SITE PLAN & LOT LINE REMOVAL FOR 61 EAST MAIN STRET ASSOC., LLC

VILLAGE OF WASHINGTONVILLE ORANGE COUNTY, NEW YORK

STORMWATER POLLUTION PREVENTION PLAN

PREPARED FOR:

-61 EAST MAIN STREET ASSOC., LLC
-THE VILLAGE OF WASHINGTONVILLE
-NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

September 3, 2021

Revised: January 10, 2022

April 8, 2022

PREPARED BY:

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PROJECT: 18-017

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APPENDICES

1.0 INTRODUCTION

1.0.1 Project Description

The site is located at 61 East Main Street, in the Village of Washingtonville, Orange County, New York. Geographically, the site is located approximately 1,000 feet east on NYS Rte. 94 from the intersection of NYS Rte. 94 and NYS Rte 208.

The tax map designation for the parcel is Section 114, Block 1, Lot 3.22 & 113-2-31. The site is currently being used as a residential rental unit and is served by municipal sewer and water. The general land use in the nearby vicinity of the project site is residential and commercial.

The site is characterized by a gentle southerly sloping topography that descends from the northern portion of the site. Topography on the site reflects the local surrounding topography.

The highest elevations are found in the northerly portion of the site, with an elevation of approximately 310.0. The lowest elevations on the site are found near the Otterkill Creek at approximately 300.0. Elevations vary approximately 10 feet across the site.

The soils on the Property were identified using the soil classifications of the USDA Soil Conservation Service (SCS), Soil Survey of Orange County, New York. The site is underlain primarily by Hoosic (HoA) soils which consists of deep well drained soils and Middlebury (My) soils which consists of deep, moderately well drained soils. The distribution of the soil types on the site is shown on the attached Pre & Post Development Maps.

It is being proposed to construct two residential multi-family units each with a building footprint of 7,000 SF. There will also be parking, an access driveway, refuse locations and a pocket park located along the frontage of NYS Route 94. A subsurface retention and recharge stormwater facility is proposed to attenuate post-development stormwater flows and provide water quality treatment.

1.0.2 Existing Drainage Patterns

Generally, the pre-development site conditions are best described as an existing residential structure and an open grass field. The overall site is 4.5 acres; approximately 2.113 acres will be disturbed as a result of the proposed facility.

The pre-development site runoff within the watershed drains to the Otterkill Creek located in the southern portion of the site. While three sub-catchments have been shown, the runoff from each ultimately leaves the site and collects in the Otterkill Creek as shown on the attached Pre-Development Analysis Map. The first 50 to 100 feet of runoff within the watershed is classified as sheet flow while the remaining distance the runoff travels to the stream has been classified as shallow concentrated flow. The watershed area draining to the Otterkill Creek 4.5 acres. It should be noted that 2.2 acres of the subject site is located on the southern side of the Otterkill Creek which will remain undisturbed and as a result has been excluded from the analysis.

1.0.3 Proposed Drainage Patterns

The proposed site was divided into three sub-catchments as shown on the Post Development Analysis Map. All of the proposed impervious surface associated with the project is located within Watershed 3A and 3B, which will drain into the proposed subsurface stormwater management facility and recharge back into the groundwater. The remaining area will contain lawn and landscaped areas.

2.0 STORMWATER MANAGEMENT

2.0.1 General

The applicant is required to complete this Stormwater Pollution Prevention Plan (SWPPP) for the New York State DEC and the Village of Washingtonville. This plan must meet the requirements of NYS GP-0-20-001. Implementation of the proposed action would result in approximately 1.13 acres of impervious surface on the 4.5 acre site for the proposed project. Water quality as well as water quantity measures have been provided. In general, increased imperviousness can change the volume and rate of runoff as well as the amount of suspended or dissolved substances entering local streams along with runoff. In some cases, a change in the amount of impervious surfaces can change the distribution of water in a given area, affecting local water bodies, wetlands and associated fauna and flora.

The development of the site will create an increase in runoff volume and the potential for pollutant loading. However, the project design includes measures to reduce the level of pollutants in post-development runoff in compliance with New York State DEC requirements. This will be achieved by the use of an infiltration practice combined with inverted Retain-It units to separate solids and oils from the runoff. The runoff captured will be retained and recharged for attenuation of post development runoff volumes.

2.0.2 Stormwater Quantity

A drainage analysis has been performed during the Planning Board review process. The drainage report has been prepared to analyze the impact of stormwater runoff at the major Design Points (DP1, DP2, DP3, etc.) on the property. This report is intended to address the drainage impacts as they only relate to the northern portion of the site where construction is proposed. The impacts of the proposed development on existing drainage patterns was evaluated for both the pre and post development conditions, and areas where stormwater retention and recharge are provided have been analyzed.

Information and data to prepare this report was obtained from the following sources:

- Boundary & topographic information from Edward T. Gannon, P.L.S.
- Site Plan Map as prepared by Arden Consulting Engineers
- The site soil information from Orange County Soil Conservation Service
- Site evaluations as carried out by personnel of Arden Consulting Engineers

The Soil Conservation Service TR-55 method was used to determine the pre-development and post-development runoff rates at the various design points identified on the property, which is illustrated on the attached drawings entitled Pre Development Stormwater Analysis and Post Development Stormwater Analysis.

The drainage summary shown on the following tables outline the runoff rates & volumes from the 1, 10 and 100 year storm events in the pre-development without retention, and post-development with retention conditions, using a Type III storm distribution. The 24 hour rainfall values used for each storm occurrence are as follows:

1 year storm = 2.7 in.
10-year storm = 5.00 in.
100-year storm = 9.00 in.

Detail sheets for the engineered drainage system have been provided in the project site drawings. The Pre and Post Development Analysis Plan(s) have been prepared to illustrate existing drainage areas and how their configuration would change following construction on the site.

It is the overall goal of the stormwater management plan to provide for proper drainage control on a quantity and quality basis. The plan has been prepared so there will be no negative effect on downstream properties with respect to quantity and quality issues.

Following the identification of the design points, analysis of the site runoff characteristics was performed. The hydrologic characteristics of the pre-development site conditions were modeled using HydroCAD computer software. The model analyzes watershed conditions and provides hydrograph generation and routing based on the Natural Resources Conservation Service (NRCS) Technical Release 55 (TR-55) procedures. These procedures take into account the land cover and use on site, the underlying soils, the general topography and local rainfall distribution to model stormwater runoff volumes and flow rates resulting from the site.

As discussed earlier, the maximum future impervious surface on the site will increase to approximately 1.13 acres. This increase will result in less infiltration and groundwater recharge and an increase in the rate and volume of runoff reaching the design points. The hydrologic characteristics of the post-development site conditions were modeled using HydroCAD, similar to the analysis for pre-development conditions. This model incorporated the proposed construction as found in the Project Description and drainage patterns resulting primarily from the construction of the proposed building and parking area.

2.0.3 Increase in Stormwater Runoff Rates

In general, development creates impervious surfaces and can also result in wooded areas that are cleared and replaced by lawn. This increases downstream stormwater runoff rates and volumes when attenuation of stormwater flows is not provided on-site.

The difference in the pre- & post-development rate of runoff is attenuated by the ADS Stormtech

SC-740 Chambers, and the post-construction runoff rate from the site will be less than the pre-construction condition. This meets the standards of SPDES General Permit for Stormwater Discharges (GP-0-20-001).

Table 1 that follows summarizes the pre vs post development HydroCad modeling results for the design points (DP1, DP2 & DP3) where runoff leaves the site.

Table 1
Pre- vs. Post- Development Runoff Rates (cfs)

Storm Frequency	DP1 Pre	**DP1 Post**	DP2 Pre	DP2 Post	DP3 Pre	**DP3 Post**
1 year	0.06	**0.00**	0.00	**0.00**	0.00	**0.00**
10 year	0.70	**0.09**	0.25	**0.23**	0.18	**0.05**
100 year	2.37	**0.69**	1.99	**1.32**	2.83	**2.01**

2.1 STORMWATER QUALITY

2.1.1 Impervious Surfaces

As described above, the watersheds have been analyzed for the purpose of pre & post-development conditions. The impervious cover used in these calculations represents the land use as described and shown on the project plans.

The New York State DEC requires the use of "Unified Stormwater Sizing Criteria" to ensure that water quality, channel erosion reduction, overbank flood protection and safe conveyance of extreme storms is achieved (New York State Stormwater Management Design Manual, January 2015).

The ADS Stormtech Chambers provide 100% of the required WQv which can be applied towards meeting the Runoff Reduction Volume (RRv). The elevation of the outlet devices for each outlet control structure has been placed at an elevation that satisfies RRv requirements.

Without the use of stormwater quality management practices, the proposed development would result in an increase in the loadings of various chemical constituents to the receiving waters, potentially impairing the quality of those waters. Recognizing that the site is tributary to the Otterkill Creek, these increases would be unacceptable if not mitigated.

Runoff from impervious surfaces related to roadways and parking lots poses a potential increase in road and vehicle-related contaminants in the stormwater diverted to treatment basin. These include hydrocarbons derived primarily from crankcase oil drippings and uncombusted exhaust hydrocarbons. Furthermore, roadway runoff typically contains detectable levels of heavy and trace metal contaminants such as lead, zinc, copper, chromium and nickel. These types of potential impacts require appropriate mitigation measures to limit impacts to existing water quality.

The stormwater management system for the proposed site is based on design criteria required to meet applicable standards through the incorporation of pretreatment chambers prior to conveyance into the subsurface retention/recharge facility. This report and the attached plans demonstrate that adequate area and conditions are available for the proper reduction of stormwater runoff volume and treatment of stormwater runoff.

The stormwater will be conveyed to the stormwater facility for pretreatment and ultimate recharge to groundwater. The ADS Stormtech Chambers were designed to meet or exceed requirements of the NYSDEC for average runoff events. It is assumed that by meeting the water quality volume and runoff reduction volume requirements, a project will meet water quality objectives.

2.1.2 Sources of Pollutants

The New York State DEC lists several potential pollutants and their sources to be considered during site design. Nutrients, sediment, bacteria and various other components can potentially contribute to the reduction of water quality and impacts to downstream receiving waters and habitat for water dependent species.

Many of these constituents, i.e., nitrogen, phosphorus, bacteria and others, are expected to be accounted for in the capture and treatment of the water quality volume. The DEC guidelines have established that if the runoff from a one-year storm from impervious surfaces is treated, the water quality goals of the State are met. A primary source of nutrients, i.e., the use of fertilizers, is discussed below.

Sediments are typically associated with runoff from un-stabilized sites or are the result of erosion in watercourses that cannot handle the velocity of stormwater flows. They can also result from the sanding of impervious surfaces during winter storm events. Un-stabilized sediments can be transported via storm flows to receiving wetlands and watercourses, altering the soil-water-air interface in wetlands and burying established vegetation. The current proposal will utilize an isolator row for pretreatment and subsurface retention/recharge to achieve water quality goals.

Trash and debris can be a nuisance associated with any site development. The stormwater flows will enter grated catch basins to minimize trash and debris entering the facility. Well maintained sites that receive approval and are monitored on a regular basis are not typically the source of significant amounts of trash and debris.

2.1.3 Use of Fertilizers and Pesticides

The application of herbicides or pesticides within this industrial property is not utilized.

The applicant proposes the use of a variety of construction and maintenance techniques reflecting best management practices in order to limit impacts of stormwater runoff. No fertilizers containing phosphorous will be utilized in order to limit pollutants from the project

to the maximum extent possible.

Phosphorus from fertilizer runs off lawns via stormwater and can enter surface waters and ground water, both of which can reach other water bodies. Using phosphorus-free lawn fertilizers is one step that will be taken to protect water quality. The project sponsor therefore proposes that any fertilizers used during construction will be phosphorus-free. Practices to minimize the amounts of salt applied to the parking lot during winter months will also be employed.

To address stormwater runoff within the site, all of the impervious area runoff is collected and conveyed to the proposed stormwater facility. All undisturbed areas will continue to drain as in pre-development conditions.

The stormwater management facility has been designed to treat the NYSDEC water quality volume, and capture the difference in pre versus post development runoff volume associated with the 1-, 10- and 100-year storm events.

2.1.4 De-icing Materials

The Applicant proposes the use of salt as the primary winter road safety agent on proposed parking lot and sidewalks. Due to the potential for accumulation of sand in the stormwater management system, which will significantly reduce its ability to operate properly, traction sand is not a feasible alternative. Salt application rates will be dictated by the need to provide safe traveling conditions for the public and emergency vehicles, and by access drive and parking lot conditions. The application of salt will be minimized to the extent necessary to ensure that public safety is not compromised

4.0 EROSION & SEDIMENT CONTROL

4.0.1 General

During construction of the Project, extensive erosion and sediment control consisting of vegetative and structural measures will be implemented. These practices will be included in the final plans and will show the location and details of these controls. Among the techniques to be utilized are:

1. Silt fences around the downhill perimeter of the construction.
2. A stabilized construction entrance installed at the access point to the site.
3. The grassed swales will be constructed and utilized as a sediment trap during construction.
4. Temporary seeding of all disturbed areas if they will remain bare for more than three weeks.
5. Permanent seeding and mulching as soon as possible after final grading.
6. Water spray for dust control.
7. The plans will indicate the proposed controls to be implemented during construction. However, adjustment of these controls may be required to accommodate localized field

conditions.

8. Disturbed areas will be permanently stabilized by establishing a permanent vegetative cover. The exposed area will receive a minimum of 4 inch topsoil prior to seeding.

5.0 MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES DURING AND AFTER CONSTRUCTION

5.0.1 General

The Owner shall maintain the storm water management facilities. All storm water management facilities shall be routinely inspected & any necessary repairs made immediately in order to maintain all practices as designed. The parking lot area shall be swept a minimum of once per year in the spring to clean the surfaces of salt & sand used during the winter season. The contractor shall utilize good housekeeping methods for all litter and debris that is generated during construction. This shall include placing all wastes in a dumpster on a daily basis & emptying dumpsters on a regular basis. Chemicals that are utilized during construction shall be stored in a safe place according to manufacturers safety data sheets (MSDS).

5.0.2 Stormwater Management Facility

Stormwater piping shall be inspected periodically and repaired and/or cleaned as necessary to maintain free discharge. Debris shall be removed and properly disposed of.

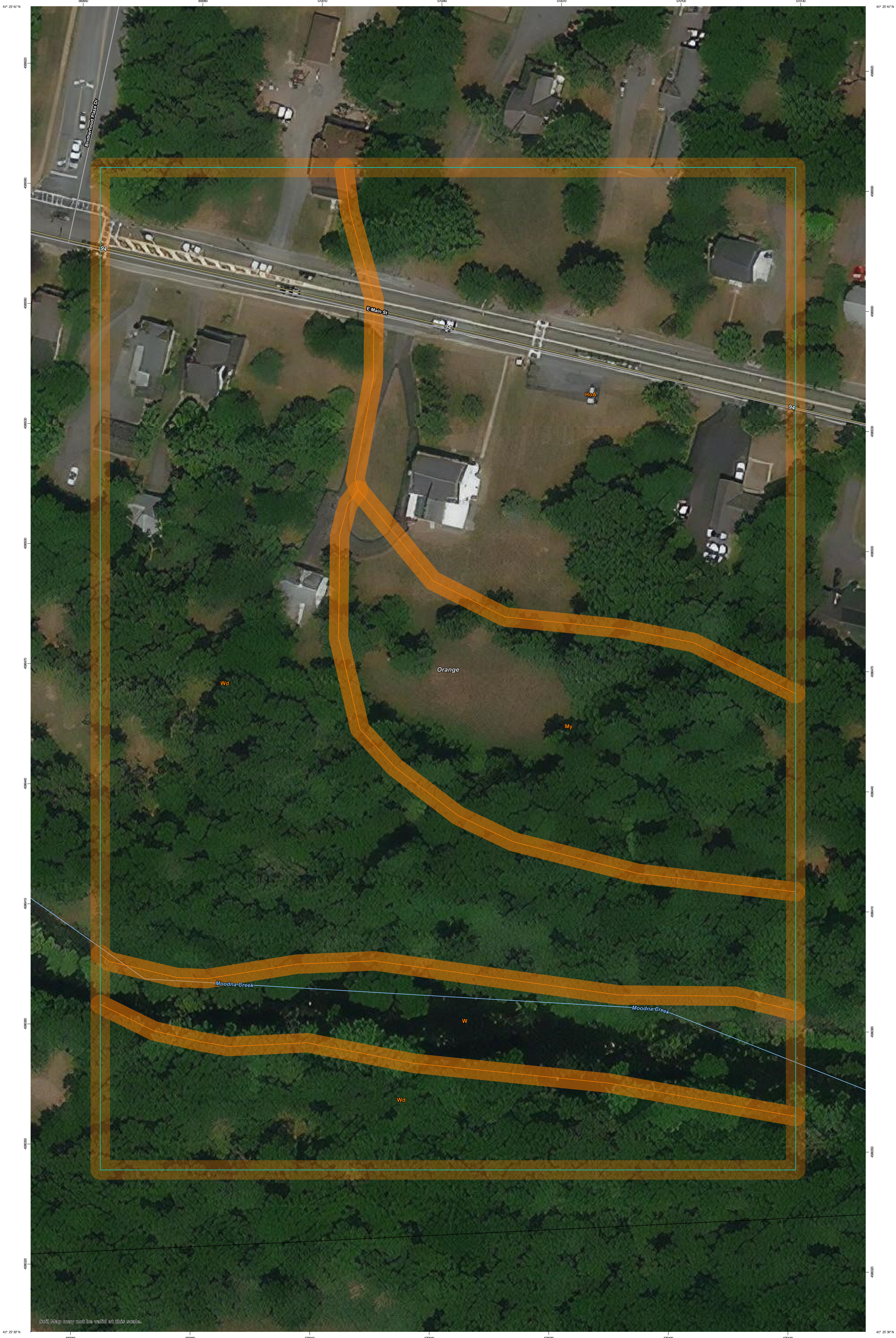
6.0 SUMMARY

6.0.1 General

Drainage from the proposed impervious surfaces will be collected by sheet and pipe flow and conveyed to the stormwater management facility. The Soil Conservation Service TR-55 method has been utilized to evaluate the changes in stormwater runoff volume as a result of development of the site. The storm drainage system has been designed to collect and convey stormwater in a manner that would provide no increase in stormwater runoff rates downstream from the property. On-site retention and recharge of stormwater is necessary and has been provided to mitigate the increases in stormwater runoff rates and pollutants that would otherwise impact downstream conditions.

The construction activity on the site will therefore not alter existing drainage patterns. The proposed erosion and sediment practices will prevent the erosion and sediment deposits to downstream properties.

APPENDIX A



Map Scale: 1:420 if printed on D portrait (22" x 34") sheet.

Meters: 0 5 10 20 30

Feet: 0 20 40 80 120

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 Survey Areas
- 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

Political Features
- States
- Counties
- PLSS Township and Range
- PLSS Section

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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

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

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

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

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

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

Soil Survey Area: Orange County, New York
Survey Area Data: Version 21, Jun 11, 2020

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

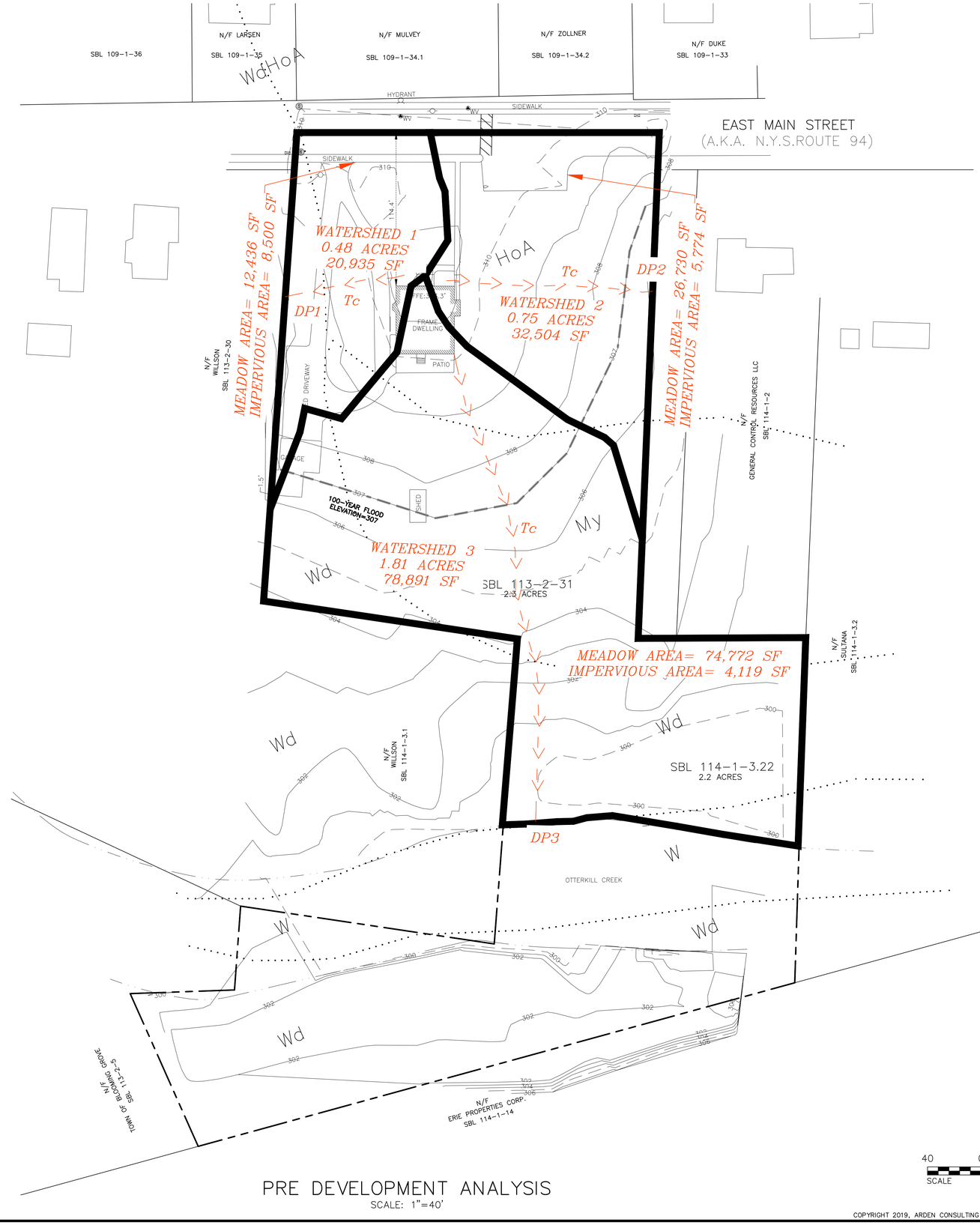
Date(s) aerial images were photographed: Oct 7, 2013—Feb 26, 2017

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HoA	Hoosic gravelly sandy loam, 0 to 3 percent slopes	3.0	27.9%
My	Middlebury silt loam	1.6	14.8%
W	Water	0.9	8.6%
Wd	Wayland soils complex, non-calcareous substratum, 0 to 3 percent slopes, frequently flooded	5.3	48.7%
Totals for Area of Interest		**10.8**	**100.0%**

APPENDIX B



LEGEND:

	EXISTING BUILDING
	EXISTING EDGE OF PAVEMENT
	EXISTING WHITE LINE
	EXISTING PROPERTY LINE
	EXISTING ADJACENT PROPERTY LINE
	EXISTING STREAM
	EXISTING FIRE HYDRANT
	EXISTING SEWER MANHOLE
	EXISTING LIGHT POLE
	EXISTING CATCH BASIN
	EXISTING WATER VALVE
	100-YEAR FLOOD
	SOIL BOUNDARY

SCALE
40 0 20 40 80
SCALE FEET

PRE DEVELOPMENT ANALYSIS
SCALE: 1"=40'

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REVISION	BY	DATE	DESCRIPTION
1.	MM	4/11/22	PER JP 1/23/22 COMMENT LETTER

THIS SHEET IS NOT VALID WITHOUT ALL OF THE SHEETS THAT COMPRISE THE SET

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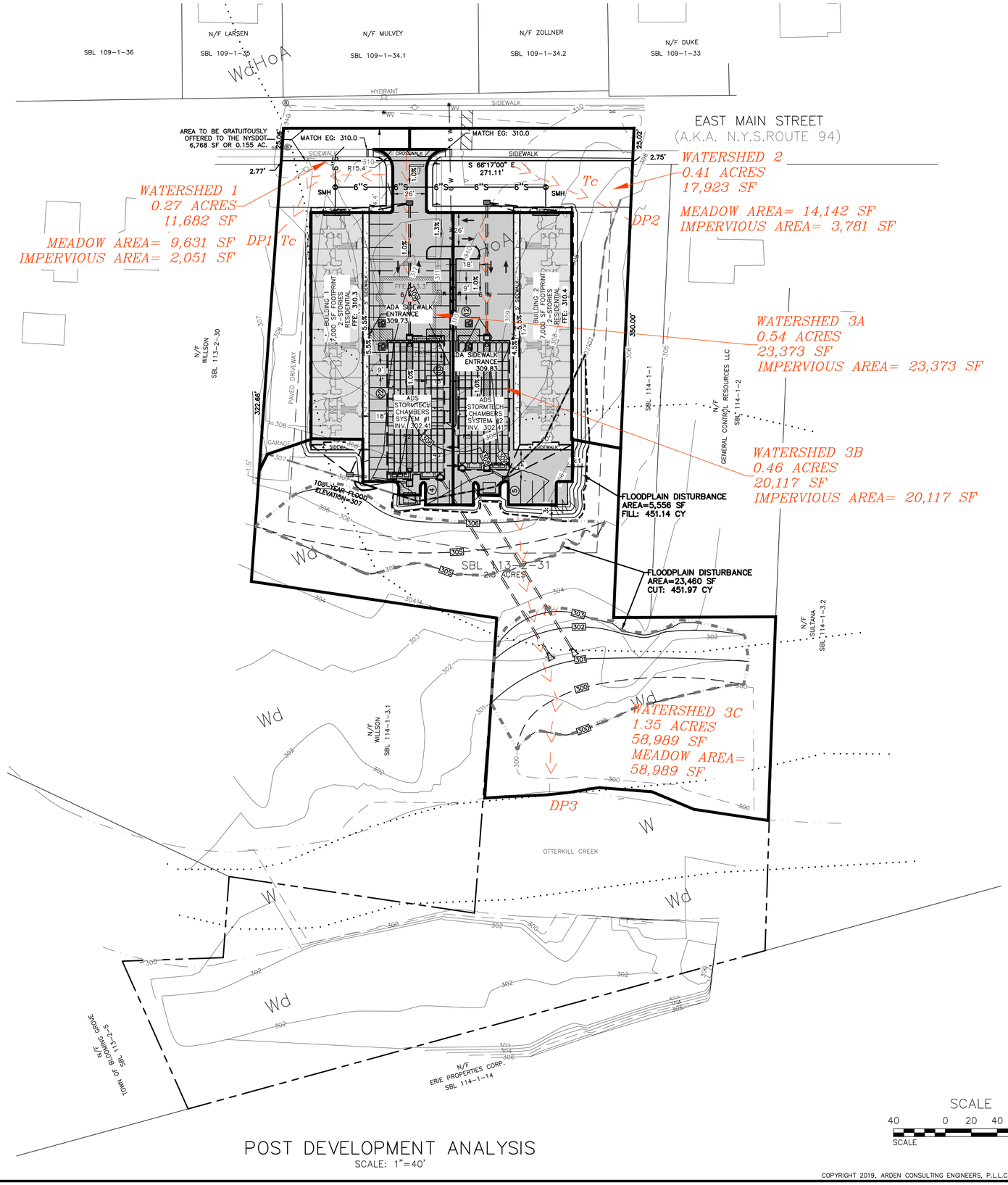
SITE PLAN & LOT LINE REMOVAL FOR
61 EAST MAIN STREET ASSOC. LLC
61 EAST MAIN STREET
V. WASHINGTONVILLE - ORANGE COUNTY, N.Y.

PRE DEVELOPMENT ANALYSIS

JOB#:	18-017
SCALE:	AS NOTED
DATE:	2-10-21
DRAWN:	MM
CHECKED:	MM
SHEET NO.	01 of 02



POST DEVELOPMENT ANALYSIS

SCALE: 1"=40'

LEGEND:

	EXISTING BUILDING
	EXISTING EDGE OF PAVEMENT
	EXISTING WHITE LINE
	EXISTING PROPERTY LINE
	EXISTING ADJACENT PROPERTY LINE
	EXISTING STREAM
	SOIL BOUNDARY
	EXISTING FIRE HYDRANT
	EXISTING SEWER MANHOLE
	EXISTING LIGHT POLE
	EXISTING CATCH BASIN
	EXISTING WATER VALVE
	100-YEAR FLOOD
	BUILDING SETBACK
	PROPOSED BUILDING
	PROPOSED EDGE OF PAVEMENT
	PROPOSED SIDEWALK
	PROPOSED DUMPSTER
	PROPOSED CURB
P	PROPOSED ADA PARKING
	PROPOSED TRAFFIC DIRECTION
	PROPOSED LANDSCAPING
	PROPOSED PAVEMENT
	PROPOSED BUILDING AREA
310	PROPOSED MAJOR CONTOUR
309	PROPOSED MINOR CONTOUR

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REVISION	BY	DATE	DESCRIPTION
1.	MM	4/11/22	PER JP 1/23/22 COMMENT LETTER

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61 EAST MAIN STREET
V. WASHINGTONVILLE – ORANGE COUNTY, N.Y.

