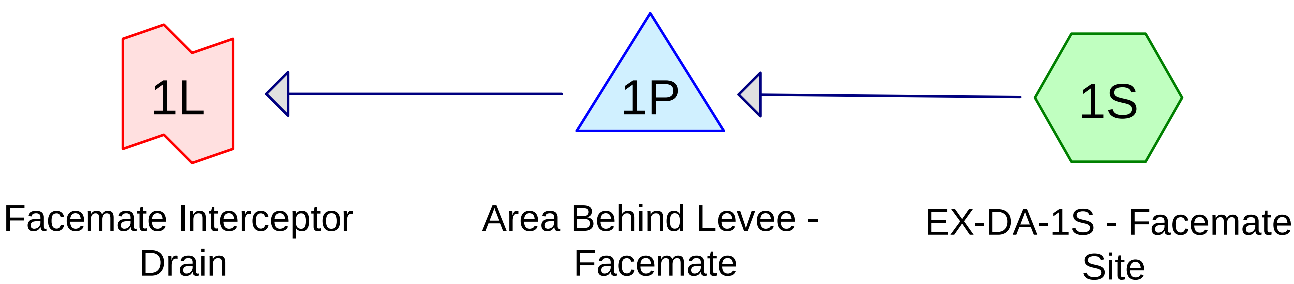
ACOE Permit Review Only
154 Grove Street & 75 West Main Street
Chicopee, MA

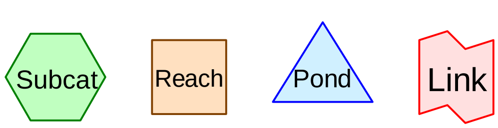
Issue Date: 5-13-2021

Watershed Plan

Proposed Conditions
Facemate Property

APPENDIX E – EXISTING CONDITIONS CALCULATIONS





Routing Diagram for Existing Conditions - Facemate - TP40
Prepared by BETA Group, Inc, Printed 3/10/2021
HydroCAD® 10.00-25 s/n 10405 © 2019 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: EX-DA-1S - Facemate Site

Runoff = 8.36 cfs @ 12.09 hrs, Volume= 0.606 af, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.50"

Area (sf)	CN	Description
173,521	89	<50% Grass cover, Poor, HSG D
17,024	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
21,109	79	Woods, Fair, HSG D
217,891	89	Weighted Average
194,630		89.32% Pervious Area
23,261		10.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.00"
3.7	190	0.0150	0.86		**Shallow Concentrated Flow, Shallow Conc. 1** Short Grass Pasture Kv= 7.0 fps
0.6	86	0.1360	2.58		**Shallow Concentrated Flow, Shallow Conc. 2** Short Grass Pasture Kv= 7.0 fps
1.1					**Direct Entry, Minimum TC**
6.0	326	Total			

Summary for Pond 1P: Area Behind Levee - Facemate

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 1.45" for 1-Year event
Inflow = 8.36 cfs @ 12.09 hrs, Volume= 0.606 af
Outflow = 5.76 cfs @ 12.18 hrs, Volume= 0.606 af, Atten= 31%, Lag= 5.4 min
Primary = 5.76 cfs @ 12.18 hrs, Volume= 0.606 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 90.36' @ 12.18 hrs Surf.Area= 8,424 sf Storage= 2,605 cf

Plug-Flow detention time= 9.9 min calculated for 0.606 af (100% of inflow)
Center-of-Mass det. time= 10.0 min (831.3 - 821.3)

Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	90.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=5.74 cfs @ 12.18 hrs HW=90.35' (Free Discharge)
1=Catch Basin (Orifice Controls 2.87 cfs @ 2.87 fps)
2=Catch Basin (Orifice Controls 2.87 cfs @ 2.87 fps)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 1.45" for 1-Year event
Inflow = 5.76 cfs @ 12.18 hrs, Volume= 0.606 af
Primary = 5.76 cfs @ 12.18 hrs, Volume= 0.606 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1S: EX-DA-1S - Facemate Site

Runoff = 10.86 cfs @ 12.09 hrs, Volume= 0.792 af, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
173,521	89	<50% Grass cover, Poor, HSG D
17,024	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
21,109	79	Woods, Fair, HSG D
217,891	89	Weighted Average
194,630		89.32% Pervious Area
23,261		10.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.00"
3.7	190	0.0150	0.86		**Shallow Concentrated Flow, Shallow Conc. 1** Short Grass Pasture Kv= 7.0 fps
0.6	86	0.1360	2.58		**Shallow Concentrated Flow, Shallow Conc. 2** Short Grass Pasture Kv= 7.0 fps
1.1					**Direct Entry, Minimum TC**
6.0	326	Total			

Summary for Pond 1P: Area Behind Levee - Facemate

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 1.90" for 2-Year event
Inflow = 10.86 cfs @ 12.09 hrs, Volume= 0.792 af
Outflow = 6.76 cfs @ 12.20 hrs, Volume= 0.792 af, Atten= 38%, Lag= 6.7 min
Primary = 6.76 cfs @ 12.20 hrs, Volume= 0.792 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 90.49' @ 12.20 hrs Surf.Area= 9,286 sf Storage= 3,801 cf

Plug-Flow detention time= 9.8 min calculated for 0.791 af (100% of inflow)
Center-of-Mass det. time= 9.9 min (823.5 - 813.7)

Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	90.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=6.75 cfs @ 12.20 hrs HW=90.49' (Free Discharge)
1=Catch Basin (Orifice Controls 3.38 cfs @ 3.38 fps)
2=Catch Basin (Orifice Controls 3.38 cfs @ 3.38 fps)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 1.90" for 2-Year event
Inflow = 6.76 cfs @ 12.20 hrs, Volume= 0.792 af
Primary = 6.76 cfs @ 12.20 hrs, Volume= 0.792 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1S: EX-DA-1S - Facemate Site

Runoff = 18.98 cfs @ 12.09 hrs, Volume= 1.413 af, Depth= 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
173,521	89	<50% Grass cover, Poor, HSG D
17,024	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
21,109	79	Woods, Fair, HSG D
217,891	89	Weighted Average
194,630		89.32% Pervious Area
23,261		10.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.00"
3.7	190	0.0150	0.86		**Shallow Concentrated Flow, Shallow Conc. 1** Short Grass Pasture Kv= 7.0 fps
0.6	86	0.1360	2.58		**Shallow Concentrated Flow, Shallow Conc. 2** Short Grass Pasture Kv= 7.0 fps
1.1					**Direct Entry, Minimum TC**
6.0	326	Total			

Summary for Pond 1P: Area Behind Levee - Facemate

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 3.39" for 10-Year event
Inflow = 18.98 cfs @ 12.09 hrs, Volume= 1.413 af
Outflow = 9.42 cfs @ 12.25 hrs, Volume= 1.413 af, Atten= 50%, Lag= 9.6 min
Primary = 9.42 cfs @ 12.25 hrs, Volume= 1.413 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 90.96' @ 12.25 hrs Surf.Area= 12,250 sf Storage= 8,799 cf

Plug-Flow detention time= 10.8 min calculated for 1.412 af (100% of inflow)
Center-of-Mass det. time= 10.8 min (808.2 - 797.3)

Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	90.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=9.42 cfs @ 12.25 hrs HW=90.96' (Free Discharge)
1=Catch Basin (Orifice Controls 4.71 cfs @ 4.71 fps)
2=Catch Basin (Orifice Controls 4.71 cfs @ 4.71 fps)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 3.39" for 10-Year event
Inflow = 9.42 cfs @ 12.25 hrs, Volume= 1.413 af
Primary = 9.42 cfs @ 12.25 hrs, Volume= 1.413 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1S: EX-DA-1S - Facemate Site

Runoff = 22.52 cfs @ 12.09 hrs, Volume= 1.692 af, Depth= 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
173,521	89	<50% Grass cover, Poor, HSG D
17,024	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
21,109	79	Woods, Fair, HSG D
217,891	89	Weighted Average
194,630		89.32% Pervious Area
23,261		10.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.00"
3.7	190	0.0150	0.86		**Shallow Concentrated Flow, Shallow Conc. 1** Short Grass Pasture Kv= 7.0 fps
0.6	86	0.1360	2.58		**Shallow Concentrated Flow, Shallow Conc. 2** Short Grass Pasture Kv= 7.0 fps
1.1					**Direct Entry, Minimum TC**
6.0	326	Total			

Summary for Pond 1P: Area Behind Levee - Facemate

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 4.06" for 25-Year event
Inflow = 22.52 cfs @ 12.09 hrs, Volume= 1.692 af
Outflow = 10.38 cfs @ 12.27 hrs, Volume= 1.692 af, Atten= 54%, Lag= 10.8 min
Primary = 10.38 cfs @ 12.27 hrs, Volume= 1.692 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 91.16' @ 12.27 hrs Surf.Area= 13,565 sf Storage= 11,457 cf

Plug-Flow detention time= 11.5 min calculated for 1.691 af (100% of inflow)
Center-of-Mass det. time= 11.5 min (803.9 - 792.4)

Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	90.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=10.37 cfs @ 12.27 hrs HW=91.16' (Free Discharge)
1=Catch Basin (Orifice Controls 5.19 cfs @ 5.19 fps)
2=Catch Basin (Orifice Controls 5.19 cfs @ 5.19 fps)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 4.06" for 25-Year event
Inflow = 10.38 cfs @ 12.27 hrs, Volume= 1.692 af
Primary = 10.38 cfs @ 12.27 hrs, Volume= 1.692 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1S: EX-DA-1S - Facemate Site

Runoff = 28.57 cfs @ 12.09 hrs, Volume= 2.176 af, Depth= 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
173,521	89	<50% Grass cover, Poor, HSG D
17,024	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
21,109	79	Woods, Fair, HSG D
217,891	89	Weighted Average
194,630		89.32% Pervious Area
23,261		10.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.00"
3.7	190	0.0150	0.86		**Shallow Concentrated Flow, Shallow Conc. 1** Short Grass Pasture Kv= 7.0 fps
0.6	86	0.1360	2.58		**Shallow Concentrated Flow, Shallow Conc. 2** Short Grass Pasture Kv= 7.0 fps
1.1					**Direct Entry, Minimum TC**
6.0	326	Total			

Summary for Pond 1P: Area Behind Levee - Facemate

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 5.22" for 100-Year event
Inflow = 28.57 cfs @ 12.09 hrs, Volume= 2.176 af
Outflow = 11.81 cfs @ 12.30 hrs, Volume= 2.176 af, Atten= 59%, Lag= 12.9 min
Primary = 11.81 cfs @ 12.30 hrs, Volume= 2.176 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 91.50' @ 12.30 hrs Surf.Area= 15,747 sf Storage= 16,465 cf

Plug-Flow detention time= 12.9 min calculated for 2.175 af (100% of inflow)
Center-of-Mass det. time= 12.9 min (798.4 - 785.6)

Volume	Invert	Avail.Storage	Storage Description
#1	90.00'	25,050 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
90.00	6,140	0	0
92.00	18,910	25,050	25,050

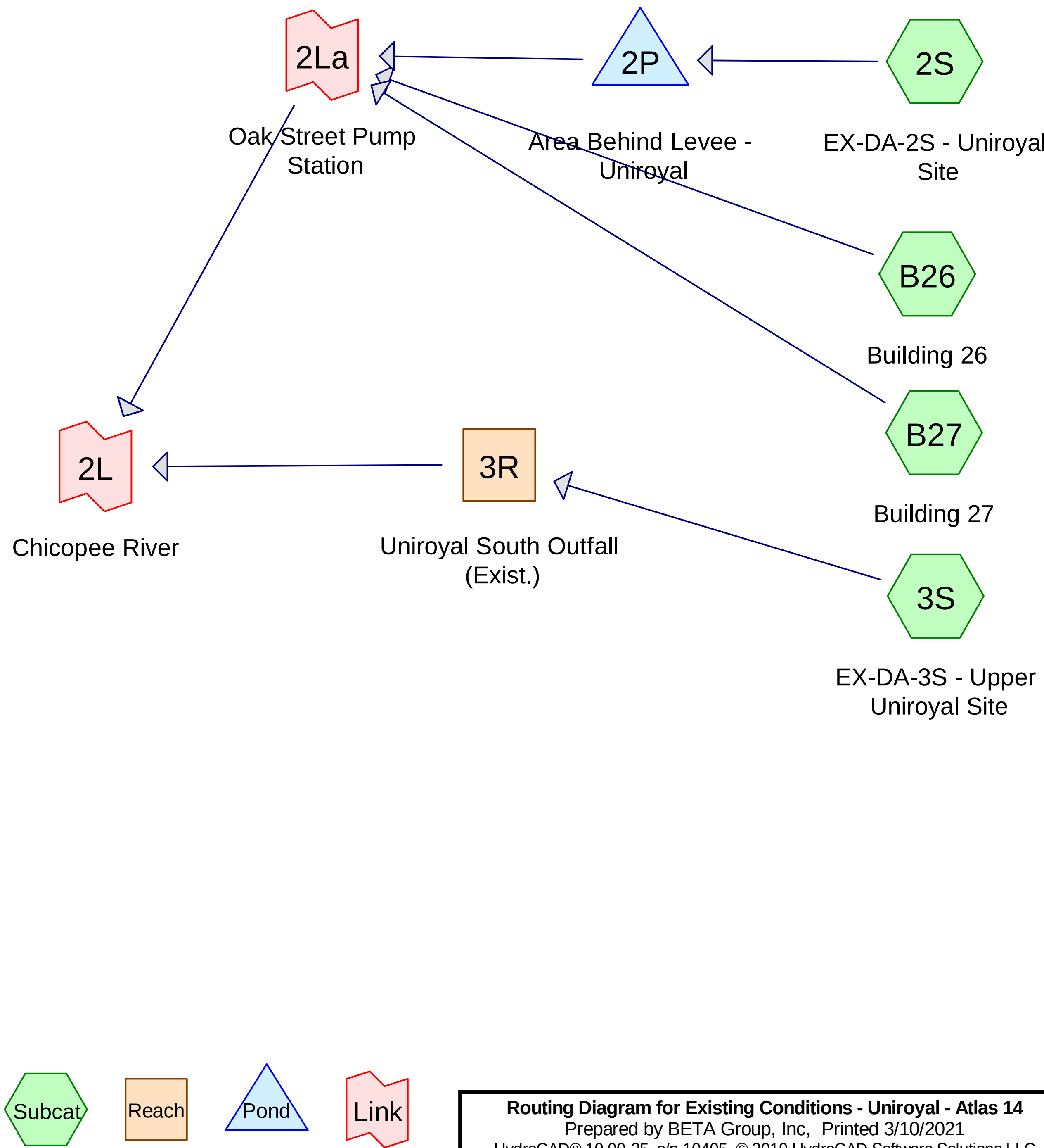
Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	90.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=11.81 cfs @ 12.30 hrs HW=91.50' (Free Discharge)
1=Catch Basin (Orifice Controls 5.90 cfs @ 5.90 fps)
2=Catch Basin (Orifice Controls 5.90 cfs @ 5.90 fps)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 5.002 ac, 10.68% Impervious, Inflow Depth = 5.22" for 100-Year event
Inflow = 11.81 cfs @ 12.30 hrs, Volume= 2.176 af
Primary = 11.81 cfs @ 12.30 hrs, Volume= 2.176 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs



Routing Diagram for Existing Conditions - Uniroyal - Atlas 14
Prepared by BETA Group, Inc, Printed 3/10/2021
HydroCAD® 10.00-25 s/n 10405 © 2019 HydroCAD Software Solutions LLC

Summary for Subcatchment 2S: EX-DA-2S - Uniroyal Site

Runoff = 24.02 cfs @ 12.10 hrs, Volume= 1.759 af, Depth= 1.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
496,843	89	<50% Grass cover, Poor, HSG D
67,169	98	Paved parking, HSG D
12,351	98	Roofs, HSG D
31,364	79	Woods, Fair, HSG D
607,728	90	Weighted Average
528,208		86.92% Pervious Area
79,520		13.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0520	0.21		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
2.3	245	0.0650	1.78		**Shallow Concentrated Flow, Shallow Conc. 1** Short Grass Pasture Kv= 7.0 fps
6.3	295	Total			

Summary for Subcatchment 3S: EX-DA-3S - Upper Uniroyal Site

Runoff = 6.32 cfs @ 12.09 hrs, Volume= 0.472 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
64,274	89	<50% Grass cover, Poor, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	94	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 0.57 cfs @ 12.09 hrs, Volume= 0.046 af, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 1.74 cfs @ 12.09 hrs, Volume= 0.140 af, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

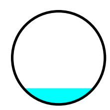
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 3.058 ac, 51.76% Impervious, Inflow Depth = 1.85" for 1-Year event
Inflow = 6.32 cfs @ 12.09 hrs, Volume= 0.472 af
Outflow = 6.26 cfs @ 12.10 hrs, Volume= 0.472 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.48 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.80 fps, Avg. Travel Time= 0.8 min

Peak Storage= 96 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.42'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 101.22 cfs

30.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 175.0' Slope= 0.0436 '/'
Inlet Invert= 85.85', Outlet Invert= 78.22'



Summary for Pond 2P: Area Behind Levee - Uniroyal

Inflow Area = 13.952 ac, 13.08% Impervious, Inflow Depth = 1.51" for 1-Year event
Inflow = 24.02 cfs @ 12.10 hrs, Volume= 1.759 af
Outflow = 8.33 cfs @ 12.40 hrs, Volume= 1.759 af, Atten= 65%, Lag= 18.1 min
Primary = 8.33 cfs @ 12.40 hrs, Volume= 1.759 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 84.33' @ 12.40 hrs Surf.Area= 71,240 sf Storage= 22,614 cf

Plug-Flow detention time= 58.1 min calculated for 1.758 af (100% of inflow)
Center-of-Mass det. time= 58.4 min (875.8 - 817.4)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	168,115 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	64,860	0	0
86.00	103,255	168,115	168,115

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#3	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=8.33 cfs @ 12.40 hrs HW=84.33' (Free Discharge)
—**1=Catch Basin** (Orifice Controls 2.78 cfs @ 2.78 fps)
—**2=Catch Basin** (Orifice Controls 2.78 cfs @ 2.78 fps)
—**3=Catch Basin** (Orifice Controls 2.78 cfs @ 2.78 fps)

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 24.44% Impervious, Inflow Depth = 1.61" for 1-Year event
Inflow = 15.73 cfs @ 12.11 hrs, Volume= 2.417 af
Primary = 15.73 cfs @ 12.11 hrs, Volume= 2.417 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2La: Oak Street Pump Station

Inflow Area = 14.943 ac, 18.85% Impervious, Inflow Depth = 1.56" for 1-Year event
Inflow = 9.44 cfs @ 12.14 hrs, Volume= 1.945 af
Primary = 9.44 cfs @ 12.14 hrs, Volume= 1.945 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 2S: EX-DA-2S - Uniroyal Site

Runoff = 32.97 cfs @ 12.09 hrs, Volume= 2.435 af, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
496,843	89	<50% Grass cover, Poor, HSG D
67,169	98	Paved parking, HSG D
12,351	98	Roofs, HSG D
31,364	79	Woods, Fair, HSG D
607,728	90	Weighted Average
528,208		86.92% Pervious Area
79,520		13.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0520	0.21		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
2.3	245	0.0650	1.78		**Shallow Concentrated Flow, Shallow Conc. 1** Short Grass Pasture Kv= 7.0 fps
6.3	295	Total			

Summary for Subcatchment 3S: EX-DA-3S - Upper Uniroyal Site

Runoff = 8.29 cfs @ 12.09 hrs, Volume= 0.629 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
64,274	89	<50% Grass cover, Poor, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	94	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 0.72 cfs @ 12.09 hrs, Volume= 0.059 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 2.21 cfs @ 12.09 hrs, Volume= 0.180 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

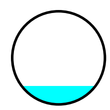
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 3.058 ac, 51.76% Impervious, Inflow Depth = 2.47" for 2-Year event
Inflow = 8.29 cfs @ 12.09 hrs, Volume= 0.629 af
Outflow = 8.23 cfs @ 12.09 hrs, Volume= 0.629 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.43 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.08 fps, Avg. Travel Time= 0.7 min

Peak Storage= 117 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.48'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 101.22 cfs

30.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 175.0' Slope= 0.0436 '/'
Inlet Invert= 85.85', Outlet Invert= 78.22'



Summary for Pond 2P: Area Behind Levee - Uniroyal

Inflow Area = 13.952 ac, 13.08% Impervious, Inflow Depth = 2.09" for 2-Year event
Inflow = 32.97 cfs @ 12.09 hrs, Volume= 2.435 af
Outflow = 9.91 cfs @ 12.43 hrs, Volume= 2.435 af, Atten= 70%, Lag= 20.4 min
Primary = 9.91 cfs @ 12.43 hrs, Volume= 2.435 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 84.47' @ 12.43 hrs Surf.Area= 73,889 sf Storage= 32,626 cf

Plug-Flow detention time= 57.1 min calculated for 2.434 af (100% of inflow)
Center-of-Mass det. time= 57.4 min (865.6 - 808.2)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	168,115 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	64,860	0	0
86.00	103,255	168,115	168,115

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#3	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=9.90 cfs @ 12.43 hrs HW=84.47' (Free Discharge)
—**1=Catch Basin** (Orifice Controls 3.30 cfs @ 3.30 fps)
—**2=Catch Basin** (Orifice Controls 3.30 cfs @ 3.30 fps)
—**3=Catch Basin** (Orifice Controls 3.30 cfs @ 3.30 fps)

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 24.44% Impervious, Inflow Depth = 2.20" for 2-Year event
Inflow = 19.41 cfs @ 12.10 hrs, Volume= 3.302 af
Primary = 19.41 cfs @ 12.10 hrs, Volume= 3.302 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2La: Oak Street Pump Station

Inflow Area = 14.943 ac, 18.85% Impervious, Inflow Depth = 2.15" for 2-Year event
Inflow = 11.23 cfs @ 12.13 hrs, Volume= 2.674 af
Primary = 11.23 cfs @ 12.13 hrs, Volume= 2.674 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 2S: EX-DA-2S - Uniroyal Site

Runoff = 59.95 cfs @ 12.09 hrs, Volume= 4.552 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
496,843	89	<50% Grass cover, Poor, HSG D
67,169	98	Paved parking, HSG D
12,351	98	Roofs, HSG D
31,364	79	Woods, Fair, HSG D
607,728	90	Weighted Average
528,208		86.92% Pervious Area
79,520		13.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0520	0.21		**Sheet Flow, Sheet Flow**
					Grass: Short n= 0.150 P2= 3.00"
2.3	245	0.0650	1.78		**Shallow Concentrated Flow, Shallow Conc. 1**
					Short Grass Pasture Kv= 7.0 fps
6.3	295	Total			

Summary for Subcatchment 3S: EX-DA-3S - Upper Uniroyal Site

Runoff = 14.15 cfs @ 12.09 hrs, Volume= 1.108 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
64,274	89	<50% Grass cover, Poor, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	94	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 1.18 cfs @ 12.09 hrs, Volume= 0.098 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 3.60 cfs @ 12.09 hrs, Volume= 0.299 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

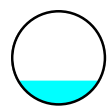
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 3.058 ac, 51.76% Impervious, Inflow Depth = 4.35" for 10-Year event
Inflow = 14.15 cfs @ 12.09 hrs, Volume= 1.108 af
Outflow = 14.06 cfs @ 12.09 hrs, Volume= 1.108 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 14.52 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.74 fps, Avg. Travel Time= 0.6 min

Peak Storage= 171 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.63'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 101.22 cfs

30.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 175.0' Slope= 0.0436 '/'
Inlet Invert= 85.85', Outlet Invert= 78.22'



Summary for Pond 2P: Area Behind Levee - Uniroyal

Inflow Area = 13.952 ac, 13.08% Impervious, Inflow Depth = 3.91" for 10-Year event
Inflow = 59.95 cfs @ 12.09 hrs, Volume= 4.552 af
Outflow = 13.71 cfs @ 12.50 hrs, Volume= 4.552 af, Atten= 77%, Lag= 24.3 min
Primary = 13.71 cfs @ 12.50 hrs, Volume= 4.552 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 84.90' @ 12.50 hrs Surf.Area= 82,142 sf Storage= 66,166 cf

Plug-Flow detention time= 61.8 min calculated for 4.549 af (100% of inflow)
Center-of-Mass det. time= 62.1 min (852.8 - 790.7)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	168,115 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	64,860	0	0
86.00	103,255	168,115	168,115

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#3	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=13.70 cfs @ 12.50 hrs HW=84.90' (Free Discharge)
—**1=Catch Basin** (Orifice Controls 4.57 cfs @ 4.57 fps)
—**2=Catch Basin** (Orifice Controls 4.57 cfs @ 4.57 fps)
—**3=Catch Basin** (Orifice Controls 4.57 cfs @ 4.57 fps)

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 24.44% Impervious, Inflow Depth = 4.04" for 10-Year event
Inflow = 29.98 cfs @ 12.10 hrs, Volume= 6.056 af
Primary = 29.98 cfs @ 12.10 hrs, Volume= 6.056 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2La: Oak Street Pump Station

Inflow Area = 14.943 ac, 18.85% Impervious, Inflow Depth = 3.97" for 10-Year event
Inflow = 16.09 cfs @ 12.12 hrs, Volume= 4.948 af
Primary = 16.09 cfs @ 12.12 hrs, Volume= 4.948 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 2S: EX-DA-2S - Uniroyal Site

Runoff = 76.54 cfs @ 12.09 hrs, Volume= 5.895 af, Depth= 5.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
496,843	89	<50% Grass cover, Poor, HSG D
67,169	98	Paved parking, HSG D
12,351	98	Roofs, HSG D
31,364	79	Woods, Fair, HSG D
607,728	90	Weighted Average
528,208		86.92% Pervious Area
79,520		13.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0520	0.21		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
2.3	245	0.0650	1.78		**Shallow Concentrated Flow, Shallow Conc. 1** Short Grass Pasture Kv= 7.0 fps
6.3	295	Total			

Summary for Subcatchment 3S: EX-DA-3S - Upper Uniroyal Site

Runoff = 17.74 cfs @ 12.09 hrs, Volume= 1.408 af, Depth= 5.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
64,274	89	<50% Grass cover, Poor, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	94	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 1.46 cfs @ 12.09 hrs, Volume= 0.122 af, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 4.46 cfs @ 12.09 hrs, Volume= 0.373 af, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

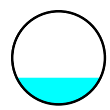
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 3.058 ac, 51.76% Impervious, Inflow Depth = 5.52" for 25-Year event
Inflow = 17.74 cfs @ 12.09 hrs, Volume= 1.408 af
Outflow = 17.64 cfs @ 12.09 hrs, Volume= 1.408 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 15.49 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 5.07 fps, Avg. Travel Time= 0.6 min

Peak Storage= 201 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.71'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 101.22 cfs

30.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 175.0' Slope= 0.0436 '/'
Inlet Invert= 85.85', Outlet Invert= 78.22'



Summary for Pond 2P: Area Behind Levee - Uniroyal

Inflow Area = 13.952 ac, 13.08% Impervious, Inflow Depth = 5.07" for 25-Year event
Inflow = 76.54 cfs @ 12.09 hrs, Volume= 5.895 af
Outflow = 15.59 cfs @ 12.52 hrs, Volume= 5.895 af, Atten= 80%, Lag= 25.8 min
Primary = 15.59 cfs @ 12.52 hrs, Volume= 5.895 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 85.16' @ 12.52 hrs Surf.Area= 87,220 sf Storage= 88,569 cf

Plug-Flow detention time= 66.7 min calculated for 5.891 af (100% of inflow)
Center-of-Mass det. time= 67.0 min (850.8 - 783.8)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	168,115 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	64,860	0	0
86.00	103,255	168,115	168,115

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#3	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=15.58 cfs @ 12.52 hrs HW=85.16' (Free Discharge)
—**1=Catch Basin** (Orifice Controls 5.19 cfs @ 5.19 fps)
—**2=Catch Basin** (Orifice Controls 5.19 cfs @ 5.19 fps)
—**3=Catch Basin** (Orifice Controls 5.19 cfs @ 5.19 fps)

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 24.44% Impervious, Inflow Depth = 5.20" for 25-Year event
Inflow = 36.17 cfs @ 12.10 hrs, Volume= 7.798 af
Primary = 36.17 cfs @ 12.10 hrs, Volume= 7.798 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2La: Oak Street Pump Station

Inflow Area = 14.943 ac, 18.85% Impervious, Inflow Depth = 5.13" for 25-Year event
Inflow = 18.70 cfs @ 12.12 hrs, Volume= 6.390 af
Primary = 18.70 cfs @ 12.12 hrs, Volume= 6.390 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 2S: EX-DA-2S - Uniroyal Site

Runoff = 101.97 cfs @ 12.09 hrs, Volume= 7.992 af, Depth= 6.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
496,843	89	<50% Grass cover, Poor, HSG D
67,169	98	Paved parking, HSG D
12,351	98	Roofs, HSG D
31,364	79	Woods, Fair, HSG D
607,728	90	Weighted Average
528,208		86.92% Pervious Area
79,520		13.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0520	0.21		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
2.3	245	0.0650	1.78		**Shallow Concentrated Flow, Shallow Conc. 1** Short Grass Pasture Kv= 7.0 fps
6.3	295	Total			

Summary for Subcatchment 3S: EX-DA-3S - Upper Uniroyal Site

Runoff = 23.25 cfs @ 12.09 hrs, Volume= 1.874 af, Depth= 7.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
64,274	89	<50% Grass cover, Poor, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	94	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 1.89 cfs @ 12.09 hrs, Volume= 0.159 af, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 5.78 cfs @ 12.09 hrs, Volume= 0.488 af, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

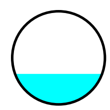
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 3.058 ac, 51.76% Impervious, Inflow Depth = 7.35" for 100-Year event
Inflow = 23.25 cfs @ 12.09 hrs, Volume= 1.874 af
Outflow = 23.12 cfs @ 12.09 hrs, Volume= 1.874 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 16.72 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 5.49 fps, Avg. Travel Time= 0.5 min

Peak Storage= 243 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.82'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 101.22 cfs

30.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 175.0' Slope= 0.0436 '/'
Inlet Invert= 85.85', Outlet Invert= 78.22'



Summary for Pond 2P: Area Behind Levee - Uniroyal

Inflow Area = 13.952 ac, 13.08% Impervious, Inflow Depth = 6.87" for 100-Year event
Inflow = 101.97 cfs @ 12.09 hrs, Volume= 7.992 af
Outflow = 18.06 cfs @ 12.55 hrs, Volume= 7.992 af, Atten= 82%, Lag= 27.7 min
Primary = 18.06 cfs @ 12.55 hrs, Volume= 7.992 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 85.56' @ 12.55 hrs Surf.Area= 94,872 sf Storage= 124,854 cf

Plug-Flow detention time= 75.2 min calculated for 7.987 af (100% of inflow)
Center-of-Mass det. time= 75.4 min (851.3 - 775.9)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	168,115 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	64,860	0	0
86.00	103,255	168,115	168,115

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#2	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads
#3	Primary	84.00'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" Grate (32% open area) Limited to weir flow at low heads

Primary OutFlow Max=18.06 cfs @ 12.55 hrs HW=85.56' (Free Discharge)
—**1=Catch Basin** (Orifice Controls 6.02 cfs @ 6.02 fps)
—**2=Catch Basin** (Orifice Controls 6.02 cfs @ 6.02 fps)
—**3=Catch Basin** (Orifice Controls 6.02 cfs @ 6.02 fps)

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 24.44% Impervious, Inflow Depth = 7.01" for 100-Year event
Inflow = 45.39 cfs @ 12.10 hrs, Volume= 10.513 af
Primary = 45.39 cfs @ 12.10 hrs, Volume= 10.513 af, Atten= 0%, Lag= 0.0 min

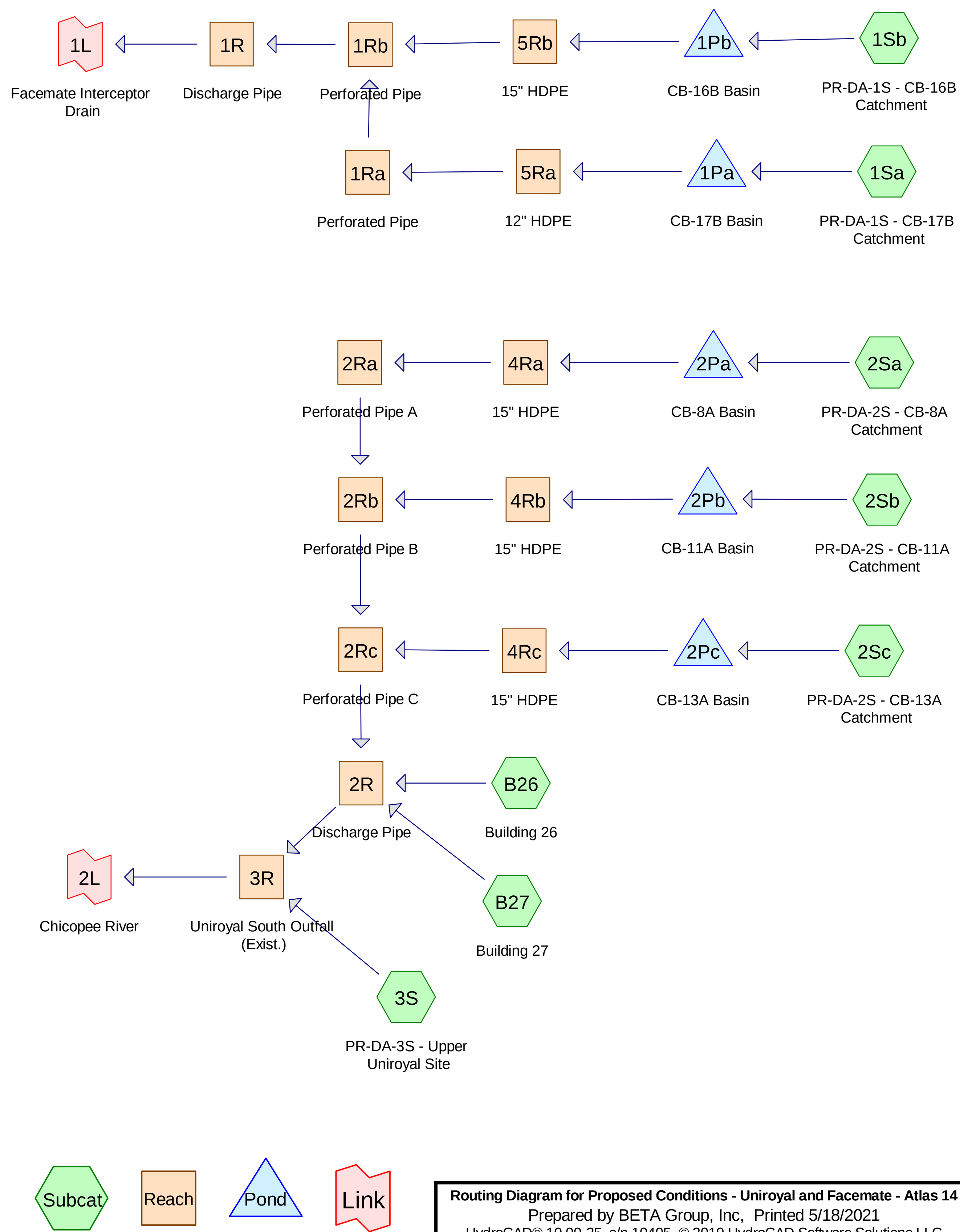
Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2La: Oak Street Pump Station

Inflow Area = 14.943 ac, 18.85% Impervious, Inflow Depth = 6.94" for 100-Year event
Inflow = 22.43 cfs @ 12.11 hrs, Volume= 8.639 af
Primary = 22.43 cfs @ 12.11 hrs, Volume= 8.639 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

APPENDIX F – PROPOSED CONDITIONS CALCULATIONS



Routing Diagram for Proposed Conditions - Uniroyal and Facemate - Atlas 14
Prepared by BETA Group, Inc, Printed 5/18/2021
HydroCAD® 10.00-25 s/n 10405 © 2019 HydroCAD Software Solutions LLC

Summary for Subcatchment 1Sa: PR-DA-1S - CB-17B Catchment

Runoff = 2.69 cfs @ 12.10 hrs, Volume= 0.197 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
74,164	80	>75% Grass cover, Good, HSG D
6,867	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
2,569	98	Water Surface, HSG D
9,314	79	Woods, Fair, HSG D
99,151	83	Weighted Average
83,478		84.19% Pervious Area
15,674		15.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.00"
2.6	190	0.0150	1.22		**Shallow Concentrated Flow, Shallow Conc. 1** Nearly Bare & Untilled Kv= 10.0 fps
0.7	96	0.0490	2.21		**Shallow Concentrated Flow, Shallow Conc. 2** Nearly Bare & Untilled Kv= 10.0 fps
2.1					**Direct Entry, Minimum TC**
6.0	336	Total			

Summary for Subcatchment 1Sb: PR-DA-1S - CB-16B Catchment

Runoff = 3.01 cfs @ 12.10 hrs, Volume= 0.222 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
93,694	80	>75% Grass cover, Good, HSG D
10,157	98	Paved parking, HSG D
2,498	98	Water Surface, HSG D
11,795	79	Woods, Fair, HSG D
118,144	82	Weighted Average
105,489		89.29% Pervious Area
12,655		10.71% Impervious Area

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

Summary for Subcatchment 2Sa: PR-DA-2S - CB-8A Catchment

Runoff = 3.63 cfs @ 12.17 hrs, Volume= 0.326 af, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
165,088	80	>75% Grass cover, Good, HSG D
5,904	98	Paved parking, HSG D
1,265	98	Roofs, HSG D
3,083	98	Water Surface, HSG D
8,216	79	Woods, Fair, HSG D
183,555	81	Weighted Average
173,304		94.42% Pervious Area
10,251		5.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	50	0.0070	0.09		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
3.1	235	0.0070	1.25		**Shallow Concentrated Flow, Shallow Conc. 1** Grassed Waterway Kv= 15.0 fps
11.9	285	Total			

Summary for Subcatchment 2Sb: PR-DA-2S - CB-11A Catchment

Runoff = 5.81 cfs @ 12.15 hrs, Volume= 0.493 af, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
265,478	80	>75% Grass cover, Good, HSG D
10,628	98	Paved parking, HSG D
1,422	98	Water Surface, HSG D
277,528	81	Weighted Average
265,478		95.66% Pervious Area
12,050		4.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0090	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
2.0	175	0.0090	1.42		**Shallow Concentrated Flow, Shallow Conc. 1** Grassed Waterway Kv= 15.0 fps
10.0	225	Total			

Summary for Subcatchment 2Sc: PR-DA-2S - CB-13A Catchment

Runoff = 4.22 cfs @ 12.10 hrs, Volume= 0.309 af, Depth= 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
108,361	80	>75% Grass cover, Good, HSG D
30,845	98	Paved parking, HSG D
1,607	98	Water Surface, HSG D
5,822	79	Woods, Fair, HSG D
146,635	84	Weighted Average
114,183		77.87% Pervious Area
32,452		22.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0220	0.15		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
0.3	40	0.0220	2.22		**Shallow Concentrated Flow, Shallow Conc.** Grassed Waterway Kv= 15.0 fps
0.1					**Direct Entry, Minimum TC**
6.0	90	Total			

Summary for Subcatchment 3S: PR-DA-3S - Upper Uniroyal Site

Runoff = 5.30 cfs @ 12.09 hrs, Volume= 0.386 af, Depth= 1.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
8,648	89	<50% Grass cover, Poor, HSG D
55,625	80	>75% Grass cover, Good, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	90	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 0.57 cfs @ 12.09 hrs, Volume= 0.046 af, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 1.74 cfs @ 12.09 hrs, Volume= 0.140 af, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.48"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

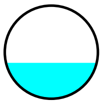
Summary for Reach 1R: Discharge Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 1.01" for 1-Year event
Inflow = 3.43 cfs @ 12.27 hrs, Volume= 0.420 af
Outflow = 3.38 cfs @ 12.28 hrs, Volume= 0.420 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.08 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.23 fps, Avg. Travel Time= 0.7 min

Peak Storage= 56 cf @ 12.27 hrs
Average Depth at Peak Storage= 0.77'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
n= 0.012
Length= 50.0' Slope= 0.0020 '/'
Inlet Invert= 85.35', Outlet Invert= 85.25'



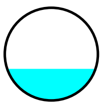
Summary for Reach 1Ra: Perforated Pipe

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 1.04" for 1-Year event
Inflow = 1.54 cfs @ 12.24 hrs, Volume= 0.197 af
Outflow = 1.53 cfs @ 12.30 hrs, Volume= 0.197 af, Atten= 1%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.92 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 1.19 fps, Avg. Travel Time= 4.9 min

Peak Storage= 184 cf @ 12.26 hrs
Average Depth at Peak Storage= 0.51'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.23 cfs

18.0" Round Pipe
n= 0.012
Length= 350.0' Slope= 0.0030 '/'
Inlet Invert= 87.20', Outlet Invert= 86.15'



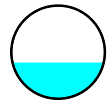
Summary for Reach 1Rb: Perforated Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 1.01" for 1-Year event
Inflow = 3.44 cfs @ 12.24 hrs, Volume= 0.420 af
Outflow = 3.43 cfs @ 12.27 hrs, Volume= 0.420 af, Atten= 0%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.09 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.23 fps, Avg. Travel Time= 2.0 min

Peak Storage= 167 cf @ 12.25 hrs
Average Depth at Peak Storage= 0.77'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
n= 0.012
Length= 150.0' Slope= 0.0020 '/'
Inlet Invert= 85.65', Outlet Invert= 85.35'



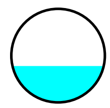
Summary for Reach 2R: Discharge Pipe

Inflow Area = 14.943 ac, 15.05% Impervious, Inflow Depth = 1.05" for 1-Year event
Inflow = 7.96 cfs @ 12.43 hrs, Volume= 1.313 af
Outflow = 7.92 cfs @ 12.44 hrs, Volume= 1.314 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 4.55 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.59 fps, Avg. Travel Time= 1.5 min

Peak Storage= 245 cf @ 12.44 hrs
Average Depth at Peak Storage= 0.96'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 25.19 cfs

30.0" Round Pipe
n= 0.012
Length= 140.0' Slope= 0.0032 '/'
Inlet Invert= 87.15', Outlet Invert= 86.70'



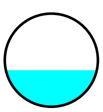
Summary for Reach 2Ra: Perforated Pipe A

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 0.93" for 1-Year event
Inflow = 2.23 cfs @ 12.39 hrs, Volume= 0.326 af
Outflow = 2.20 cfs @ 12.47 hrs, Volume= 0.326 af, Atten= 1%, Lag= 5.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 3.44 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 1.46 fps, Avg. Travel Time= 6.3 min

Peak Storage= 354 cf @ 12.43 hrs
Average Depth at Peak Storage= 0.58'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.83 cfs

18.0" Round Pipe
n= 0.012
Length= 555.0' Slope= 0.0036 '/'
Inlet Invert= 92.00', Outlet Invert= 90.00'



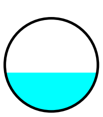
Summary for Reach 2Rb: Perforated Pipe B

Inflow Area = 10.585 ac, 4.84% Impervious, Inflow Depth = 0.93" for 1-Year event
Inflow = 5.33 cfs @ 12.46 hrs, Volume= 0.819 af
Outflow = 5.29 cfs @ 12.51 hrs, Volume= 0.819 af, Atten= 1%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 4.33 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 1.77 fps, Avg. Travel Time= 3.7 min

Peak Storage= 484 cf @ 12.47 hrs
Average Depth at Peak Storage= 0.83'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 14.85 cfs

24.0" Round Pipe
n= 0.012
Length= 395.0' Slope= 0.0037 '/'
Inlet Invert= 89.50', Outlet Invert= 88.05'



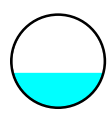
Summary for Reach 2Rc: Perforated Pipe C