POST DEVELOPMENT ANALYSIS

JOB#: 18-017
SCALE: AS NOTED
DATE: 2-10-21
DRAWN: MM
CHECKED: MM
SHEET NO. 02 of 02

Version 1.8
Last Updated: 11/09/2015

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....	No

Design Point:	3	
P=	1.30	*inch*

Manually enter P, Total Area and Impervious Cover.

Breakdown of Subcatchments

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Description
1	0.27	0.05	17%	0.21	263	
2	0.41	0.09	21%	0.24	462	
3	2.34	1.53	65%	0.64	7,050	
4						
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	3.02	1.66	55%	0.55	**7,775**	**Subtotal 1**
Total	3.02	1.66	55%	0.55	**7,775**	**Initial WQv**

Identify Runoff Reduction Techniques By Area

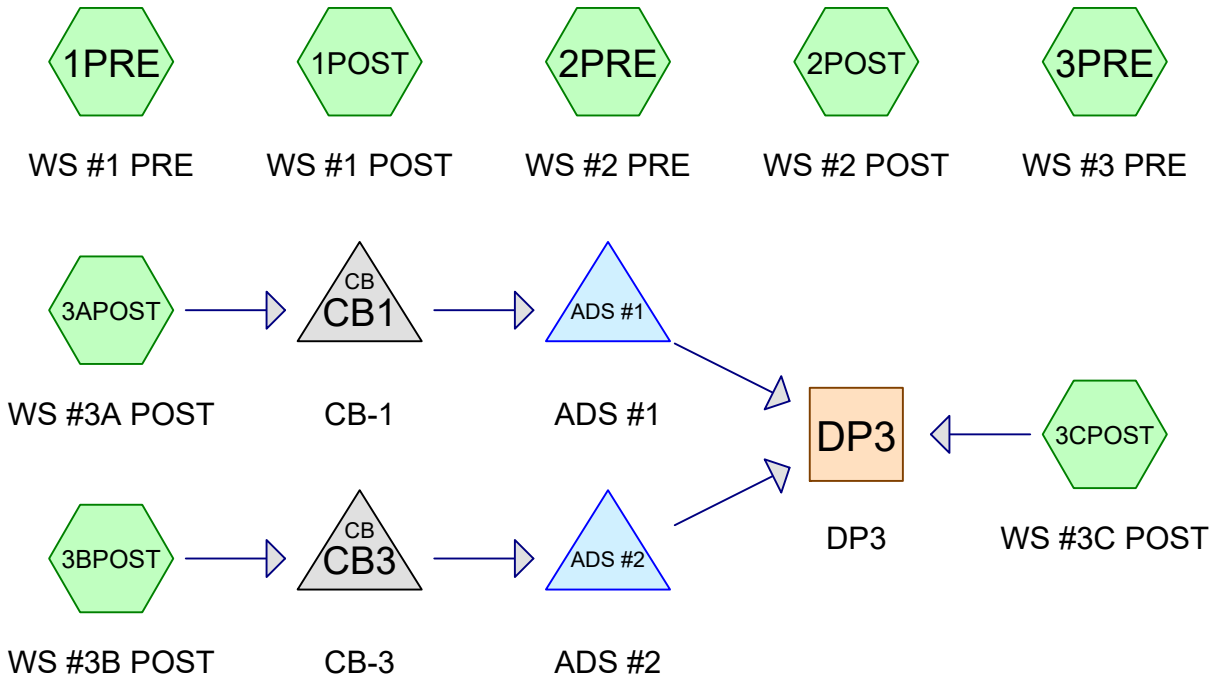
Technique	Total Contributing Area *(Acre)*	Contributing Impervious Area *(Acre)*	Notes
Conservation of Natural Areas	0.00	0.00	*minimum 10,000 sf*
Riparian Buffers	0.00	0.00	*maximum contributing length 75 feet to 150 feet*
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	*Up to 100 sf directly connected impervious area may be subtracted per tree*
Total	**0.00**	**0.00**	

Recalculate WQv after application of Area Reduction Techniques

	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Runoff Coefficient Rv	WQv *(ft^3)*
"<<Initial WQv"	3.02	1.66	55%	0.55	7,775
Subtract Area	0.00	0.00			
WQv adjusted after Area Reductions	**3.02**	**1.66**	55%	0.55	7,775
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	3.02	1.66	55%	0.55	**7,775**
WQv reduced by Area Reduction techniques					0

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A	1.20	55%
B	1.10	40%
C		30%
D	**2.20**	20%
Total Area	4.5	
Calculate the Minimum RRv		
S =	**0.34**	
Impervious =	1.66	*acre*
Precipitation	1.3	*in*
Rv	0.95	
Minimum RRv	**2,551**	***ft3***
	0.06	af



Subcat Reach Pond Link

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
196,700	39	Pasture/grassland/range, Good, HSG A (1POST, 1PRE, 2POST, 2PRE, 3CPOST, 3PRE)
43,490	98	Paved parking, HSG A (3APOST, 3BPOST)
3,781	98	Paved roads w/curbs & sewers, HSG C (2POST)
20,444	92	Paved roads w/open ditches, 50% imp, HSG C (1POST, 1PRE, 2PRE, 3PRE)

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
240,190	HSG A	1POST, 1PRE, 2POST, 2PRE, 3APOST, 3BPOST, 3CPOST, 3PRE
0	HSG B	
24,225	HSG C	1POST, 1PRE, 2POST, 2PRE, 3PRE
0	HSG D	
0	Other	

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
196,700	0	0	0	0	196,700	Pasture/grassland /range, Good
43,490	0	0	0	0	43,490	Paved parking
0	0	3,781	0	0	3,781	Paved roads w/curbs & sewers
0	0	20,444	0	0	20,444	Paved roads w/open ditches, 50% imp

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	ADS #1	302.91	302.00	145.0	0.0063	0.013	0.0	12.0	0.0
2	ADS #2	302.91	302.00	140.0	0.0065	0.013	0.0	12.0	0.0
3	CB1	305.44	302.41	5.0	0.6060	0.013	0.0	15.0	0.0
4	CB3	306.39	302.41	5.0	0.7960	0.013	0.0	15.0	0.0

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1POST: WS #1 POST Runoff Area=11,682 sf 8.78% Impervious Runoff Depth=0.03"
Flow Length=110' Slope=0.0200 '/' Tc=9.0 min CN=48 Runoff=0.00 cfs 24 cf

Subcatchment 1PRE: WS #1 PRE Runoff Area=20,936 sf 20.30% Impervious Runoff Depth=0.26"
Flow Length=82' Tc=6.0 min CN=61 Runoff=0.06 cfs 451 cf

Subcatchment 2POST: WS #2 POST Runoff Area=17,923 sf 21.10% Impervious Runoff Depth=0.06"
Flow Length=100' Slope=0.0325 '/' Tc=7.2 min CN=51 Runoff=0.00 cfs 87 cf

Subcatchment 2PRE: WS #2 PRE Runoff Area=32,504 sf 8.88% Impervious Runoff Depth=0.03"
Flow Length=144' Tc=8.0 min CN=48 Runoff=0.00 cfs 68 cf

Subcatchment 3APOST: WS #3A POST Runoff Area=23,373 sf 100.00% Impervious Runoff Depth=2.47"
Flow Length=140' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=1.40 cfs 4,810 cf

Subcatchment 3BPOST: WS #3B POST Runoff Area=20,117 sf 100.00% Impervious Runoff Depth=2.47"
Flow Length=100' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=1.20 cfs 4,140 cf

Subcatchment 3CPOST: WS #3C POST Runoff Area=58,989 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=223' Tc=11.6 min CN=39 Runoff=0.00 cfs 0 cf

Subcatchment 3PRE: WS #3 PRE Runoff Area=78,891 sf 2.61% Impervious Runoff Depth=0.00"
Flow Length=360' Tc=11.6 min CN=42 Runoff=0.00 cfs 0 cf

Reach DP3: DP3 Inflow=0.00 cfs 0 cf
Outflow=0.00 cfs 0 cf

Pond ADS #1: ADS #1 Peak Elev=302.94' Storage=1,043 cf Inflow=1.40 cfs 4,810 cf
Discarded=0.33 cfs 4,810 cf Primary=0.00 cfs 0 cf Outflow=0.33 cfs 4,810 cf

Pond ADS #2: ADS #2 Peak Elev=302.96' Storage=921 cf Inflow=1.20 cfs 4,140 cf
Discarded=0.28 cfs 4,140 cf Primary=0.00 cfs 0 cf Outflow=0.28 cfs 4,140 cf

Pond CB1: CB-1 Peak Elev=306.01' Inflow=1.40 cfs 4,810 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.6060 '/' Outflow=1.40 cfs 4,810 cf

Pond CB3: CB-3 Peak Elev=306.91' Inflow=1.20 cfs 4,140 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.7960 '/' Outflow=1.20 cfs 4,140 cf

Summary for Subcatchment 1POST: WS #1 POST

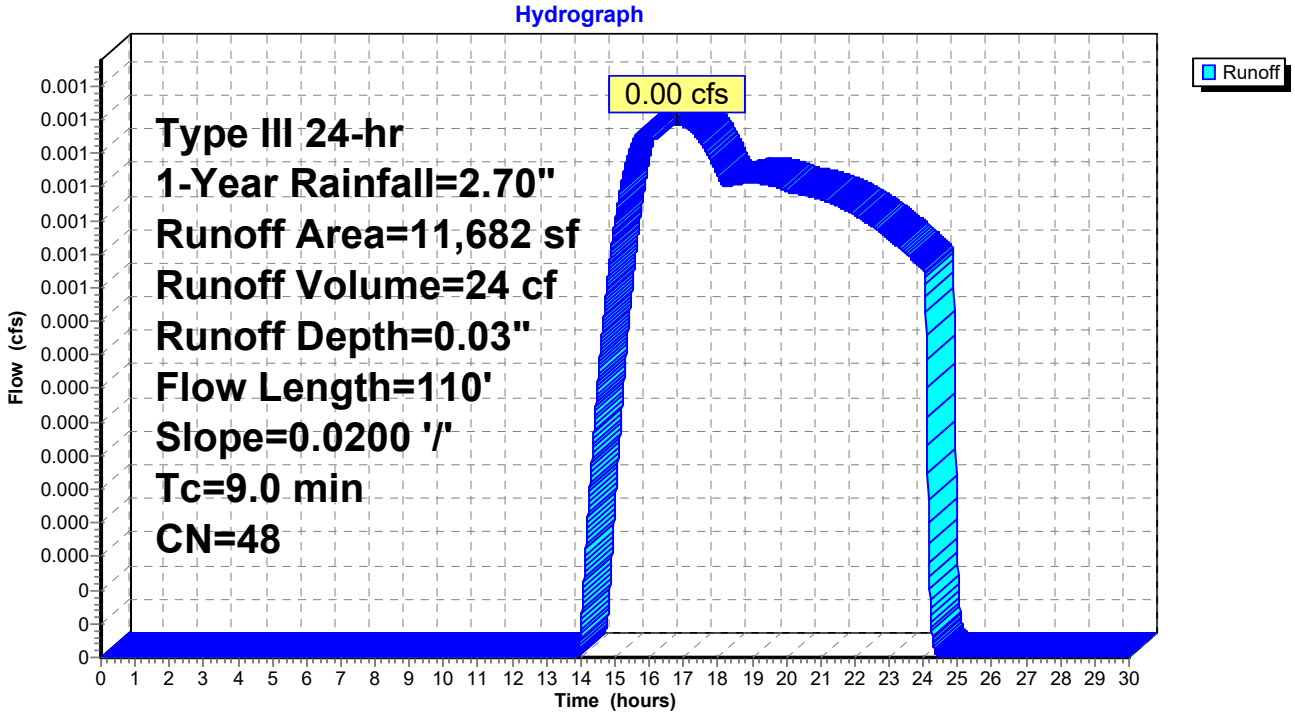
Runoff = 0.00 cfs @ 16.79 hrs, Volume= 24 cf, Depth= 0.03"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
9,631	39	Pasture/grassland/range, Good, HSG A
2,051	92	Paved roads w/open ditches, 50% imp, HSG C
11,682	48	Weighted Average
10,657		91.22% Pervious Area
1,026		8.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0200	0.19		**Sheet Flow, SHEET FLOW ACROSS PARK & GRASS** Grass: Short n= 0.150 P2= 4.00"
0.2	10	0.0200	0.99		**Shallow Concentrated Flow, SHALLOW FLOW TO DP1** Short Grass Pasture Kv= 7.0 fps
9.0	110	Total			

Subcatchment 1POST: WS #1 POST



Summary for Subcatchment 1PRE: WS #1 PRE

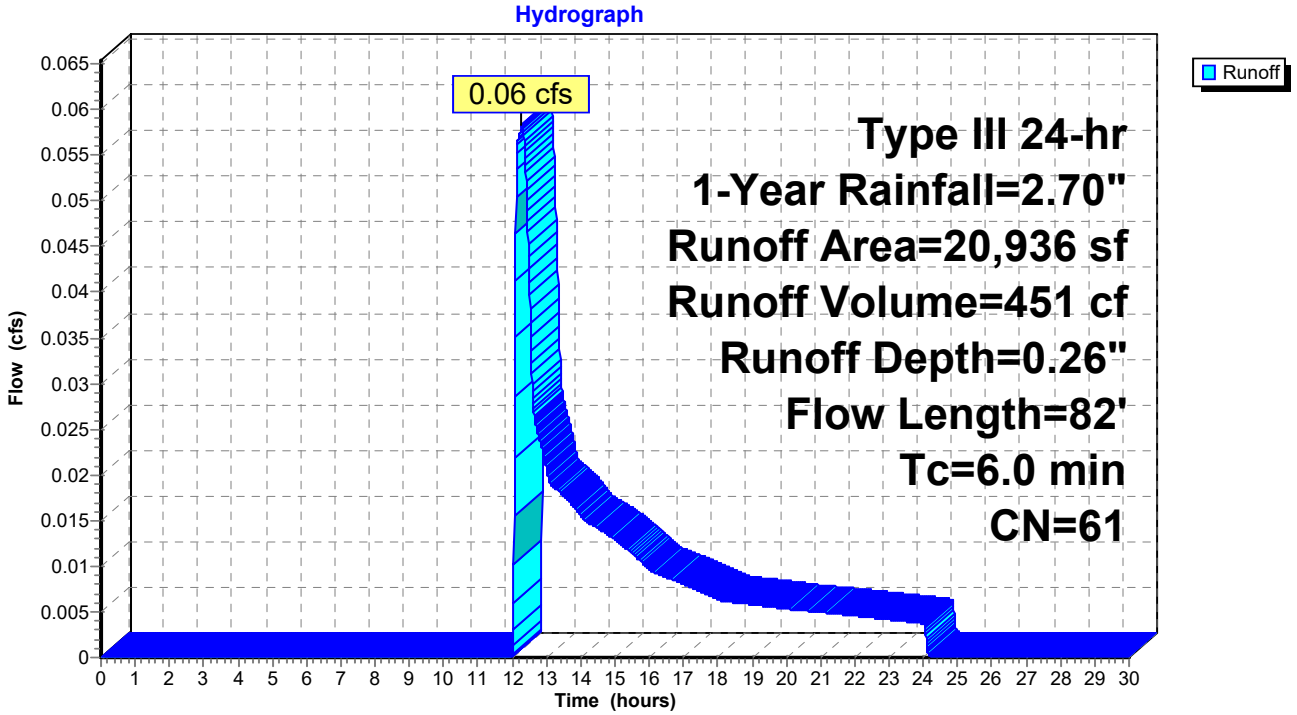
Runoff = 0.06 cfs @ 12.28 hrs, Volume= 451 cf, Depth= 0.26"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
12,436	39	Pasture/grassland/range, Good, HSG A
8,500	92	Paved roads w/open ditches, 50% imp, HSG C
20,936	61	Weighted Average
16,686		79.70% Pervious Area
4,250		20.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0625	1.68		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
2.7	32	0.0375	0.19		**Sheet Flow, SHEET FLOW ACROSS LAWN** Grass: Short n= 0.150 P2= 4.00"
0.2	12	0.0400	1.33		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
1.9	22	0.0450	0.19		**Sheet Flow, SHEET FLOW TO DP1** Grass: Short n= 0.150 P2= 4.00"
5.0	82	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1PRE: WS #1 PRE



Summary for Subcatchment 2POST: WS #2 POST

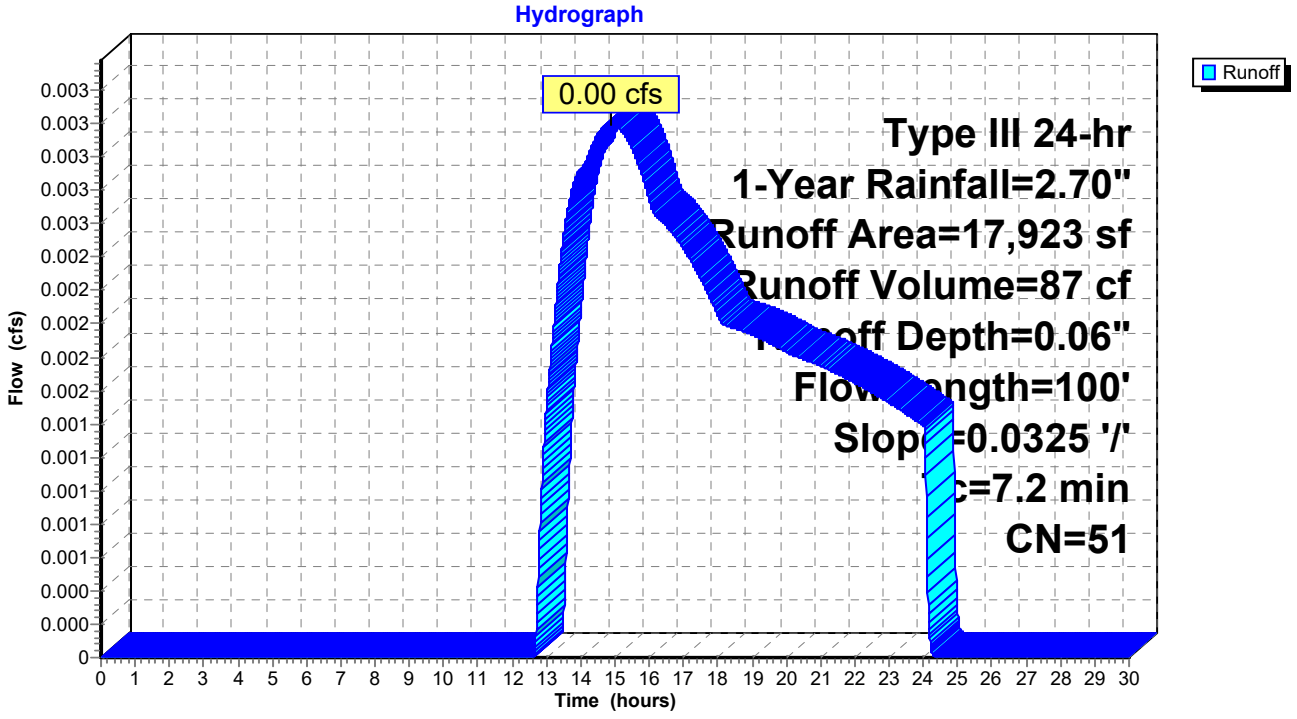
Runoff = 0.00 cfs @ 14.87 hrs, Volume= 87 cf, Depth= 0.06"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
14,142	39	Pasture/grassland/range, Good, HSG A
3,781	98	Paved roads w/curbs & sewers, HSG C
17,923	51	Weighted Average
14,142		78.90% Pervious Area
3,781		21.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0325	0.23		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"

Subcatchment 2POST: WS #2 POST



Summary for Subcatchment 2PRE: WS #2 PRE

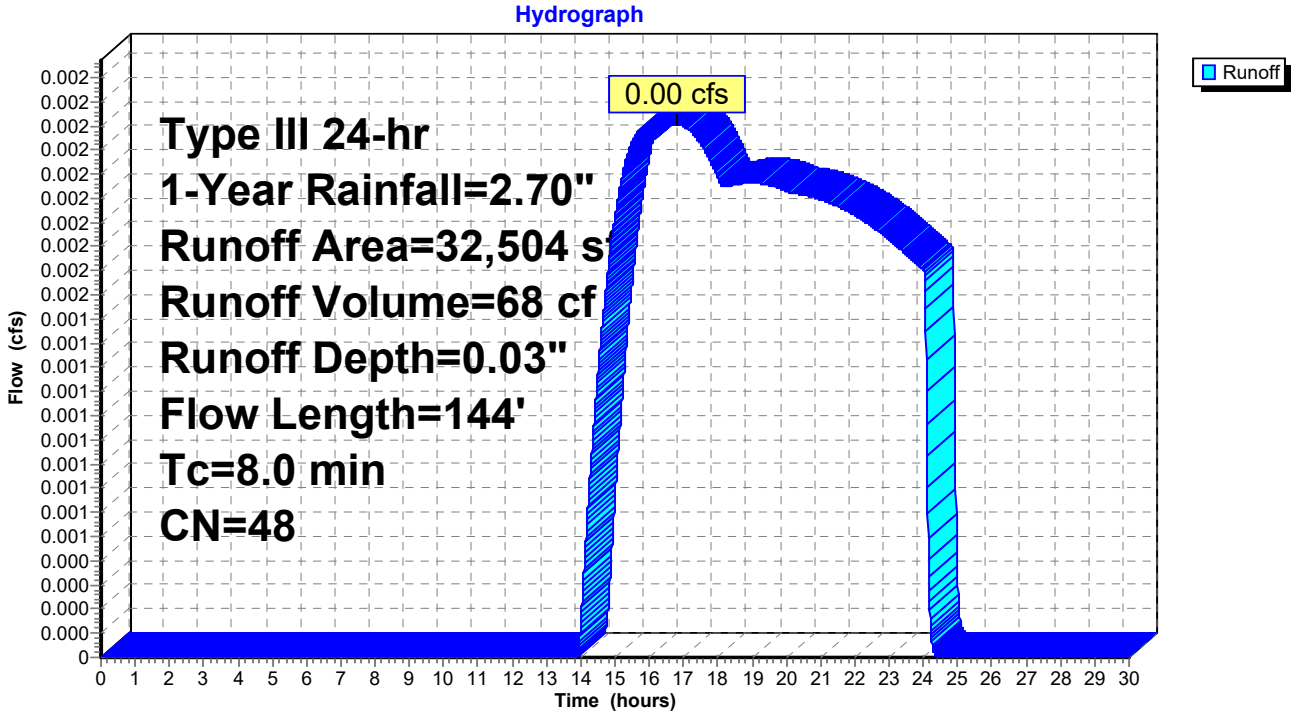
Runoff = 0.00 cfs @ 16.79 hrs, Volume= 68 cf, Depth= 0.03"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
26,730	39	Pasture/grassland/range, Good, HSG A
5,774	92	Paved roads w/open ditches, 50% imp, HSG C
32,504	48	Weighted Average
29,617		91.12% Pervious Area
2,887		8.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0300	0.22		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
0.5	44	0.0450	1.48		**Shallow Concentrated Flow, SHALLOW FLOW TO DP2** Short Grass Pasture Kv= 7.0 fps
8.0	144	Total			

Subcatchment 2PRE: WS #2 PRE



Summary for Subcatchment 3APOST: WS #3A POST

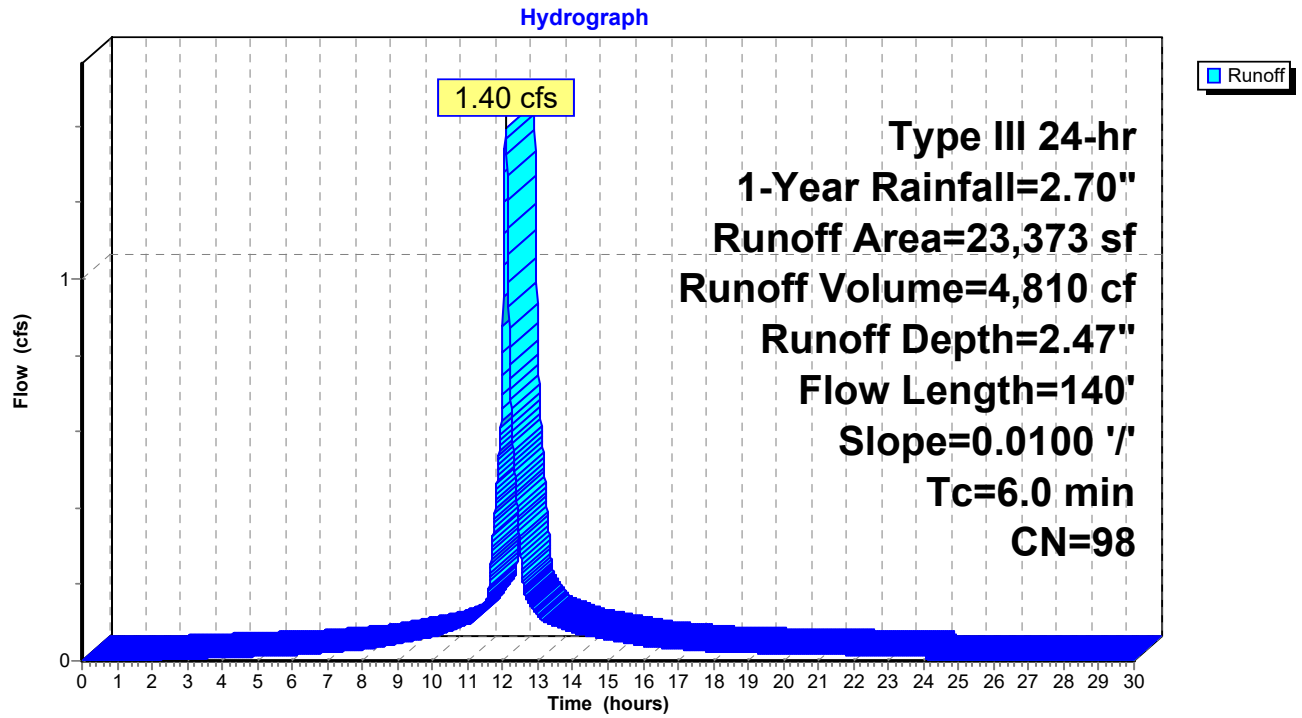
Runoff = 1.40 cfs @ 12.08 hrs, Volume= 4,810 cf, Depth= 2.47"
Routed to Pond CB1 : CB-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
23,373	98	Paved parking, HSG A
23,373		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0100	1.17		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 4.00"
0.3	40	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-1** Paved Kv= 20.3 fps
1.7	140	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3APOST: WS #3A POST



Summary for Subcatchment 3BPOST: WS #3B POST

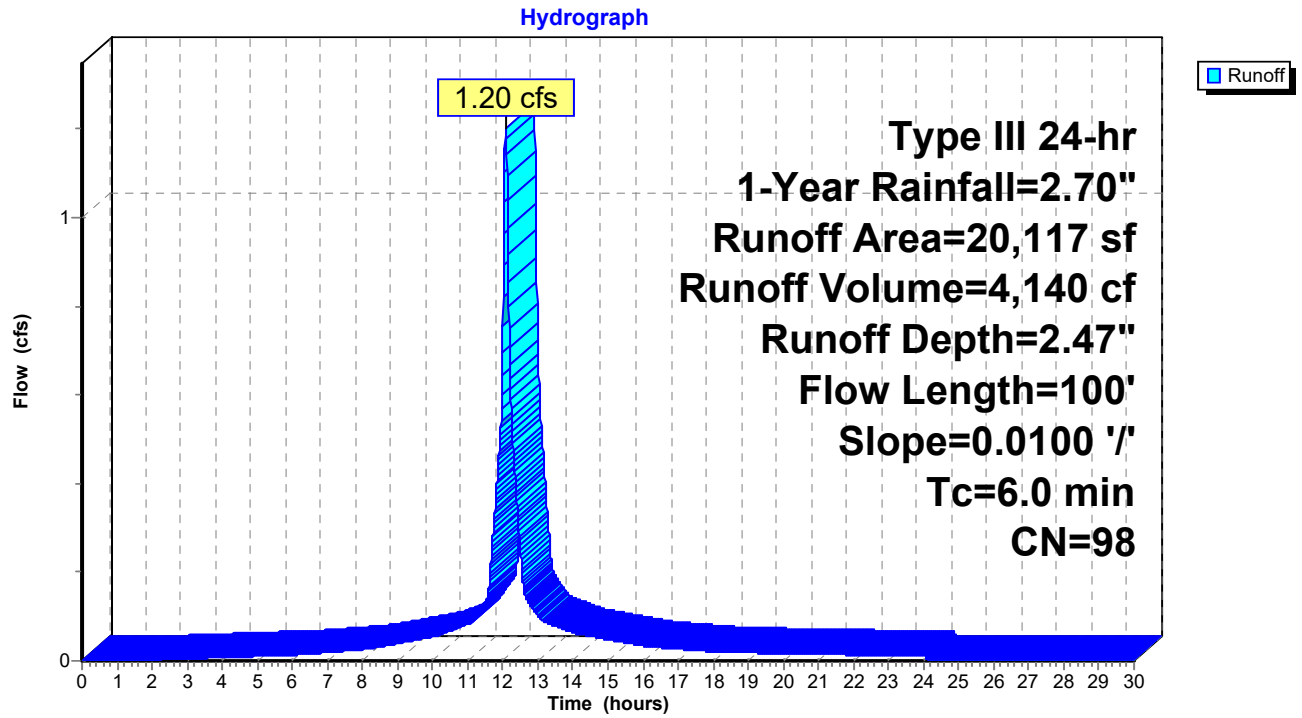
Runoff = 1.20 cfs @ 12.08 hrs, Volume= 4,140 cf, Depth= 2.47"
Routed to Pond CB3 : CB-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
20,117	98	Paved parking, HSG A
20,117		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0100	1.01		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
0.4	50	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-2** Paved Kv= 20.3 fps
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3BPOST: WS #3B POST