Inflow Area = 13.951 ac, 9.01% Impervious, Inflow Depth = 0.97" for 1-Year event
Inflow = 7.38 cfs @ 12.44 hrs, Volume= 1.127 af
Outflow = 7.34 cfs @ 12.45 hrs, Volume= 1.128 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 4.38 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.74 fps, Avg. Travel Time= 1.2 min

Peak Storage= 218 cf @ 12.44 hrs
Average Depth at Peak Storage= 0.94'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 24.65 cfs

30.0" Round Pipe
n= 0.012
Length= 130.0' Slope= 0.0031 '/'
Inlet Invert= 87.55', Outlet Invert= 87.15'



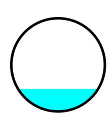
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 1.13" for 1-Year event
Inflow = 10.75 cfs @ 12.12 hrs, Volume= 1.699 af
Outflow = 10.40 cfs @ 12.13 hrs, Volume= 1.699 af, Atten= 3%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 11.82 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.10 fps, Avg. Travel Time= 0.7 min

Peak Storage= 157 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.60'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 85.65 cfs

30.0" Round Pipe
n= 0.013
Length= 175.0' Slope= 0.0436 '/'
Inlet Invert= 85.85', Outlet Invert= 78.22'



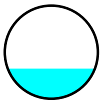
Summary for Reach 4Ra: 15" HDPE

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 0.93" for 1-Year event
Inflow = 2.23 cfs @ 12.39 hrs, Volume= 0.326 af
Outflow = 2.23 cfs @ 12.39 hrs, Volume= 0.326 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.51 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.86 fps, Avg. Travel Time= 0.0 min

Peak Storage= 2 cf @ 12.39 hrs
Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 5.0' Slope= 0.0200 '/'
Inlet Invert= 93.50', Outlet Invert= 93.40'



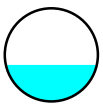
Summary for Reach 4Rb: 15" HDPE

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 0.93" for 1-Year event
Inflow = 3.17 cfs @ 12.38 hrs, Volume= 0.493 af
Outflow = 3.17 cfs @ 12.37 hrs, Volume= 0.493 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.17 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.99 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.49'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 10.0' Slope= 0.0200 '/'
Inlet Invert= 91.00', Outlet Invert= 90.80'



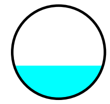
Summary for Reach 4Rc: 15" HDPE

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 1.10" for 1-Year event
Inflow = 2.62 cfs @ 12.21 hrs, Volume= 0.309 af
Outflow = 2.62 cfs @ 12.21 hrs, Volume= 0.309 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.81 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.63 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 10.0' Slope= 0.0200 '/'
Inlet Invert= 91.00', Outlet Invert= 90.80'



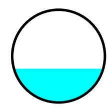
Summary for Reach 5Ra: 12" HDPE

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 1.04" for 1-Year event
Inflow = 1.54 cfs @ 12.23 hrs, Volume= 0.197 af
Outflow = 1.54 cfs @ 12.24 hrs, Volume= 0.197 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.98 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.50 fps, Avg. Travel Time= 0.0 min

Peak Storage= 1 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.36'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.46 cfs

12.0" Round Pipe
n= 0.012
Length= 5.0' Slope= 0.0200 '/'
Inlet Invert= 93.60', Outlet Invert= 93.50'



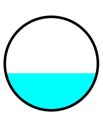
Summary for Reach 5Rb: 15" HDPE

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 0.98" for 1-Year event
Inflow = 2.02 cfs @ 12.21 hrs, Volume= 0.222 af
Outflow = 2.01 cfs @ 12.21 hrs, Volume= 0.222 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.48 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.80 fps, Avg. Travel Time= 0.1 min

Peak Storage= 6 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.49'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 6.14 cfs

15.0" Round Pipe
n= 0.012
Length= 13.0' Slope= 0.0077 '/'
Inlet Invert= 93.60', Outlet Invert= 93.50'



Summary for Pond 1Pa: CB-17B Basin

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 1.04" for 1-Year event
Inflow = 2.69 cfs @ 12.10 hrs, Volume= 0.197 af
Outflow = 1.54 cfs @ 12.23 hrs, Volume= 0.197 af, Atten= 43%, Lag= 8.3 min
Primary = 1.54 cfs @ 12.23 hrs, Volume= 0.197 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 97.51' @ 12.23 hrs Surf.Area= 4,853 sf Storage= 1,881 cf

Plug-Flow detention time= 80.9 min calculated for 0.197 af (100% of inflow)
Center-of-Mass det. time= 81.0 min (926.6 - 845.7)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	25,350 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,500	0	0
98.00	7,100	4,800	4,800
99.00	10,500	8,800	13,600
100.00	13,000	11,750	25,350

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 5.00 columns** X 5 rows C= 0.600 in 24.0" x 24.0" Grate (17% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=1.54 cfs @ 12.23 hrs HW=97.51' (Free Discharge)
1=Catch Basin (Orifice Controls 1.42 cfs @ 2.05 fps)
2=Exfiltration (Controls 0.12 cfs)

Summary for Pond 1Pb: CB-16B Basin

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 0.98" for 1-Year event
Inflow = 3.01 cfs @ 12.10 hrs, Volume= 0.222 af
Outflow = 2.02 cfs @ 12.21 hrs, Volume= 0.222 af, Atten= 33%, Lag= 6.5 min
Primary = 2.02 cfs @ 12.21 hrs, Volume= 0.222 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 97.50' @ 12.21 hrs Surf.Area= 5,052 sf Storage= 2,014 cf

Plug-Flow detention time= 83.0 min calculated for 0.222 af (100% of inflow)
Center-of-Mass det. time= 83.0 min (932.4 - 849.4)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	27,653 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,945	0	0
98.00	7,130	5,038	5,038
99.00	11,400	9,265	14,303
100.00	15,300	13,350	27,653

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=2.00 cfs @ 12.21 hrs HW=97.50' (Free Discharge)
1=Catch Basin (Weir Controls 1.88 cfs @ 1.36 fps)
2=Exfiltration (Controls 0.12 cfs)

Summary for Pond 2Pa: CB-8A Basin

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 0.93" for 1-Year event
Inflow = 3.63 cfs @ 12.17 hrs, Volume= 0.326 af
Outflow = 2.23 cfs @ 12.39 hrs, Volume= 0.326 af, Atten= 39%, Lag= 12.9 min
Primary = 2.23 cfs @ 12.39 hrs, Volume= 0.326 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 97.51' @ 12.39 hrs Surf.Area= 9,837 sf Storage= 3,270 cf

Plug-Flow detention time= 78.8 min calculated for 0.326 af (100% of inflow)
Center-of-Mass det. time= 78.8 min (937.4 - 858.6)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	47,780 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	3,000	0	0
98.00	16,420	9,710	9,710
99.00	19,000	17,710	27,420
100.00	21,720	20,360	47,780

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.00'

Primary OutFlow Max=2.22 cfs @ 12.39 hrs HW=97.51' (Free Discharge)
—**1=Catch Basin** (Weir Controls 1.98 cfs @ 1.38 fps)
—**2=Exfiltration** (Controls 0.24 cfs)

Summary for Pond 2Pb: CB-11A Basin

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 0.93" for 1-Year event
Inflow = 5.81 cfs @ 12.15 hrs, Volume= 0.493 af
Outflow = 3.17 cfs @ 12.38 hrs, Volume= 0.493 af, Atten= 45%, Lag= 13.8 min
Primary = 3.17 cfs @ 12.38 hrs, Volume= 0.493 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 95.19' @ 12.38 hrs Surf.Area= 11,022 sf Storage= 4,250 cf

Plug-Flow detention time= 56.7 min calculated for 0.493 af (100% of inflow)
Center-of-Mass det. time= 56.6 min (913.4 - 856.8)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	78,798 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,720	0	0
95.00	7,950	2,418	2,418
96.00	23,855	15,903	18,320
97.00	30,550	27,203	45,523
98.00	36,000	33,275	78,798

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=3.17 cfs @ 12.38 hrs HW=95.19' (Free Discharge)
—**1=Catch Basin** (Orifice Controls 2.90 cfs @ 2.90 fps)
—**2=Exfiltration** (Controls 0.27 cfs)

Summary for Pond 2Pc: CB-13A Basin

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 1.10" for 1-Year event
Inflow = 4.22 cfs @ 12.10 hrs, Volume= 0.309 af
Outflow = 2.62 cfs @ 12.21 hrs, Volume= 0.309 af, Atten= 38%, Lag= 7.0 min
Primary = 2.62 cfs @ 12.21 hrs, Volume= 0.309 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 95.09' @ 12.21 hrs Surf.Area= 6,482 sf Storage= 2,557 cf

Plug-Flow detention time= 61.4 min calculated for 0.309 af (100% of inflow)
Center-of-Mass det. time= 61.3 min (903.2 - 841.9)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	31,216 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,580	0	0
95.00	6,285	1,966	1,966
96.00	8,420	7,353	9,319
97.00	10,550	9,485	18,804
98.00	14,275	12,413	31,216

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=2.62 cfs @ 12.21 hrs HW=95.09' (Free Discharge)
—**1=Catch Basin** (Orifice Controls 2.46 cfs @ 2.46 fps)
—**2=Exfiltration** (Controls 0.16 cfs)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 1.01" for 1-Year event
Inflow = 3.38 cfs @ 12.28 hrs, Volume= 0.420 af
Primary = 3.38 cfs @ 12.28 hrs, Volume= 0.420 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 1.13" for 1-Year event
Inflow = 10.40 cfs @ 12.13 hrs, Volume= 1.699 af
Primary = 10.40 cfs @ 12.13 hrs, Volume= 1.699 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1Sa: PR-DA-1S - CB-17B Catchment

Runoff = 4.03 cfs @ 12.09 hrs, Volume= 0.293 af, Depth= 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
74,164	80	>75% Grass cover, Good, HSG D
6,867	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
2,569	98	Water Surface, HSG D
9,314	79	Woods, Fair, HSG D
99,151	83	Weighted Average
83,478		84.19% Pervious Area
15,674		15.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.00"
2.6	190	0.0150	1.22		**Shallow Concentrated Flow, Shallow Conc. 1** Nearly Bare & Untilled Kv= 10.0 fps
0.7	96	0.0490	2.21		**Shallow Concentrated Flow, Shallow Conc. 2** Nearly Bare & Untilled Kv= 10.0 fps
2.1					**Direct Entry, Minimum TC**
6.0	336	Total			

Summary for Subcatchment 1Sb: PR-DA-1S - CB-16B Catchment

Runoff = 4.58 cfs @ 12.09 hrs, Volume= 0.333 af, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
93,694	80	>75% Grass cover, Good, HSG D
10,157	98	Paved parking, HSG D
2,498	98	Water Surface, HSG D
11,795	79	Woods, Fair, HSG D
118,144	82	Weighted Average
105,489		89.29% Pervious Area
12,655		10.71% Impervious Area

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

Summary for Subcatchment 2Sa: PR-DA-2S - CB-8A Catchment

Runoff = 5.63 cfs @ 12.17 hrs, Volume= 0.494 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
165,088	80	>75% Grass cover, Good, HSG D
5,904	98	Paved parking, HSG D
1,265	98	Roofs, HSG D
3,083	98	Water Surface, HSG D
8,216	79	Woods, Fair, HSG D
183,555	81	Weighted Average
173,304		94.42% Pervious Area
10,251		5.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	50	0.0070	0.09		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
3.1	235	0.0070	1.25		**Shallow Concentrated Flow, Shallow Conc. 1** Grassed Waterway Kv= 15.0 fps
11.9	285	Total			

Summary for Subcatchment 2Sb: PR-DA-2S - CB-11A Catchment

Runoff = 8.99 cfs @ 12.15 hrs, Volume= 0.747 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
265,478	80	>75% Grass cover, Good, HSG D
10,628	98	Paved parking, HSG D
1,422	98	Water Surface, HSG D
277,528	81	Weighted Average
265,478		95.66% Pervious Area
12,050		4.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0090	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
2.0	175	0.0090	1.42		**Shallow Concentrated Flow, Shallow Conc. 1** Grassed Waterway Kv= 15.0 fps
10.0	225	Total			

Summary for Subcatchment 2Sc: PR-DA-2S - CB-13A Catchment

Runoff = 6.25 cfs @ 12.09 hrs, Volume= 0.453 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
108,361	80	>75% Grass cover, Good, HSG D
30,845	98	Paved parking, HSG D
1,607	98	Water Surface, HSG D
5,822	79	Woods, Fair, HSG D
146,635	84	Weighted Average
114,183		77.87% Pervious Area
32,452		22.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0220	0.15		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
0.3	40	0.0220	2.22		**Shallow Concentrated Flow, Shallow Conc.** Grassed Waterway Kv= 15.0 fps
0.1					**Direct Entry, Minimum TC**
6.0	90	Total			

Summary for Subcatchment 3S: PR-DA-3S - Upper Uniroyal Site

Runoff = 7.28 cfs @ 12.09 hrs, Volume= 0.534 af, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
8,648	89	<50% Grass cover, Poor, HSG D
55,625	80	>75% Grass cover, Good, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	90	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 0.72 cfs @ 12.09 hrs, Volume= 0.059 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 2.21 cfs @ 12.09 hrs, Volume= 0.180 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.12"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

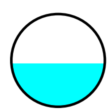
Summary for Reach 1R: Discharge Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 1.51" for 2-Year event
Inflow = 4.87 cfs @ 12.28 hrs, Volume= 0.626 af
Outflow = 4.87 cfs @ 12.29 hrs, Volume= 0.626 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.39 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.30 fps, Avg. Travel Time= 0.6 min

Peak Storage= 72 cf @ 12.28 hrs
Average Depth at Peak Storage= 0.93'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
n= 0.012
Length= 50.0' Slope= 0.0020 '/'
Inlet Invert= 85.35', Outlet Invert= 85.25'



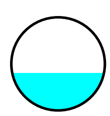
Summary for Reach 1Ra: Perforated Pipe

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 1.54" for 2-Year event
Inflow = 2.11 cfs @ 12.26 hrs, Volume= 0.293 af
Outflow = 2.11 cfs @ 12.31 hrs, Volume= 0.293 af, Atten= 0%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.18 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 1.26 fps, Avg. Travel Time= 4.6 min

Peak Storage= 232 cf @ 12.28 hrs
Average Depth at Peak Storage= 0.60'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.23 cfs

18.0" Round Pipe
n= 0.012
Length= 350.0' Slope= 0.0030 '/'
Inlet Invert= 87.20', Outlet Invert= 86.15'



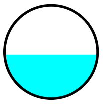
Summary for Reach 1Rb: Perforated Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 1.51" for 2-Year event
Inflow = 4.88 cfs @ 12.26 hrs, Volume= 0.626 af
Outflow = 4.87 cfs @ 12.28 hrs, Volume= 0.626 af, Atten= 0%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.39 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.30 fps, Avg. Travel Time= 1.9 min

Peak Storage= 216 cf @ 12.27 hrs
Average Depth at Peak Storage= 0.94'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
n= 0.012
Length= 150.0' Slope= 0.0020 '/'
Inlet Invert= 85.65', Outlet Invert= 85.35'



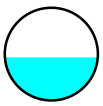
Summary for Reach 2R: Discharge Pipe

Inflow Area = 14.943 ac, 15.05% Impervious, Inflow Depth = 1.55" for 2-Year event
Inflow = 10.97 cfs @ 12.39 hrs, Volume= 1.932 af
Outflow = 10.95 cfs @ 12.41 hrs, Volume= 1.932 af, Atten= 0%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 4.95 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.72 fps, Avg. Travel Time= 1.4 min

Peak Storage= 310 cf @ 12.40 hrs
Average Depth at Peak Storage= 1.15'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 25.19 cfs

30.0" Round Pipe
n= 0.012
Length= 140.0' Slope= 0.0032 '/'
Inlet Invert= 87.15', Outlet Invert= 86.70'



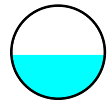
Summary for Reach 2Ra: Perforated Pipe A

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 1.41" for 2-Year event
Inflow = 3.06 cfs @ 12.42 hrs, Volume= 0.494 af
Outflow = 3.05 cfs @ 12.49 hrs, Volume= 0.494 af, Atten= 0%, Lag= 4.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 3.76 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 1.55 fps, Avg. Travel Time= 6.0 min

Peak Storage= 451 cf @ 12.45 hrs
Average Depth at Peak Storage= 0.70'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.83 cfs

18.0" Round Pipe
n= 0.012
Length= 555.0' Slope= 0.0036 '/'
Inlet Invert= 92.00', Outlet Invert= 90.00'



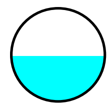
Summary for Reach 2Rb: Perforated Pipe B

Inflow Area = 10.585 ac, 4.84% Impervious, Inflow Depth = 1.41" for 2-Year event
Inflow = 7.11 cfs @ 12.47 hrs, Volume= 1.241 af
Outflow = 7.10 cfs @ 12.51 hrs, Volume= 1.241 af, Atten= 0%, Lag= 2.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 4.67 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 1.91 fps, Avg. Travel Time= 3.4 min

Peak Storage= 600 cf @ 12.49 hrs
Average Depth at Peak Storage= 0.97'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 14.85 cfs

24.0" Round Pipe
n= 0.012
Length= 395.0' Slope= 0.0037 '/'
Inlet Invert= 89.50', Outlet Invert= 88.05'



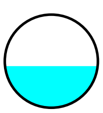
Summary for Reach 2Rc: Perforated Pipe C

Inflow Area = 13.951 ac, 9.01% Impervious, Inflow Depth = 1.46" for 2-Year event
Inflow = 10.13 cfs @ 12.43 hrs, Volume= 1.694 af
Outflow = 10.12 cfs @ 12.44 hrs, Volume= 1.694 af, Atten= 0%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 4.77 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.87 fps, Avg. Travel Time= 1.2 min

Peak Storage= 276 cf @ 12.43 hrs
Average Depth at Peak Storage= 1.12'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 24.65 cfs

30.0" Round Pipe
n= 0.012
Length= 130.0' Slope= 0.0031 '/'
Inlet Invert= 87.55', Outlet Invert= 87.15'



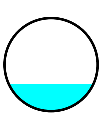
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 1.64" for 2-Year event
Inflow = 15.57 cfs @ 12.11 hrs, Volume= 2.466 af
Outflow = 15.36 cfs @ 12.11 hrs, Volume= 2.466 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 13.22 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.46 fps, Avg. Travel Time= 0.7 min

Peak Storage= 204 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.72'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 85.65 cfs

30.0" Round Pipe
n= 0.013
Length= 175.0' Slope= 0.0436 '/'
Inlet Invert= 85.85', Outlet Invert= 78.22'



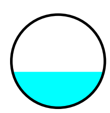
Summary for Reach 4Ra: 15" HDPE

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 1.41" for 2-Year event
Inflow = 3.06 cfs @ 12.42 hrs, Volume= 0.494 af
Outflow = 3.06 cfs @ 12.42 hrs, Volume= 0.494 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.11 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.04 fps, Avg. Travel Time= 0.0 min

Peak Storage= 2 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.48'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 5.0' Slope= 0.0200 '/'
Inlet Invert= 93.50', Outlet Invert= 93.40'



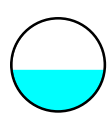
Summary for Reach 4Rb: 15" HDPE

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 1.41" for 2-Year event
Inflow = 4.07 cfs @ 12.44 hrs, Volume= 0.747 af
Outflow = 4.07 cfs @ 12.44 hrs, Volume= 0.747 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.67 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.22 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.44 hrs
Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 10.0' Slope= 0.0200 '/'
Inlet Invert= 91.00', Outlet Invert= 90.80'



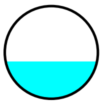
Summary for Reach 4Rc: 15" HDPE

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 1.62" for 2-Year event
Inflow = 3.36 cfs @ 12.24 hrs, Volume= 0.453 af
Outflow = 3.37 cfs @ 12.25 hrs, Volume= 0.453 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.29 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.79 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.50'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 10.0' Slope= 0.0200 '/'
Inlet Invert= 91.00', Outlet Invert= 90.80'



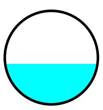
Summary for Reach 5Ra: 12" HDPE

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 1.54" for 2-Year event
Inflow = 2.11 cfs @ 12.26 hrs, Volume= 0.293 af
Outflow = 2.11 cfs @ 12.26 hrs, Volume= 0.293 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.51 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.65 fps, Avg. Travel Time= 0.0 min

Peak Storage= 2 cf @ 12.25 hrs
Average Depth at Peak Storage= 0.43'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.46 cfs

12.0" Round Pipe
n= 0.012
Length= 5.0' Slope= 0.0200 '/'
Inlet Invert= 93.60', Outlet Invert= 93.50'



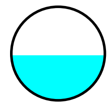
Summary for Reach 5Rb: 15" HDPE

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 1.47" for 2-Year event
Inflow = 2.84 cfs @ 12.21 hrs, Volume= 0.333 af
Outflow = 2.85 cfs @ 12.21 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.91 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.90 fps, Avg. Travel Time= 0.1 min

Peak Storage= 8 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.60'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 6.14 cfs

15.0" Round Pipe
n= 0.012
Length= 13.0' Slope= 0.0077 '/'
Inlet Invert= 93.60', Outlet Invert= 93.50'



Summary for Pond 1Pa: CB-17B Basin

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 1.54" for 2-Year event
Inflow = 4.03 cfs @ 12.09 hrs, Volume= 0.293 af
Outflow = 2.11 cfs @ 12.26 hrs, Volume= 0.293 af, Atten= 48%, Lag= 9.7 min
Primary = 2.11 cfs @ 12.26 hrs, Volume= 0.293 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 97.68' @ 12.26 hrs Surf.Area= 5,624 sf Storage= 2,758 cf

Plug-Flow detention time= 69.0 min calculated for 0.293 af (100% of inflow)
Center-of-Mass det. time= 69.1 min (903.2 - 834.1)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	25,350 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,500	0	0
98.00	7,100	4,800	4,800
99.00	10,500	8,800	13,600
100.00	13,000	11,750	25,350

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 5.00 columns** X 5 rows C= 0.600 in 24.0" x 24.0" Grate (17% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=2.11 cfs @ 12.26 hrs HW=97.68' (Free Discharge)
1=Catch Basin (Orifice Controls 1.97 cfs @ 2.84 fps)
2=Exfiltration (Controls 0.14 cfs)