Summary for Subcatchment 3CPOST: WS #3C POST

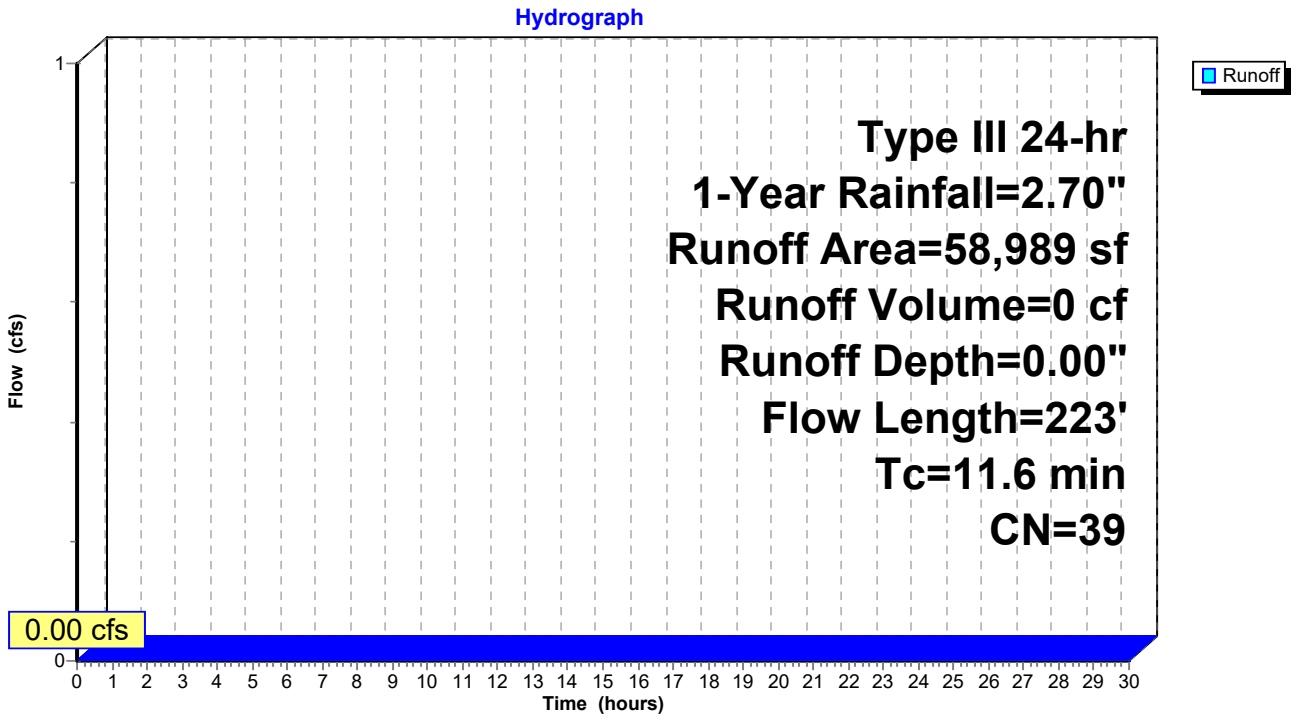
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Reach DP3 : DP3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
58,989	39	Pasture/grassland/range, Good, HSG A
58,989		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	100	0.0400	0.17		**Sheet Flow, SHEET FLOW** Grass: Dense n= 0.240 P2= 4.00"
1.9	123	0.0250	1.11		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	223	Total			

Subcatchment 3CPOST: WS #3C POST



Summary for Subcatchment 3PRE: WS #3 PRE

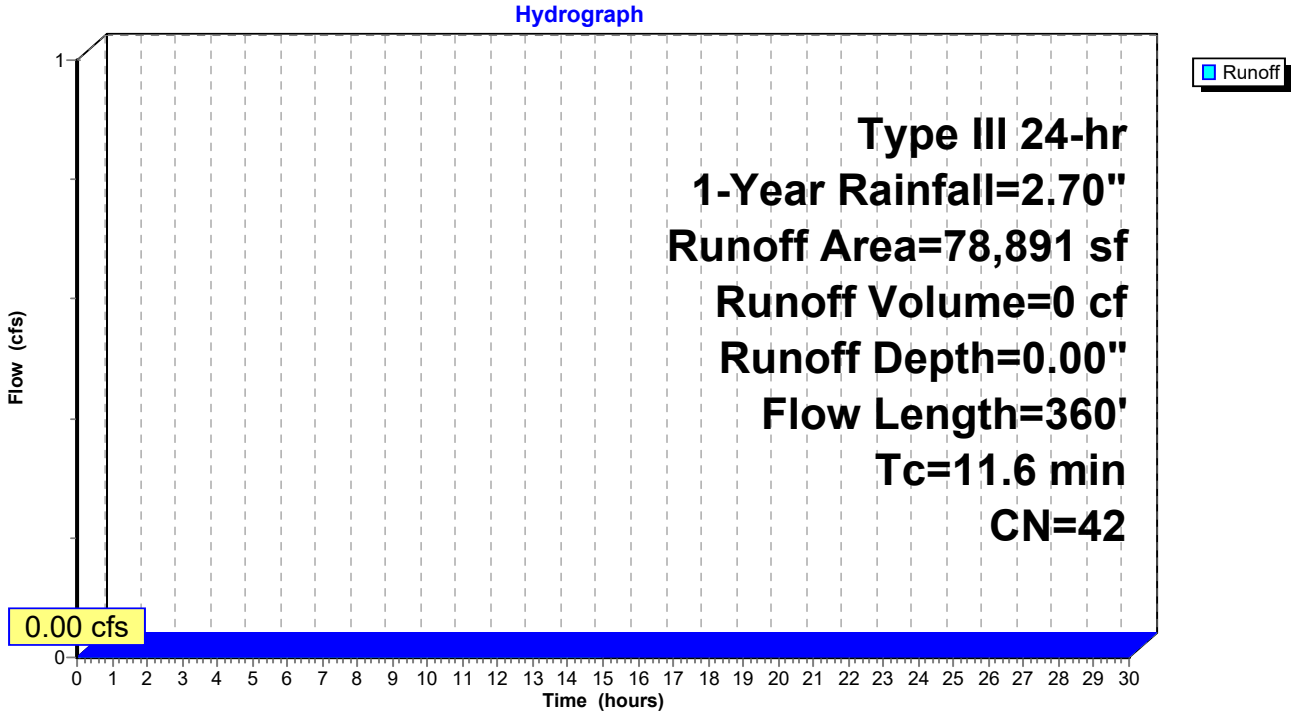
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
74,772	39	Pasture/grassland/range, Good, HSG A
4,119	92	Paved roads w/open ditches, 50% imp, HSG C
78,891	42	Weighted Average
76,832		97.39% Pervious Area
2,060		2.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0250	0.21		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
3.6	260	0.0300	1.21		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	360	Total			

Subcatchment 3PRE: WS #3 PRE

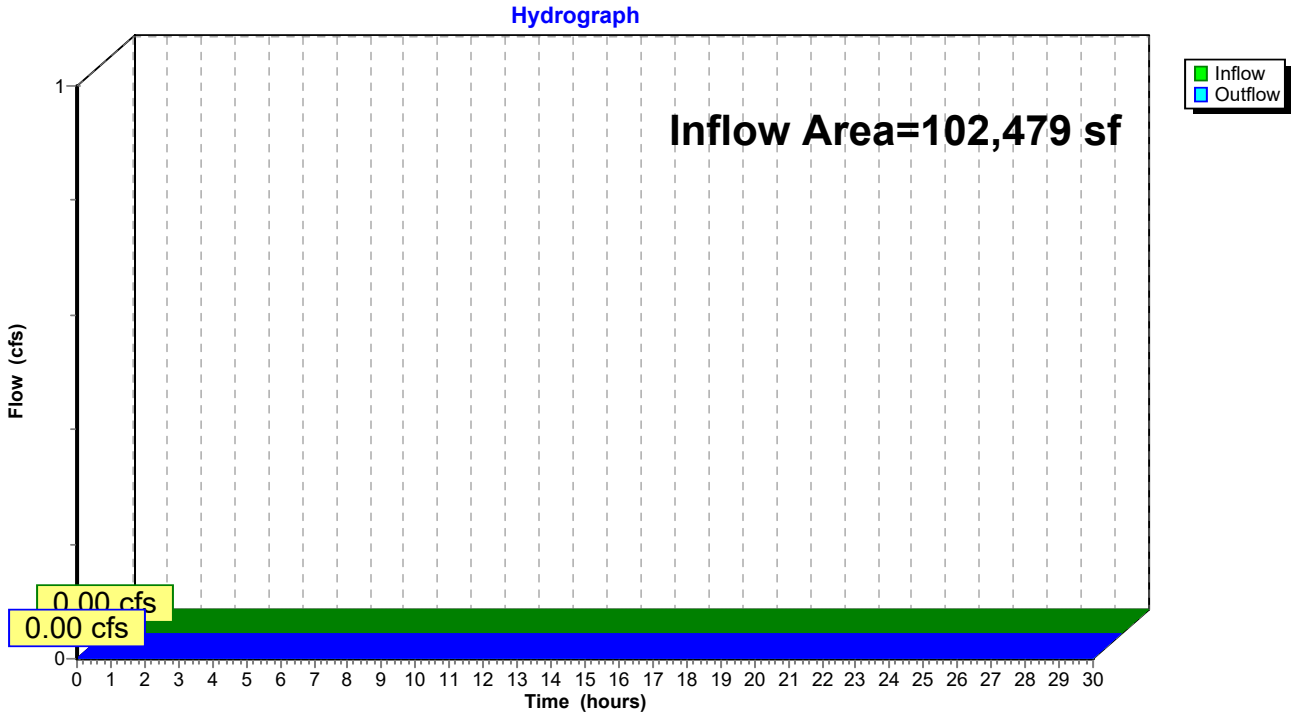


Summary for Reach DP3: DP3

Inflow Area = 102,479 sf, 42.44% Impervious, Inflow Depth = 0.00" for 1-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP3: DP3



Summary for Pond ADS #1: ADS #1

Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 2.47" for 1-Year event
Inflow = 1.40 cfs @ 12.08 hrs, Volume= 4,810 cf
Outflow = 0.33 cfs @ 12.47 hrs, Volume= 4,810 cf, Atten= 76%, Lag= 23.1 min
Discarded = 0.33 cfs @ 12.47 hrs, Volume= 4,810 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 302.94' @ 12.47 hrs Surf.Area= 4,571 sf Storage= 1,043 cf
Flood Elev= 306.91' Surf.Area= 4,571 sf Storage= 9,872 cf

Plug-Flow detention time= 17.6 min calculated for 4,809 cf (100% of inflow)
Center-of-Mass det. time= 17.6 min (777.7 - 760.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	4,084 cf	**44.25'W x 103.30'L x 3.50'H Field A** 15,998 cf Overall - 5,788 cf Embedded = 10,210 cf x 40.0% Voids
#2A	302.91'	5,788 cf	**ADS_StormTech SC-740 +Cap** x 126 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 126 Chambers in 9 Rows
		9,872 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 145.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.33 cfs @ 12.47 hrs HW=302.94' (Free Discharge)
└**4=Exfiltration** (Controls 0.33 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=302.41' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #1: ADS #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

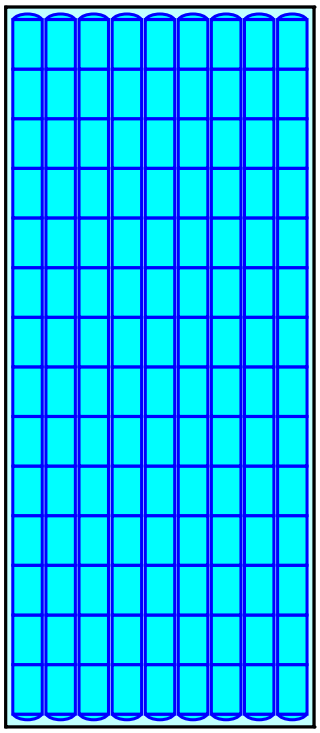
14 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 101.30' Row Length +12.0" End Stone x 2 = 103.30' Base Length
9 Rows x 51.0" Wide + 6.0" Spacing x 8 + 12.0" Side Stone x 2 = 44.25' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

126 Chambers x 45.9 cf = 5,788.4 cf Chamber Storage

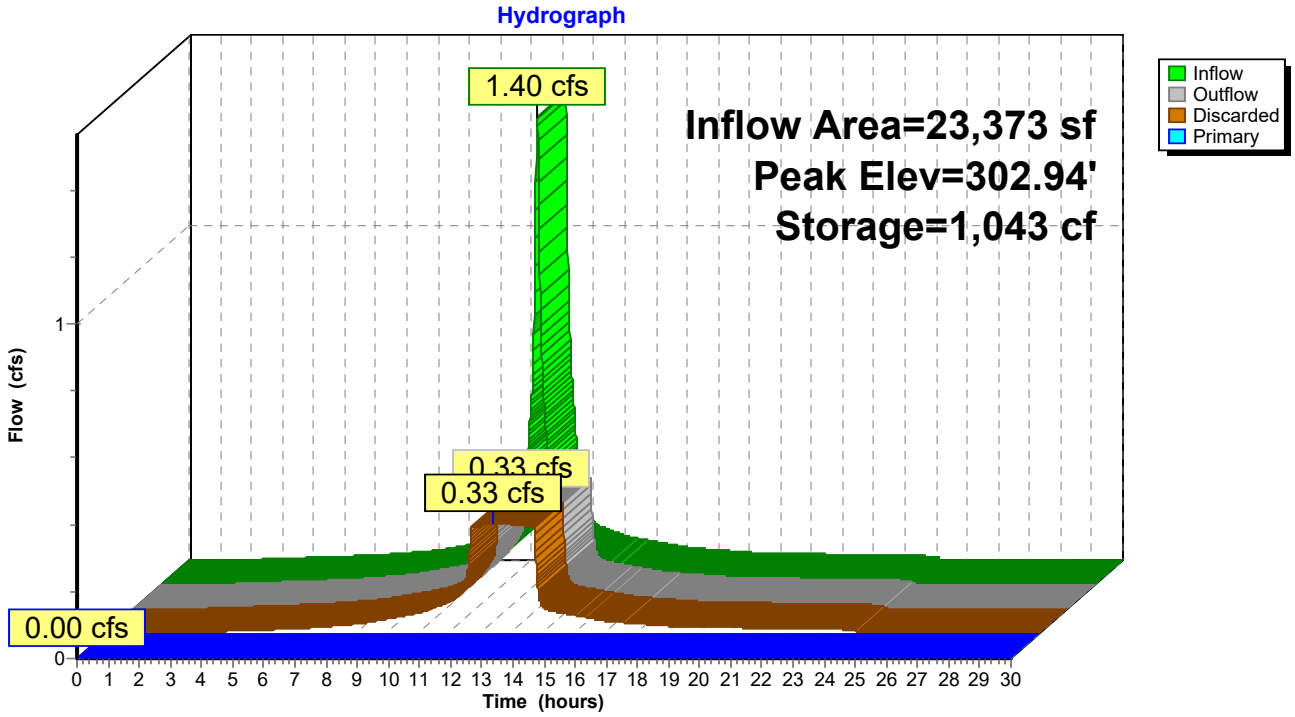
15,998.1 cf Field - 5,788.4 cf Chambers = 10,209.6 cf Stone x 40.0% Voids = 4,083.9 cf Stone Storage

Chamber Storage + Stone Storage = 9,872.3 cf = 0.227 af
Overall Storage Efficiency = 61.7%
Overall System Size = 103.30' x 44.25' x 3.50'

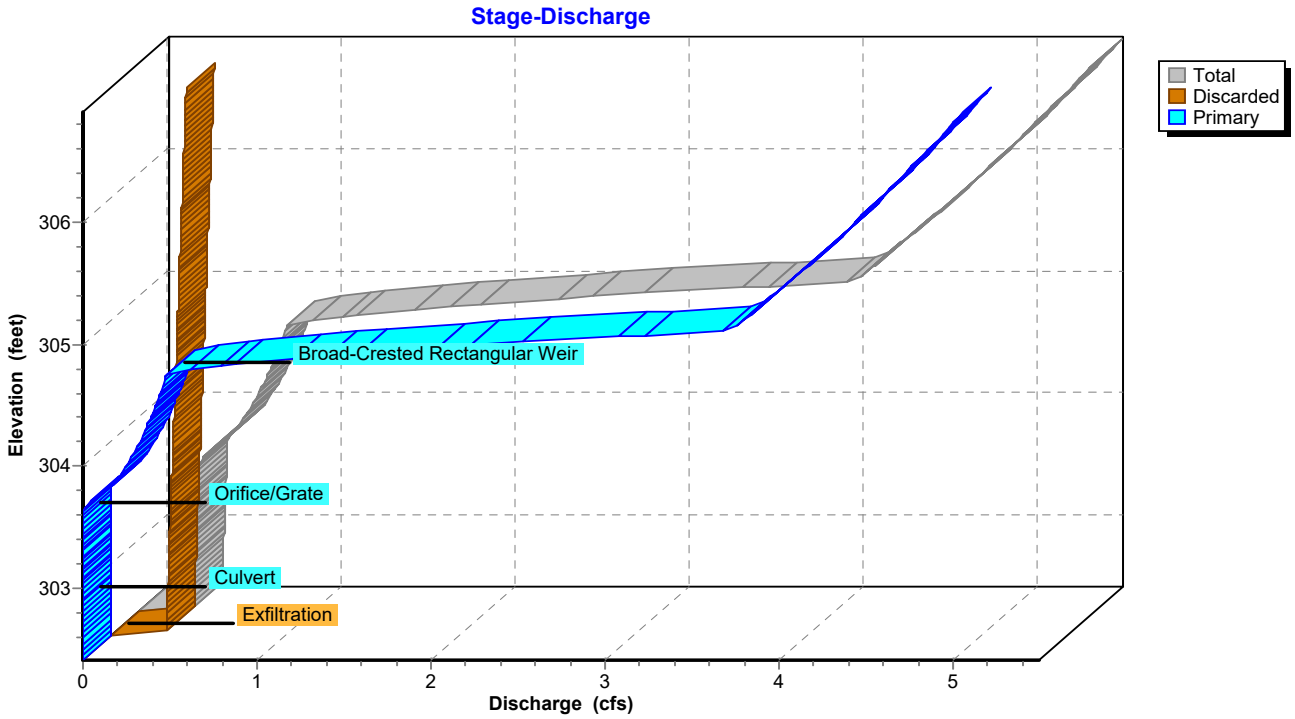
126 Chambers
592.5 cy Field
378.1 cy Stone



Pond ADS #1: ADS #1



Pond ADS #1: ADS #1



Summary for Pond ADS #2: ADS #2

Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 2.47" for 1-Year event
Inflow = 1.20 cfs @ 12.08 hrs, Volume= 4,140 cf
Outflow = 0.28 cfs @ 12.48 hrs, Volume= 4,140 cf, Atten= 77%, Lag= 23.6 min
Discarded = 0.28 cfs @ 12.48 hrs, Volume= 4,140 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 302.96' @ 12.48 hrs Surf.Area= 3,799 sf Storage= 921 cf
Flood Elev= 306.91' Surf.Area= 3,799 sf Storage= 8,185 cf

Plug-Flow detention time= 18.7 min calculated for 4,140 cf (100% of inflow)
Center-of-Mass det. time= 18.7 min (778.8 - 760.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	3,407 cf	**39.50'W x 96.18'L x 3.50'H Field A** 13,296 cf Overall - 4,778 cf Embedded = 8,519 cf x 40.0% Voids
#2A	302.91'	4,778 cf	**ADS_StormTech SC-740 +Cap** x 104 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 104 Chambers in 8 Rows
		8,185 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0065 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.28 cfs @ 12.48 hrs HW=302.96' (Free Discharge)
└**4=Exfiltration** (Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=302.41' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #2: ADS #2 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

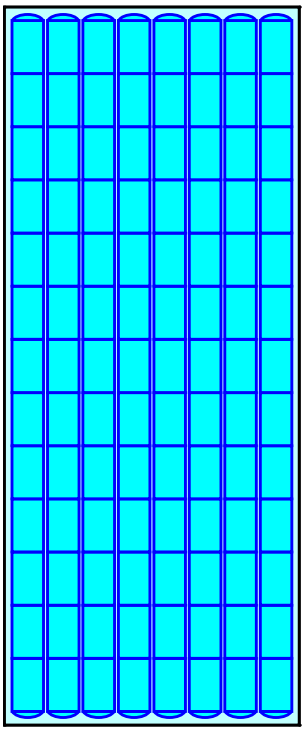
13 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 94.18' Row Length +12.0" End Stone x 2 = 96.18' Base Length
8 Rows x 51.0" Wide + 6.0" Spacing x 7 + 12.0" Side Stone x 2 = 39.50' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

104 Chambers x 45.9 cf = 4,777.8 cf Chamber Storage

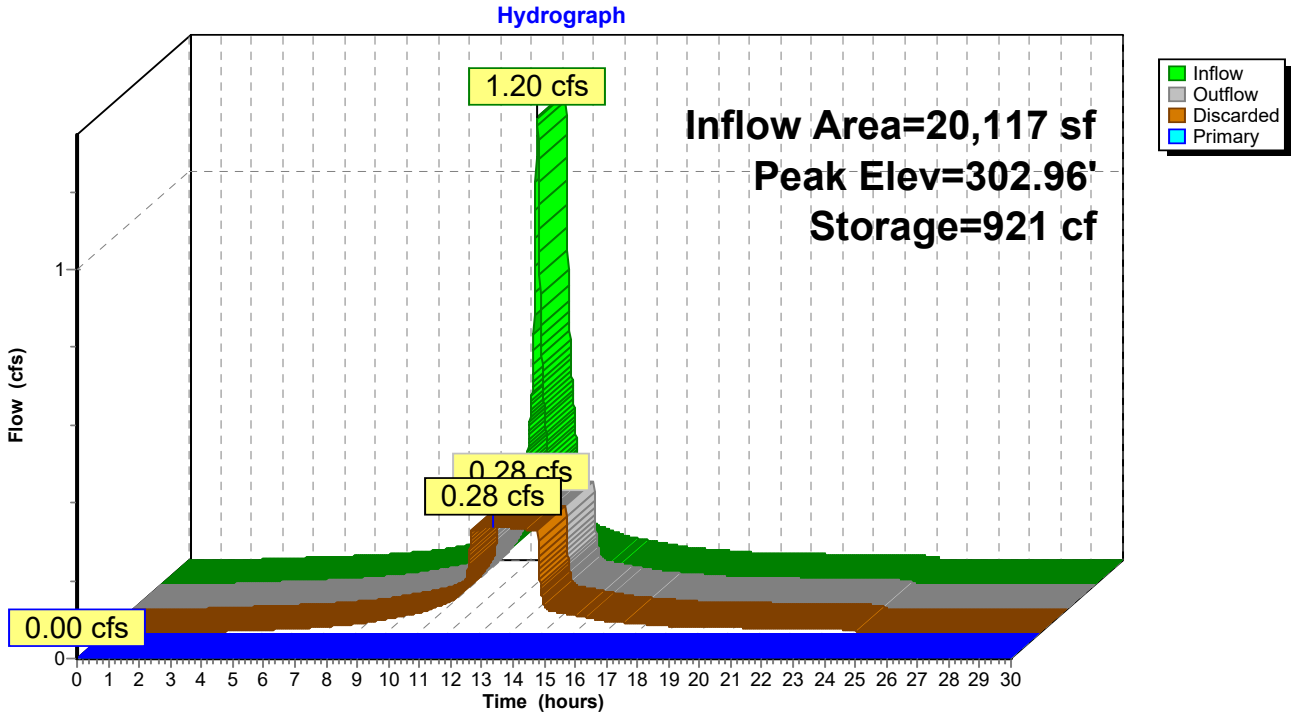
13,296.4 cf Field - 4,777.8 cf Chambers = 8,518.7 cf Stone x 40.0% Voids = 3,407.5 cf Stone Storage

Chamber Storage + Stone Storage = 8,185.2 cf = 0.188 af
Overall Storage Efficiency = 61.6%
Overall System Size = 96.18' x 39.50' x 3.50'

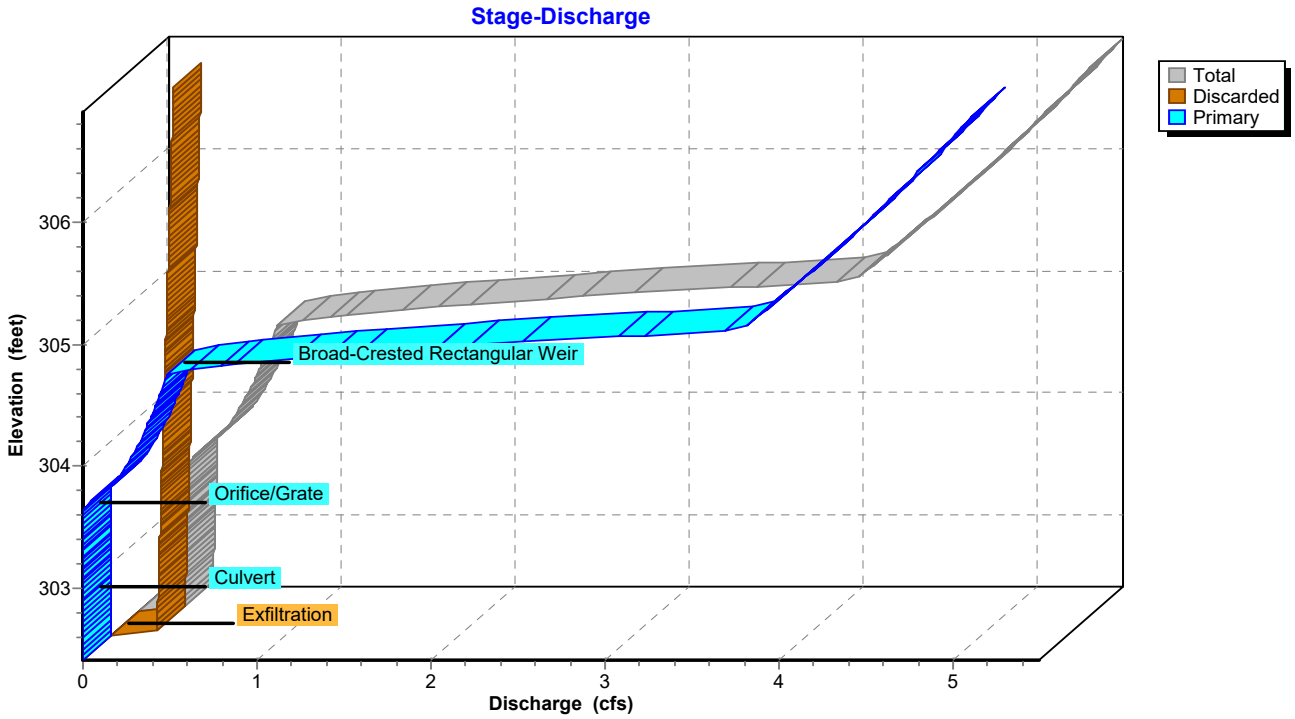
104 Chambers
492.5 cy Field
315.5 cy Stone



Pond ADS #2: ADS #2



Pond ADS #2: ADS #2



Summary for Pond CB1: CB-1

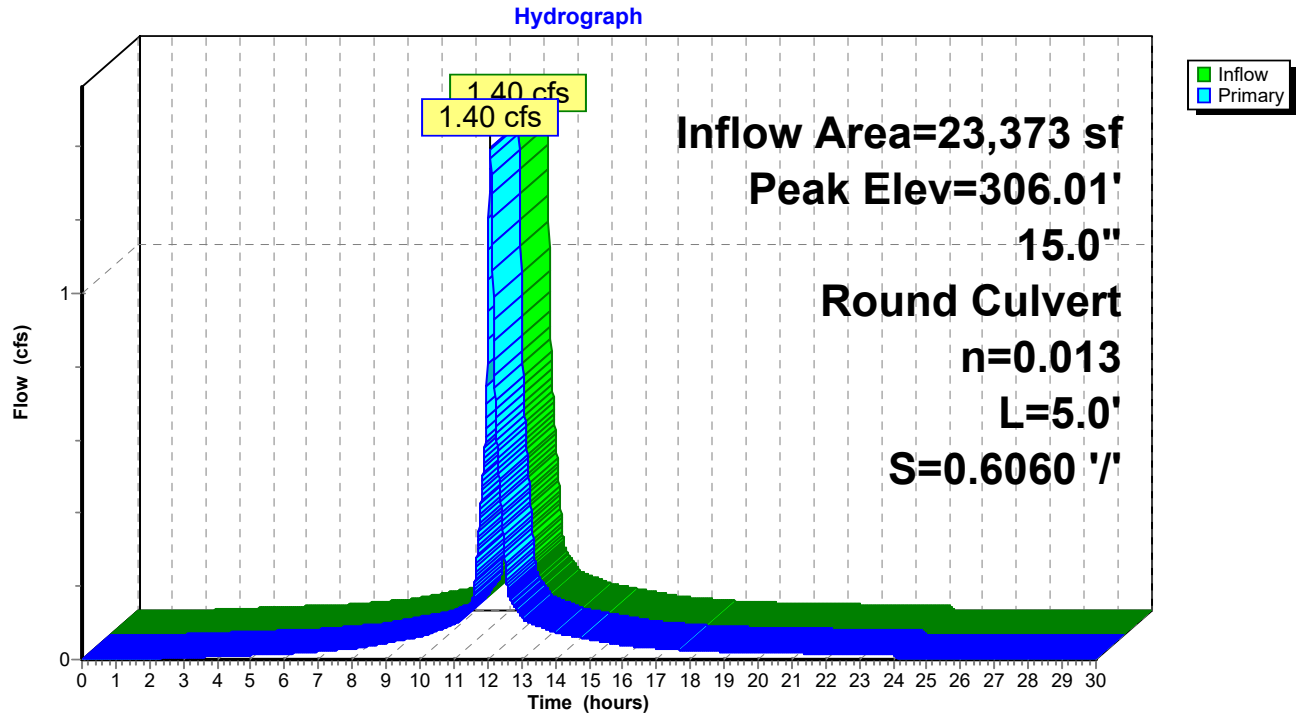
Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 2.47" for 1-Year event
Inflow = 1.40 cfs @ 12.08 hrs, Volume= 4,810 cf
Outflow = 1.40 cfs @ 12.08 hrs, Volume= 4,810 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.40 cfs @ 12.08 hrs, Volume= 4,810 cf
Routed to Pond ADS #1 : ADS #1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 306.01' @ 12.08 hrs
Flood Elev= 308.59'

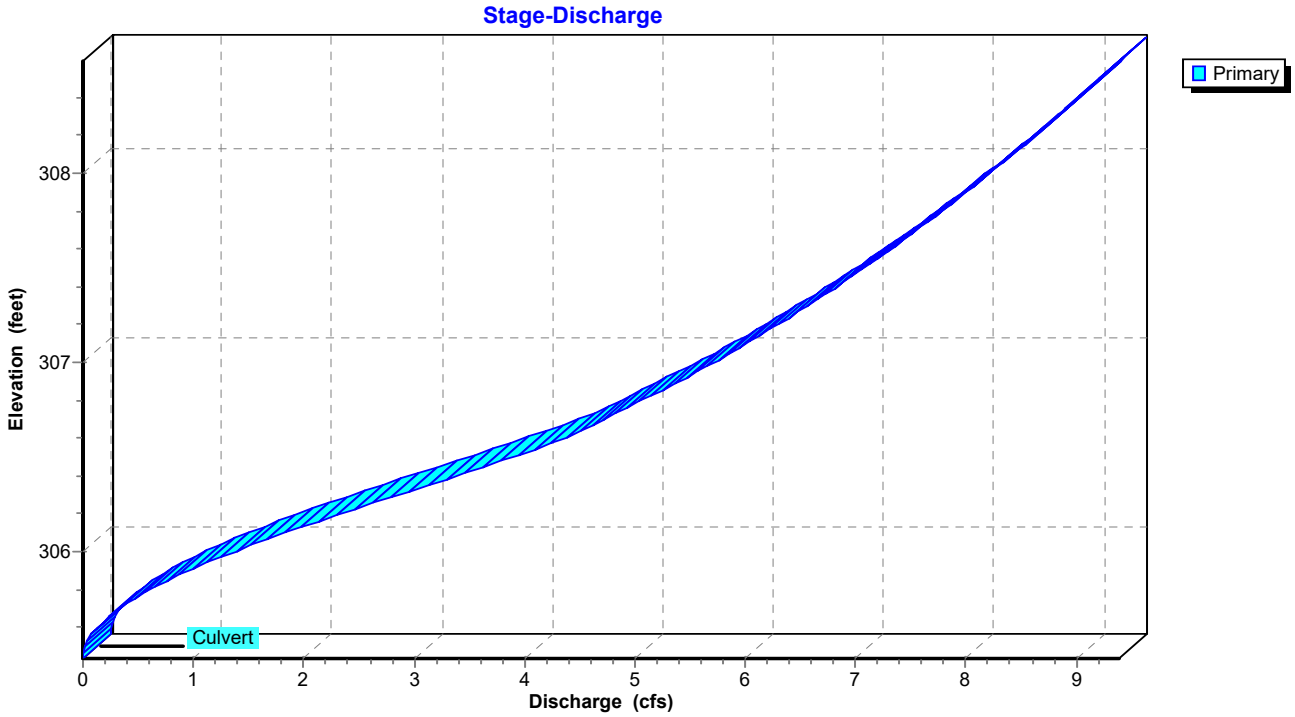
Device	Routing	Invert	Outlet Devices
#1	Primary	305.44'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 305.44' / 302.41' S= 0.6060 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=1.40 cfs @ 12.08 hrs HW=306.01' (Free Discharge)
1=Culvert (Inlet Controls 1.40 cfs @ 2.57 fps)

Pond CB1: CB-1



Pond CB1: CB-1


Stage-Discharge
Primary
Elevation (feet)
308
307
306
Culvert
0
1
2
3
4
5
6
7
8
9
Discharge (cfs)

Summary for Pond CB3: CB-3

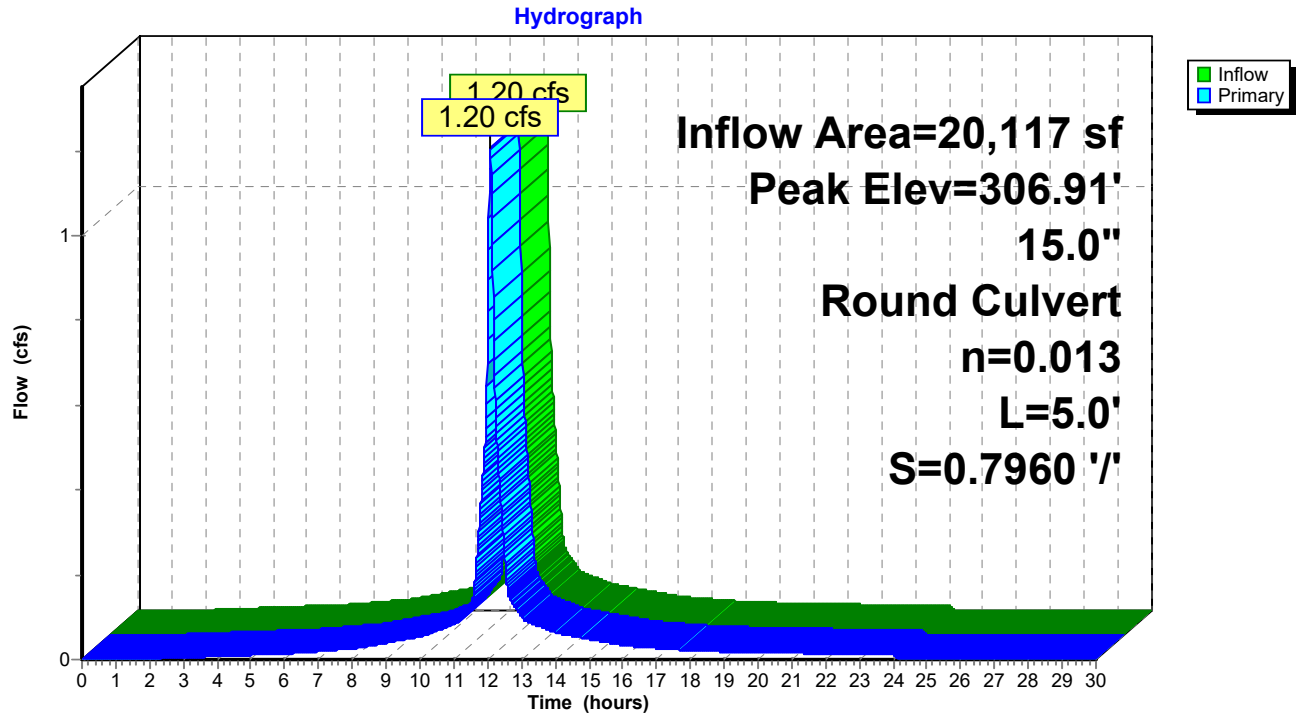
Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 2.47" for 1-Year event
Inflow = 1.20 cfs @ 12.08 hrs, Volume= 4,140 cf
Outflow = 1.20 cfs @ 12.08 hrs, Volume= 4,140 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.20 cfs @ 12.08 hrs, Volume= 4,140 cf
Routed to Pond ADS #2 : ADS #2

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 306.91' @ 12.08 hrs
Flood Elev= 308.80'

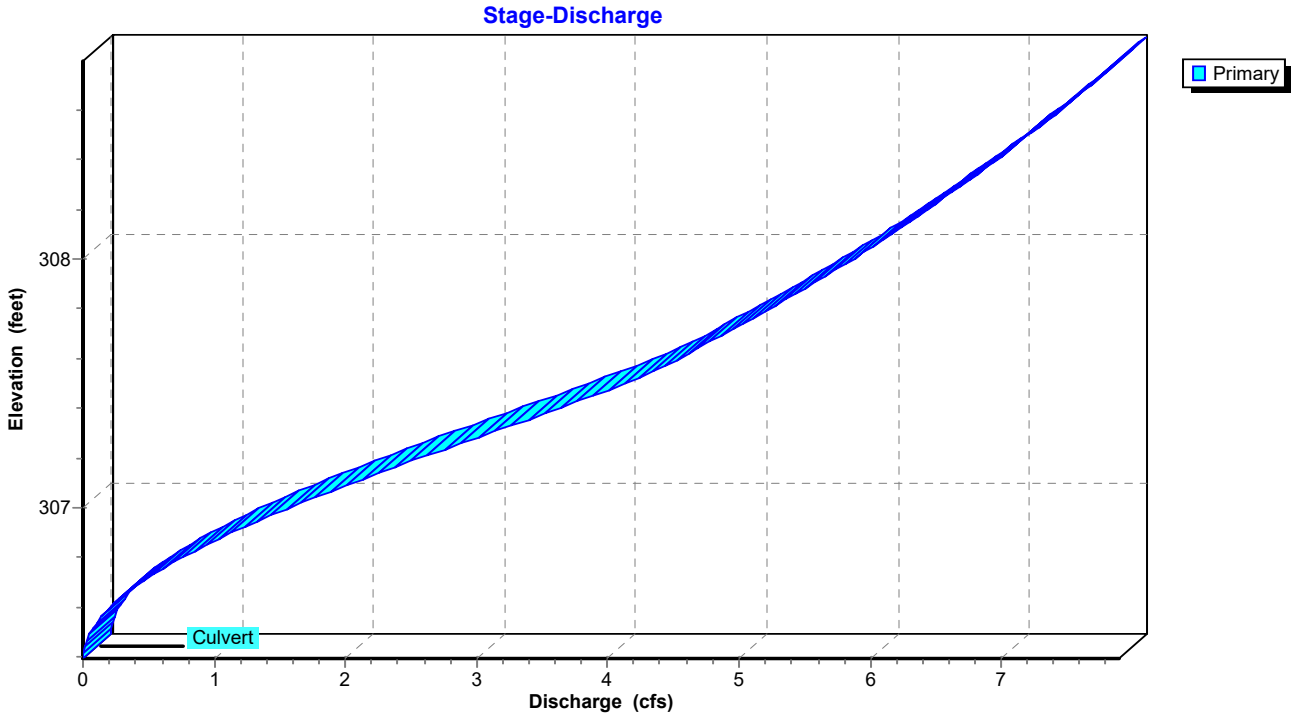
Device	Routing	Invert	Outlet Devices
#1	Primary	306.39'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 306.39' / 302.41' S= 0.7960 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=1.20 cfs @ 12.08 hrs HW=306.91' (Free Discharge)
1=Culvert (Inlet Controls 1.20 cfs @ 2.46 fps)

Pond CB3: CB-3



Pond CB3: CB-3


Stage-Discharge
Primary
Elevation (feet)
308
307
Culvert
0
1
2
3
4
5
6
7
Discharge (cfs)

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1POST: WS #1 POST Runoff Area=11,682 sf 8.78% Impervious Runoff Depth=0.27"
Flow Length=110' Slope=0.0200 '/' Tc=9.0 min CN=48 Runoff=0.03 cfs 258 cf

Subcatchment 1PRE: WS #1 PRE Runoff Area=20,936 sf 20.30% Impervious Runoff Depth=0.81"
Flow Length=82' Tc=6.0 min CN=61 Runoff=0.37 cfs 1,418 cf

Subcatchment 2POST: WS #2 POST Runoff Area=17,923 sf 21.10% Impervious Runoff Depth=0.37"
Flow Length=100' Slope=0.0325 '/' Tc=7.2 min CN=51 Runoff=0.07 cfs 552 cf

Subcatchment 2PRE: WS #2 PRE Runoff Area=32,504 sf 8.88% Impervious Runoff Depth=0.27"
Flow Length=144' Tc=8.0 min CN=48 Runoff=0.07 cfs 719 cf

Subcatchment 3APOST: WS #3A POST Runoff Area=23,373 sf 100.00% Impervious Runoff Depth=3.77"
Flow Length=140' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=2.09 cfs 7,333 cf

Subcatchment 3BPOST: WS #3B POST Runoff Area=20,117 sf 100.00% Impervious Runoff Depth=3.77"
Flow Length=100' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=1.80 cfs 6,312 cf

Subcatchment 3CPOST: WS #3C POST Runoff Area=58,989 sf 0.00% Impervious Runoff Depth=0.05"
Flow Length=223' Tc=11.6 min CN=39 Runoff=0.01 cfs 226 cf

Subcatchment 3PRE: WS #3 PRE Runoff Area=78,891 sf 2.61% Impervious Runoff Depth=0.10"
Flow Length=360' Tc=11.6 min CN=42 Runoff=0.02 cfs 670 cf

Reach DP3: DP3 Inflow=0.01 cfs 226 cf
Outflow=0.01 cfs 226 cf

Pond ADS #1: ADS #1 Peak Elev=303.20' Storage=2,003 cf Inflow=2.09 cfs 7,333 cf
Discarded=0.34 cfs 7,333 cf Primary=0.00 cfs 0 cf Outflow=0.34 cfs 7,333 cf

Pond ADS #2: ADS #2 Peak Elev=303.22' Storage=1,754 cf Inflow=1.80 cfs 6,312 cf
Discarded=0.28 cfs 6,312 cf Primary=0.00 cfs 0 cf Outflow=0.28 cfs 6,312 cf

Pond CB1: CB-1 Peak Elev=306.16' Inflow=2.09 cfs 7,333 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.6060 '/' Outflow=2.09 cfs 7,333 cf

Pond CB3: CB-3 Peak Elev=307.05' Inflow=1.80 cfs 6,312 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.7960 '/' Outflow=1.80 cfs 6,312 cf

Summary for Subcatchment 1POST: WS #1 POST

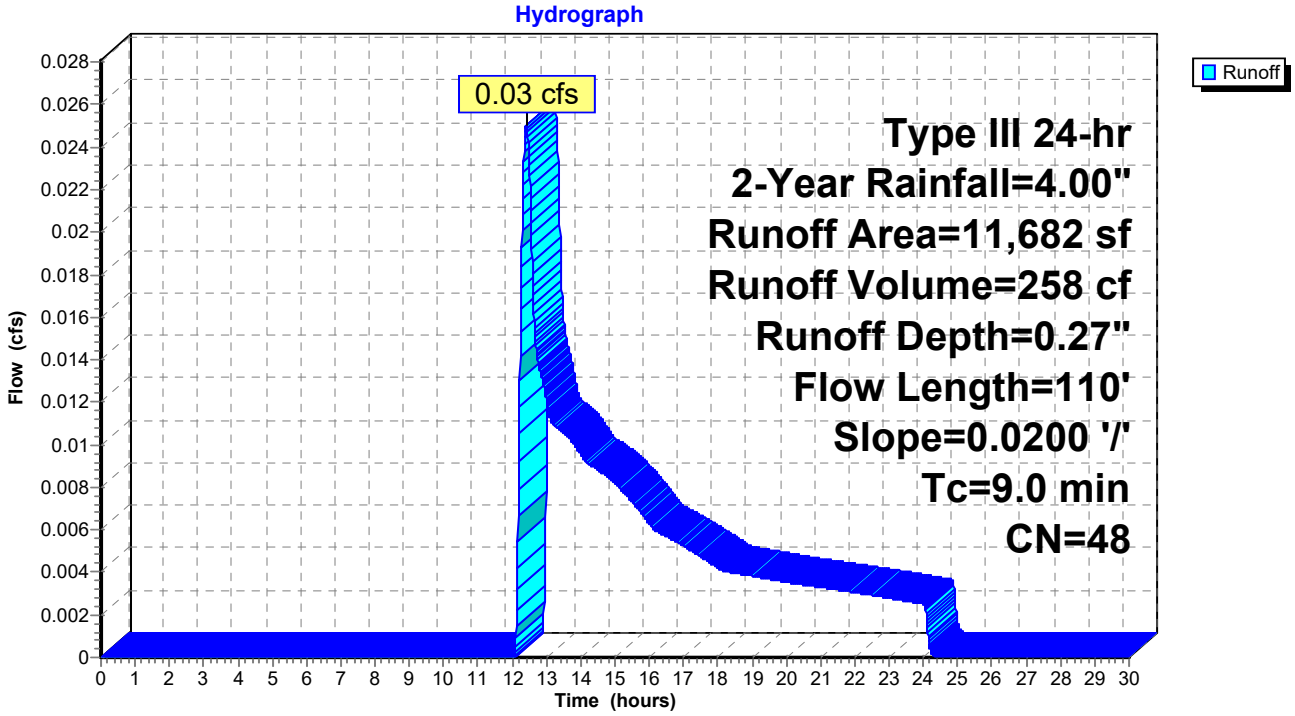
Runoff = 0.03 cfs @ 12.41 hrs, Volume= 258 cf, Depth= 0.27"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=4.00"

Area (sf)	CN	Description
9,631	39	Pasture/grassland/range, Good, HSG A
2,051	92	Paved roads w/open ditches, 50% imp, HSG C
11,682	48	Weighted Average
10,657		91.22% Pervious Area
1,026		8.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0200	0.19		**Sheet Flow, SHEET FLOW ACROSS PARK & GRASS** Grass: Short n= 0.150 P2= 4.00"
0.2	10	0.0200	0.99		**Shallow Concentrated Flow, SHALLOW FLOW TO DP1** Short Grass Pasture Kv= 7.0 fps
9.0	110	Total			

Subcatchment 1POST: WS #1 POST



Summary for Subcatchment 1PRE: WS #1 PRE

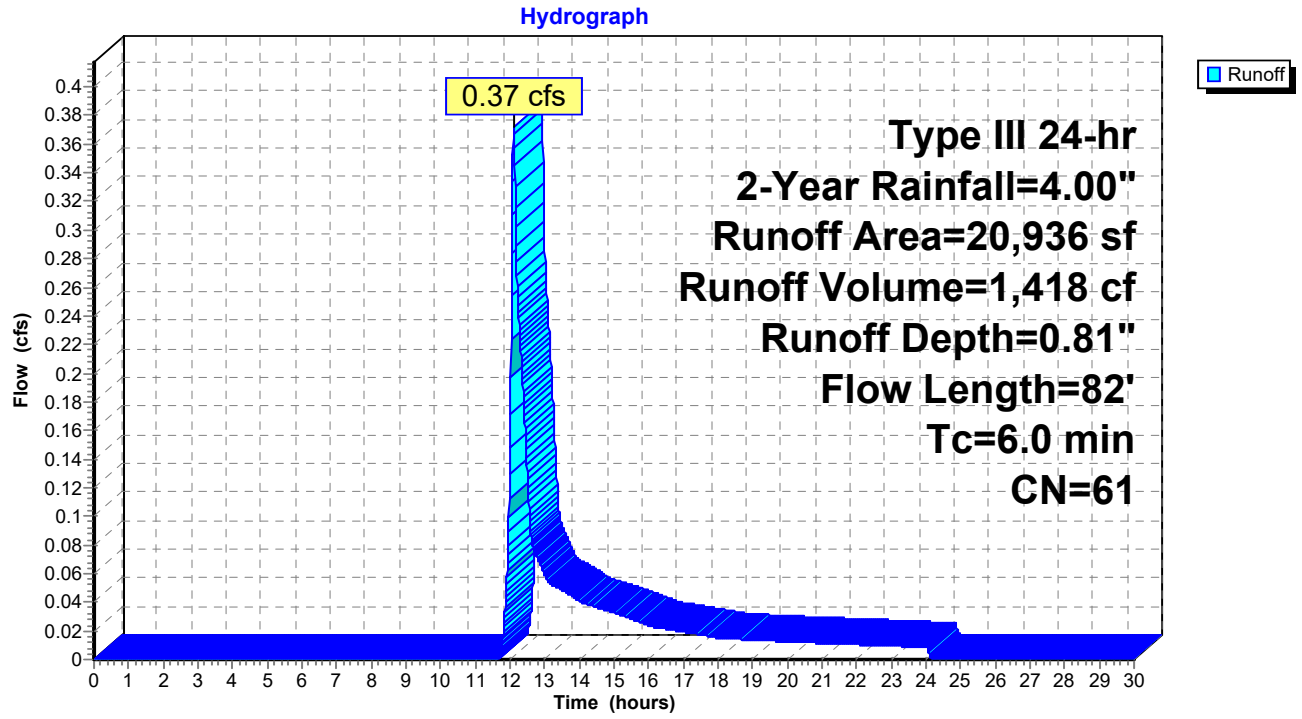
Runoff = 0.37 cfs @ 12.11 hrs, Volume= 1,418 cf, Depth= 0.81"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=4.00"

Area (sf)	CN	Description
12,436	39	Pasture/grassland/range, Good, HSG A
8,500	92	Paved roads w/open ditches, 50% imp, HSG C
20,936	61	Weighted Average
16,686		79.70% Pervious Area
4,250		20.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0625	1.68		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
2.7	32	0.0375	0.19		**Sheet Flow, SHEET FLOW ACROSS LAWN** Grass: Short n= 0.150 P2= 4.00"
0.2	12	0.0400	1.33		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
1.9	22	0.0450	0.19		**Sheet Flow, SHEET FLOW TO DP1** Grass: Short n= 0.150 P2= 4.00"
5.0	82	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1PRE: WS #1 PRE



Summary for Subcatchment 2POST: WS #2 POST

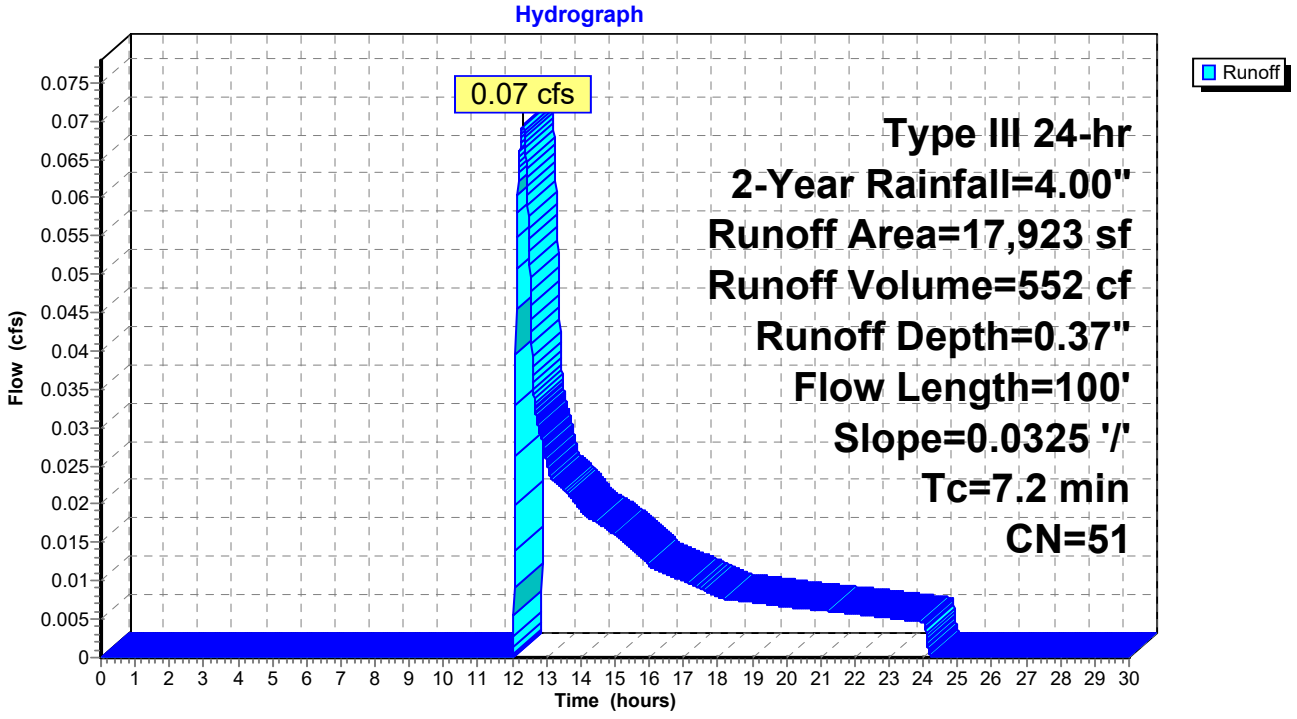
Runoff = 0.07 cfs @ 12.31 hrs, Volume= 552 cf, Depth= 0.37"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=4.00"

Area (sf)	CN	Description
14,142	39	Pasture/grassland/range, Good, HSG A
3,781	98	Paved roads w/curbs & sewers, HSG C
17,923	51	Weighted Average
14,142		78.90% Pervious Area
3,781		21.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0325	0.23		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"

Subcatchment 2POST: WS #2 POST



Summary for Subcatchment 2PRE: WS #2 PRE

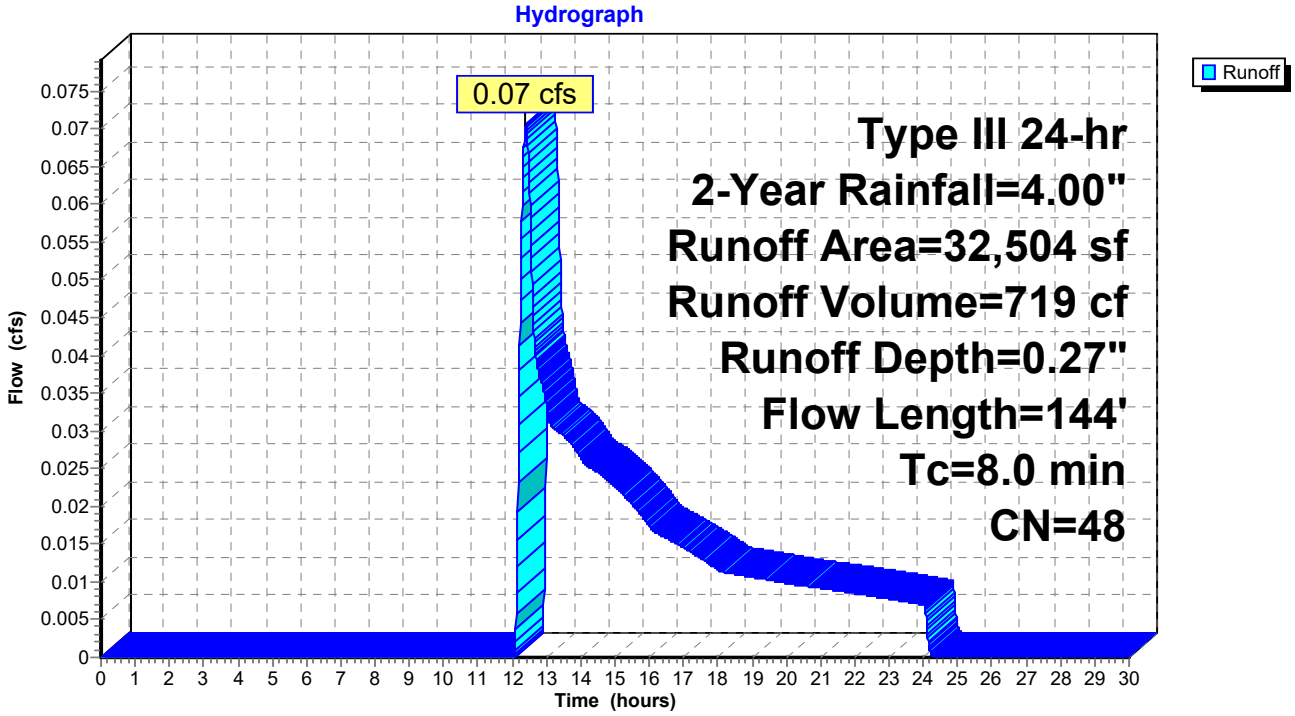
Runoff = 0.07 cfs @ 12.40 hrs, Volume= 719 cf, Depth= 0.27"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=4.00"