Summary for Pond 1Pb: CB-16B Basin

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 1.47" for 2-Year event
Inflow = 4.58 cfs @ 12.09 hrs, Volume= 0.333 af
Outflow = 2.84 cfs @ 12.21 hrs, Volume= 0.333 af, Atten= 38%, Lag= 7.0 min
Primary = 2.84 cfs @ 12.21 hrs, Volume= 0.333 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 97.65' @ 12.21 hrs Surf.Area= 5,648 sf Storage= 2,776 cf

Plug-Flow detention time= 69.0 min calculated for 0.333 af (100% of inflow)
Center-of-Mass det. time= 69.1 min (906.6 - 837.5)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	27,653 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,945	0	0
98.00	7,130	5,038	5,038
99.00	11,400	9,265	14,303
100.00	15,300	13,350	27,653

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=2.84 cfs @ 12.21 hrs HW=97.64' (Free Discharge)
1=Catch Basin (Orifice Controls 2.70 cfs @ 2.70 fps)
2=Exfiltration (Controls 0.14 cfs)

Summary for Pond 2Pa: CB-8A Basin

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 1.41" for 2-Year event
Inflow = 5.63 cfs @ 12.17 hrs, Volume= 0.494 af
Outflow = 3.06 cfs @ 12.42 hrs, Volume= 0.494 af, Atten= 46%, Lag= 14.9 min
Primary = 3.06 cfs @ 12.42 hrs, Volume= 0.494 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 97.66' @ 12.42 hrs Surf.Area= 11,885 sf Storage= 4,928 cf

Plug-Flow detention time= 67.5 min calculated for 0.494 af (100% of inflow)
Center-of-Mass det. time= 67.4 min (913.7 - 846.3)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	47,780 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	3,000	0	0
98.00	16,420	9,710	9,710
99.00	19,000	17,710	27,420
100.00	21,720	20,360	47,780

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.00'

Primary OutFlow Max=3.06 cfs @ 12.42 hrs HW=97.66' (Free Discharge)
1=Catch Basin (Orifice Controls 2.77 cfs @ 2.77 fps)
2=Exfiltration (Controls 0.29 cfs)

Summary for Pond 2Pb: CB-11A Basin

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 1.41" for 2-Year event
Inflow = 8.99 cfs @ 12.15 hrs, Volume= 0.747 af
Outflow = 4.07 cfs @ 12.44 hrs, Volume= 0.747 af, Atten= 55%, Lag= 17.2 min
Primary = 4.07 cfs @ 12.44 hrs, Volume= 0.747 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 95.42' @ 12.44 hrs Surf.Area= 14,680 sf Storage= 7,206 cf

Plug-Flow detention time= 47.1 min calculated for 0.746 af (100% of inflow)
Center-of-Mass det. time= 47.2 min (891.7 - 844.5)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	78,798 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,720	0	0
95.00	7,950	2,418	2,418
96.00	23,855	15,903	18,320
97.00	30,550	27,203	45,523
98.00	36,000	33,275	78,798

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=4.06 cfs @ 12.44 hrs HW=95.42' (Free Discharge)
1=Catch Basin (Orifice Controls 3.71 cfs @ 3.71 fps)
2=Exfiltration (Controls 0.36 cfs)

Summary for Pond 2Pc: CB-13A Basin

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 1.62" for 2-Year event
Inflow = 6.25 cfs @ 12.09 hrs, Volume= 0.453 af
Outflow = 3.36 cfs @ 12.24 hrs, Volume= 0.453 af, Atten= 46%, Lag= 9.0 min
Primary = 3.36 cfs @ 12.24 hrs, Volume= 0.453 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 95.27' @ 12.24 hrs Surf.Area= 6,863 sf Storage= 3,746 cf

Plug-Flow detention time= 52.1 min calculated for 0.453 af (100% of inflow)
Center-of-Mass det. time= 52.2 min (883.0 - 830.7)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	31,216 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,580	0	0
95.00	6,285	1,966	1,966
96.00	8,420	7,353	9,319
97.00	10,550	9,485	18,804
98.00	14,275	12,413	31,216

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=3.36 cfs @ 12.24 hrs HW=95.27' (Free Discharge)
1=Catch Basin (Orifice Controls 3.19 cfs @ 3.19 fps)
2=Exfiltration (Controls 0.17 cfs)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 1.51" for 2-Year event
Inflow = 4.87 cfs @ 12.29 hrs, Volume= 0.626 af
Primary = 4.87 cfs @ 12.29 hrs, Volume= 0.626 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 1.64" for 2-Year event
Inflow = 15.36 cfs @ 12.11 hrs, Volume= 2.466 af
Primary = 15.36 cfs @ 12.11 hrs, Volume= 2.466 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1Sa: PR-DA-1S - CB-17B Catchment

Runoff = 8.35 cfs @ 12.09 hrs, Volume= 0.609 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
74,164	80	>75% Grass cover, Good, HSG D
6,867	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
2,569	98	Water Surface, HSG D
9,314	79	Woods, Fair, HSG D
99,151	83	Weighted Average
83,478		84.19% Pervious Area
15,674		15.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.00"
2.6	190	0.0150	1.22		**Shallow Concentrated Flow, Shallow Conc. 1** Nearly Bare & Untilled Kv= 10.0 fps
0.7	96	0.0490	2.21		**Shallow Concentrated Flow, Shallow Conc. 2** Nearly Bare & Untilled Kv= 10.0 fps
2.1					**Direct Entry, Minimum TC**
6.0	336	Total			

Summary for Subcatchment 1Sb: PR-DA-1S - CB-16B Catchment

Runoff = 9.67 cfs @ 12.09 hrs, Volume= 0.704 af, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
93,694	80	>75% Grass cover, Good, HSG D
10,157	98	Paved parking, HSG D
2,498	98	Water Surface, HSG D
11,795	79	Woods, Fair, HSG D
118,144	82	Weighted Average
105,489		89.29% Pervious Area
12,655		10.71% Impervious Area

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

Summary for Subcatchment 2Sa: PR-DA-2S - CB-8A Catchment

Runoff = 12.21 cfs @ 12.17 hrs, Volume= 1.061 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
165,088	80	>75% Grass cover, Good, HSG D
5,904	98	Paved parking, HSG D
1,265	98	Roofs, HSG D
3,083	98	Water Surface, HSG D
8,216	79	Woods, Fair, HSG D
183,555	81	Weighted Average
173,304		94.42% Pervious Area
10,251		5.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	50	0.0070	0.09		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
3.1	235	0.0070	1.25		**Shallow Concentrated Flow, Shallow Conc. 1** Grassed Waterway Kv= 15.0 fps
11.9	285	Total			

Summary for Subcatchment 2Sb: PR-DA-2S - CB-11A Catchment

Runoff = 19.46 cfs @ 12.14 hrs, Volume= 1.604 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
265,478	80	>75% Grass cover, Good, HSG D
10,628	98	Paved parking, HSG D
1,422	98	Water Surface, HSG D
277,528	81	Weighted Average
265,478		95.66% Pervious Area
12,050		4.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0090	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
2.0	175	0.0090	1.42		**Shallow Concentrated Flow, Shallow Conc. 1** Grassed Waterway Kv= 15.0 fps
10.0	225	Total			

Summary for Subcatchment 2Sc: PR-DA-2S - CB-13A Catchment

Runoff = 12.68 cfs @ 12.09 hrs, Volume= 0.928 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
108,361	80	>75% Grass cover, Good, HSG D
30,845	98	Paved parking, HSG D
1,607	98	Water Surface, HSG D
5,822	79	Woods, Fair, HSG D
146,635	84	Weighted Average
114,183		77.87% Pervious Area
32,452		22.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0220	0.15		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
0.3	40	0.0220	2.22		**Shallow Concentrated Flow, Shallow Conc.** Grassed Waterway Kv= 15.0 fps
0.1					**Direct Entry, Minimum TC**
6.0	90	Total			

Summary for Subcatchment 3S: PR-DA-3S - Upper Uniroyal Site

Runoff = 13.23 cfs @ 12.09 hrs, Volume= 0.998 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
8,648	89	<50% Grass cover, Poor, HSG D
55,625	80	>75% Grass cover, Good, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	90	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 1.18 cfs @ 12.09 hrs, Volume= 0.098 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 3.60 cfs @ 12.09 hrs, Volume= 0.299 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=5.04"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

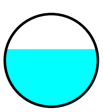
Summary for Reach 1R: Discharge Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 3.16" for 10-Year event
Inflow = 7.76 cfs @ 12.34 hrs, Volume= 1.313 af
Outflow = 7.75 cfs @ 12.35 hrs, Volume= 1.313 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.78 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 0.6 min

Peak Storage= 103 cf @ 12.35 hrs
Average Depth at Peak Storage= 1.24'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
n= 0.012
Length= 50.0' Slope= 0.0020 '/'
Inlet Invert= 85.35', Outlet Invert= 85.25'



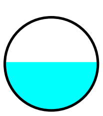
Summary for Reach 1Ra: Perforated Pipe

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 3.21" for 10-Year event
Inflow = 3.28 cfs @ 12.34 hrs, Volume= 0.609 af
Outflow = 3.28 cfs @ 12.39 hrs, Volume= 0.609 af, Atten= 0%, Lag= 2.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.57 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.43 fps, Avg. Travel Time= 4.1 min

Peak Storage= 322 cf @ 12.36 hrs
Average Depth at Peak Storage= 0.77'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.23 cfs

18.0" Round Pipe
n= 0.012
Length= 350.0' Slope= 0.0030 '/'
Inlet Invert= 87.20', Outlet Invert= 86.15'



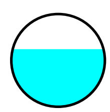
Summary for Reach 1Rb: Perforated Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 3.16" for 10-Year event
Inflow = 7.77 cfs @ 12.32 hrs, Volume= 1.313 af
Outflow = 7.76 cfs @ 12.34 hrs, Volume= 1.313 af, Atten= 0%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.78 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 1.7 min

Peak Storage= 308 cf @ 12.33 hrs
Average Depth at Peak Storage= 1.24'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
n= 0.012
Length= 150.0' Slope= 0.0020 '/'
Inlet Invert= 85.65', Outlet Invert= 85.35'



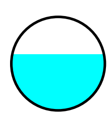
Summary for Reach 2R: Discharge Pipe

Inflow Area = 14.943 ac, 15.05% Impervious, Inflow Depth = 3.20" for 10-Year event
Inflow = 16.83 cfs @ 12.40 hrs, Volume= 3.989 af
Outflow = 16.82 cfs @ 12.41 hrs, Volume= 3.989 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 5.50 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.06 fps, Avg. Travel Time= 1.1 min

Peak Storage= 428 cf @ 12.40 hrs
Average Depth at Peak Storage= 1.49'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 25.19 cfs

30.0" Round Pipe
n= 0.012
Length= 140.0' Slope= 0.0032 '/'
Inlet Invert= 87.15', Outlet Invert= 86.70'



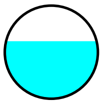
Summary for Reach 2Ra: Perforated Pipe A

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 3.02" for 10-Year event
Inflow = 4.77 cfs @ 12.51 hrs, Volume= 1.061 af
Outflow = 4.76 cfs @ 12.58 hrs, Volume= 1.061 af, Atten= 0%, Lag= 4.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 4.18 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 1.77 fps, Avg. Travel Time= 5.2 min

Peak Storage= 633 cf @ 12.54 hrs
Average Depth at Peak Storage= 0.92'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.83 cfs

18.0" Round Pipe
n= 0.012
Length= 555.0' Slope= 0.0036 '/'
Inlet Invert= 92.00', Outlet Invert= 90.00'



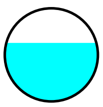
Summary for Reach 2Rb: Perforated Pipe B

Inflow Area = 10.585 ac, 4.84% Impervious, Inflow Depth = 3.02" for 10-Year event
Inflow = 10.68 cfs @ 12.56 hrs, Volume= 2.665 af
Outflow = 10.67 cfs @ 12.60 hrs, Volume= 2.665 af, Atten= 0%, Lag= 2.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 5.14 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 2.22 fps, Avg. Travel Time= 3.0 min

Peak Storage= 820 cf @ 12.57 hrs
Average Depth at Peak Storage= 1.26'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 14.85 cfs

24.0" Round Pipe
n= 0.012
Length= 395.0' Slope= 0.0037 '/'
Inlet Invert= 89.50', Outlet Invert= 88.05'



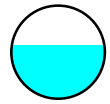
Summary for Reach 2Rc: Perforated Pipe C

Inflow Area = 13.951 ac, 9.01% Impervious, Inflow Depth = 3.09" for 10-Year event
Inflow = 15.59 cfs @ 12.49 hrs, Volume= 3.592 af
Outflow = 15.58 cfs @ 12.50 hrs, Volume= 3.592 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 5.31 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.17 fps, Avg. Travel Time= 1.0 min

Peak Storage= 381 cf @ 12.49 hrs
Average Depth at Peak Storage= 1.44'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 24.65 cfs

30.0" Round Pipe
n= 0.012
Length= 130.0' Slope= 0.0031 '/'
Inlet Invert= 87.55', Outlet Invert= 87.15'



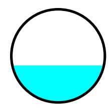
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 3.32" for 10-Year event
Inflow = 28.43 cfs @ 12.10 hrs, Volume= 4.987 af
Outflow = 28.13 cfs @ 12.11 hrs, Volume= 4.987 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 15.65 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 5.32 fps, Avg. Travel Time= 0.5 min

Peak Storage= 316 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.99'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 85.65 cfs

30.0" Round Pipe
n= 0.013
Length= 175.0' Slope= 0.0436 '/'
Inlet Invert= 85.85', Outlet Invert= 78.22'



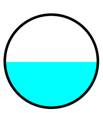
Summary for Reach 4Ra: 15" HDPE

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 3.02" for 10-Year event
Inflow = 4.77 cfs @ 12.51 hrs, Volume= 1.061 af
Outflow = 4.77 cfs @ 12.51 hrs, Volume= 1.061 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.99 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.47 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.51 hrs
Average Depth at Peak Storage= 0.61'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 5.0' Slope= 0.0200 '/'
Inlet Invert= 93.50', Outlet Invert= 93.40'



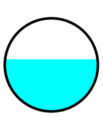
Summary for Reach 4Rb: 15" HDPE

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 3.02" for 10-Year event
Inflow = 5.92 cfs @ 12.53 hrs, Volume= 1.604 af
Outflow = 5.92 cfs @ 12.53 hrs, Volume= 1.604 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.42 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.80 fps, Avg. Travel Time= 0.0 min

Peak Storage= 7 cf @ 12.53 hrs
Average Depth at Peak Storage= 0.70'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 10.0' Slope= 0.0200 '/'
Inlet Invert= 91.00', Outlet Invert= 90.80'



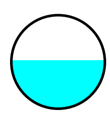
Summary for Reach 4Rc: 15" HDPE

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 3.31" for 10-Year event
Inflow = 5.21 cfs @ 12.32 hrs, Volume= 0.928 af
Outflow = 5.21 cfs @ 12.32 hrs, Volume= 0.928 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.17 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.22 fps, Avg. Travel Time= 0.1 min

Peak Storage= 6 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.64'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 10.0' Slope= 0.0200 '/'
Inlet Invert= 91.00', Outlet Invert= 90.80'



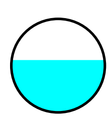
Summary for Reach 5Ra: 12" HDPE

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 3.21" for 10-Year event
Inflow = 3.28 cfs @ 12.34 hrs, Volume= 0.609 af
Outflow = 3.28 cfs @ 12.34 hrs, Volume= 0.609 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.27 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 2 cf @ 12.34 hrs
Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.46 cfs

12.0" Round Pipe
n= 0.012
Length= 5.0' Slope= 0.0200 '/'
Inlet Invert= 93.60', Outlet Invert= 93.50'



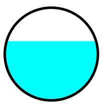
Summary for Reach 5Rb: 15" HDPE

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 3.11" for 10-Year event
Inflow = 4.52 cfs @ 12.28 hrs, Volume= 0.704 af
Outflow = 4.52 cfs @ 12.28 hrs, Volume= 0.704 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.47 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.15 fps, Avg. Travel Time= 0.1 min

Peak Storage= 11 cf @ 12.28 hrs
Average Depth at Peak Storage= 0.80'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 6.14 cfs

15.0" Round Pipe
n= 0.012
Length= 13.0' Slope= 0.0077 '/'
Inlet Invert= 93.60', Outlet Invert= 93.50'



Summary for Pond 1Pa: CB-17B Basin

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 3.21" for 10-Year event
Inflow = 8.35 cfs @ 12.09 hrs, Volume= 0.609 af
Outflow = 3.28 cfs @ 12.34 hrs, Volume= 0.609 af, Atten= 61%, Lag= 14.9 min
Primary = 3.28 cfs @ 12.34 hrs, Volume= 0.609 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 98.19' @ 12.34 hrs Surf.Area= 7,729 sf Storage= 6,172 cf

Plug-Flow detention time= 51.1 min calculated for 0.609 af (100% of inflow)
Center-of-Mass det. time= 51.2 min (864.3 - 813.1)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	25,350 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,500	0	0
98.00	7,100	4,800	4,800
99.00	10,500	8,800	13,600
100.00	13,000	11,750	25,350

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 5.00 columns** X 5 rows C= 0.600 in 24.0" x 24.0" Grate (17% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=3.28 cfs @ 12.34 hrs HW=98.18' (Free Discharge)
↑—**1=Catch Basin** (Orifice Controls 3.09 cfs @ 4.45 fps)
└—**2=Exfiltration** (Controls 0.19 cfs)

Summary for Pond 1Pb: CB-16B Basin

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 3.11" for 10-Year event
Inflow = 9.67 cfs @ 12.09 hrs, Volume= 0.704 af
Outflow = 4.52 cfs @ 12.28 hrs, Volume= 0.704 af, Atten= 53%, Lag= 11.1 min
Primary = 4.52 cfs @ 12.28 hrs, Volume= 0.704 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 98.14' @ 12.28 hrs Surf.Area= 7,713 sf Storage= 6,050 cf

Plug-Flow detention time= 47.2 min calculated for 0.704 af (100% of inflow)
Center-of-Mass det. time= 47.0 min (863.0 - 816.0)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	27,653 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,945	0	0
98.00	7,130	5,038	5,038
99.00	11,400	9,265	14,303
100.00	15,300	13,350	27,653

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=4.51 cfs @ 12.28 hrs HW=98.13' (Free Discharge)
↑—**1=Catch Basin** (Orifice Controls 4.32 cfs @ 4.32 fps)
└—**2=Exfiltration** (Controls 0.19 cfs)

Summary for Pond 2Pa: CB-8A Basin

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 3.02" for 10-Year event
Inflow = 12.21 cfs @ 12.17 hrs, Volume= 1.061 af
Outflow = 4.77 cfs @ 12.51 hrs, Volume= 1.061 af, Atten= 61%, Lag= 20.5 min
Primary = 4.77 cfs @ 12.51 hrs, Volume= 1.061 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 98.15' @ 12.51 hrs Surf.Area= 16,802 sf Storage= 12,172 cf

Plug-Flow detention time= 54.0 min calculated for 1.061 af (100% of inflow)
Center-of-Mass det. time= 53.9 min (878.1 - 824.2)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	47,780 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	3,000	0	0
98.00	16,420	9,710	9,710
99.00	19,000	17,710	27,420
100.00	21,720	20,360	47,780

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.00'

Primary OutFlow Max=4.77 cfs @ 12.51 hrs HW=98.15' (Free Discharge)
↑—**1=Catch Basin** (Orifice Controls 4.35 cfs @ 4.35 fps)
└—**2=Exfiltration** (Controls 0.41 cfs)

Summary for Pond 2Pb: CB-11A Basin

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 3.02" for 10-Year event
Inflow = 19.46 cfs @ 12.14 hrs, Volume= 1.604 af
Outflow = 5.92 cfs @ 12.53 hrs, Volume= 1.604 af, Atten= 70%, Lag= 23.4 min
Primary = 5.92 cfs @ 12.53 hrs, Volume= 1.604 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 96.05' @ 12.53 hrs Surf.Area= 24,189 sf Storage= 19,517 cf

Plug-Flow detention time= 43.5 min calculated for 1.604 af (100% of inflow)
Center-of-Mass det. time= 43.3 min (865.8 - 822.4)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	78,798 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,720	0	0
95.00	7,950	2,418	2,418
96.00	23,855	15,903	18,320
97.00	30,550	27,203	45,523
98.00	36,000	33,275	78,798

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=5.92 cfs @ 12.53 hrs HW=96.05' (Free Discharge)
↑—**1=Catch Basin** (Orifice Controls 5.32 cfs @ 5.32 fps)
└—**2=Exfiltration** (Controls 0.60 cfs)

Summary for Pond 2Pc: CB-13A Basin

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 3.31" for 10-Year event
Inflow = 12.68 cfs @ 12.09 hrs, Volume= 0.928 af
Outflow = 5.21 cfs @ 12.32 hrs, Volume= 0.928 af, Atten= 59%, Lag= 13.8 min
Primary = 5.21 cfs @ 12.32 hrs, Volume= 0.928 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 95.91' @ 12.32 hrs Surf.Area= 8,228 sf Storage= 8,572 cf

Plug-Flow detention time= 38.4 min calculated for 0.927 af (100% of inflow)
Center-of-Mass det. time= 38.5 min (848.7 - 810.2)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	31,216 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,580	0	0
95.00	6,285	1,966	1,966
96.00	8,420	7,353	9,319
97.00	10,550	9,485	18,804
98.00	14,275	12,413	31,216

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=5.21 cfs @ 12.32 hrs HW=95.91' (Free Discharge)
1=Catch Basin (Orifice Controls 5.00 cfs @ 5.00 fps)
2=Exfiltration (Controls 0.21 cfs)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 3.16" for 10-Year event
Inflow = 7.75 cfs @ 12.35 hrs, Volume= 1.313 af
Primary = 7.75 cfs @ 12.35 hrs, Volume= 1.313 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 3.32" for 10-Year event
Inflow = 28.13 cfs @ 12.11 hrs, Volume= 4.987 af
Primary = 28.13 cfs @ 12.11 hrs, Volume= 4.987 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1Sa: PR-DA-1S - CB-17B Catchment