Area (sf)	CN	Description
26,730	39	Pasture/grassland/range, Good, HSG A
5,774	92	Paved roads w/open ditches, 50% imp, HSG C
32,504	48	Weighted Average
29,617		91.12% Pervious Area
2,887		8.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0300	0.22		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
0.5	44	0.0450	1.48		**Shallow Concentrated Flow, SHALLOW FLOW TO DP2** Short Grass Pasture Kv= 7.0 fps
8.0	144	Total			

Subcatchment 2PRE: WS #2 PRE



Summary for Subcatchment 3APOST: WS #3A POST

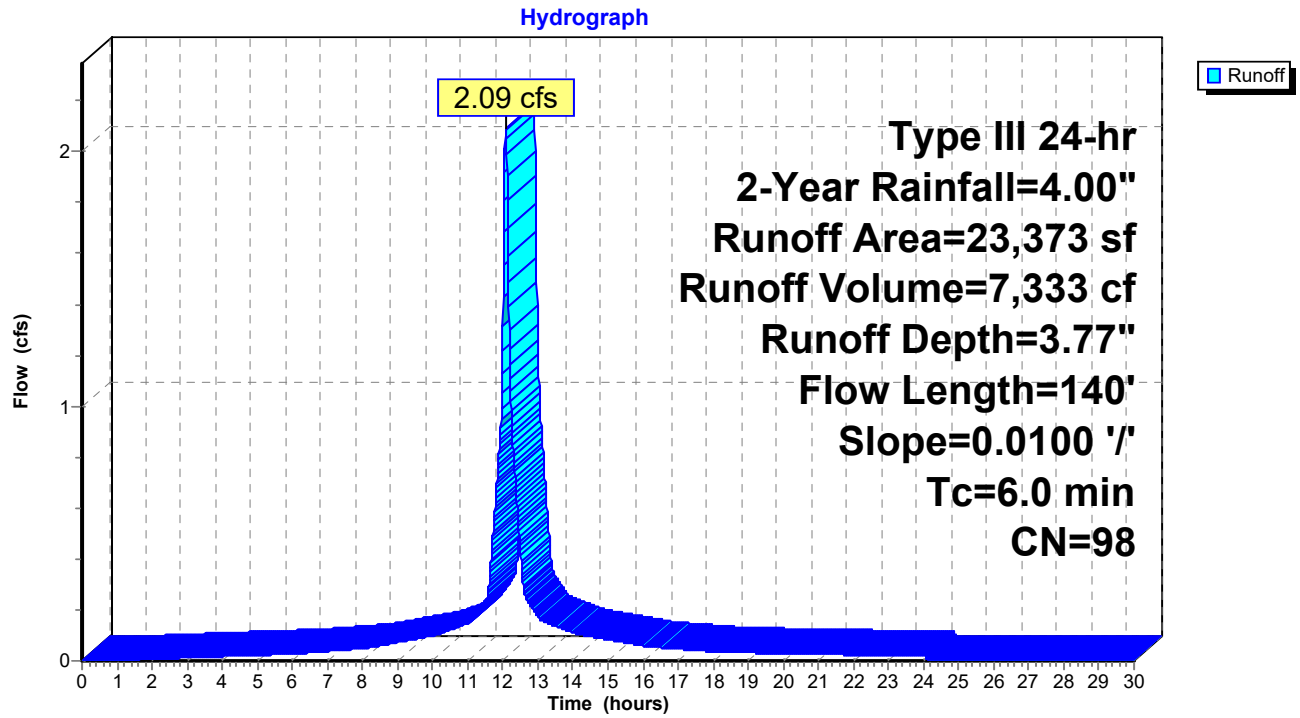
Runoff = 2.09 cfs @ 12.08 hrs, Volume= 7,333 cf, Depth= 3.77"
Routed to Pond CB1 : CB-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=4.00"

Area (sf)	CN	Description
23,373	98	Paved parking, HSG A
23,373		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0100	1.17		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 4.00"
0.3	40	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-1** Paved Kv= 20.3 fps
1.7	140	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3APOST: WS #3A POST



Summary for Subcatchment 3BPOST: WS #3B POST

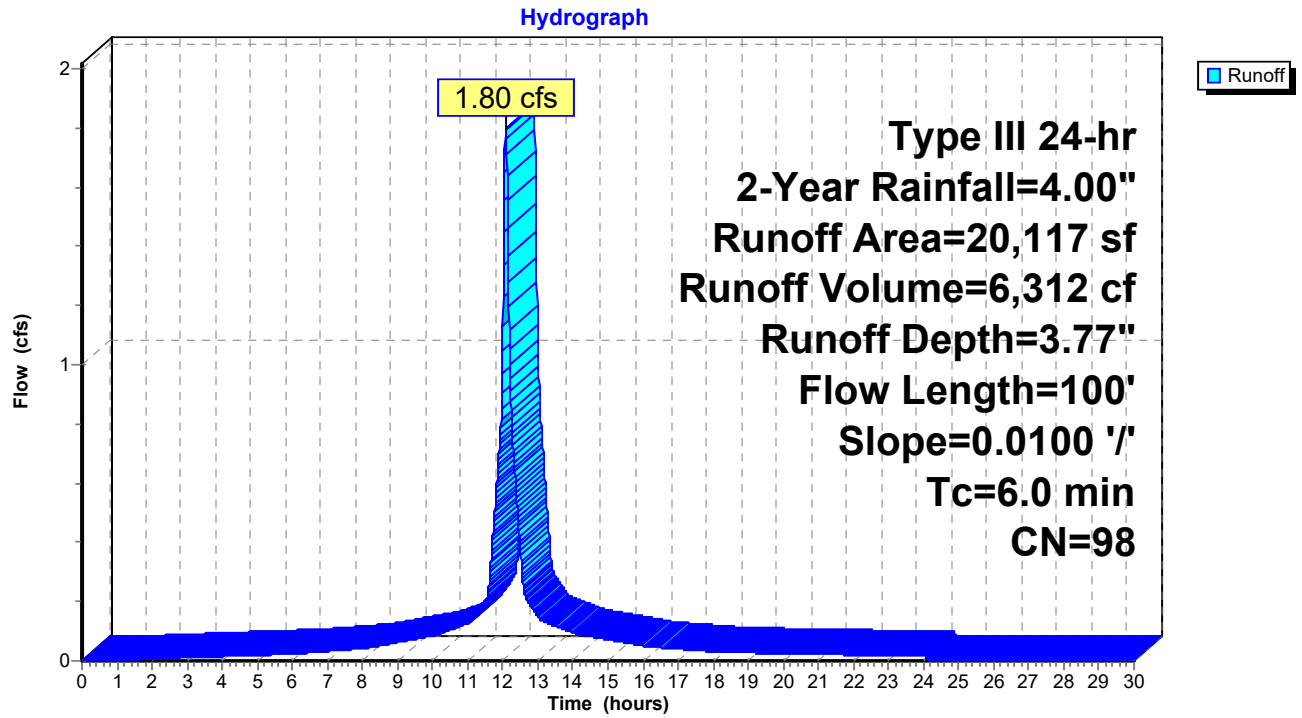
Runoff = 1.80 cfs @ 12.08 hrs, Volume= 6,312 cf, Depth= 3.77"
Routed to Pond CB3 : CB-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=4.00"

Area (sf)	CN	Description
20,117	98	Paved parking, HSG A
20,117		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0100	1.01		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
0.4	50	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-2** Paved Kv= 20.3 fps
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3BPOST: WS #3B POST



Summary for Subcatchment 3CPOST: WS #3C POST

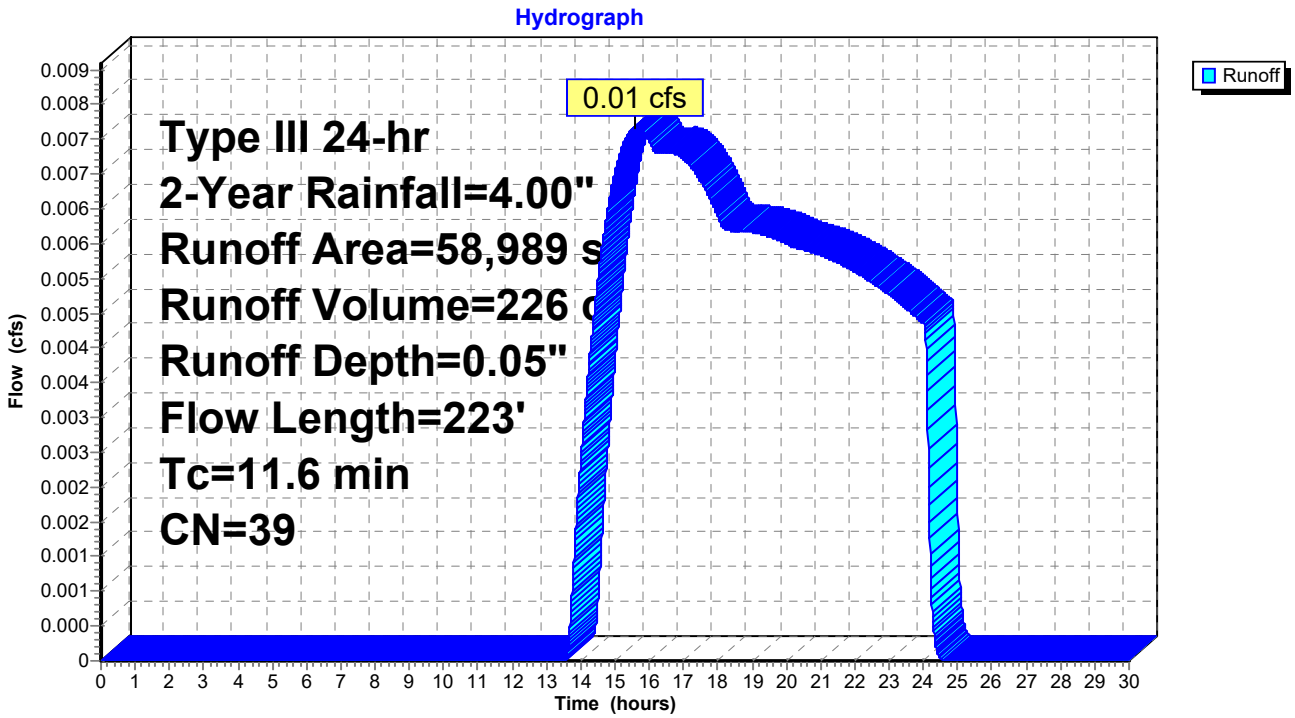
Runoff = 0.01 cfs @ 15.61 hrs, Volume= 226 cf, Depth= 0.05"
Routed to Reach DP3 : DP3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=4.00"

Area (sf)	CN	Description
58,989	39	Pasture/grassland/range, Good, HSG A
58,989		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	100	0.0400	0.17		**Sheet Flow, SHEET FLOW** Grass: Dense n= 0.240 P2= 4.00"
1.9	123	0.0250	1.11		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	223	Total			

Subcatchment 3CPOST: WS #3C POST



Summary for Subcatchment 3PRE: WS #3 PRE

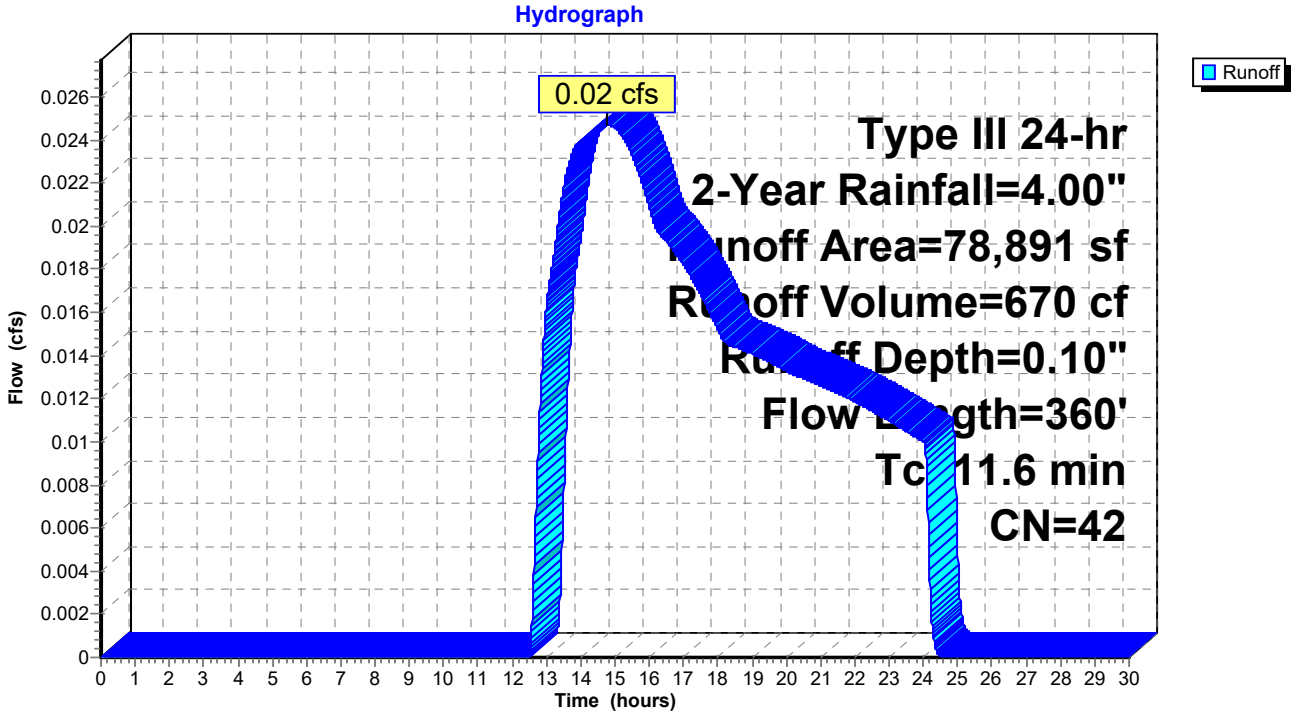
Runoff = 0.02 cfs @ 14.76 hrs, Volume= 670 cf, Depth= 0.10"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=4.00"

Area (sf)	CN	Description
74,772	39	Pasture/grassland/range, Good, HSG A
4,119	92	Paved roads w/open ditches, 50% imp, HSG C
78,891	42	Weighted Average
76,832		97.39% Pervious Area
2,060		2.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0250	0.21		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
3.6	260	0.0300	1.21		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	360	Total			

Subcatchment 3PRE: WS #3 PRE

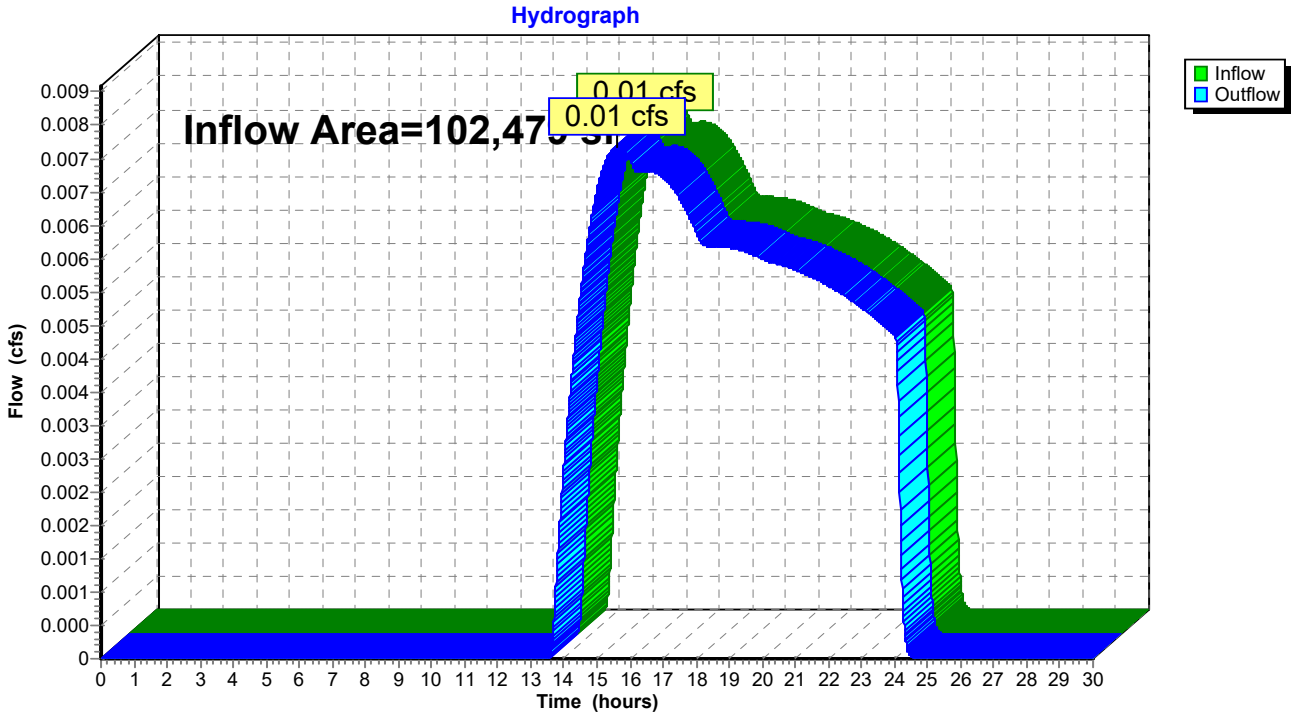


Summary for Reach DP3: DP3

Inflow Area = 102,479 sf, 42.44% Impervious, Inflow Depth = 0.03" for 2-Year event
Inflow = 0.01 cfs @ 15.61 hrs, Volume= 226 cf
Outflow = 0.01 cfs @ 15.61 hrs, Volume= 226 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP3: DP3



Summary for Pond ADS #1: ADS #1

Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 3.77" for 2-Year event
Inflow = 2.09 cfs @ 12.08 hrs, Volume= 7,333 cf
Outflow = 0.34 cfs @ 12.55 hrs, Volume= 7,333 cf, Atten= 84%, Lag= 28.1 min
Discarded = 0.34 cfs @ 12.55 hrs, Volume= 7,333 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 303.20' @ 12.55 hrs Surf.Area= 4,571 sf Storage= 2,003 cf
Flood Elev= 306.91' Surf.Area= 4,571 sf Storage= 9,872 cf

Plug-Flow detention time= 35.0 min calculated for 7,331 cf (100% of inflow)
Center-of-Mass det. time= 35.0 min (787.0 - 752.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	4,084 cf	**44.25'W x 103.30'L x 3.50'H Field A** 15,998 cf Overall - 5,788 cf Embedded = 10,210 cf x 40.0% Voids
#2A	302.91'	5,788 cf	**ADS_StormTech SC-740 +Cap** x 126 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 126 Chambers in 9 Rows
		9,872 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 145.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.34 cfs @ 12.55 hrs HW=303.20' (Free Discharge)
└**4=Exfiltration** (Controls 0.34 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=302.41' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #1: ADS #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

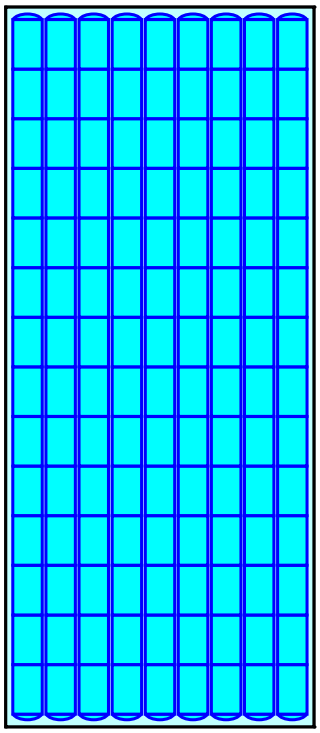
14 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 101.30' Row Length +12.0" End Stone x 2 = 103.30' Base Length
9 Rows x 51.0" Wide + 6.0" Spacing x 8 + 12.0" Side Stone x 2 = 44.25' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

126 Chambers x 45.9 cf = 5,788.4 cf Chamber Storage

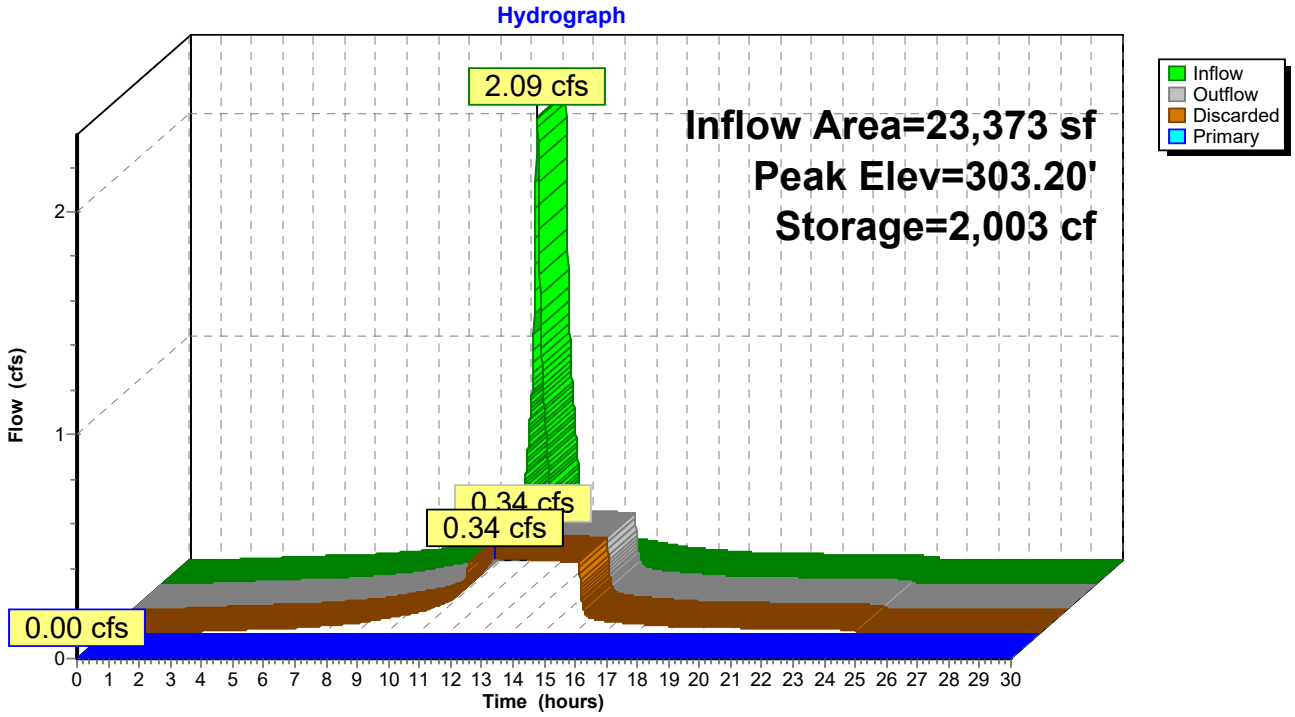
15,998.1 cf Field - 5,788.4 cf Chambers = 10,209.6 cf Stone x 40.0% Voids = 4,083.9 cf Stone Storage

Chamber Storage + Stone Storage = 9,872.3 cf = 0.227 af
Overall Storage Efficiency = 61.7%
Overall System Size = 103.30' x 44.25' x 3.50'

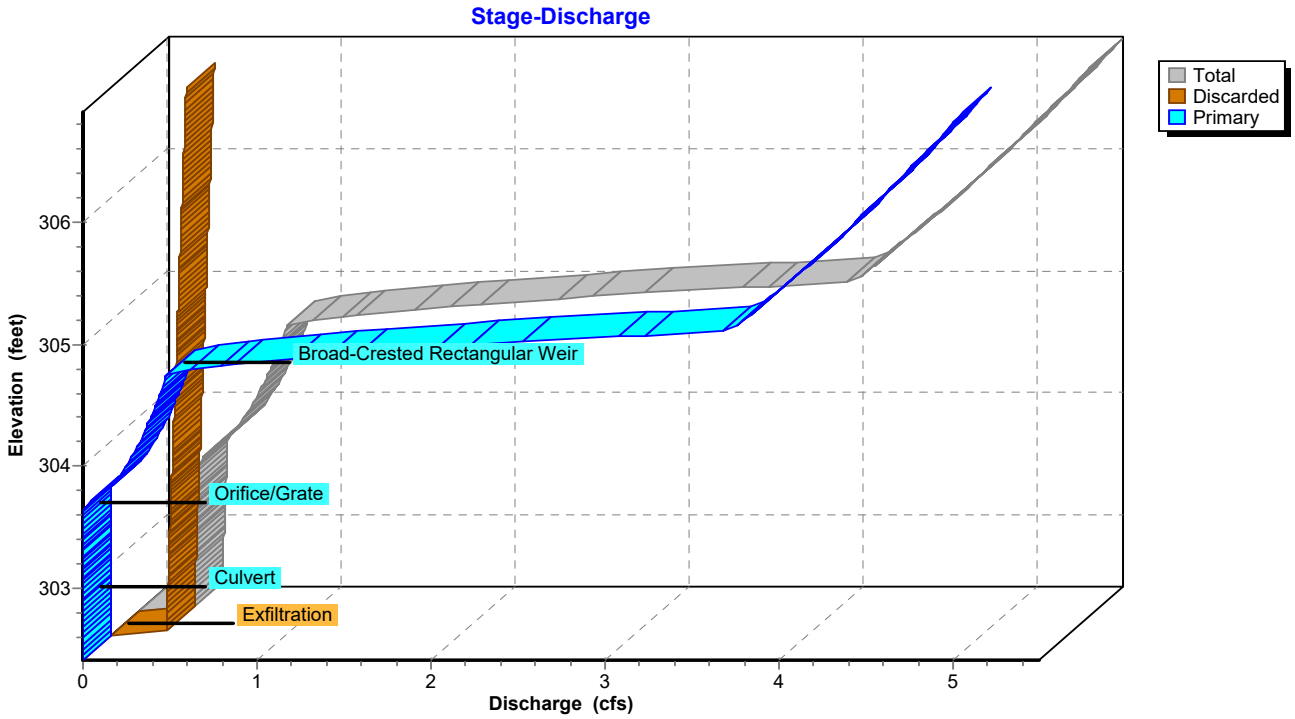
126 Chambers
592.5 cy Field
378.1 cy Stone



Pond ADS #1: ADS #1



Pond ADS #1: ADS #1



Summary for Pond ADS #2: ADS #2

Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 3.77" for 2-Year event
Inflow = 1.80 cfs @ 12.08 hrs, Volume= 6,312 cf
Outflow = 0.28 cfs @ 12.56 hrs, Volume= 6,312 cf, Atten= 84%, Lag= 28.5 min
Discarded = 0.28 cfs @ 12.56 hrs, Volume= 6,312 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 303.22' @ 12.56 hrs Surf.Area= 3,799 sf Storage= 1,754 cf
Flood Elev= 306.91' Surf.Area= 3,799 sf Storage= 8,185 cf

Plug-Flow detention time= 37.2 min calculated for 6,310 cf (100% of inflow)
Center-of-Mass det. time= 37.2 min (789.1 - 752.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	3,407 cf	**39.50'W x 96.18'L x 3.50'H Field A** 13,296 cf Overall - 4,778 cf Embedded = 8,519 cf x 40.0% Voids
#2A	302.91'	4,778 cf	**ADS_StormTech SC-740 +Cap** x 104 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 104 Chambers in 8 Rows
		8,185 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0065 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.28 cfs @ 12.56 hrs HW=303.22' (Free Discharge)
└**4=Exfiltration** (Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=302.41' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #2: ADS #2 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

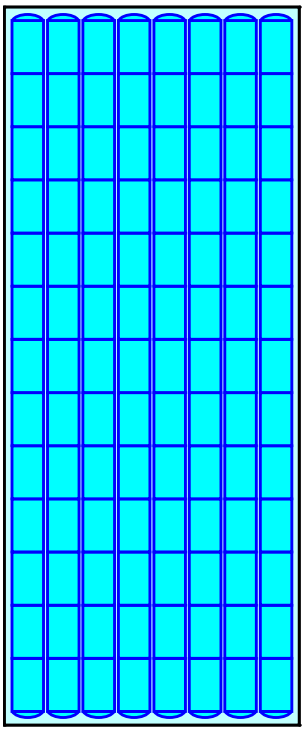
13 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 94.18' Row Length +12.0" End Stone x 2 = 96.18' Base Length
8 Rows x 51.0" Wide + 6.0" Spacing x 7 + 12.0" Side Stone x 2 = 39.50' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