Runoff = 11.09 cfs @ 12.09 hrs, Volume= 0.817 af, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
74,164	80	>75% Grass cover, Good, HSG D
6,867	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
2,569	98	Water Surface, HSG D
9,314	79	Woods, Fair, HSG D
99,151	83	Weighted Average
83,478		84.19% Pervious Area
15,674		15.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.00"
2.6	190	0.0150	1.22		**Shallow Concentrated Flow, Shallow Conc. 1** Nearly Bare & Untilled Kv= 10.0 fps
0.7	96	0.0490	2.21		**Shallow Concentrated Flow, Shallow Conc. 2** Nearly Bare & Untilled Kv= 10.0 fps
2.1					**Direct Entry, Minimum TC**
6.0	336	Total			

Summary for Subcatchment 1Sb: PR-DA-1S - CB-16B Catchment

Runoff = 12.93 cfs @ 12.09 hrs, Volume= 0.949 af, Depth= 4.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
93,694	80	>75% Grass cover, Good, HSG D
10,157	98	Paved parking, HSG D
2,498	98	Water Surface, HSG D
11,795	79	Woods, Fair, HSG D
118,144	82	Weighted Average
105,489		89.29% Pervious Area
12,655		10.71% Impervious Area

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

Summary for Subcatchment 2Sa: PR-DA-2S - CB-8A Catchment

Runoff = 16.47 cfs @ 12.16 hrs, Volume= 1.438 af, Depth= 4.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
165,088	80	>75% Grass cover, Good, HSG D
5,904	98	Paved parking, HSG D
1,265	98	Roofs, HSG D
3,083	98	Water Surface, HSG D
8,216	79	Woods, Fair, HSG D
183,555	81	Weighted Average
173,304		94.42% Pervious Area
10,251		5.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	50	0.0070	0.09		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
3.1	235	0.0070	1.25		**Shallow Concentrated Flow, Shallow Conc. 1** Grassed Waterway Kv= 15.0 fps
11.9	285	Total			

Summary for Subcatchment 2Sb: PR-DA-2S - CB-11A Catchment

Runoff = 26.22 cfs @ 12.14 hrs, Volume= 2.174 af, Depth= 4.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
265,478	80	>75% Grass cover, Good, HSG D
10,628	98	Paved parking, HSG D
1,422	98	Water Surface, HSG D
277,528	81	Weighted Average
265,478		95.66% Pervious Area
12,050		4.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0090	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
2.0	175	0.0090	1.42		**Shallow Concentrated Flow, Shallow Conc. 1** Grassed Waterway Kv= 15.0 fps
10.0	225	Total			

Summary for Subcatchment 2Sc: PR-DA-2S - CB-13A Catchment

Runoff = 16.74 cfs @ 12.09 hrs, Volume= 1.238 af, Depth= 4.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
108,361	80	>75% Grass cover, Good, HSG D
30,845	98	Paved parking, HSG D
1,607	98	Water Surface, HSG D
5,822	79	Woods, Fair, HSG D
146,635	84	Weighted Average
114,183		77.87% Pervious Area
32,452		22.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0220	0.15		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
0.3	40	0.0220	2.22		**Shallow Concentrated Flow, Shallow Conc.** Grassed Waterway Kv= 15.0 fps
0.1					**Direct Entry, Minimum TC**
6.0	90	Total			

Summary for Subcatchment 3S: PR-DA-3S - Upper Uniroyal Site

Runoff = 16.89 cfs @ 12.09 hrs, Volume= 1.292 af, Depth= 5.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
8,648	89	<50% Grass cover, Poor, HSG D
55,625	80	>75% Grass cover, Good, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	90	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 1.46 cfs @ 12.09 hrs, Volume= 0.122 af, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 4.46 cfs @ 12.09 hrs, Volume= 0.373 af, Depth= 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.23"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

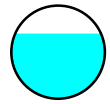
Summary for Reach 1R: Discharge Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 4.25" for 25-Year event
Inflow = 9.13 cfs @ 12.38 hrs, Volume= 1.766 af
Outflow = 9.13 cfs @ 12.39 hrs, Volume= 1.766 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.90 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.58 fps, Avg. Travel Time= 0.5 min

Peak Storage= 117 cf @ 12.38 hrs
Average Depth at Peak Storage= 1.39'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
n= 0.012
Length= 50.0' Slope= 0.0020 '/'
Inlet Invert= 85.35', Outlet Invert= 85.25'



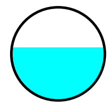
Summary for Reach 1Ra: Perforated Pipe

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 4.31" for 25-Year event
Inflow = 3.84 cfs @ 12.38 hrs, Volume= 0.817 af
Outflow = 3.84 cfs @ 12.43 hrs, Volume= 0.817 af, Atten= 0%, Lag= 2.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.71 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.52 fps, Avg. Travel Time= 3.8 min

Peak Storage= 362 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.85'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.23 cfs

18.0" Round Pipe
n= 0.012
Length= 350.0' Slope= 0.0030 '/'
Inlet Invert= 87.20', Outlet Invert= 86.15'



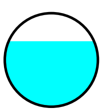
Summary for Reach 1Rb: Perforated Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 4.25" for 25-Year event
Inflow = 9.13 cfs @ 12.36 hrs, Volume= 1.766 af
Outflow = 9.13 cfs @ 12.38 hrs, Volume= 1.766 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.90 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.58 fps, Avg. Travel Time= 1.6 min

Peak Storage= 351 cf @ 12.37 hrs
Average Depth at Peak Storage= 1.40'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
n= 0.012
Length= 150.0' Slope= 0.0020 '/'
Inlet Invert= 85.65', Outlet Invert= 85.35'



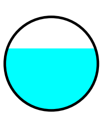
Summary for Reach 2R: Discharge Pipe

Inflow Area = 14.943 ac, 15.05% Impervious, Inflow Depth = 4.29" for 25-Year event
Inflow = 19.57 cfs @ 12.40 hrs, Volume= 5.344 af
Outflow = 19.55 cfs @ 12.42 hrs, Volume= 5.344 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 5.67 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.23 fps, Avg. Travel Time= 1.0 min

Peak Storage= 483 cf @ 12.41 hrs
Average Depth at Peak Storage= 1.66'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 25.19 cfs

30.0" Round Pipe
n= 0.012
Length= 140.0' Slope= 0.0032 '/'
Inlet Invert= 87.15', Outlet Invert= 86.70'



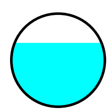
Summary for Reach 2Ra: Perforated Pipe A

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 4.09" for 25-Year event
Inflow = 5.57 cfs @ 12.54 hrs, Volume= 1.438 af
Outflow = 5.56 cfs @ 12.61 hrs, Volume= 1.438 af, Atten= 0%, Lag= 4.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 4.31 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 1.90 fps, Avg. Travel Time= 4.9 min

Peak Storage= 716 cf @ 12.57 hrs
Average Depth at Peak Storage= 1.03'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.83 cfs

18.0" Round Pipe
n= 0.012
Length= 555.0' Slope= 0.0036 '/'
Inlet Invert= 92.00', Outlet Invert= 90.00'



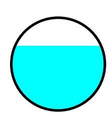
Summary for Reach 2Rb: Perforated Pipe B

Inflow Area = 10.585 ac, 4.84% Impervious, Inflow Depth = 4.09" for 25-Year event
Inflow = 12.29 cfs @ 12.59 hrs, Volume= 3.611 af
Outflow = 12.28 cfs @ 12.63 hrs, Volume= 3.611 af, Atten= 0%, Lag= 2.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 5.28 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 2.37 fps, Avg. Travel Time= 2.8 min

Peak Storage= 919 cf @ 12.61 hrs
Average Depth at Peak Storage= 1.39'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 14.85 cfs

24.0" Round Pipe
n= 0.012
Length= 395.0' Slope= 0.0037 '/'
Inlet Invert= 89.50', Outlet Invert= 88.05'



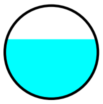
Summary for Reach 2Rc: Perforated Pipe C

Inflow Area = 13.951 ac, 9.01% Impervious, Inflow Depth = 4.17" for 25-Year event
Inflow = 18.14 cfs @ 12.52 hrs, Volume= 4.849 af
Outflow = 18.13 cfs @ 12.54 hrs, Volume= 4.849 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 5.49 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.31 fps, Avg. Travel Time= 0.9 min

Peak Storage= 429 cf @ 12.53 hrs
Average Depth at Peak Storage= 1.59'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 24.65 cfs

30.0" Round Pipe
n= 0.012
Length= 130.0' Slope= 0.0031 '/'
Inlet Invert= 87.55', Outlet Invert= 87.15'



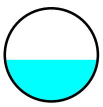
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 4.42" for 25-Year event
Inflow = 35.08 cfs @ 12.10 hrs, Volume= 6.636 af
Outflow = 34.72 cfs @ 12.10 hrs, Volume= 6.636 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 16.56 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 5.78 fps, Avg. Travel Time= 0.5 min

Peak Storage= 369 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.11'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 85.65 cfs

30.0" Round Pipe
n= 0.013
Length= 175.0' Slope= 0.0436 '/'
Inlet Invert= 85.85', Outlet Invert= 78.22'



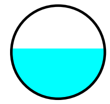
Summary for Reach 4Ra: 15" HDPE

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 4.09" for 25-Year event
Inflow = 5.57 cfs @ 12.54 hrs, Volume= 1.438 af
Outflow = 5.57 cfs @ 12.54 hrs, Volume= 1.438 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.30 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.70 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.54 hrs
Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 5.0' Slope= 0.0200 '/'
Inlet Invert= 93.50', Outlet Invert= 93.40'



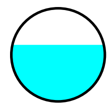
Summary for Reach 4Rb: 15" HDPE

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 4.09" for 25-Year event
Inflow = 6.74 cfs @ 12.57 hrs, Volume= 2.174 af
Outflow = 6.74 cfs @ 12.57 hrs, Volume= 2.174 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.67 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.08 fps, Avg. Travel Time= 0.0 min

Peak Storage= 8 cf @ 12.57 hrs
Average Depth at Peak Storage= 0.76'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 10.0' Slope= 0.0200 '/'
Inlet Invert= 91.00', Outlet Invert= 90.80'



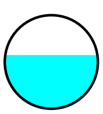
Summary for Reach 4Rc: 15" HDPE

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 4.41" for 25-Year event
Inflow = 6.14 cfs @ 12.36 hrs, Volume= 1.238 af
Outflow = 6.14 cfs @ 12.36 hrs, Volume= 1.238 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.50 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.44 fps, Avg. Travel Time= 0.0 min

Peak Storage= 7 cf @ 12.36 hrs
Average Depth at Peak Storage= 0.71'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 10.0' Slope= 0.0200 '/'
Inlet Invert= 91.00', Outlet Invert= 90.80'



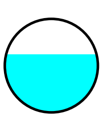
Summary for Reach 5Ra: 12" HDPE

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 4.31" for 25-Year event
Inflow = 3.84 cfs @ 12.38 hrs, Volume= 0.817 af
Outflow = 3.84 cfs @ 12.38 hrs, Volume= 0.817 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.53 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.19 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.62'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.46 cfs

12.0" Round Pipe
n= 0.012
Length= 5.0' Slope= 0.0200 '/'
Inlet Invert= 93.60', Outlet Invert= 93.50'



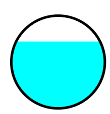
Summary for Reach 5Rb: 15" HDPE

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 4.20" for 25-Year event
Inflow = 5.33 cfs @ 12.32 hrs, Volume= 0.949 af
Outflow = 5.33 cfs @ 12.32 hrs, Volume= 0.949 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.63 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.30 fps, Avg. Travel Time= 0.1 min

Peak Storage= 12 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.90'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 6.14 cfs

15.0" Round Pipe
n= 0.012
Length= 13.0' Slope= 0.0077 '/'
Inlet Invert= 93.60', Outlet Invert= 93.50'



Summary for Pond 1Pa: CB-17B Basin

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 4.31" for 25-Year event
Inflow = 11.09 cfs @ 12.09 hrs, Volume= 0.817 af
Outflow = 3.84 cfs @ 12.38 hrs, Volume= 0.817 af, Atten= 65%, Lag= 17.3 min
Primary = 3.84 cfs @ 12.38 hrs, Volume= 0.817 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 98.50' @ 12.38 hrs Surf.Area= 8,803 sf Storage= 8,782 cf

Plug-Flow detention time= 46.2 min calculated for 0.816 af (100% of inflow)
Center-of-Mass det. time= 46.4 min (851.2 - 804.8)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	25,350 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,500	0	0
98.00	7,100	4,800	4,800
99.00	10,500	8,800	13,600
100.00	13,000	11,750	25,350

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 5.00 columns** X 5 rows C= 0.600 in 24.0" x 24.0" Grate (17% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=3.84 cfs @ 12.38 hrs HW=98.50' (Free Discharge)
—**1=Catch Basin** (Orifice Controls 3.62 cfs @ 5.21 fps)
—**2=Exfiltration** (Controls 0.22 cfs)

Summary for Pond 1Pb: CB-16B Basin

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 4.20" for 25-Year event
Inflow = 12.93 cfs @ 12.09 hrs, Volume= 0.949 af
Outflow = 5.33 cfs @ 12.32 hrs, Volume= 0.949 af, Atten= 59%, Lag= 13.6 min
Primary = 5.33 cfs @ 12.32 hrs, Volume= 0.949 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 98.45' @ 12.32 hrs Surf.Area= 9,060 sf Storage= 8,696 cf

Plug-Flow detention time= 41.1 min calculated for 0.949 af (100% of inflow)
Center-of-Mass det. time= 41.3 min (848.7 - 807.5)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	27,653 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,945	0	0
98.00	7,130	5,038	5,038
99.00	11,400	9,265	14,303
100.00	15,300	13,350	27,653

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=5.32 cfs @ 12.32 hrs HW=98.45' (Free Discharge)
—**1=Catch Basin** (Orifice Controls 5.10 cfs @ 5.10 fps)
—**2=Exfiltration** (Controls 0.23 cfs)

Summary for Pond 2Pa: CB-8A Basin

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 4.09" for 25-Year event
Inflow = 16.47 cfs @ 12.16 hrs, Volume= 1.438 af
Outflow = 5.57 cfs @ 12.54 hrs, Volume= 1.438 af, Atten= 66%, Lag= 22.7 min
Primary = 5.57 cfs @ 12.54 hrs, Volume= 1.438 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 98.46' @ 12.54 hrs Surf.Area= 17,617 sf Storage= 17,609 cf

Plug-Flow detention time= 51.5 min calculated for 1.437 af (100% of inflow)
Center-of-Mass det. time= 51.6 min (867.1 - 815.5)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	47,780 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	3,000	0	0
98.00	16,420	9,710	9,710
99.00	19,000	17,710	27,420
100.00	21,720	20,360	47,780

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.00'

Primary OutFlow Max=5.57 cfs @ 12.54 hrs HW=98.46' (Free Discharge)
—**1=Catch Basin** (Orifice Controls 5.13 cfs @ 5.13 fps)
—**2=Exfiltration** (Controls 0.44 cfs)

Summary for Pond 2Pb: CB-11A Basin

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 4.09" for 25-Year event
Inflow = 26.22 cfs @ 12.14 hrs, Volume= 2.174 af
Outflow = 6.74 cfs @ 12.57 hrs, Volume= 2.174 af, Atten= 74%, Lag= 25.6 min
Primary = 6.74 cfs @ 12.57 hrs, Volume= 2.174 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 96.42' @ 12.57 hrs Surf.Area= 26,637 sf Storage= 28,812 cf

Plug-Flow detention time= 47.3 min calculated for 2.172 af (100% of inflow)
Center-of-Mass det. time= 47.4 min (861.2 - 813.8)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	78,798 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,720	0	0
95.00	7,950	2,418	2,418
96.00	23,855	15,903	18,320
97.00	30,550	27,203	45,523
98.00	36,000	33,275	78,798

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=6.74 cfs @ 12.57 hrs HW=96.41' (Free Discharge)
—**1=Catch Basin** (Orifice Controls 6.06 cfs @ 6.06 fps)
—**2=Exfiltration** (Controls 0.67 cfs)

Summary for Pond 2Pc: CB-13A Basin

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 4.41" for 25-Year event
Inflow = 16.74 cfs @ 12.09 hrs, Volume= 1.238 af
Outflow = 6.14 cfs @ 12.36 hrs, Volume= 1.238 af, Atten= 63%, Lag= 16.0 min
Primary = 6.14 cfs @ 12.36 hrs, Volume= 1.238 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 96.34' @ 12.36 hrs Surf.Area= 9,134 sf Storage= 12,260 cf

Plug-Flow detention time= 35.7 min calculated for 1.237 af (100% of inflow)
Center-of-Mass det. time= 35.9 min (837.9 - 802.1)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	31,216 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,580	0	0
95.00	6,285	1,966	1,966
96.00	8,420	7,353	9,319
97.00	10,550	9,485	18,804
98.00	14,275	12,413	31,216

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=6.14 cfs @ 12.36 hrs HW=96.33' (Free Discharge)
—**1=Catch Basin** (Orifice Controls 5.91 cfs @ 5.91 fps)
—**2=Exfiltration** (Controls 0.24 cfs)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 4.25" for 25-Year event
Inflow = 9.13 cfs @ 12.39 hrs, Volume= 1.766 af
Primary = 9.13 cfs @ 12.39 hrs, Volume= 1.766 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 4.42" for 25-Year event
Inflow = 34.72 cfs @ 12.10 hrs, Volume= 6.636 af
Primary = 34.72 cfs @ 12.10 hrs, Volume= 6.636 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1Sa: PR-DA-1S - CB-17B Catchment

Runoff = 15.34 cfs @ 12.09 hrs, Volume= 1.146 af, Depth= 6.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
74,164	80	>75% Grass cover, Good, HSG D
6,867	98	Paved parking, HSG D
6,237	98	Roofs, HSG D
2,569	98	Water Surface, HSG D
9,314	79	Woods, Fair, HSG D
99,151	83	Weighted Average
83,478		84.19% Pervious Area
15,674		15.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0280	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.00"
2.6	190	0.0150	1.22		**Shallow Concentrated Flow, Shallow Conc. 1** Nearly Bare & Untilled Kv= 10.0 fps
0.7	96	0.0490	2.21		**Shallow Concentrated Flow, Shallow Conc. 2** Nearly Bare & Untilled Kv= 10.0 fps
2.1					**Direct Entry, Minimum TC**
6.0	336	Total			

Summary for Subcatchment 1Sb: PR-DA-1S - CB-16B Catchment

Runoff = 18.00 cfs @ 12.09 hrs, Volume= 1.339 af, Depth= 5.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
93,694	80	>75% Grass cover, Good, HSG D
10,157	98	Paved parking, HSG D
2,498	98	Water Surface, HSG D
11,795	79	Woods, Fair, HSG D
118,144	82	Weighted Average
105,489		89.29% Pervious Area
12,655		10.71% Impervious Area

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

Summary for Subcatchment 2Sa: PR-DA-2S - CB-8A Catchment

Runoff = 23.11 cfs @ 12.16 hrs, Volume= 2.040 af, Depth= 5.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
165,088	80	>75% Grass cover, Good, HSG D
5,904	98	Paved parking, HSG D
1,265	98	Roofs, HSG D
3,083	98	Water Surface, HSG D
8,216	79	Woods, Fair, HSG D
183,555	81	Weighted Average
173,304		94.42% Pervious Area
10,251		5.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	50	0.0070	0.09		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
3.1	235	0.0070	1.25		**Shallow Concentrated Flow, Shallow Conc. 1** Grassed Waterway Kv= 15.0 fps
11.9	285	Total			

Summary for Subcatchment 2Sb: PR-DA-2S - CB-11A Catchment

Runoff = 36.75 cfs @ 12.14 hrs, Volume= 3.084 af, Depth= 5.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
265,478	80	>75% Grass cover, Good, HSG D
10,628	98	Paved parking, HSG D
1,422	98	Water Surface, HSG D
277,528	81	Weighted Average
265,478		95.66% Pervious Area
12,050		4.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0090	0.10		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
2.0	175	0.0090	1.42		**Shallow Concentrated Flow, Shallow Conc. 1** Grassed Waterway Kv= 15.0 fps
10.0	225	Total			

Summary for Subcatchment 2Sc: PR-DA-2S - CB-13A Catchment

Runoff = 23.02 cfs @ 12.09 hrs, Volume= 1.729 af, Depth= 6.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
108,361	80	>75% Grass cover, Good, HSG D
30,845	98	Paved parking, HSG D
1,607	98	Water Surface, HSG D
5,822	79	Woods, Fair, HSG D
146,635	84	Weighted Average
114,183		77.87% Pervious Area
32,452		22.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0220	0.15		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 3.00"
0.3	40	0.0220	2.22		**Shallow Concentrated Flow, Shallow Conc.** Grassed Waterway Kv= 15.0 fps
0.1					**Direct Entry, Minimum TC**
6.0	90	Total			

Summary for Subcatchment 3S: PR-DA-3S - Upper Uniroyal Site

Runoff = 22.50 cfs @ 12.09 hrs, Volume= 1.752 af, Depth= 6.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
8,648	89	<50% Grass cover, Poor, HSG D
55,625	80	>75% Grass cover, Good, HSG D
17,187	98	Paved parking, HSG D
51,767	98	Roofs, HSG D
133,228	90	Weighted Average
64,274		48.24% Pervious Area
68,954		51.76% Impervious Area

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

Summary for Subcatchment B26: Building 26

Runoff = 1.89 cfs @ 12.09 hrs, Volume= 0.159 af, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
10,635	98	Roofs, HSG D
10,635		100.00% Impervious Area

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

Summary for Subcatchment B27: Building 27

Runoff = 5.78 cfs @ 12.09 hrs, Volume= 0.488 af, Depth= 7.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.07"

Area (sf)	CN	Description
32,552	98	Roofs, HSG D
32,552		100.00% Impervious Area

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

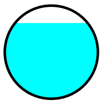
Summary for Reach 1R: Discharge Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 5.98" for 100-Year event
Inflow = 10.88 cfs @ 12.43 hrs, Volume= 2.486 af
Outflow = 10.87 cfs @ 12.44 hrs, Volume= 2.486 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.98 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.70 fps, Avg. Travel Time= 0.5 min