104 Chambers x 45.9 cf = 4,777.8 cf Chamber Storage

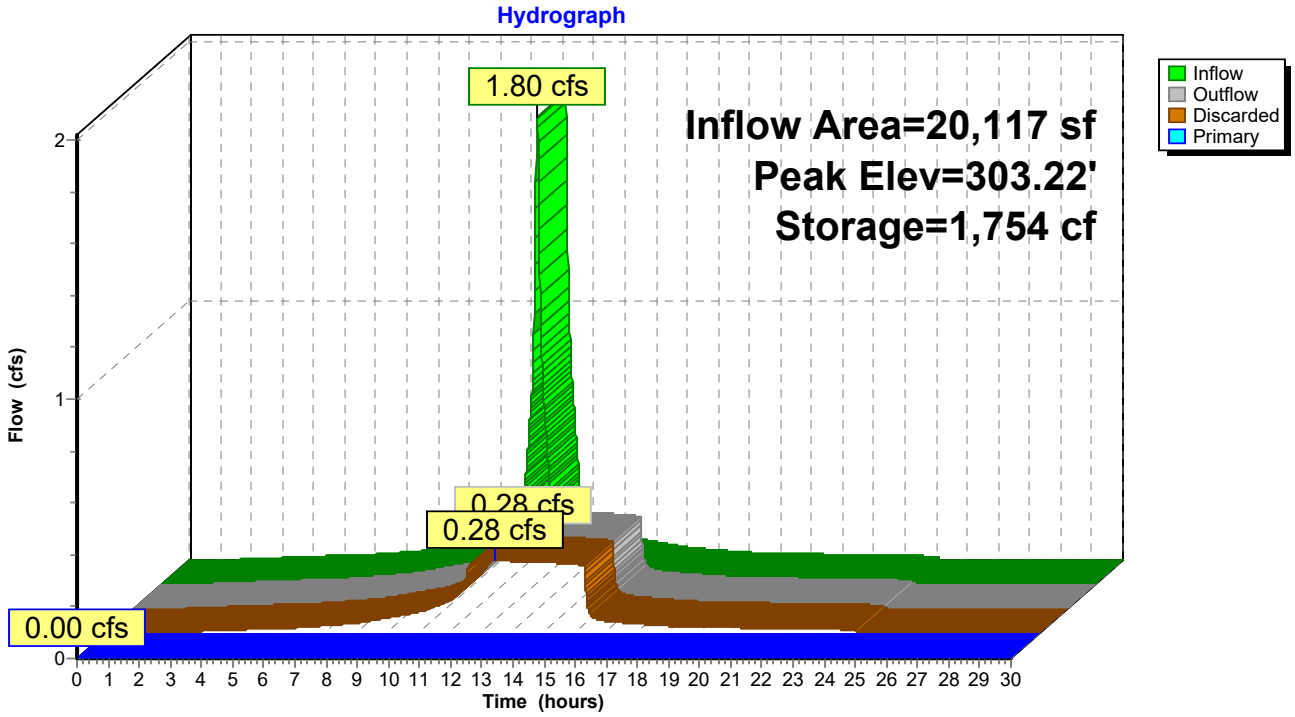
13,296.4 cf Field - 4,777.8 cf Chambers = 8,518.7 cf Stone x 40.0% Voids = 3,407.5 cf Stone Storage

Chamber Storage + Stone Storage = 8,185.2 cf = 0.188 af
Overall Storage Efficiency = 61.6%
Overall System Size = 96.18' x 39.50' x 3.50'

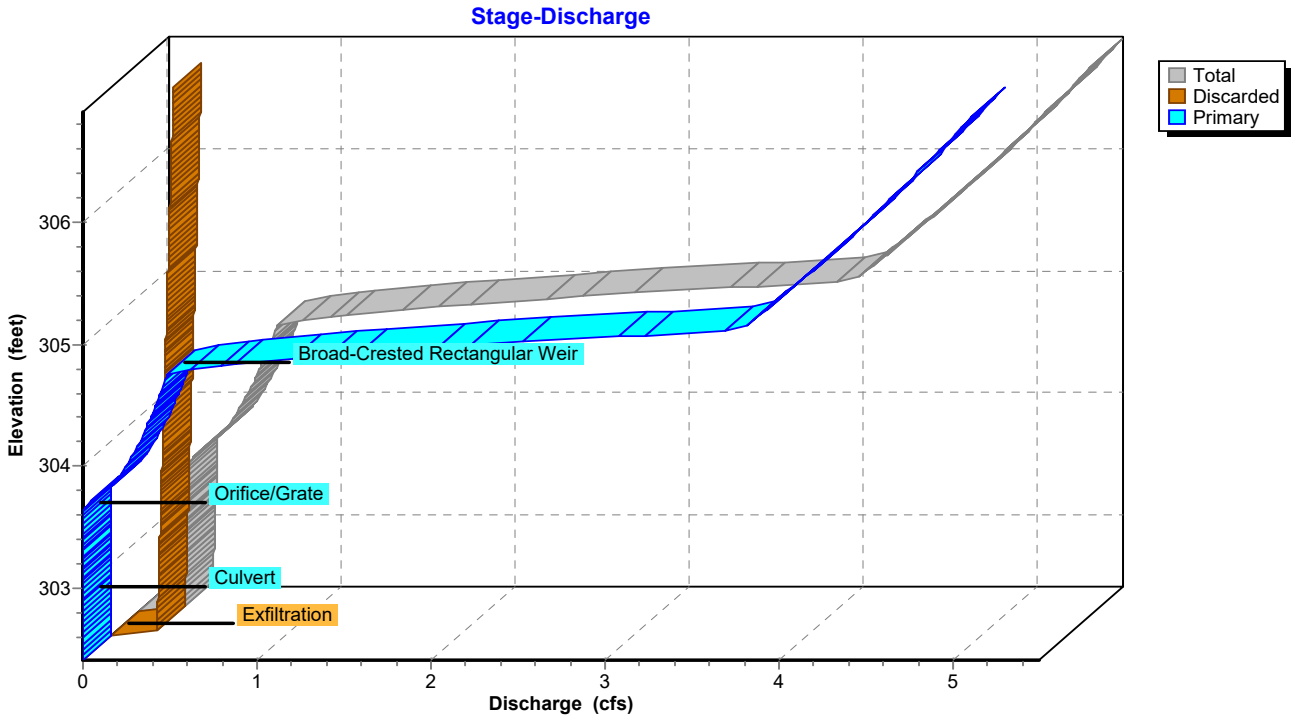
104 Chambers
492.5 cy Field
315.5 cy Stone



Pond ADS #2: ADS #2



Pond ADS #2: ADS #2



Summary for Pond CB1: CB-1

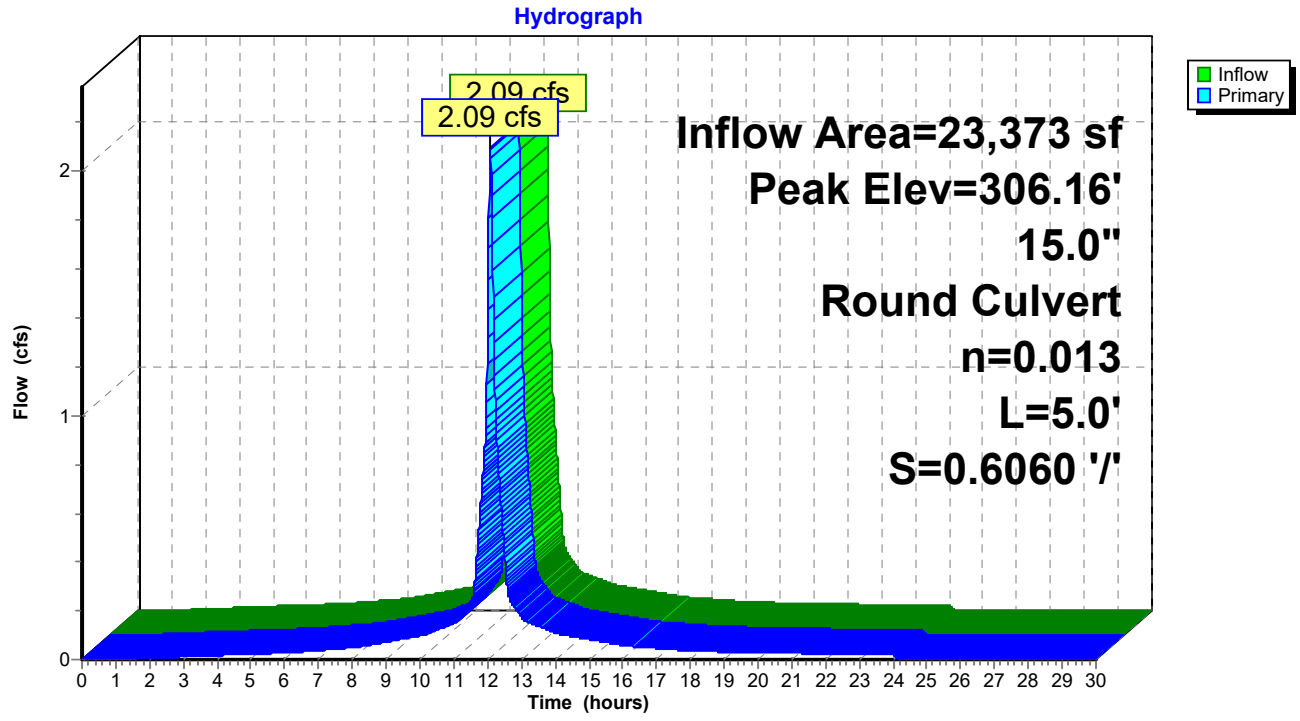
Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 3.77" for 2-Year event
Inflow = 2.09 cfs @ 12.08 hrs, Volume= 7,333 cf
Outflow = 2.09 cfs @ 12.08 hrs, Volume= 7,333 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.09 cfs @ 12.08 hrs, Volume= 7,333 cf
Routed to Pond ADS #1 : ADS #1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 306.16' @ 12.08 hrs
Flood Elev= 308.59'

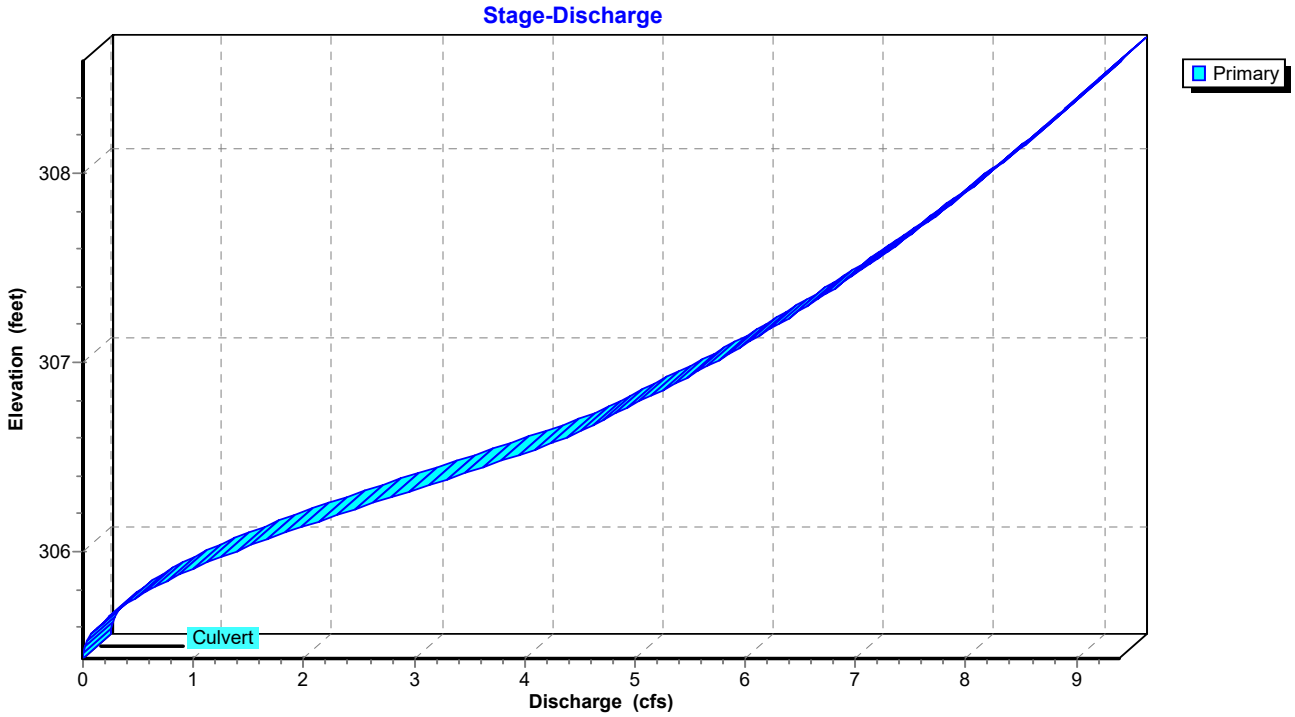
Device	Routing	Invert	Outlet Devices
#1	Primary	305.44'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 305.44' / 302.41' S= 0.6060 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=2.09 cfs @ 12.08 hrs HW=306.16' (Free Discharge)
1=Culvert (Inlet Controls 2.09 cfs @ 2.88 fps)

Pond CB1: CB-1



Pond CB1: CB-1


Stage-Discharge
Primary
Elevation (feet)
308
307
306
Culvert
0
1
2
3
4
5
6
7
8
9
Discharge (cfs)

Summary for Pond CB3: CB-3

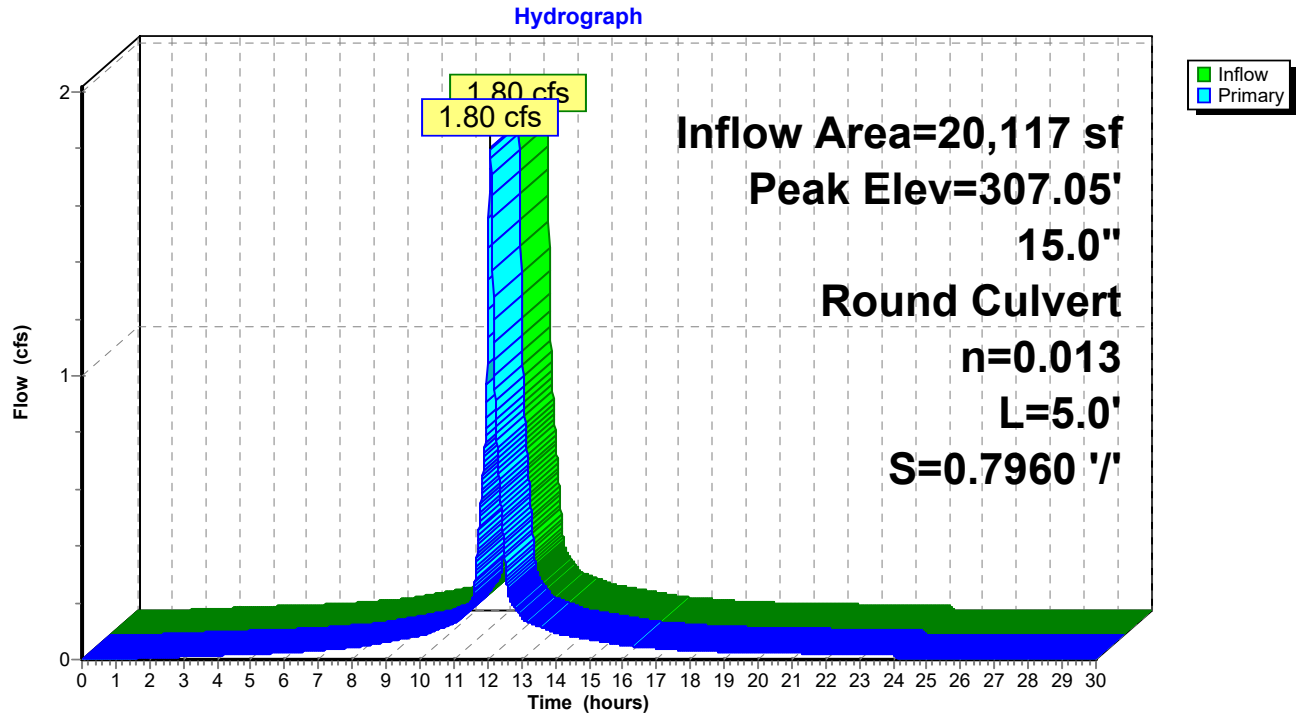
Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 3.77" for 2-Year event
Inflow = 1.80 cfs @ 12.08 hrs, Volume= 6,312 cf
Outflow = 1.80 cfs @ 12.08 hrs, Volume= 6,312 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.80 cfs @ 12.08 hrs, Volume= 6,312 cf
Routed to Pond ADS #2 : ADS #2

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 307.05' @ 12.08 hrs
Flood Elev= 308.80'

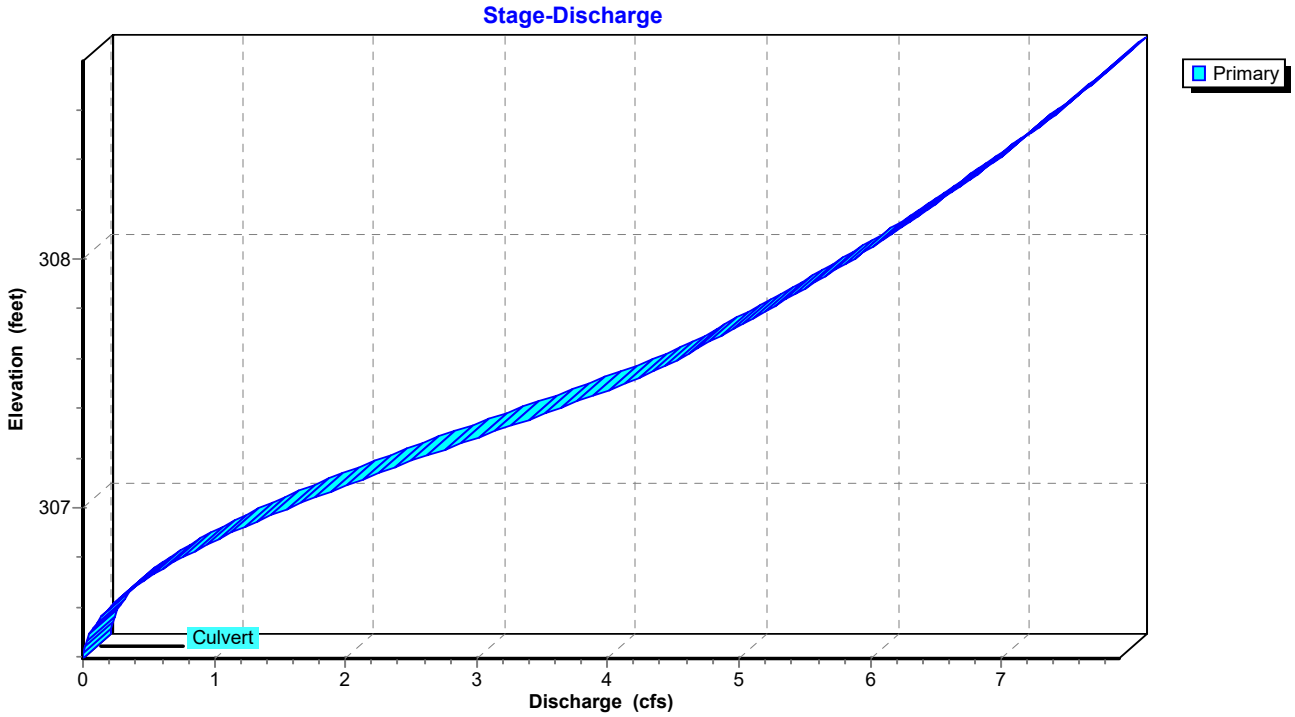
Device	Routing	Invert	Outlet Devices
#1	Primary	306.39'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 306.39' / 302.41' S= 0.7960 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=1.80 cfs @ 12.08 hrs HW=307.05' (Free Discharge)
1=Culvert (Inlet Controls 1.80 cfs @ 2.76 fps)

Pond CB3: CB-3



Pond CB3: CB-3


Stage-Discharge
Primary
Elevation (feet)
308
307
Culvert
0
1
2
3
4
5
6
7
Discharge (cfs)

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1POST: WS #1 POST Runoff Area=11,682 sf 8.78% Impervious Runoff Depth=0.59"
Flow Length=110' Slope=0.0200 '/' Tc=9.0 min CN=48 Runoff=0.09 cfs 572 cf

Subcatchment 1PRE: WS #1 PRE Runoff Area=20,936 sf 20.30% Impervious Runoff Depth=1.37"
Flow Length=82' Tc=6.0 min CN=61 Runoff=0.70 cfs 2,389 cf

Subcatchment 2POST: WS #2 POST Runoff Area=17,923 sf 21.10% Impervious Runoff Depth=0.75"
Flow Length=100' Slope=0.0325 '/' Tc=7.2 min CN=51 Runoff=0.23 cfs 1,116 cf

Subcatchment 2PRE: WS #2 PRE Runoff Area=32,504 sf 8.88% Impervious Runoff Depth=0.59"
Flow Length=144' Tc=8.0 min CN=48 Runoff=0.25 cfs 1,591 cf

Subcatchment 3APOST: WS #3A POST Runoff Area=23,373 sf 100.00% Impervious Runoff Depth=4.76"
Flow Length=140' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=2.62 cfs 9,277 cf

Subcatchment 3BPOST: WS #3B POST Runoff Area=20,117 sf 100.00% Impervious Runoff Depth=4.76"
Flow Length=100' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=2.26 cfs 7,985 cf

Subcatchment 3CPOST: WS #3C POST Runoff Area=58,989 sf 0.00% Impervious Runoff Depth=0.20"
Flow Length=223' Tc=11.6 min CN=39 Runoff=0.05 cfs 983 cf

Subcatchment 3PRE: WS #3 PRE Runoff Area=78,891 sf 2.61% Impervious Runoff Depth=0.31"
Flow Length=360' Tc=11.6 min CN=42 Runoff=0.18 cfs 2,052 cf

Reach DP3: DP3 Inflow=0.05 cfs 983 cf
Outflow=0.05 cfs 983 cf

Pond ADS #1: ADS #1 Peak Elev=303.40' Storage=2,783 cf Inflow=2.62 cfs 9,277 cf
Discarded=0.34 cfs 9,277 cf Primary=0.00 cfs 0 cf Outflow=0.34 cfs 9,277 cf

Pond ADS #2: ADS #2 Peak Elev=303.44' Storage=2,429 cf Inflow=2.26 cfs 7,985 cf
Discarded=0.29 cfs 7,985 cf Primary=0.00 cfs 0 cf Outflow=0.29 cfs 7,985 cf

Pond CB1: CB-1 Peak Elev=306.26' Inflow=2.62 cfs 9,277 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.6060 '/' Outflow=2.62 cfs 9,277 cf

Pond CB3: CB-3 Peak Elev=307.14' Inflow=2.26 cfs 7,985 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.7960 '/' Outflow=2.26 cfs 7,985 cf

Summary for Subcatchment 1POST: WS #1 POST

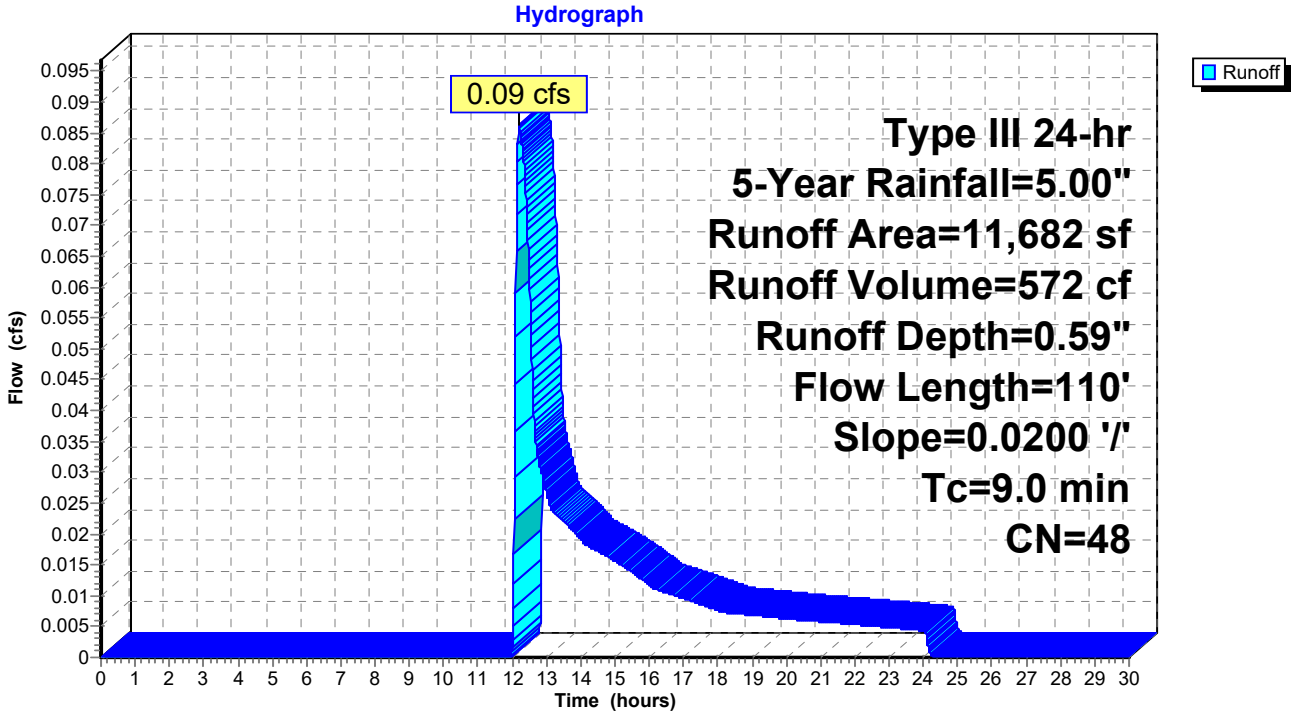
Runoff = 0.09 cfs @ 12.19 hrs, Volume= 572 cf, Depth= 0.59"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 5-Year Rainfall=5.00"

Area (sf)	CN	Description
9,631	39	Pasture/grassland/range, Good, HSG A
2,051	92	Paved roads w/open ditches, 50% imp, HSG C
11,682	48	Weighted Average
10,657		91.22% Pervious Area
1,026		8.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0200	0.19		**Sheet Flow, SHEET FLOW ACROSS PARK & GRASS** Grass: Short n= 0.150 P2= 4.00"
0.2	10	0.0200	0.99		**Shallow Concentrated Flow, SHALLOW FLOW TO DP1** Short Grass Pasture Kv= 7.0 fps
9.0	110	Total			

Subcatchment 1POST: WS #1 POST



Summary for Subcatchment 1PRE: WS #1 PRE

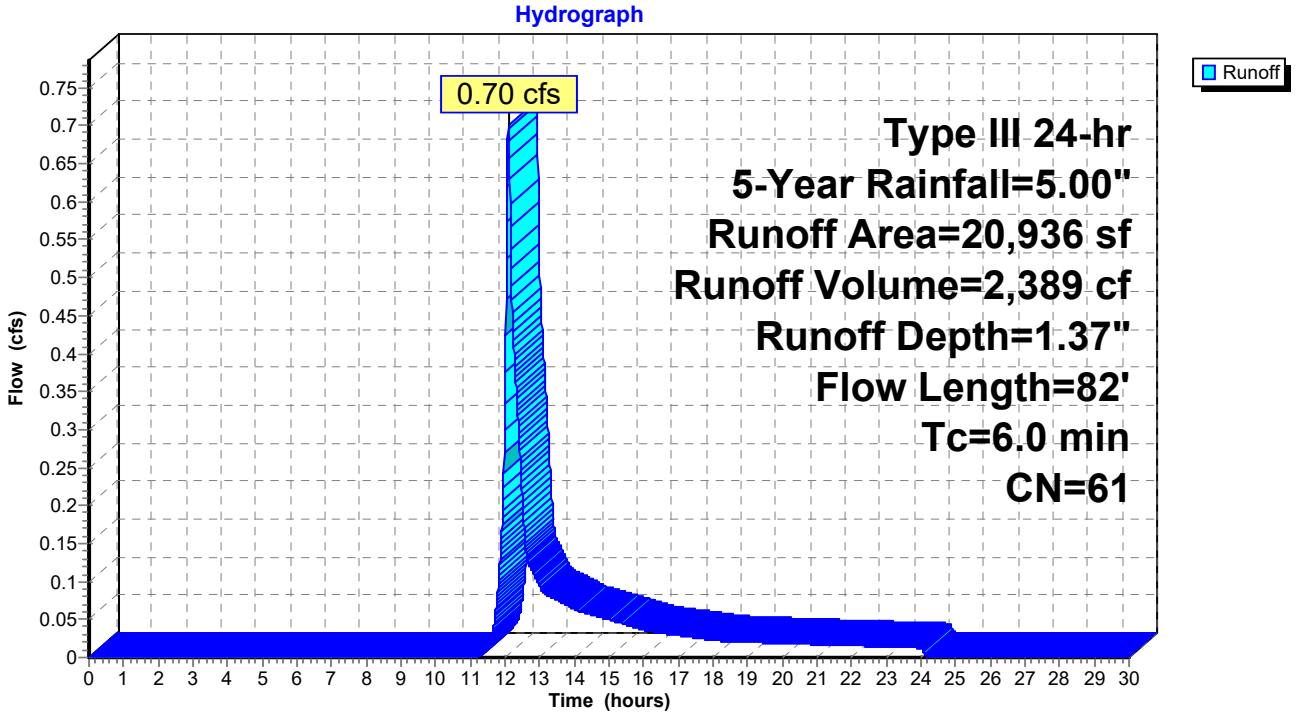
Runoff = 0.70 cfs @ 12.10 hrs, Volume= 2,389 cf, Depth= 1.37"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 5-Year Rainfall=5.00"