Peak Storage= 137 cf @ 12.43 hrs
Average Depth at Peak Storage= 1.63'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
n= 0.012
Length= 50.0' Slope= 0.0020 '/'
Inlet Invert= 85.35', Outlet Invert= 85.25'



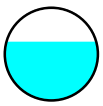
Summary for Reach 1Ra: Perforated Pipe

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 6.04" for 100-Year event
Inflow = 4.55 cfs @ 12.42 hrs, Volume= 1.146 af
Outflow = 4.55 cfs @ 12.47 hrs, Volume= 1.146 af, Atten= 0%, Lag= 2.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.85 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 1.64 fps, Avg. Travel Time= 3.5 min

Peak Storage= 414 cf @ 12.44 hrs
Average Depth at Peak Storage= 0.95'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.23 cfs

18.0" Round Pipe
n= 0.012
Length= 350.0' Slope= 0.0030 '/'
Inlet Invert= 87.20', Outlet Invert= 86.15'



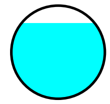
Summary for Reach 1Rb: Perforated Pipe

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 5.98" for 100-Year event
Inflow = 10.88 cfs @ 12.41 hrs, Volume= 2.486 af
Outflow = 10.88 cfs @ 12.43 hrs, Volume= 2.486 af, Atten= 0%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.98 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.71 fps, Avg. Travel Time= 1.5 min

Peak Storage= 410 cf @ 12.42 hrs
Average Depth at Peak Storage= 1.63'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 10.96 cfs

24.0" Round Pipe
n= 0.012
Length= 150.0' Slope= 0.0020 '/'
Inlet Invert= 85.65', Outlet Invert= 85.35'



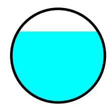
Summary for Reach 2R: Discharge Pipe

Inflow Area = 14.943 ac, 15.05% Impervious, Inflow Depth = 6.02" for 100-Year event
Inflow = 23.23 cfs @ 12.41 hrs, Volume= 7.499 af
Outflow = 23.21 cfs @ 12.42 hrs, Volume= 7.499 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 5.82 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.46 fps, Avg. Travel Time= 0.9 min

Peak Storage= 558 cf @ 12.41 hrs
Average Depth at Peak Storage= 1.89'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 25.19 cfs

30.0" Round Pipe
n= 0.012
Length= 140.0' Slope= 0.0032 '/'
Inlet Invert= 87.15', Outlet Invert= 86.70'



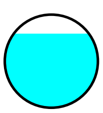
Summary for Reach 2Ra: Perforated Pipe A

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 5.81" for 100-Year event
Inflow = 6.65 cfs @ 12.58 hrs, Volume= 2.040 af
Outflow = 6.64 cfs @ 12.65 hrs, Volume= 2.040 af, Atten= 0%, Lag= 4.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 4.40 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 2.05 fps, Avg. Travel Time= 4.5 min

Peak Storage= 837 cf @ 12.62 hrs
Average Depth at Peak Storage= 1.19'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 6.83 cfs

18.0" Round Pipe
n= 0.012
Length= 555.0' Slope= 0.0036 '/'
Inlet Invert= 92.00', Outlet Invert= 90.00'



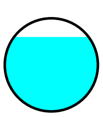
Summary for Reach 2Rb: Perforated Pipe B

Inflow Area = 10.585 ac, 4.84% Impervious, Inflow Depth = 5.81" for 100-Year event
Inflow = 14.46 cfs @ 12.64 hrs, Volume= 5.123 af
Outflow = 14.45 cfs @ 12.68 hrs, Volume= 5.123 af, Atten= 0%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 5.39 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 2.57 fps, Avg. Travel Time= 2.6 min

Peak Storage= 1,060 cf @ 12.66 hrs
Average Depth at Peak Storage= 1.59'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 14.85 cfs

24.0" Round Pipe
n= 0.012
Length= 395.0' Slope= 0.0037 '/'
Inlet Invert= 89.50', Outlet Invert= 88.05'



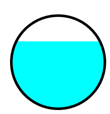
Summary for Reach 2Rc: Perforated Pipe C

Inflow Area = 13.951 ac, 9.01% Impervious, Inflow Depth = 5.89" for 100-Year event
Inflow = 21.52 cfs @ 12.57 hrs, Volume= 6.852 af
Outflow = 21.50 cfs @ 12.58 hrs, Volume= 6.852 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 5.66 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.52 fps, Avg. Travel Time= 0.9 min

Peak Storage= 494 cf @ 12.57 hrs
Average Depth at Peak Storage= 1.81'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 24.65 cfs

30.0" Round Pipe
n= 0.012
Length= 130.0' Slope= 0.0031 '/'
Inlet Invert= 87.55', Outlet Invert= 87.15'



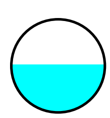
Summary for Reach 3R: Uniroyal South Outfall (Exist.)

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 6.17" for 100-Year event
Inflow = 44.81 cfs @ 12.10 hrs, Volume= 9.251 af
Outflow = 44.38 cfs @ 12.10 hrs, Volume= 9.251 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 17.62 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 6.39 fps, Avg. Travel Time= 0.5 min

Peak Storage= 443 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.28'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 85.65 cfs

30.0" Round Pipe
n= 0.013
Length= 175.0' Slope= 0.0436 '/'
Inlet Invert= 85.85', Outlet Invert= 78.22'



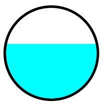
Summary for Reach 4Ra: 15" HDPE

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 5.81" for 100-Year event
Inflow = 6.65 cfs @ 12.58 hrs, Volume= 2.040 af
Outflow = 6.65 cfs @ 12.58 hrs, Volume= 2.040 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.65 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 4 cf @ 12.58 hrs
Average Depth at Peak Storage= 0.75'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 5.0' Slope= 0.0200 '/'
Inlet Invert= 93.50', Outlet Invert= 93.40'



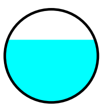
Summary for Reach 4Rb: 15" HDPE

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 5.81" for 100-Year event
Inflow = 7.83 cfs @ 12.61 hrs, Volume= 3.084 af
Outflow = 7.83 cfs @ 12.61 hrs, Volume= 3.084 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.94 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.44 fps, Avg. Travel Time= 0.0 min

Peak Storage= 9 cf @ 12.61 hrs
Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 10.0' Slope= 0.0200 '/'
Inlet Invert= 91.00', Outlet Invert= 90.80'



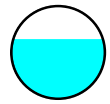
Summary for Reach 4Rc: 15" HDPE

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 6.16" for 100-Year event
Inflow = 7.34 cfs @ 12.40 hrs, Volume= 1.729 af
Outflow = 7.34 cfs @ 12.40 hrs, Volume= 1.729 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.83 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.72 fps, Avg. Travel Time= 0.0 min

Peak Storage= 8 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.80'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.90 cfs

15.0" Round Pipe
n= 0.012
Length= 10.0' Slope= 0.0200 '/'
Inlet Invert= 91.00', Outlet Invert= 90.80'



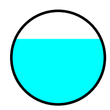
Summary for Reach 5Ra: 12" HDPE

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 6.04" for 100-Year event
Inflow = 4.55 cfs @ 12.42 hrs, Volume= 1.146 af
Outflow = 4.55 cfs @ 12.42 hrs, Volume= 1.146 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.78 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.44 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.70'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.46 cfs

12.0" Round Pipe
n= 0.012
Length= 5.0' Slope= 0.0200 '/'
Inlet Invert= 93.60', Outlet Invert= 93.50'



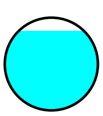
Summary for Reach 5Rb: 15" HDPE

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 5.93" for 100-Year event
Inflow = 6.36 cfs @ 12.37 hrs, Volume= 1.339 af
Outflow = 6.36 cfs @ 12.37 hrs, Volume= 1.339 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.70 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.48 fps, Avg. Travel Time= 0.1 min

Peak Storage= 15 cf @ 12.37 hrs
Average Depth at Peak Storage= 1.07'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 6.14 cfs

15.0" Round Pipe
n= 0.012
Length= 13.0' Slope= 0.0077 '/'
Inlet Invert= 93.60', Outlet Invert= 93.50'



Summary for Pond 1Pa: CB-17B Basin

Inflow Area = 2.276 ac, 15.81% Impervious, Inflow Depth = 6.04" for 100-Year event
Inflow = 15.34 cfs @ 12.09 hrs, Volume= 1.146 af
Outflow = 4.55 cfs @ 12.42 hrs, Volume= 1.146 af, Atten= 70%, Lag= 20.0 min
Primary = 4.55 cfs @ 12.42 hrs, Volume= 1.146 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 98.97' @ 12.42 hrs Surf.Area= 10,404 sf Storage= 13,304 cf

Plug-Flow detention time= 44.2 min calculated for 1.146 af (100% of inflow)
Center-of-Mass det. time= 44.1 min (839.4 - 795.3)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	25,350 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,500	0	0
98.00	7,100	4,800	4,800
99.00	10,500	8,800	13,600
100.00	13,000	11,750	25,350

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 5.00 columns** X 5 rows C= 0.600 in 24.0" x 24.0" Grate (17% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=4.55 cfs @ 12.42 hrs HW=98.97' (Free Discharge)
1=Catch Basin (Orifice Controls 4.28 cfs @ 6.17 fps)
2=Exfiltration (Controls 0.27 cfs)

Summary for Pond 1Pb: CB-16B Basin

Inflow Area = 2.712 ac, 10.71% Impervious, Inflow Depth = 5.93" for 100-Year event
Inflow = 18.00 cfs @ 12.09 hrs, Volume= 1.339 af
Outflow = 6.36 cfs @ 12.37 hrs, Volume= 1.339 af, Atten= 65%, Lag= 16.6 min
Primary = 6.36 cfs @ 12.37 hrs, Volume= 1.339 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 98.92' @ 12.37 hrs Surf.Area= 11,067 sf Storage= 13,425 cf

Plug-Flow detention time= 37.4 min calculated for 1.339 af (100% of inflow)
Center-of-Mass det. time= 37.6 min (835.4 - 797.8)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	27,653 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	2,945	0	0
98.00	7,130	5,038	5,038
99.00	11,400	9,265	14,303
100.00	15,300	13,350	27,653

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 82.50'

Primary OutFlow Max=6.35 cfs @ 12.37 hrs HW=98.92' (Free Discharge)
1=Catch Basin (Orifice Controls 6.07 cfs @ 6.07 fps)
2=Exfiltration (Controls 0.28 cfs)

Summary for Pond 2Pa: CB-8A Basin

Inflow Area = 4.214 ac, 5.58% Impervious, Inflow Depth = 5.81" for 100-Year event
Inflow = 23.11 cfs @ 12.16 hrs, Volume= 2.040 af
Outflow = 6.65 cfs @ 12.58 hrs, Volume= 2.040 af, Atten= 71%, Lag= 25.0 min
Primary = 6.65 cfs @ 12.58 hrs, Volume= 2.040 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 98.97' @ 12.58 hrs Surf.Area= 18,921 sf Storage= 26,838 cf

Plug-Flow detention time= 52.5 min calculated for 2.038 af (100% of inflow)
Center-of-Mass det. time= 52.6 min (858.3 - 805.7)

Volume	Invert	Avail.Storage	Storage Description
#1	97.00'	47,780 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
97.00	3,000	0	0
98.00	16,420	9,710	9,710
99.00	19,000	17,710	27,420
100.00	21,720	20,360	47,780

Device	Routing	Invert	Outlet Devices
#1	Primary	97.33'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	97.00'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.00'

Primary OutFlow Max=6.65 cfs @ 12.58 hrs HW=98.97' (Free Discharge)
1=Catch Basin (Orifice Controls 6.16 cfs @ 6.16 fps)
2=Exfiltration (Controls 0.48 cfs)

Summary for Pond 2Pb: CB-11A Basin

Inflow Area = 6.371 ac, 4.34% Impervious, Inflow Depth = 5.81" for 100-Year event
Inflow = 36.75 cfs @ 12.14 hrs, Volume= 3.084 af
Outflow = 7.83 cfs @ 12.61 hrs, Volume= 3.084 af, Atten= 79%, Lag= 28.2 min
Primary = 7.83 cfs @ 12.61 hrs, Volume= 3.084 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 96.97' @ 12.61 hrs Surf.Area= 30,344 sf Storage= 44,584 cf

Plug-Flow detention time= 56.8 min calculated for 3.084 af (100% of inflow)
Center-of-Mass det. time= 56.6 min (860.6 - 803.9)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	78,798 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,720	0	0
95.00	7,950	2,418	2,418
96.00	23,855	15,903	18,320
97.00	30,550	27,203	45,523
98.00	36,000	33,275	78,798

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=7.83 cfs @ 12.61 hrs HW=96.97' (Free Discharge)
1=Catch Basin (Orifice Controls 7.04 cfs @ 7.04 fps)
2=Exfiltration (Controls 0.79 cfs)

Summary for Pond 2Pc: CB-13A Basin

Inflow Area = 3.366 ac, 22.13% Impervious, Inflow Depth = 6.16" for 100-Year event
Inflow = 23.02 cfs @ 12.09 hrs, Volume= 1.729 af
Outflow = 7.34 cfs @ 12.40 hrs, Volume= 1.729 af, Atten= 68%, Lag= 18.6 min
Primary = 7.34 cfs @ 12.40 hrs, Volume= 1.729 af

Routing by Stor-Ind method, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs
Peak Elev= 96.98' @ 12.40 hrs Surf.Area= 10,512 sf Storage= 18,618 cf

Plug-Flow detention time= 34.9 min calculated for 1.728 af (100% of inflow)
Center-of-Mass det. time= 35.1 min (827.8 - 792.8)

Volume	Invert	Avail.Storage	Storage Description
#1	94.50'	31,216 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.50	1,580	0	0
95.00	6,285	1,966	1,966
96.00	8,420	7,353	9,319
97.00	10,550	9,485	18,804
98.00	14,275	12,413	31,216

Device	Routing	Invert	Outlet Devices
#1	Primary	94.83'	**2.0" x 2.0" Horiz. Catch Basin X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (25% open area) Limited to weir flow at low heads
#2	Primary	94.50'	**1.020 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 80.50'

Primary OutFlow Max=7.34 cfs @ 12.40 hrs HW=96.98' (Free Discharge)
1=Catch Basin (Orifice Controls 7.06 cfs @ 7.06 fps)
2=Exfiltration (Controls 0.28 cfs)

Summary for Link 1L: Facemate Interceptor Drain

Inflow Area = 4.988 ac, 13.04% Impervious, Inflow Depth = 5.98" for 100-Year event
Inflow = 10.87 cfs @ 12.44 hrs, Volume= 2.486 af
Primary = 10.87 cfs @ 12.44 hrs, Volume= 2.486 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

Summary for Link 2L: Chicopee River

Inflow Area = 18.001 ac, 21.28% Impervious, Inflow Depth = 6.17" for 100-Year event
Inflow = 44.38 cfs @ 12.10 hrs, Volume= 9.251 af
Primary = 44.38 cfs @ 12.10 hrs, Volume= 9.251 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-80.00 hrs, dt= 0.05 hrs

APPENDIX G – SUPPLEMENTAL CALCULATIONS

Facemate System

Post-Development Impervious Area =	23261	sq. ft.
Pre-Development Impervious Area =	23261	sq. ft.
Net New Impervious Area =	0	sq. ft.
Post-Development Roof Area =	6240	sq. ft.

Required Recharge Volume

Recharge Volume (R_V) Required = New Impervious Area x Runoff Depth (from HSG)

R_V (Urban Land*) =	0.00	sf. x	0.10	in x	0.083	ft/in =	0	cu. ft.
R_V Required =							**0**	cu. ft.

Provided Recharge Volume

Infiltration provided within basins anticipated to be collected via underdrain
Therefore, no recharge volume provided.

Required Water Quality Volume

Water Quality Volume (WQ_V) Required = Impervious Area x Runoff Depth (Excluding roof area)

WQ_V Required =	17,021	sf. x	0.5	in x	0.083	ft/in =	709	cu. ft.
WQ_V Required =							**709**	cu. ft.

Provided Volumes

Volume Provided : Storage Volume below Lowest Invert

	Basin - CB-16B		**Basin - CB-17B**	
Invert Elev.	97.33	ft	97.33	ft
Storage Volume @ Invert	910	cu. ft.	955	cu. ft.
Bottom Surface Area (A_s)	2,945	sq. ft.	2,500	sq. ft.

Refer to HydroCAD model for determinaiton of storage volume

WQ_V Provided = **1,865** cu. ft.

Time to Empty - Drawdown Time

Time to Drawdown = Volume below outlet / Infiltration Rate x Surface Area

Basin 1: T_D =	910	cf. /	0.0142	ft/hr x	2945	sq. ft. =	**21.8 hrs**
Basin 2: T_D =	955	cf. /	0.0142	ft/hr x	2,500	sq. ft. =	**26.9 hrs**

* Hydrologic Soil Goup (HSG) D assumed for urban land
**0.34 ft/day (0.17 in/hr) inf. rate based on Mass Stormwater Handbook

Uniroyal System

Post-Development Impervious Area* =	160783	sq. ft.
Pre-Development Impervious Area* =	191661	
Net New Impervious Area =	-30878	sq. ft.
Post-Development Roof Area* =	94954	sq. ft.

Note: Areas do not include impervipus portions of Watershed 3S, which is beyond the limits of work

Required Recharge Volume

Recharge Volume (R_V) Required = New Impervious Area x Runoff Depth (from HSG)

R_V (Urban Land*) =	-30878	sf. x	0.10	in x	0.083	ft/in =	-257.32	cu. ft.
R_V Required =							**-257**	cu. ft.

Provided Recharge Volume

Infiltration provided within basins anticipated to be collected via underdrain
Therefore, no recharge volume provided.

Required Water Quality Volume

Water Quality Volume (WQ_V) Required = Impervious Area x Runoff Depth (Excluding roof area)

WQ_V Required =	65,829	sf. x	0.5	in x	0.083	ft/in =	2743	cu. ft.
WQ_V Required =							**2743**	cu. ft.

Provided Volumes

Volume Provided : Storage Volume below Lowest Invert

	Basin - CB-8A		Basin - CB-11A		Basin - CB-13A	
Invert Elev.	97.33	ft	94.83	ft	94.83	ft
Storage Volume @ Invert	1,460	cu. ft.	945	cu. ft.	830	cu. ft.
Bottom Surface Area (A_s)	3000	sq. ft.	1720	sq. ft.	1580	sq. ft.

Refer to HydroCAD model for determinaiton of storage volume

WQ_V Provided = **3,235** cu. ft.

Time to Empty - Drawdown Time

Time to Drawdown = Volume below outlet / Infiltration Rate x Surface Area

Basin 1: T_D =	1,460	cf. /	0.0142	ft/hr* x	3000	sq. ft. =	**34.3 hrs**
Basin 2: T_D =	945	cf. /	0.0142	ft/hr* x	1,720	sq. ft. =	**38.8 hrs**
Basin 3: T_D =	830	cf. /	0.0142	ft/hr* x	1,580	sq. ft. =	**37.1 hrs**

* Hydrologic Soil Goup (HSG) D assumed for urban land
**0.34 ft/day (0.17 in/hr) inf. rate based on Mass Stormwater Handbook

Capacties of Outlet Pipes		Date:	5/13/2021
Project:	Uniroyal & Facemate ACOE	Job No.	5100
Town:	Chicopee, MA	Calc. by:	SLB

Facemate Drainage System

Mannings Formula

$Q = VA = (1.49/n)(A)(r_H)^{2/3}(S)^{1/2}$

n = roughness coefficient
A = cross section area
S = slope

r_H = hydraulic radius = A/P
P = wetted perimeter

Pipe - CB-17B to CB-16B (1RA)

$Q=VA=(1.49/n)(A)(r_H)^{2/3}(S)^{1/2}$ — 18 in HDPE

n =	0.012	r_H	0.375
A =	1.77 sf.	P	4.71
S =	0.0016 ft/ft		
Q_{FULL} =	4.56 cfs	V_{FULL} =	2.58
100-yr flow	4.55 cfs	OK	

Pipe - CB-16B to DM-14 (1R & 1RB)

$Q=VA=(1.49/n)(A)(r_H)^{2/3}(S)^{1/2}$ — 24 in HDPE

n =	0.012	r_H	0.5
A =	3.14 sf.	P	6.28
S =	0.0020 ft/ft		
Q_{FULL} =	10.99 cfs	V_{FULL} =	3.50
100-yr flow	10.88 cfs	OK	

Capacties of Outlet Pipes

Project:	Uniroyal & Facemate ACOE	Date:	5/13/2021
Town:	Chicopee, MA	Job No.	5100
		Calc. by:	SLB

Uniroyal Drainage System

Pipe - CB-8A Basin to CB-11A Basin (2Ra)

$Q=VA=(1.49/n)(A)(r_H)^{2/3}(S)^{1/2}$ 18 in HDPE

n =	0.012	r_H	0.375
A =	1.77 sf.	P	4.71
S =	0.0035 ft/ft		
Q_{FULL} =	6.75 cfs	V_{FULL} =	3.82
100-yr flow =	6.64 cfs	OK	

Pipe - CB-11A Basin to CB-13A Basin (2Rb)

$Q=VA=(1.49/n)(A)(r_H)^{2/3}(S)^{1/2}$ 24 in HDPE

n =	0.012	r_H	0.5
A =	3.14 sf.	P	6.28
S =	0.0035 ft/ft		
Q_{FULL} =	14.54 cfs	V_{FULL} =	4.63
100-yr flow =	14.45 cfs	OK	

Pipe - CB-13A Basin to DMH-14 (2Rc)

$Q=VA=(1.49/n)(A)(r_H)^{2/3}(S)^{1/2}$ 30 in HDPE

n =	0.012	r_H	0.625
A =	4.91 sf.	P	7.85
S =	0.0025 ft/ft		
Q_{FULL} =	22.28 cfs	V_{FULL} =	4.54
100-yr flow =	21.50 cfs	OK	

Pipe - DMH-14A to DMH-17 (2R)

$Q=VA=(1.49/n)(A)(r_H)^{2/3}(S)^{1/2}$ 30 in HDPE

n =	0.012	r_H	0.625
A =	4.91 sf.	P	7.85
S =	0.0032 ft/ft		
Q_{FULL} =	25.20 cfs	V_{FULL} =	5.13
100-yr flow =	23.2 cfs	OK	

Capacties of Outlet Pipes		Date:	5/13/2021
Project:	Uniroyal & Facemate ACOE	Job No.	5100
Town:	Chicopee, MA	Calc. by:	SLB

Find Min Slope to Provide Self Cleaning Velocities (2.0 ft/s)

	$Q=VA=(1.49/n)(A)(r_H)^{2/3}(S)^{1/2}$			15 in HDPE
	$n =$	0.012	r_H	0.313
HALF FULL	$A =$	0.61 sf.	P	1.96
	$S =$	0.0012 ft/ft		
HALF FULL	$Q_{FULL} =$	1.22 cfs	$V_{FULL} =$	1.98 OK
	$Q=VA=(1.49/n)(A)(r_H)^{2/3}(S)^{1/2}$			18 in HDPE
	$n =$	0.012	r_H	0.375
HALF FULL	$A =$	0.88 sf.	P	2.36
	$S =$	0.001 ft/ft		
HALF FULL	$Q_{FULL} =$	1.80 cfs	$V_{FULL} =$	2.04 OK
	$Q=VA=(1.49/n)(A)(r_H)^{2/3}(S)^{1/2}$			24 in HDPE
	$n =$	0.012	r_H	0.500
HALF FULL	$A =$	1.57 sf.	P	3.14
	$S =$	0.0007 ft/ft		
HALF FULL	$Q_{FULL} =$	3.25 cfs	$V_{FULL} =$	2.07 OK
	$Q=VA=(1.49/n)(A)(r_H)^{2/3}(S)^{1/2}$			30 in HDPE
	$n =$	0.012	r_H	0.625
HALF FULL	$A =$	2.45 sf.	P	3.93
	$S =$	0.0005 ft/ft		
HALF FULL	$Q_{FULL} =$	4.98 cfs	$V_{FULL} =$	2.03 OK

INSTRUCTIONS:
1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Version 1, Automated: Mar. 4, 2008

Location: Stormwater Basins (Facemate and Uniroyal)

TSS Removal Calculation Worksheet

B BMP[1]	C TSS Removal Rate[1]	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Sediment Forebay	**0.25**	**1.00**	**0.25**	**0.75**
Deep Sump and Hooded Catch Basin	**0.25**	**0.75**	**0.19**	**0.56**
	0.00	**0.56**	**0.00**	**0.56**
	0.00	**0.56**	**0.00**	**0.56**
	0.00	**0.56**	**0.00**	**0.56**

Total TSS Removal = 44%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: **Facemate and Uniroyal ACOE**
Prepared By: **SLB**
Date: **5/13/2021**

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

NOAA Atlas 14, Volume 10, Version 3
Location name: Chicopee, Massachusetts, USA*
Latitude: 42.1547°, Longitude: -72.5856°
Elevation: 130.77 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.333 (0.257-0.427)	0.400 (0.308-0.514)	0.510 (0.391-0.657)	0.601 (0.459-0.779)	0.726 (0.537-0.986)	0.821 (0.596-1.14)	0.919 (0.648-1.33)	1.03 (0.689-1.53)	1.18 (0.763-1.82)	1.30 (0.823-2.05)
10-min	0.472 (0.364-0.605)	0.567 (0.437-0.728)	0.722 (0.554-0.931)	0.851 (0.650-1.10)	1.03 (0.761-1.40)	1.16 (0.843-1.62)	1.30 (0.918-1.88)	1.46 (0.977-2.16)	1.67 (1.08-2.58)	1.84 (1.17-2.91)
15-min	0.555 (0.428-0.712)	0.667 (0.514-0.856)	0.850 (0.652-1.10)	1.00 (0.764-1.30)	1.21 (0.895-1.64)	1.37 (0.993-1.90)	1.53 (1.08-2.21)	1.71 (1.15-2.54)	1.97 (1.27-3.03)	2.17 (1.37-3.42)
30-min	0.751 (0.579-0.963)	0.903 (0.695-1.16)	1.15 (0.883-1.48)	1.36 (1.04-1.76)	1.64 (1.21-2.23)	1.85 (1.35-2.58)	2.08 (1.46-3.00)	2.32 (1.56-3.45)	2.66 (1.73-4.11)	2.94 (1.86-4.64)
60-min	0.947 (0.730-1.21)	1.14 (0.877-1.46)	1.45 (1.11-1.87)	1.71 (1.31-2.22)	2.07 (1.53-2.81)	2.34 (1.70-3.25)	2.62 (1.85-3.78)	2.93 (1.97-4.35)	3.36 (2.18-5.19)	3.71 (2.35-5.86)
2-hr	1.21 (0.940-1.54)	1.45 (1.12-1.84)	1.83 (1.42-2.34)	2.15 (1.66-2.77)	2.60 (1.94-3.51)	2.93 (2.15-4.06)	3.28 (2.34-4.74)	3.69 (2.49-5.45)	4.30 (2.79-6.60)	4.82 (3.06-7.55)
3-hr	1.38 (1.08-1.75)	1.66 (1.30-2.10)	2.11 (1.64-2.67)	2.48 (1.92-3.17)	2.99 (2.25-4.03)	3.37 (2.49-4.66)	3.78 (2.72-5.47)	4.28 (2.89-6.30)	5.04 (3.28-7.70)	5.69 (3.62-8.89)
6-hr	1.72 (1.36-2.16)	2.09 (1.65-2.62)	2.69 (2.11-3.39)	3.19 (2.49-4.04)	3.88 (2.95-5.20)	4.38 (3.27-6.05)	4.94 (3.60-7.16)	5.64 (3.83-8.25)	6.75 (4.41-10.3)	7.72 (4.93-12.0)
12-hr	2.10 (1.68-2.61)	2.61 (2.07-3.24)	3.43 (2.72-4.28)	4.11 (3.24-5.16)	5.05 (3.87-6.74)	5.73 (4.32-7.88)	6.49 (4.79-9.40)	7.48 (5.10-10.9)	9.07 (5.93-13.7)	10.5 (6.70-16.2)
24-hr	2.48 (2.00-3.05)	3.12 (2.51-3.84)	4.17 (3.34-5.15)	5.04 (4.01-6.27)	6.23 (4.82-8.27)	7.10 (5.40-9.71)	8.07 (6.01-11.6)	9.35 (6.40-13.5)	11.4 (7.51-17.2)	13.3 (8.52-20.4)
2-day	2.85 (2.31-3.47)	3.60 (2.92-4.39)	4.82 (3.89-5.91)	5.84 (4.69-7.20)	7.23 (5.65-9.53)	8.25 (6.32-11.2)	9.39 (7.05-13.5)	10.9 (7.50-15.7)	13.4 (8.84-20.0)	15.6 (10.1-23.9)
3-day	3.11 (2.54-3.77)	3.93 (3.20-4.76)	5.25 (4.27-6.40)	6.35 (5.13-7.79)	7.87 (6.17-10.3)	8.96 (6.91-12.1)	10.2 (7.69-14.6)	11.9 (8.17-17.0)	14.6 (9.63-21.7)	17.0 (11.0-25.9)
4-day	3.35 (2.74-4.04)	4.21 (3.44-5.08)	5.61 (4.58-6.81)	6.77 (5.49-8.28)	8.38 (6.59-10.9)	9.54 (7.37-12.9)	10.9 (8.20-15.5)	12.6 (8.70-18.0)	15.5 (10.2-23.0)	18.1 (11.7-27.4)
7-day	3.98 (3.29-4.76)	4.93 (4.07-5.92)	6.50 (5.34-7.83)	7.79 (6.37-9.46)	9.58 (7.58-12.4)	10.9 (8.44-14.5)	12.3 (9.33-17.4)	14.2 (9.88-20.2)	17.3 (11.5-25.6)	20.1 (13.0-30.3)
10-day	4.61 (3.83-5.49)	5.62 (4.66-6.70)	7.27 (6.00-8.71)	8.63 (7.09-10.4)	10.5 (8.35-13.5)	11.9 (9.24-15.8)	13.4 (10.1-18.8)	15.4 (10.7-21.7)	18.5 (12.3-27.2)	21.3 (13.8-32.0)
20-day	6.59 (5.53-7.79)	7.67 (6.42-9.07)	9.42 (7.86-11.2)	10.9 (9.01-13.0)	12.9 (10.3-16.3)	14.4 (11.2-18.7)	16.0 (12.0-21.8)	17.9 (12.5-25.0)	20.7 (13.9-30.2)	23.1 (15.0-34.6)
30-day	8.27 (6.98-9.72)	9.38 (7.90-11.0)	11.2 (9.38-13.2)	12.7 (10.6-15.1)	14.7 (11.8-18.4)	16.3 (12.7-20.9)	17.9 (13.4-24.0)	19.7 (13.9-27.4)	22.3 (15.0-32.3)	24.4 (15.9-36.3)
45-day	10.4 (8.80-12.1)	11.5 (9.76-13.5)	13.4 (11.3-15.7)	15.0 (12.5-17.7)	17.1 (13.7-21.2)	18.8 (14.6-23.8)	20.4 (15.3-27.0)	22.1 (15.7-30.6)	24.4 (16.4-35.2)	26.1 (17.1-38.8)
60-day	12.1 (10.3-14.1)	13.3 (11.3-15.5)	15.3 (12.9-17.9)	16.9 (14.2-19.9)	19.1 (15.4-23.6)	20.9 (16.3-26.4)	22.6 (16.9-29.6)	24.2 (17.2-33.4)	26.3 (17.8-37.9)	27.8 (18.2-41.2)

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

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

Please refer to NOAA Atlas 14 document for more information.

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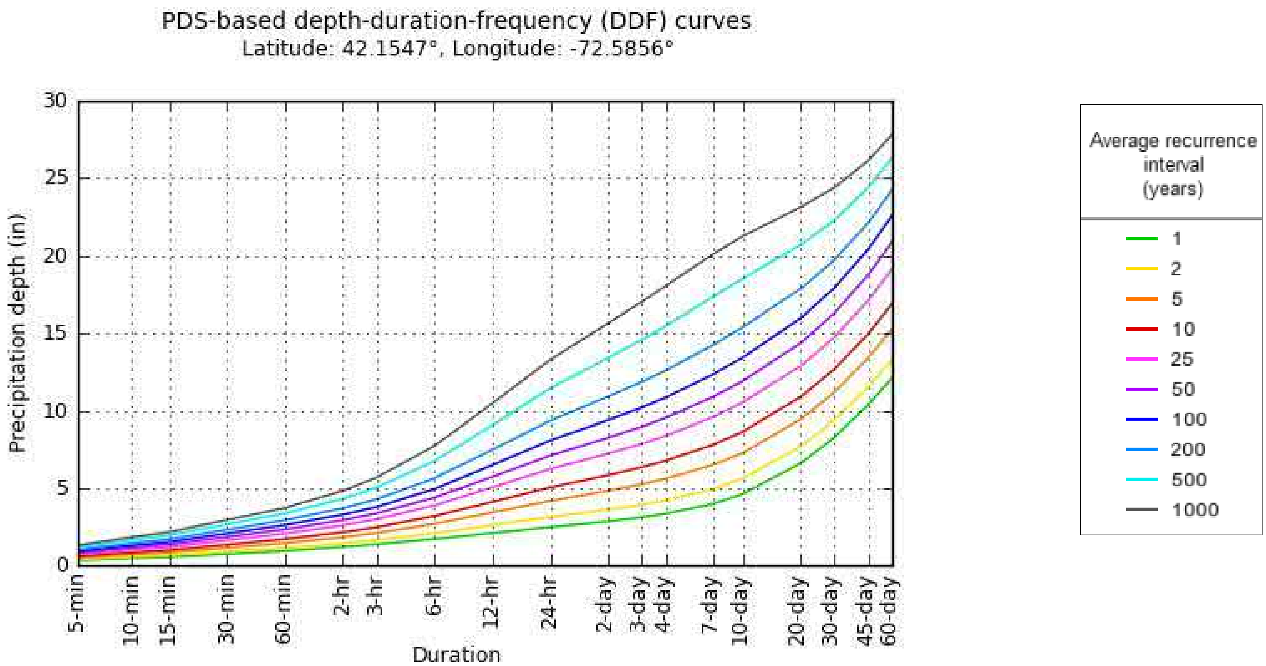
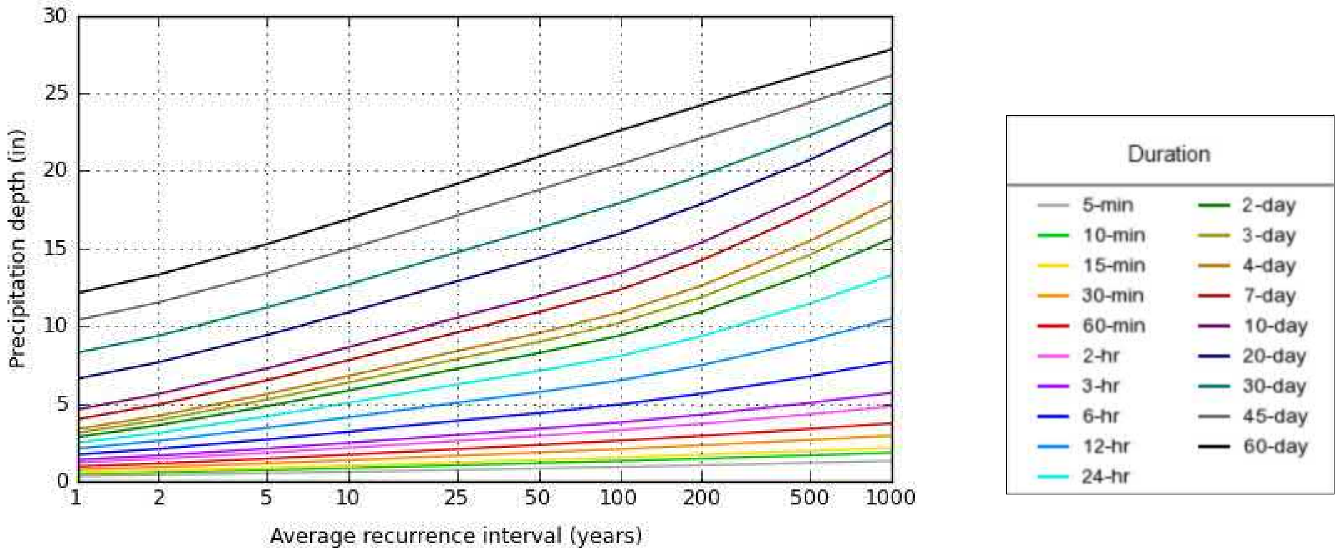
PF graphical





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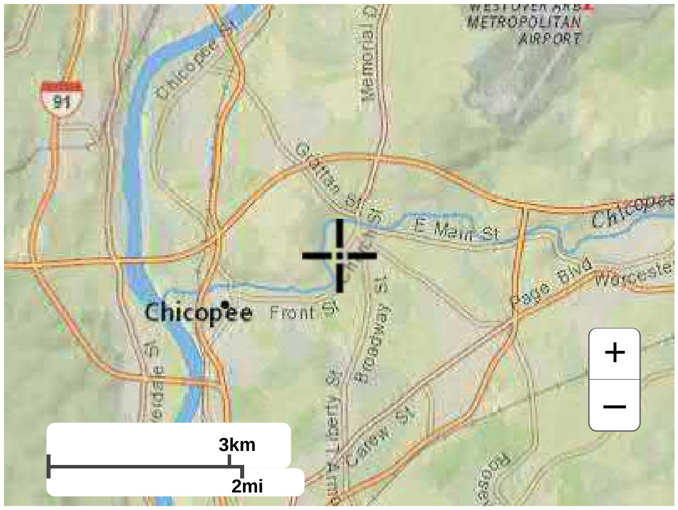
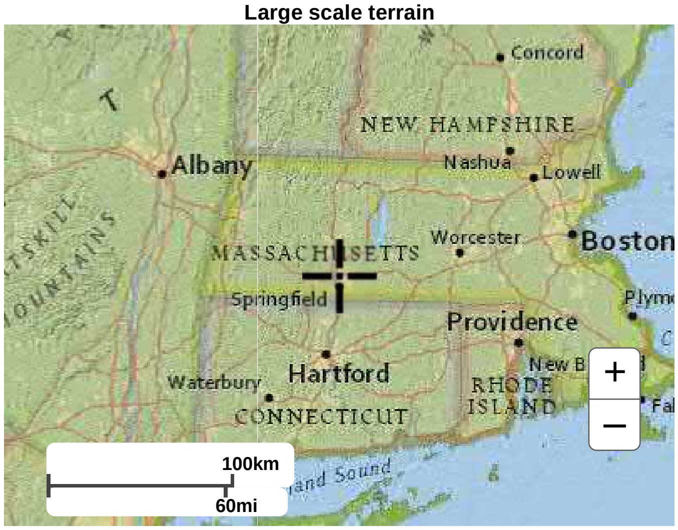
Maps & aerials