Area (sf)	CN	Description
12,436	39	Pasture/grassland/range, Good, HSG A
8,500	92	Paved roads w/open ditches, 50% imp, HSG C
20,936	61	Weighted Average
16,686		79.70% Pervious Area
4,250		20.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0625	1.68		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
2.7	32	0.0375	0.19		**Sheet Flow, SHEET FLOW ACROSS LAWN** Grass: Short n= 0.150 P2= 4.00"
0.2	12	0.0400	1.33		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
1.9	22	0.0450	0.19		**Sheet Flow, SHEET FLOW TO DP1** Grass: Short n= 0.150 P2= 4.00"
5.0	82	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1PRE: WS #1 PRE



Summary for Subcatchment 2POST: WS #2 POST

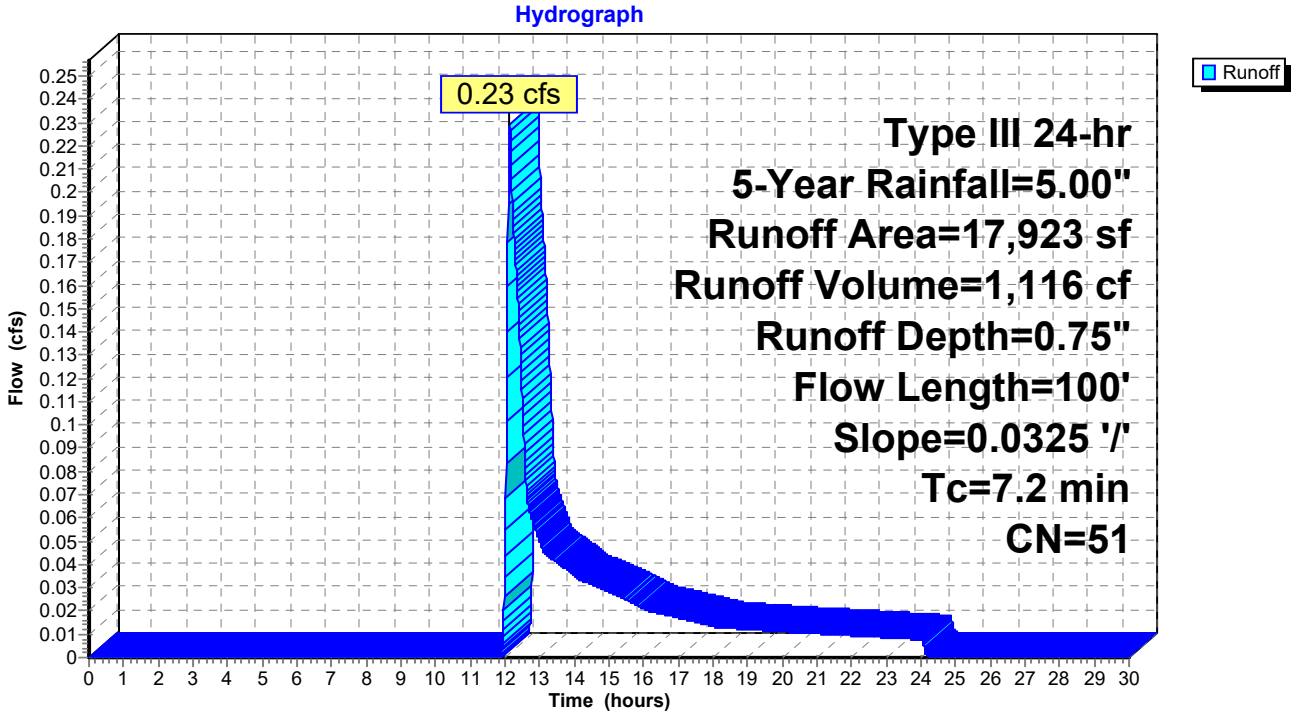
Runoff = 0.23 cfs @ 12.14 hrs, Volume= 1,116 cf, Depth= 0.75"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 5-Year Rainfall=5.00"

Area (sf)	CN	Description
14,142	39	Pasture/grassland/range, Good, HSG A
3,781	98	Paved roads w/curbs & sewers, HSG C
17,923	51	Weighted Average
14,142		78.90% Pervious Area
3,781		21.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0325	0.23		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"

Subcatchment 2POST: WS #2 POST



Summary for Subcatchment 2PRE: WS #2 PRE

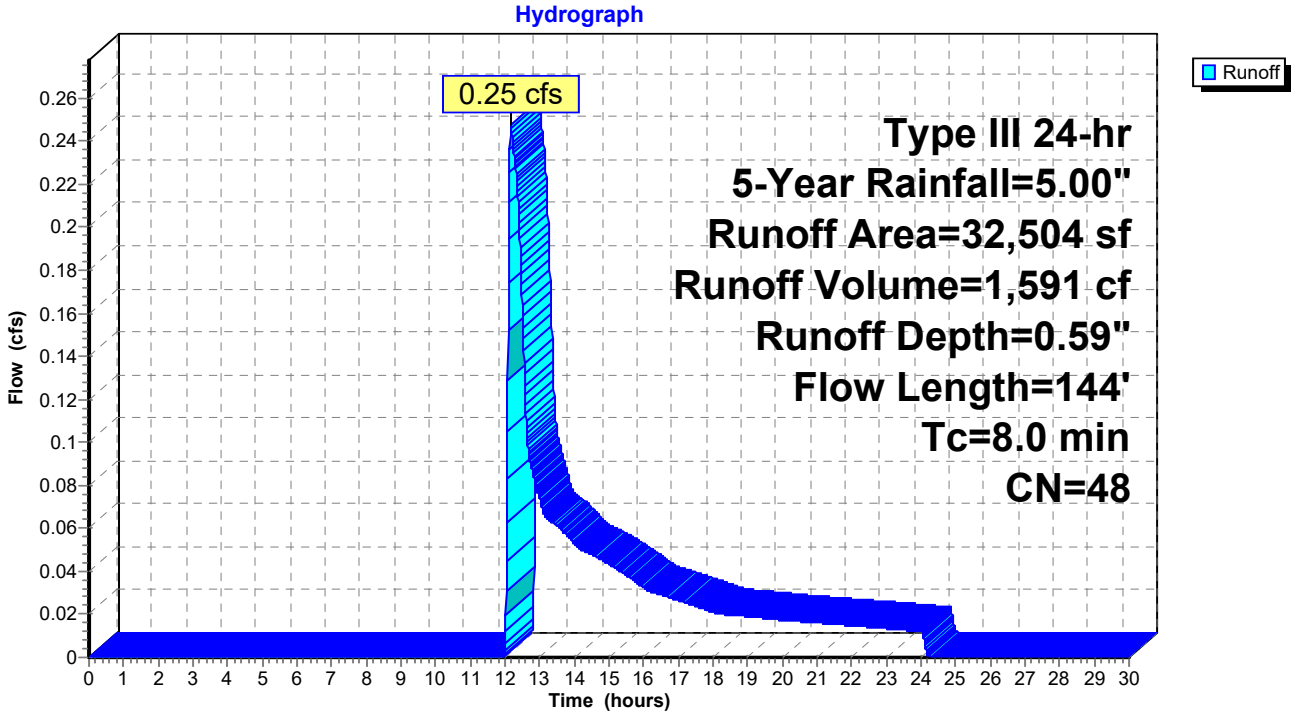
Runoff = 0.25 cfs @ 12.17 hrs, Volume= 1,591 cf, Depth= 0.59"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 5-Year Rainfall=5.00"

Area (sf)	CN	Description
26,730	39	Pasture/grassland/range, Good, HSG A
5,774	92	Paved roads w/open ditches, 50% imp, HSG C
32,504	48	Weighted Average
29,617		91.12% Pervious Area
2,887		8.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0300	0.22		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
0.5	44	0.0450	1.48		**Shallow Concentrated Flow, SHALLOW FLOW TO DP2** Short Grass Pasture Kv= 7.0 fps
8.0	144	Total			

Subcatchment 2PRE: WS #2 PRE



Summary for Subcatchment 3APOST: WS #3A POST

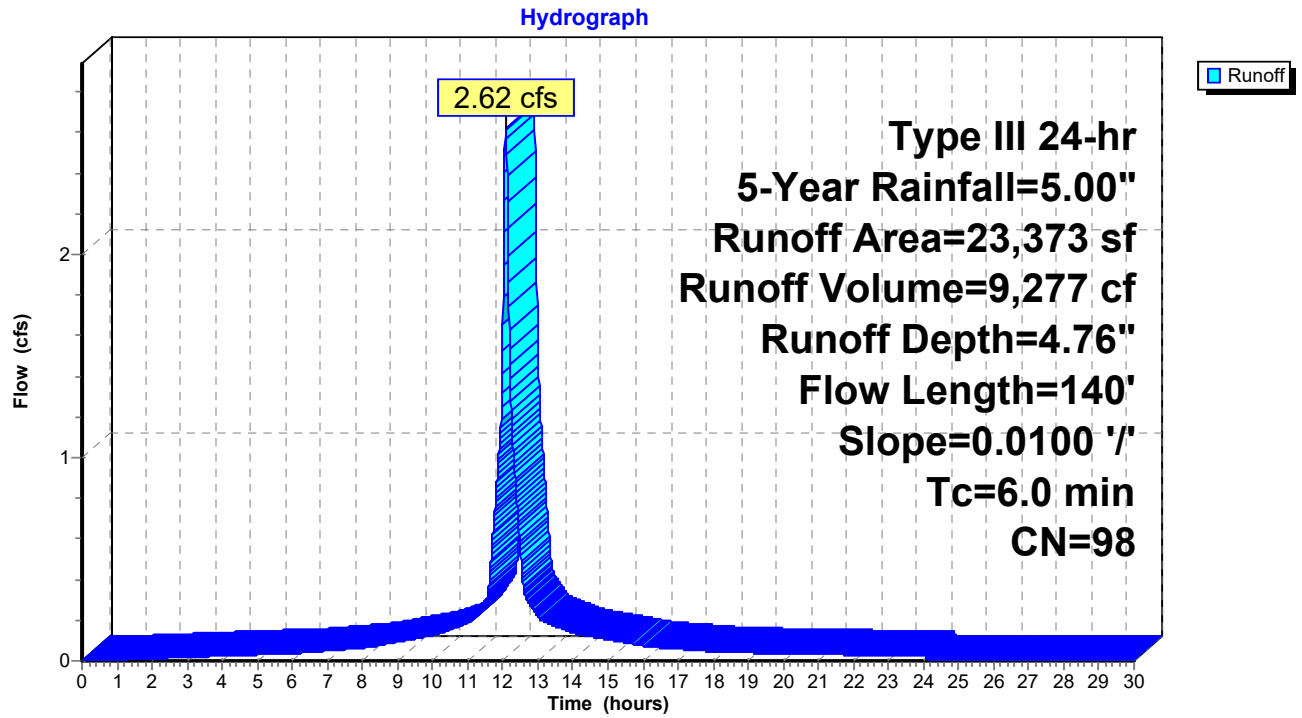
Runoff = 2.62 cfs @ 12.08 hrs, Volume= 9,277 cf, Depth= 4.76"
Routed to Pond CB1 : CB-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 5-Year Rainfall=5.00"

Area (sf)	CN	Description
23,373	98	Paved parking, HSG A
23,373		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0100	1.17		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 4.00"
0.3	40	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-1** Paved Kv= 20.3 fps
1.7	140	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3APOST: WS #3A POST



Summary for Subcatchment 3BPOST: WS #3B POST

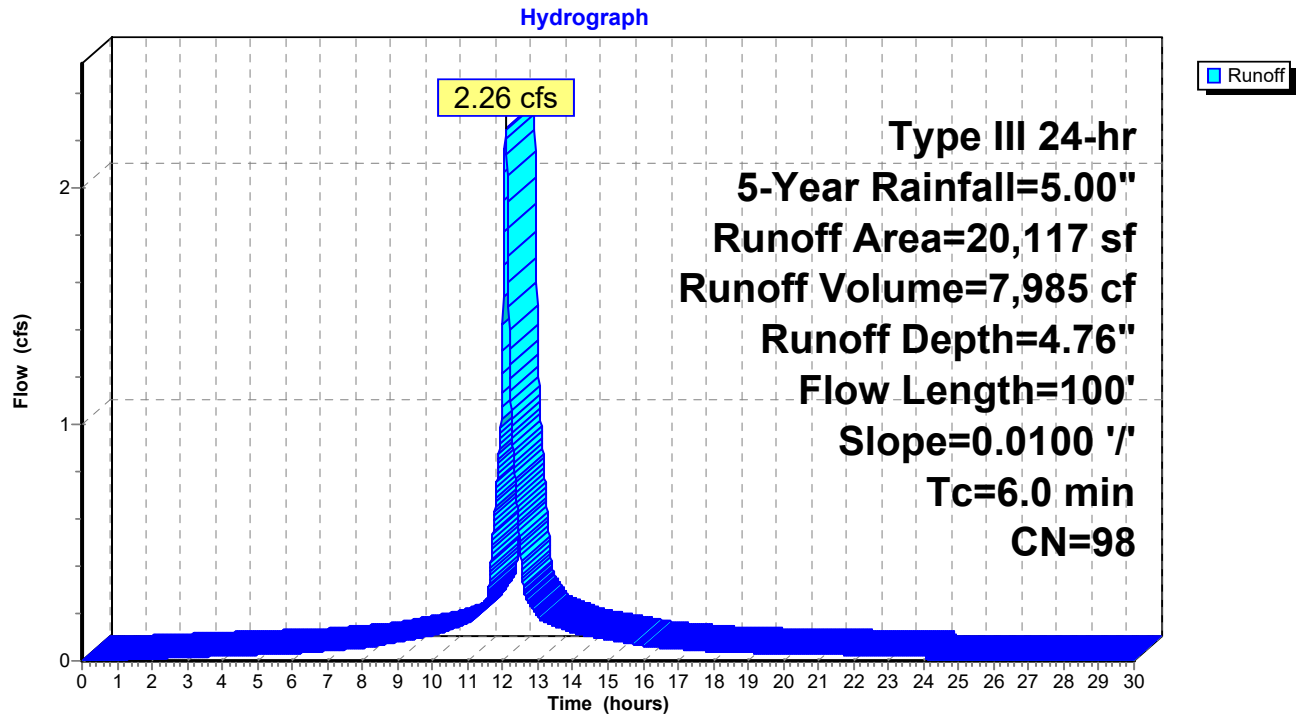
Runoff = 2.26 cfs @ 12.08 hrs, Volume= 7,985 cf, Depth= 4.76"
Routed to Pond CB3 : CB-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 5-Year Rainfall=5.00"

Area (sf)	CN	Description
20,117	98	Paved parking, HSG A
20,117		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0100	1.01		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
0.4	50	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-2** Paved Kv= 20.3 fps
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3BPOST: WS #3B POST



Summary for Subcatchment 3CPOST: WS #3C POST

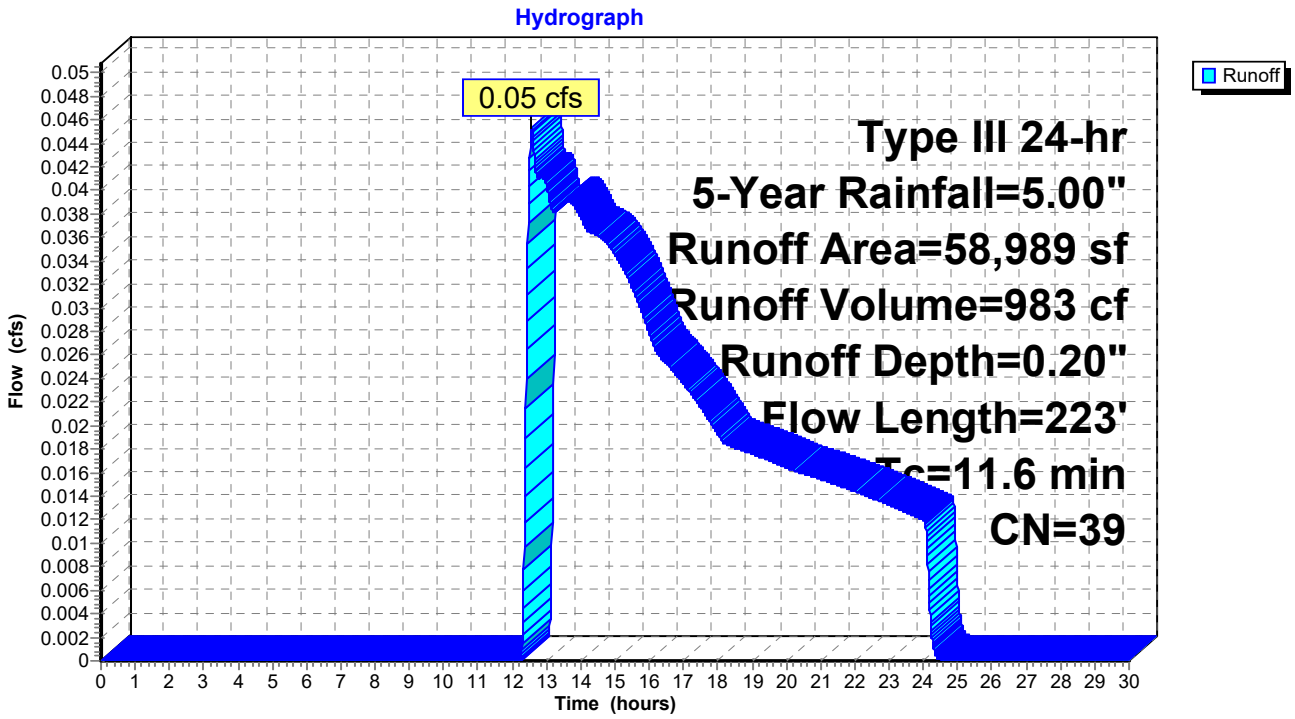
Runoff = 0.05 cfs @ 12.57 hrs, Volume= 983 cf, Depth= 0.20"
Routed to Reach DP3 : DP3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 5-Year Rainfall=5.00"

Area (sf)	CN	Description
58,989	39	Pasture/grassland/range, Good, HSG A
58,989		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	100	0.0400	0.17		**Sheet Flow, SHEET FLOW** Grass: Dense n= 0.240 P2= 4.00"
1.9	123	0.0250	1.11		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	223	Total			

Subcatchment 3CPOST: WS #3C POST



Summary for Subcatchment 3PRE: WS #3 PRE

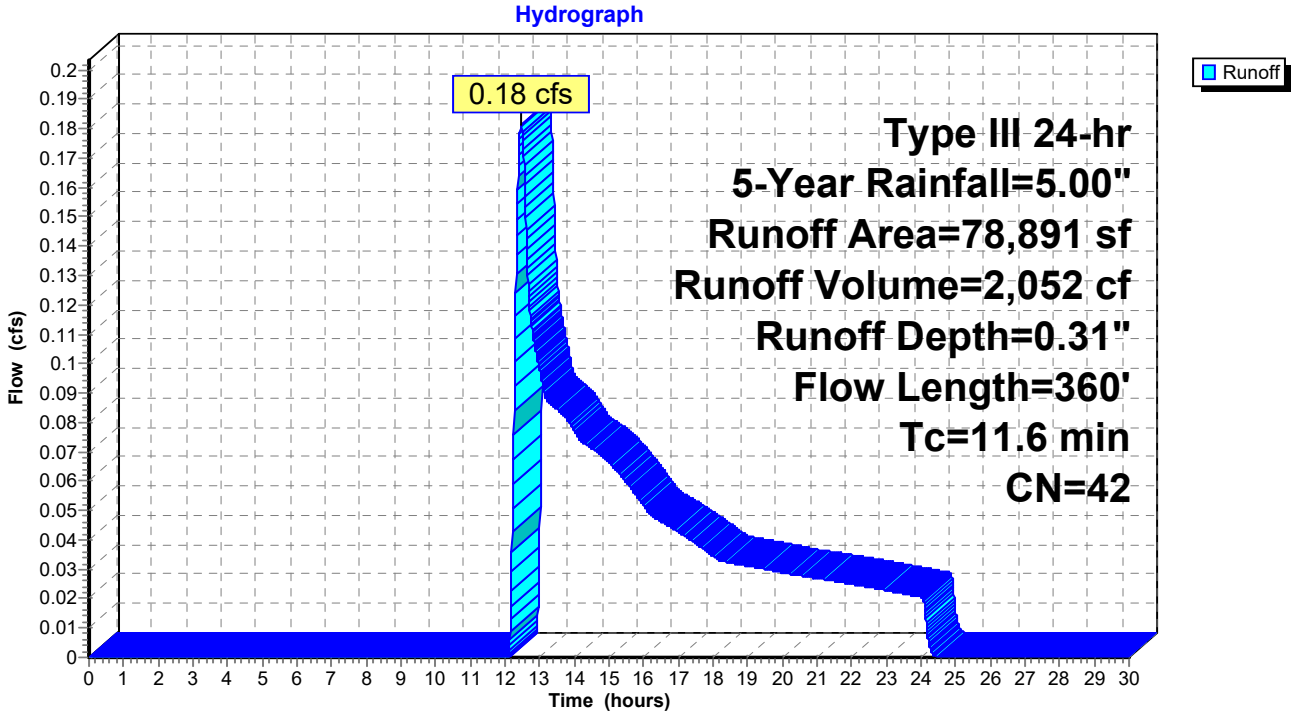
Runoff = 0.18 cfs @ 12.47 hrs, Volume= 2,052 cf, Depth= 0.31"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 5-Year Rainfall=5.00"

Area (sf)	CN	Description
74,772	39	Pasture/grassland/range, Good, HSG A
4,119	92	Paved roads w/open ditches, 50% imp, HSG C
78,891	42	Weighted Average
76,832		97.39% Pervious Area
2,060		2.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0250	0.21		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
3.6	260	0.0300	1.21		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	360	Total			

Subcatchment 3PRE: WS #3 PRE

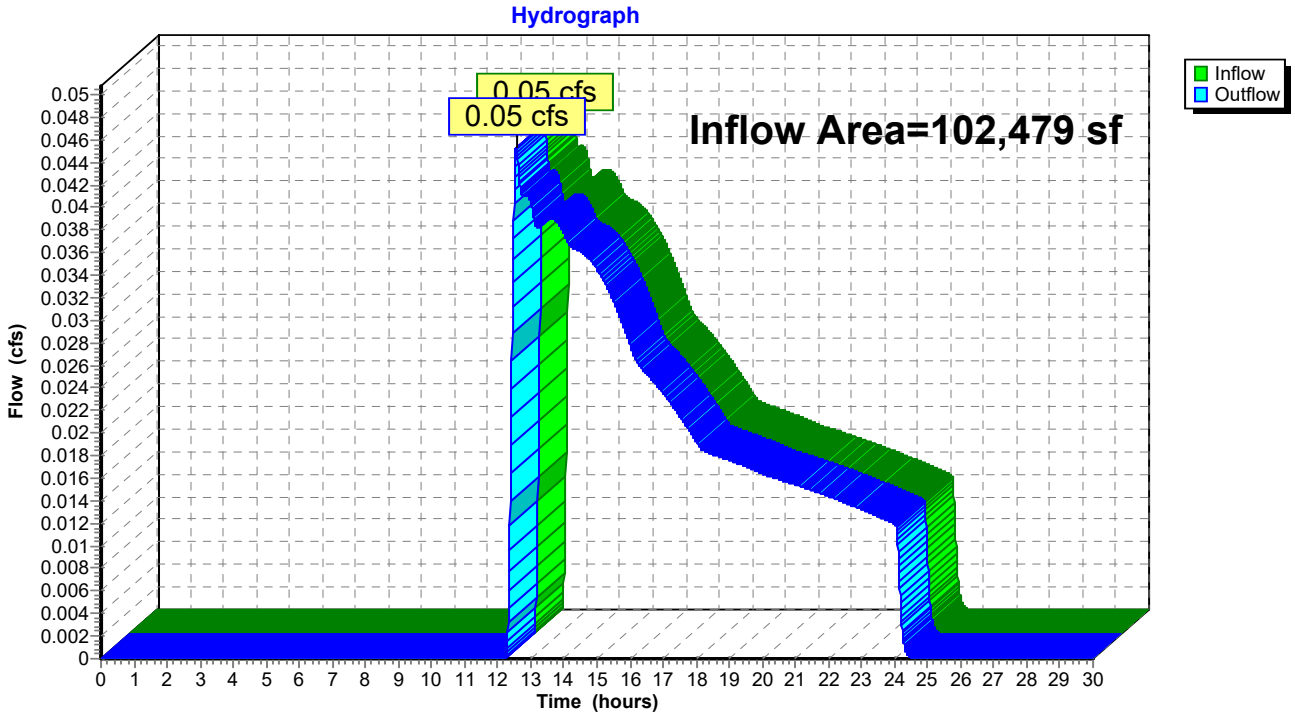


Summary for Reach DP3: DP3

Inflow Area = 102,479 sf, 42.44% Impervious, Inflow Depth = 0.12" for 5-Year event
Inflow = 0.05 cfs @ 12.57 hrs, Volume= 983 cf
Outflow = 0.05 cfs @ 12.57 hrs, Volume= 983 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP3: DP3



Summary for Pond ADS #1: ADS #1

Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 4.76" for 5-Year event
Inflow = 2.62 cfs @ 12.08 hrs, Volume= 9,277 cf
Outflow = 0.34 cfs @ 12.61 hrs, Volume= 9,277 cf, Atten= 87%, Lag= 31.4 min
Discarded = 0.34 cfs @ 12.61 hrs, Volume= 9,277 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 303.40' @ 12.61 hrs Surf.Area= 4,571 sf Storage= 2,783 cf
Flood Elev= 306.91' Surf.Area= 4,571 sf Storage= 9,872 cf

Plug-Flow detention time= 50.9 min calculated for 9,274 cf (100% of inflow)
Center-of-Mass det. time= 50.9 min (798.9 - 748.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	4,084 cf	**44.25'W x 103.30'L x 3.50'H Field A** 15,998 cf Overall - 5,788 cf Embedded = 10,210 cf x 40.0% Voids
#2A	302.91'	5,788 cf	**ADS_StormTech SC-740 +Cap** x 126 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 126 Chambers in 9 Rows
		9,872 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 145.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.34 cfs @ 12.61 hrs HW=303.40' (Free Discharge)
└**4=Exfiltration** (Controls 0.34 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=302.41' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #1: ADS #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

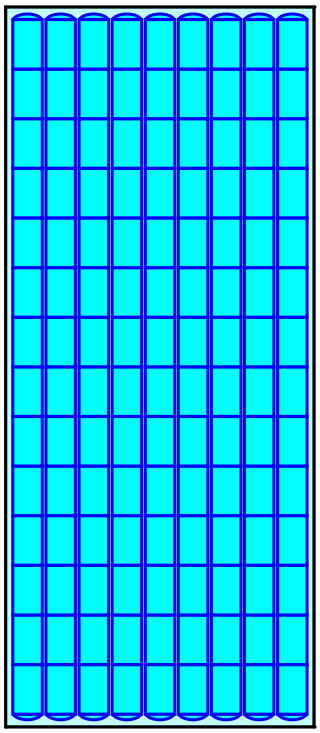
14 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 101.30' Row Length +12.0" End Stone x 2 = 103.30' Base Length
9 Rows x 51.0" Wide + 6.0" Spacing x 8 + 12.0" Side Stone x 2 = 44.25' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

126 Chambers x 45.9 cf = 5,788.4 cf Chamber Storage

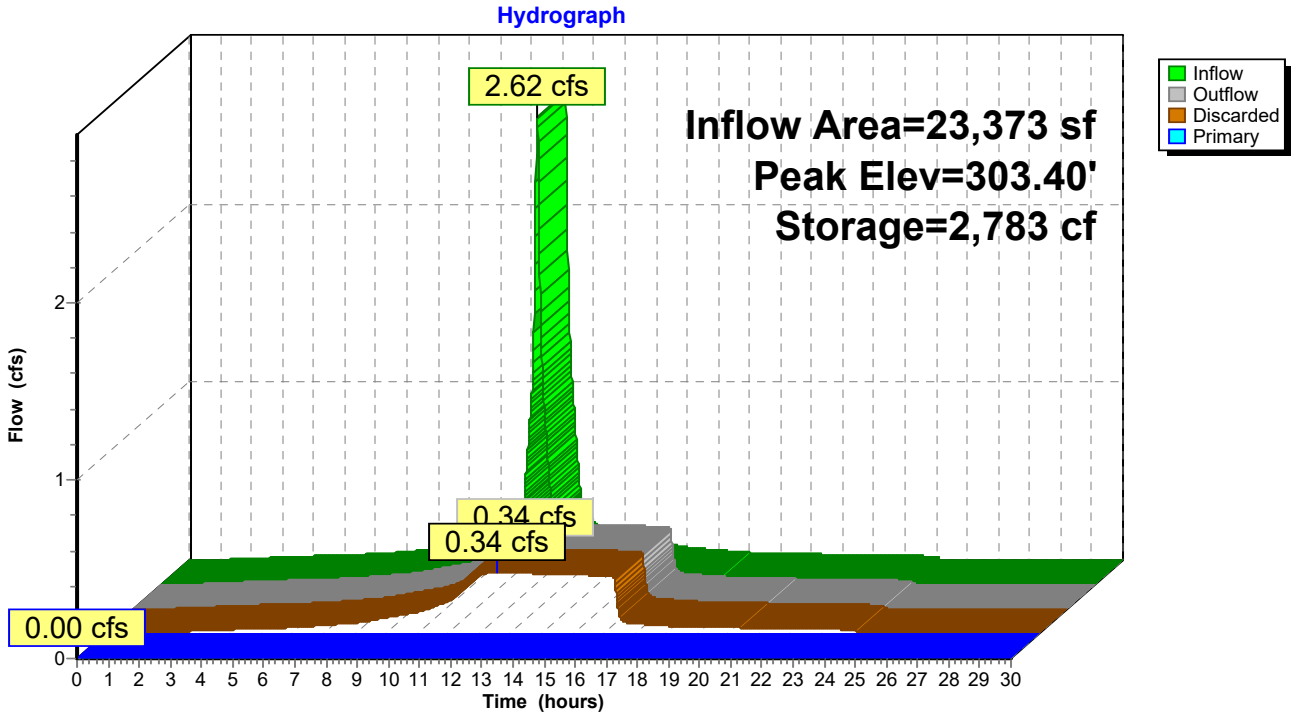
15,998.1 cf Field - 5,788.4 cf Chambers = 10,209.6 cf Stone x 40.0% Voids = 4,083.9 cf Stone Storage