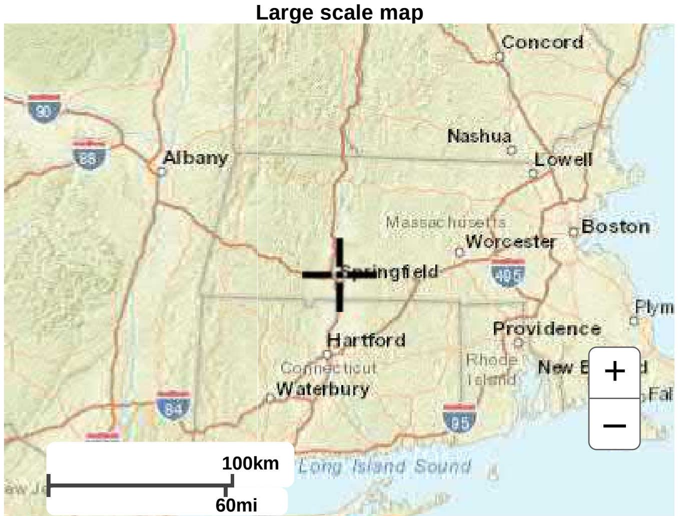
Small scale terrain



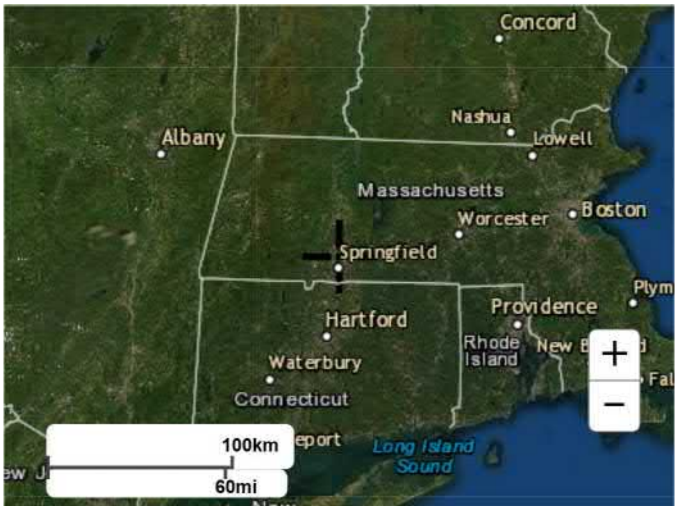
Large scale terrain



Large scale map



Large scale aerial



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

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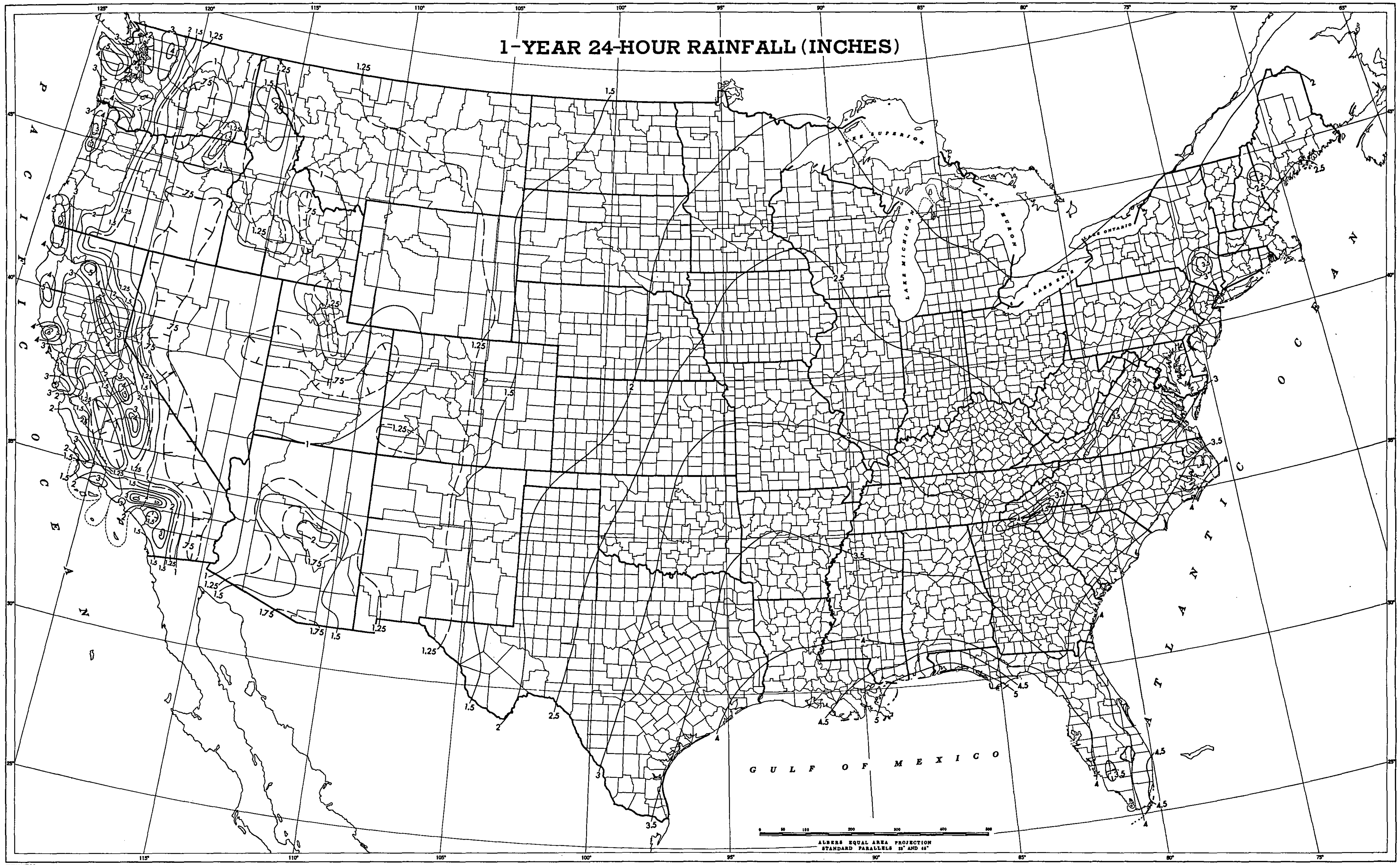
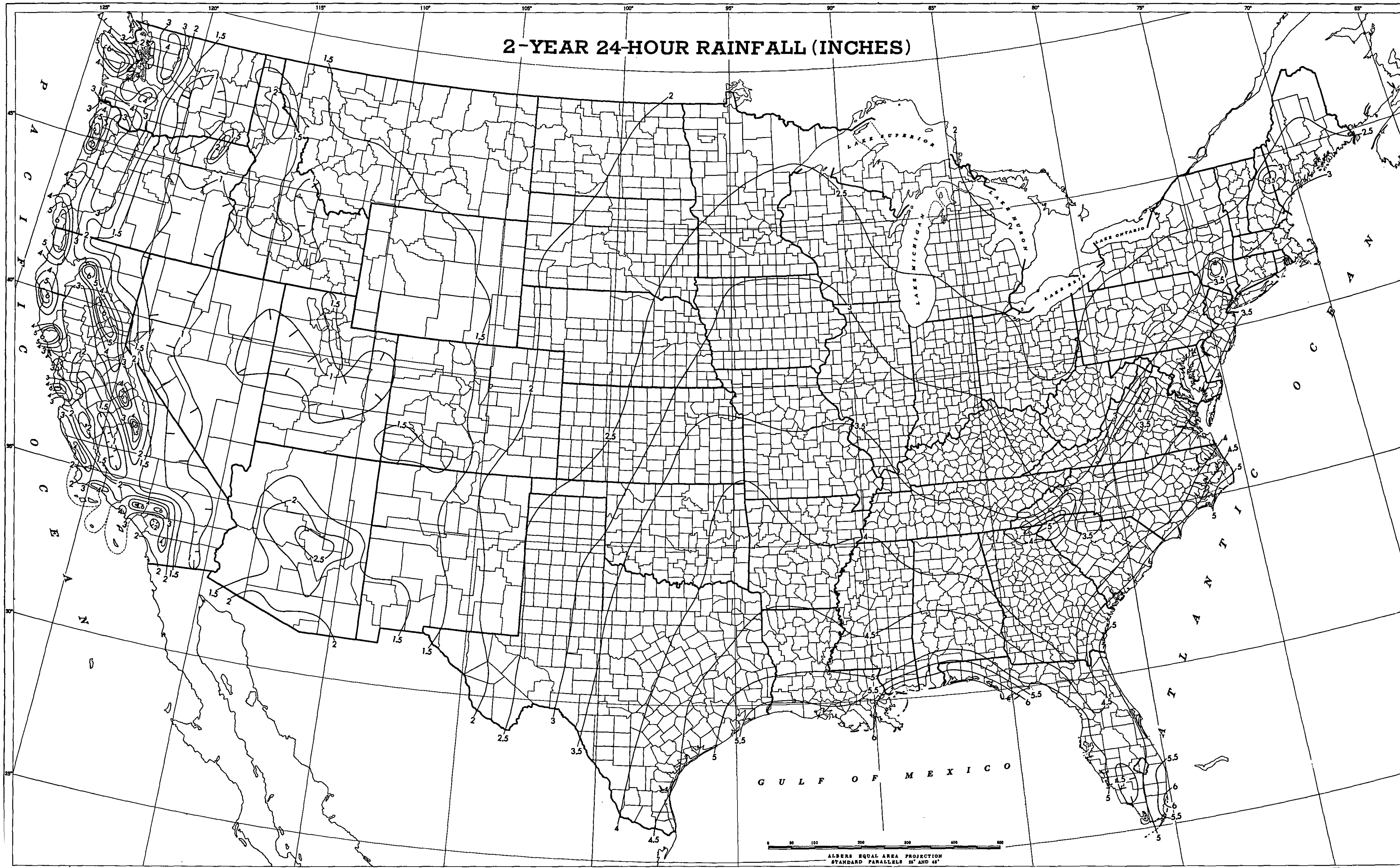

1-YEAR 24-HOUR RAINFALL (INCHES)
PACIFIC OCEAN
ATLANTIC OCEAN
GULF OF MEXICO
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ONTARIO
LAKE ERIE
ALBERS EQUAL AREA PROJECTION
STANDARD PARALLELS 29° AND 45°


2-YEAR 24-HOUR RAINFALL (INCHES)
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ATLANTIC OCEAN
GULF OF MEXICO
LAKE SUPERIOR
LAKE MICHIGAN
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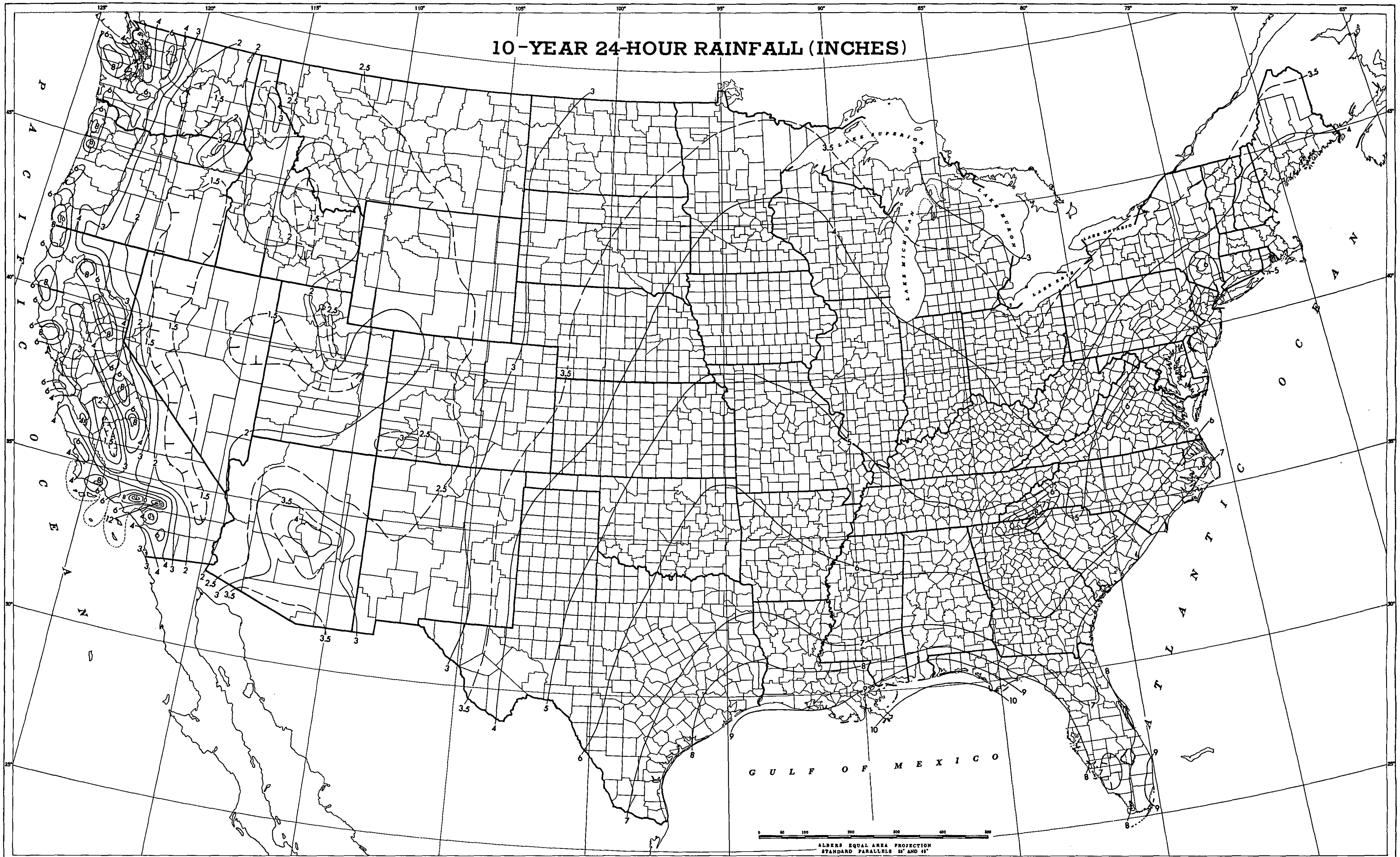
LAKE ERIE
ALBERS EQUAL AREA PROJECTION
STANDARD PARALLELS 29° AND 45°


10-YEAR 24-HOUR RAINFALL (INCHES)
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ATLANTIC OCEAN
GULF OF MEXICO
LAKE SUPERIOR
LAKE MICHIGAN
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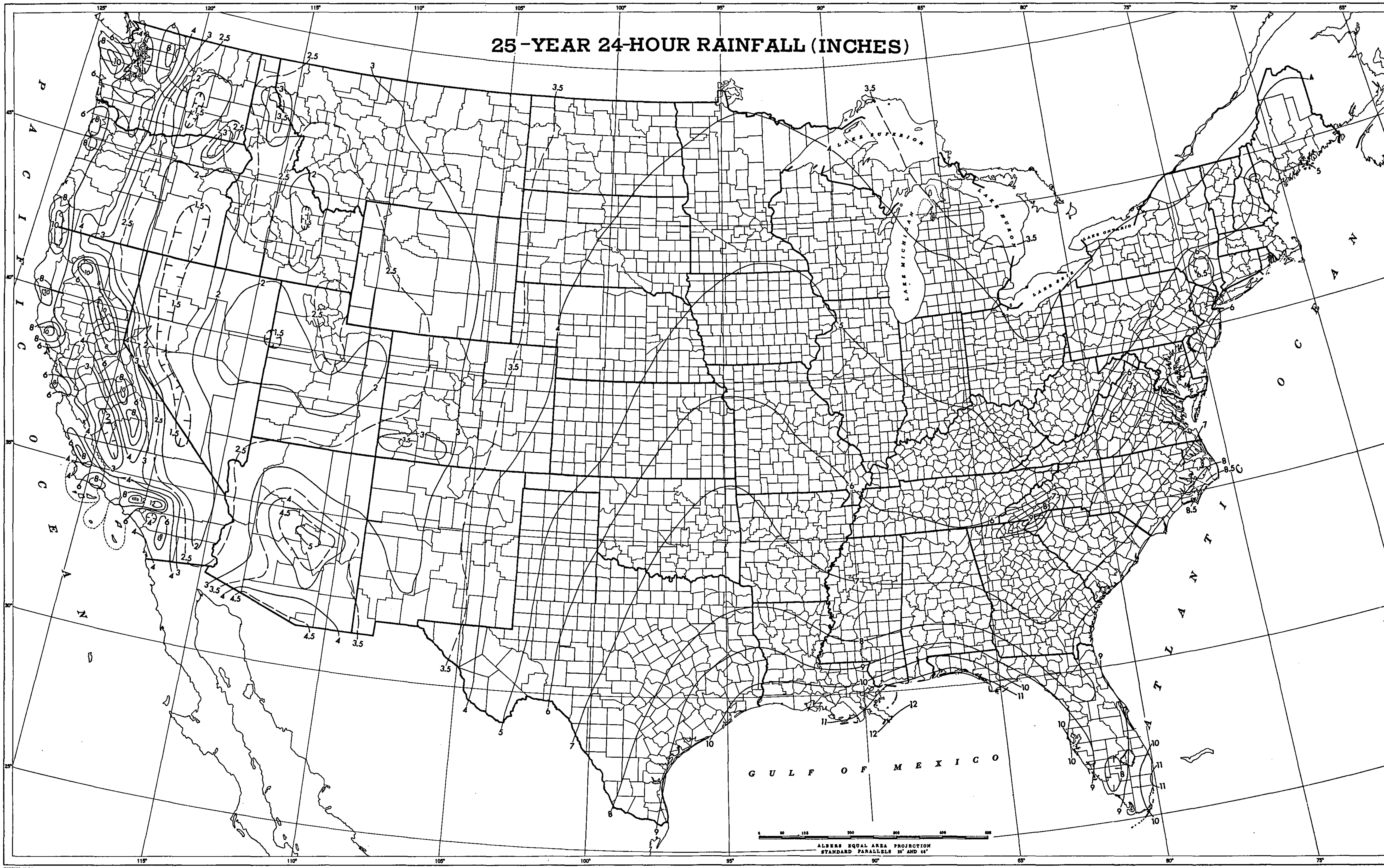
LAKE ERIE
ALBERS EQUAL AREA PROJECTION
STANDARD PARALLELS 29° AND 45°


25-YEAR 24-HOUR RAINFALL (INCHES)
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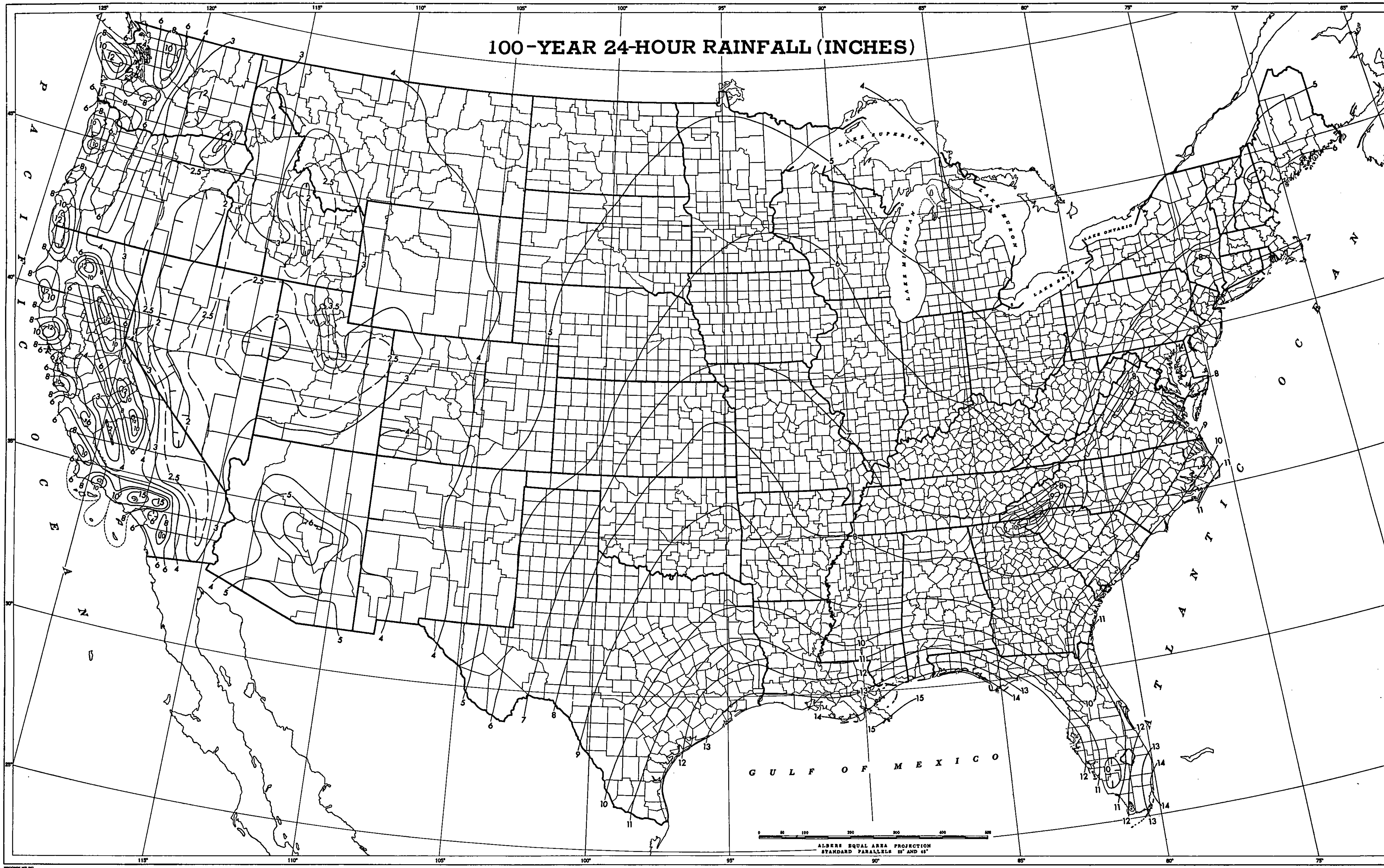
ATLANTIC OCEAN
GULF OF MEXICO
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ONTARIO
LAKE ERIE
ALBERS EQUAL AREA PROJECTION
STANDARD PARALLELS 29° AND 45°


100-YEAR 24-HOUR RAINFALL (INCHES)
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ATLANTIC OCEAN
GULF OF MEXICO
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ERIE
LAKE ONTARIO
ALBERS EQUAL AREA PROJECTION
STANDARD PARALLELS 29° AND 45°

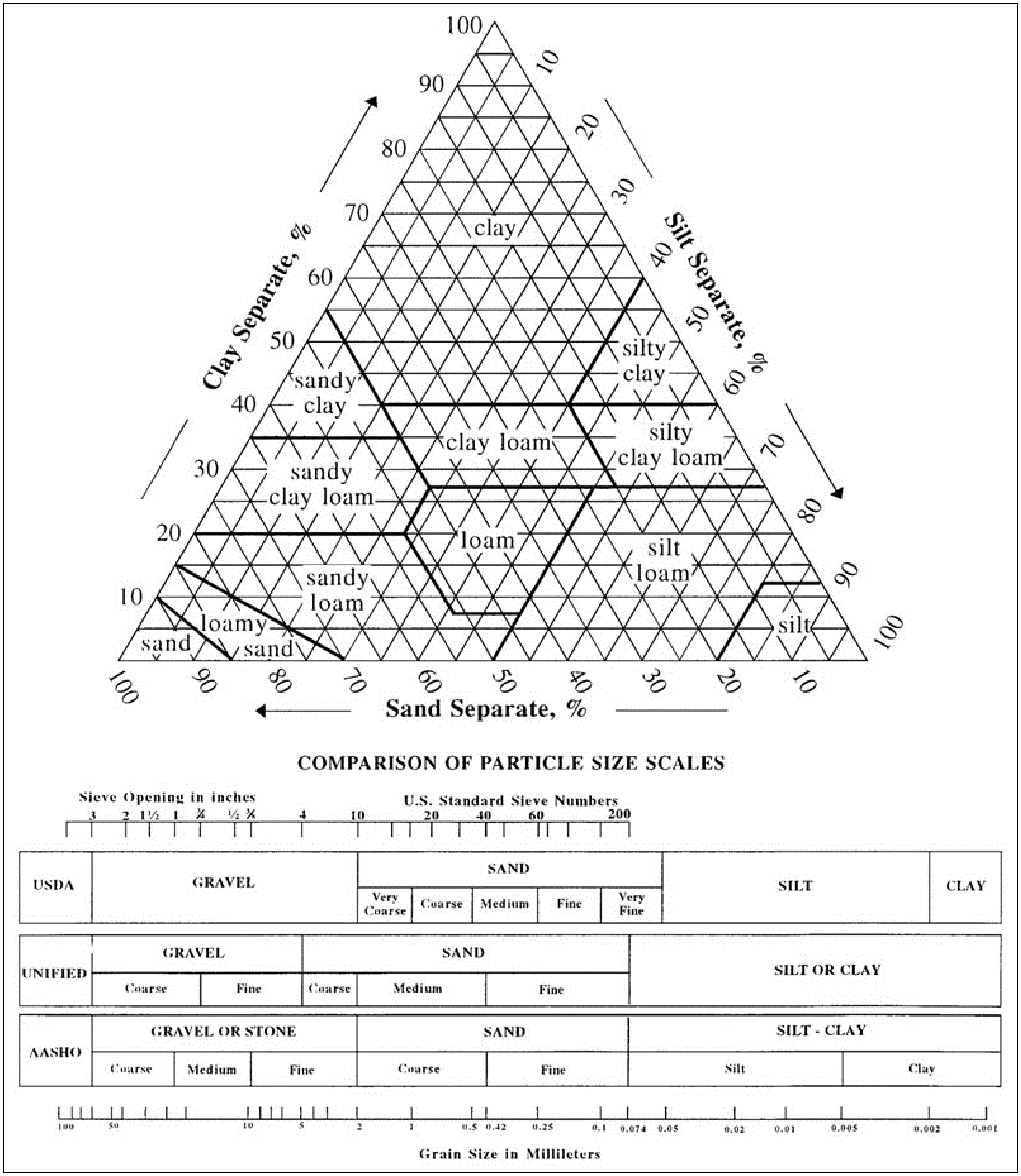

Figure 2.3.2: USDA, NRCS, 2007 National Soil Survey Handbook, Part 618, Exhibit 8,
http://soils.usda.gov/technical/handbook/contents/part618ex.html#ex8

Table 2.3.3. 1982 Rawls Rates[18]

Texture Class	NRCS Hydrologic Soil Group (HSG)	Infiltration Rate Inches/Hour
Sand	A	8.27
Loamy Sand	A	2.41
Sandy Loam	B	1.02
Loam	B	0.52
Silt Loam	C	0.27
Sandy Clay Loam	C	0.17
Clay Loam	D	0.09
Silty Clay Loam	D	0.06
Sandy Clay	D	0.05
Silty Clay	D	0.04
Clay	D	0.02

18 Rawls, Brakensiek and Saxton, 1982

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