Chamber Storage + Stone Storage = 9,872.3 cf = 0.227 af
Overall Storage Efficiency = 61.7%
Overall System Size = 103.30' x 44.25' x 3.50'

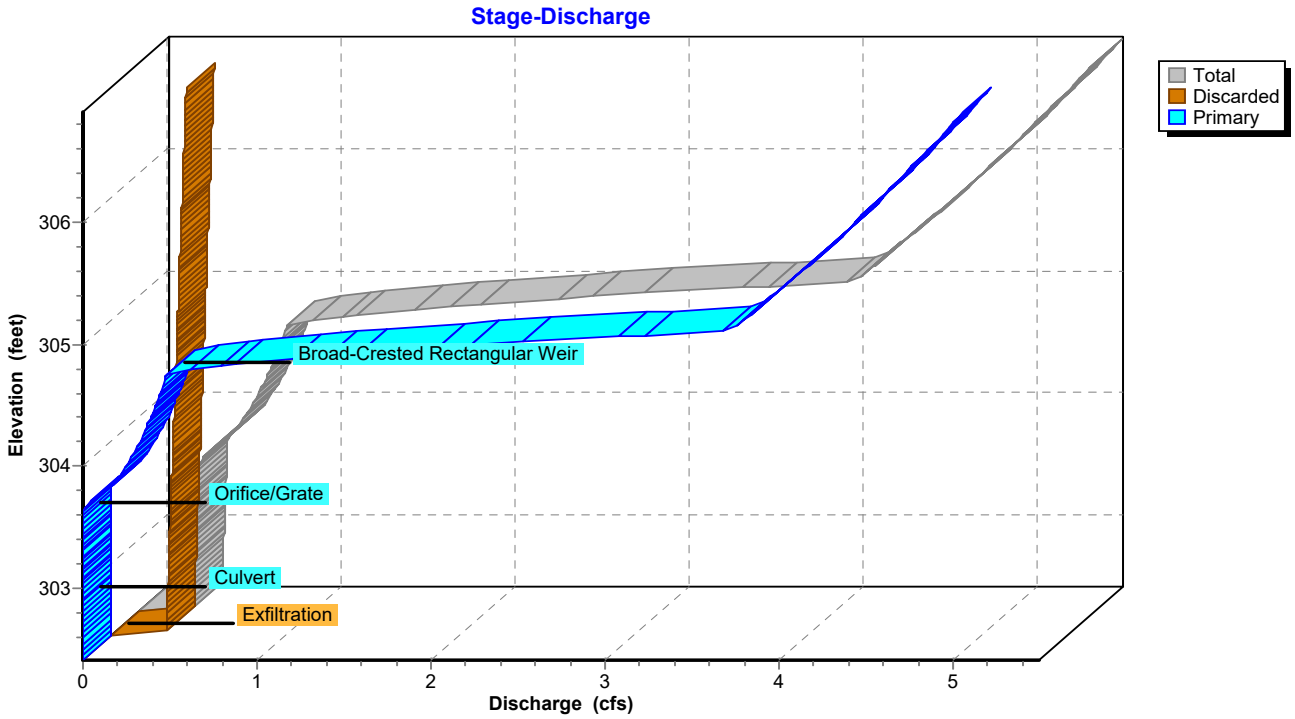
126 Chambers
592.5 cy Field
378.1 cy Stone



Pond ADS #1: ADS #1



Pond ADS #1: ADS #1



Summary for Pond ADS #2: ADS #2

Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 4.76" for 5-Year event
Inflow = 2.26 cfs @ 12.08 hrs, Volume= 7,985 cf
Outflow = 0.29 cfs @ 12.62 hrs, Volume= 7,985 cf, Atten= 87%, Lag= 32.2 min
Discarded = 0.29 cfs @ 12.62 hrs, Volume= 7,985 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 303.44' @ 12.62 hrs Surf.Area= 3,799 sf Storage= 2,429 cf
Flood Elev= 306.91' Surf.Area= 3,799 sf Storage= 8,185 cf

Plug-Flow detention time= 54.0 min calculated for 7,982 cf (100% of inflow)
Center-of-Mass det. time= 54.0 min (802.0 - 748.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	3,407 cf	**39.50'W x 96.18'L x 3.50'H Field A** 13,296 cf Overall - 4,778 cf Embedded = 8,519 cf x 40.0% Voids
#2A	302.91'	4,778 cf	**ADS_StormTech SC-740 +Cap** x 104 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 104 Chambers in 8 Rows
		8,185 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0065 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.29 cfs @ 12.62 hrs HW=303.44' (Free Discharge)
└**4=Exfiltration** (Controls 0.29 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=302.41' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #2: ADS #2 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

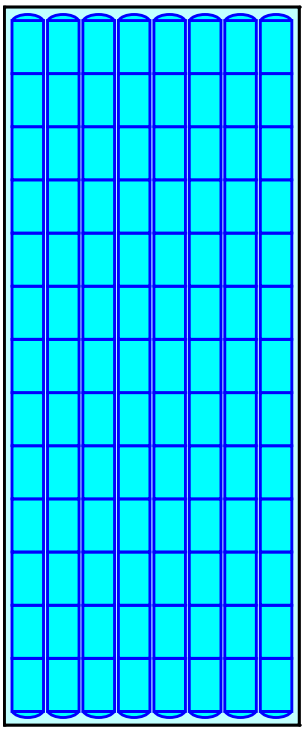
13 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 94.18' Row Length +12.0" End Stone x 2 = 96.18' Base Length
8 Rows x 51.0" Wide + 6.0" Spacing x 7 + 12.0" Side Stone x 2 = 39.50' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

104 Chambers x 45.9 cf = 4,777.8 cf Chamber Storage

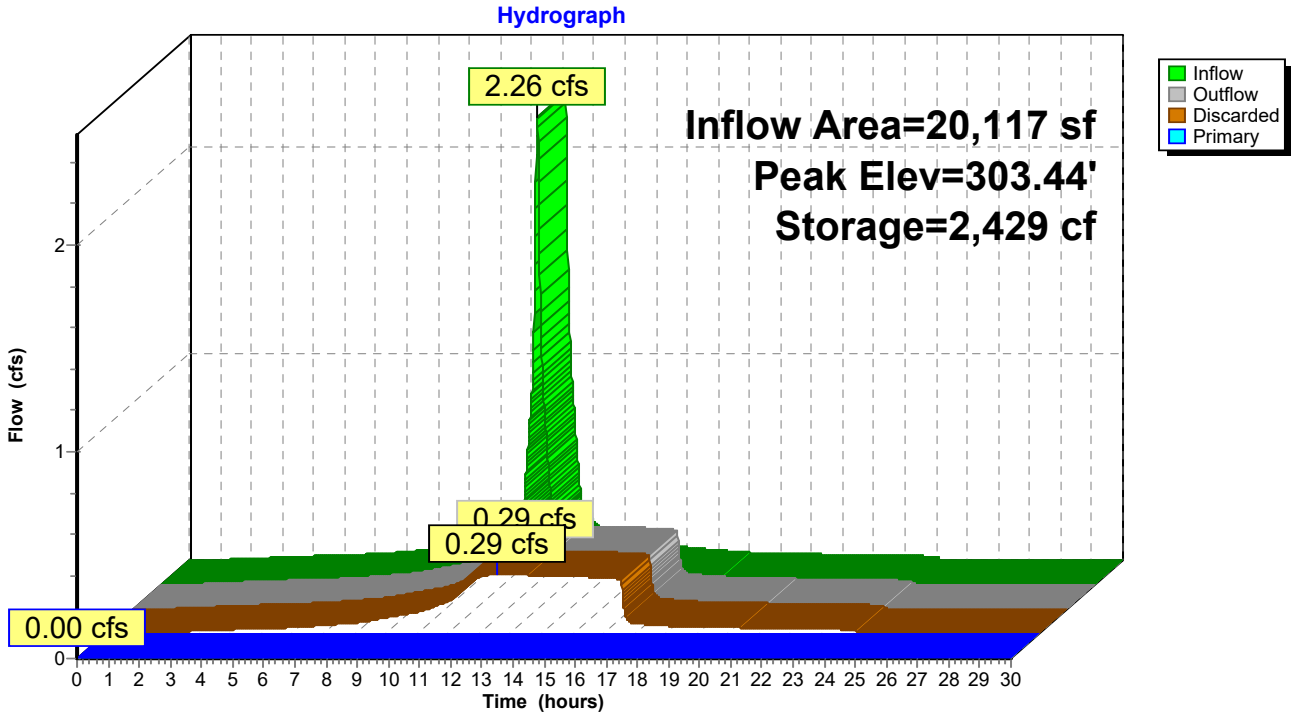
13,296.4 cf Field - 4,777.8 cf Chambers = 8,518.7 cf Stone x 40.0% Voids = 3,407.5 cf Stone Storage

Chamber Storage + Stone Storage = 8,185.2 cf = 0.188 af
Overall Storage Efficiency = 61.6%
Overall System Size = 96.18' x 39.50' x 3.50'

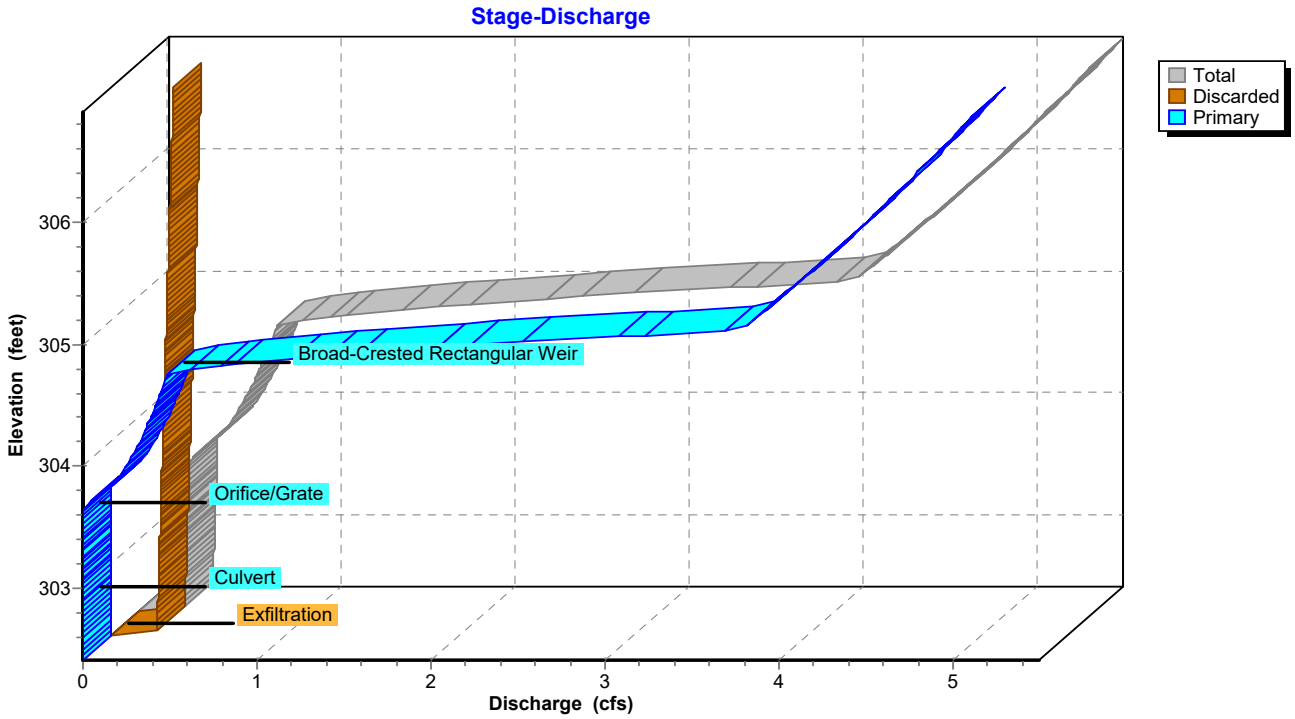
104 Chambers
492.5 cy Field
315.5 cy Stone



Pond ADS #2: ADS #2



Pond ADS #2: ADS #2



Summary for Pond CB1: CB-1

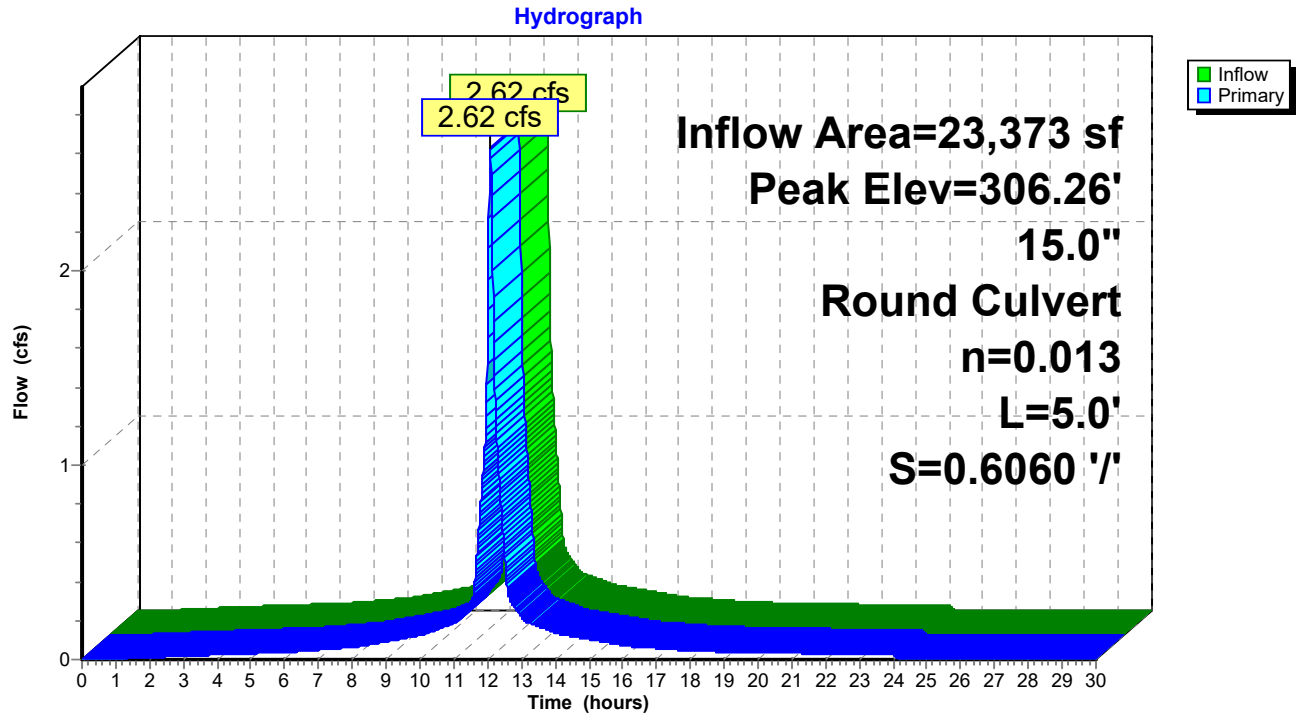
Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 4.76" for 5-Year event
Inflow = 2.62 cfs @ 12.08 hrs, Volume= 9,277 cf
Outflow = 2.62 cfs @ 12.08 hrs, Volume= 9,277 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.62 cfs @ 12.08 hrs, Volume= 9,277 cf
Routed to Pond ADS #1 : ADS #1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 306.26' @ 12.08 hrs
Flood Elev= 308.59'

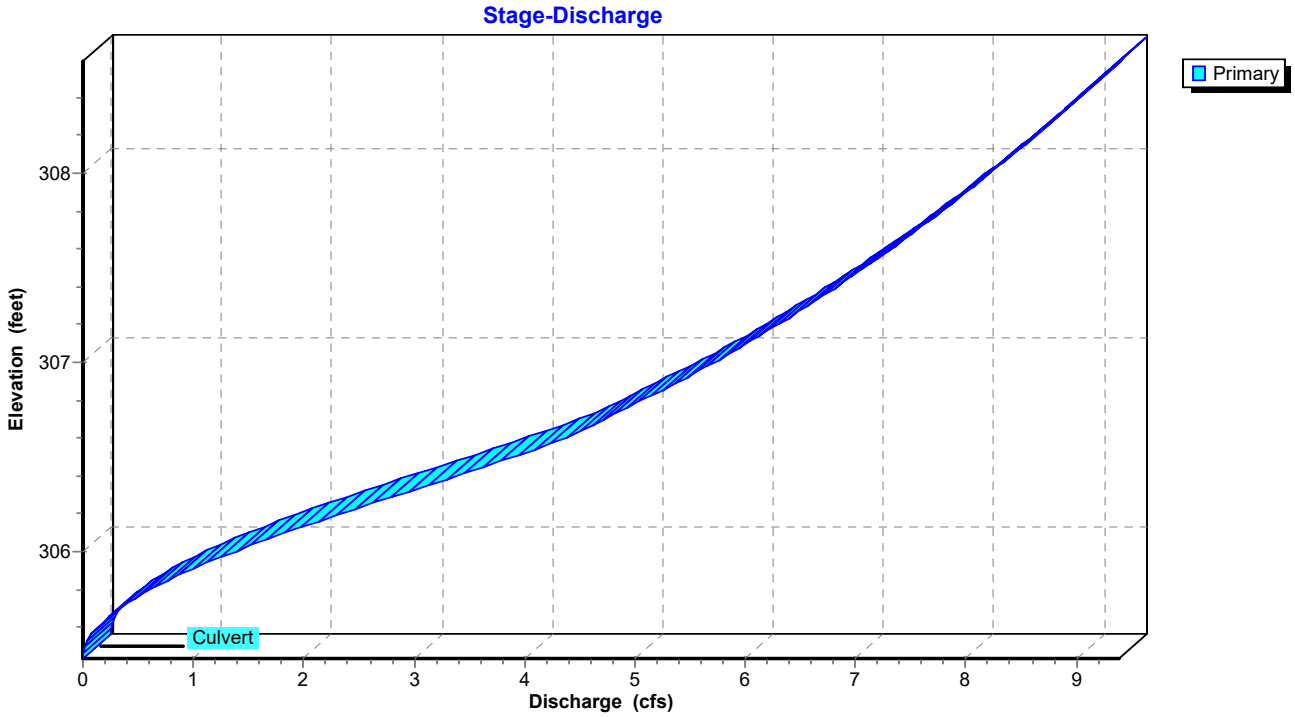
Device	Routing	Invert	Outlet Devices
#1	Primary	305.44'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 305.44' / 302.41' S= 0.6060 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=2.62 cfs @ 12.08 hrs HW=306.26' (Free Discharge)
1=Culvert (Inlet Controls 2.62 cfs @ 3.08 fps)

Pond CB1: CB-1



Pond CB1: CB-1


Stage-Discharge
Primary
Elevation (feet)
308
307
306
Culvert
0
1
2
3
4
5
6
7
8
9
Discharge (cfs)

Summary for Pond CB3: CB-3

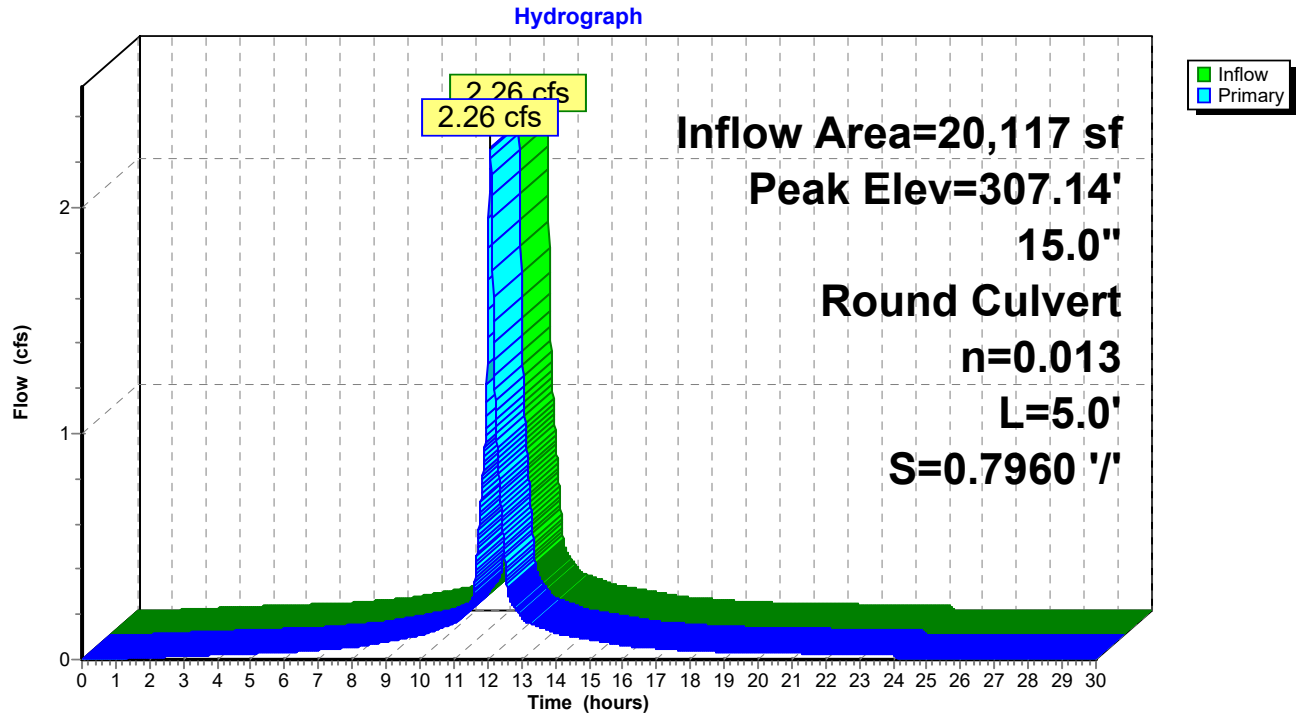
Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 4.76" for 5-Year event
Inflow = 2.26 cfs @ 12.08 hrs, Volume= 7,985 cf
Outflow = 2.26 cfs @ 12.08 hrs, Volume= 7,985 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.26 cfs @ 12.08 hrs, Volume= 7,985 cf
Routed to Pond ADS #2 : ADS #2

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 307.14' @ 12.08 hrs
Flood Elev= 308.80'

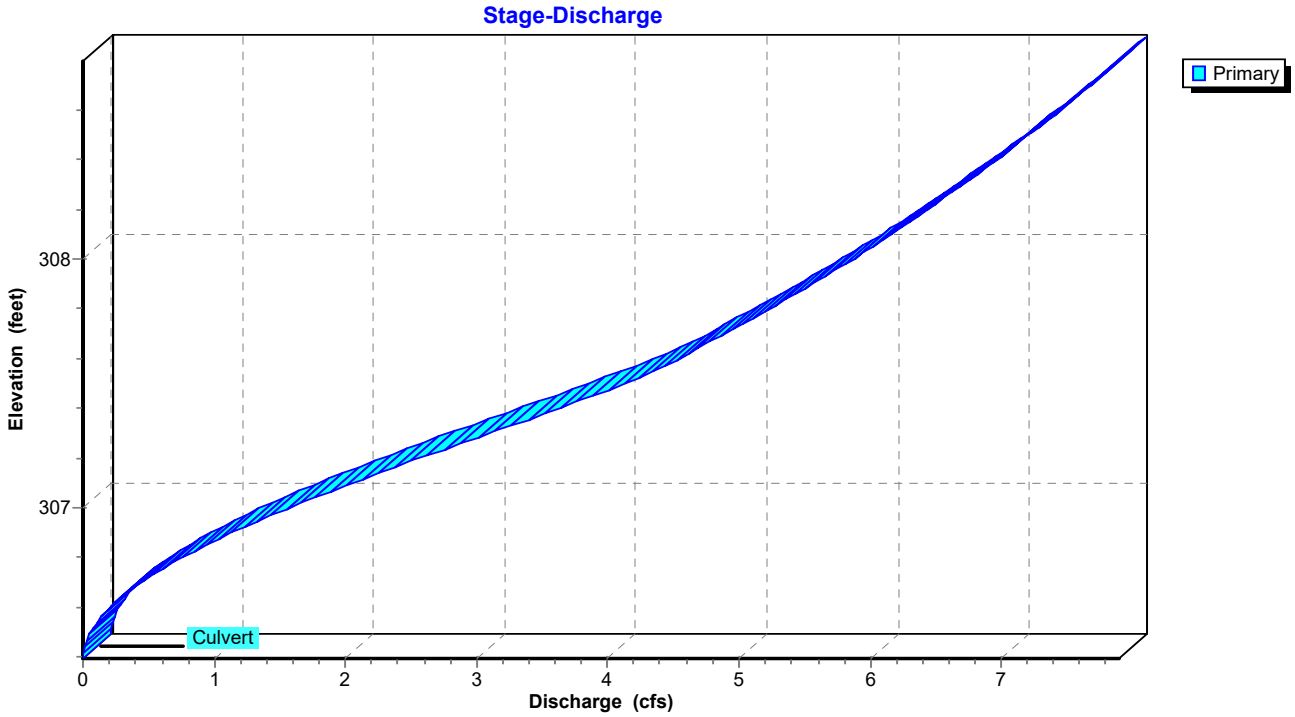
Device	Routing	Invert	Outlet Devices
#1	Primary	306.39'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 306.39' / 302.41' S= 0.7960 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=2.26 cfs @ 12.08 hrs HW=307.14' (Free Discharge)
1=Culvert (Inlet Controls 2.26 cfs @ 2.94 fps)

Pond CB3: CB-3



Pond CB3: CB-3


Stage-Discharge
Primary
Elevation (feet)
308
307
Culvert
0
1
2
3
4
5
6
7
Discharge (cfs)

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1POST: WS #1 POST Runoff Area=11,682 sf 8.78% Impervious Runoff Depth=0.59"
Flow Length=110' Slope=0.0200 '/' Tc=9.0 min CN=48 Runoff=0.09 cfs 572 cf

Subcatchment 1PRE: WS #1 PRE Runoff Area=20,936 sf 20.30% Impervious Runoff Depth=1.37"
Flow Length=82' Tc=6.0 min CN=61 Runoff=0.70 cfs 2,389 cf

Subcatchment 2POST: WS #2 POST Runoff Area=17,923 sf 21.10% Impervious Runoff Depth=0.75"
Flow Length=100' Slope=0.0325 '/' Tc=7.2 min CN=51 Runoff=0.23 cfs 1,116 cf

Subcatchment 2PRE: WS #2 PRE Runoff Area=32,504 sf 8.88% Impervious Runoff Depth=0.59"
Flow Length=144' Tc=8.0 min CN=48 Runoff=0.25 cfs 1,591 cf

Subcatchment 3APOST: WS #3A POST Runoff Area=23,373 sf 100.00% Impervious Runoff Depth=4.76"
Flow Length=140' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=2.62 cfs 9,277 cf

Subcatchment 3BPOST: WS #3B POST Runoff Area=20,117 sf 100.00% Impervious Runoff Depth=4.76"
Flow Length=100' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=2.26 cfs 7,985 cf

Subcatchment 3CPOST: WS #3C POST Runoff Area=58,989 sf 0.00% Impervious Runoff Depth=0.20"
Flow Length=223' Tc=11.6 min CN=39 Runoff=0.05 cfs 983 cf

Subcatchment 3PRE: WS #3 PRE Runoff Area=78,891 sf 2.61% Impervious Runoff Depth=0.31"
Flow Length=360' Tc=11.6 min CN=42 Runoff=0.18 cfs 2,052 cf

Reach DP3: DP3 Inflow=0.05 cfs 983 cf
Outflow=0.05 cfs 983 cf

Pond ADS #1: ADS #1 Peak Elev=303.40' Storage=2,783 cf Inflow=2.62 cfs 9,277 cf
Discarded=0.34 cfs 9,277 cf Primary=0.00 cfs 0 cf Outflow=0.34 cfs 9,277 cf

Pond ADS #2: ADS #2 Peak Elev=303.44' Storage=2,429 cf Inflow=2.26 cfs 7,985 cf
Discarded=0.29 cfs 7,985 cf Primary=0.00 cfs 0 cf Outflow=0.29 cfs 7,985 cf

Pond CB1: CB-1 Peak Elev=306.26' Inflow=2.62 cfs 9,277 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.6060 '/' Outflow=2.62 cfs 9,277 cf

Pond CB3: CB-3 Peak Elev=307.14' Inflow=2.26 cfs 7,985 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.7960 '/' Outflow=2.26 cfs 7,985 cf

Summary for Subcatchment 1POST: WS #1 POST

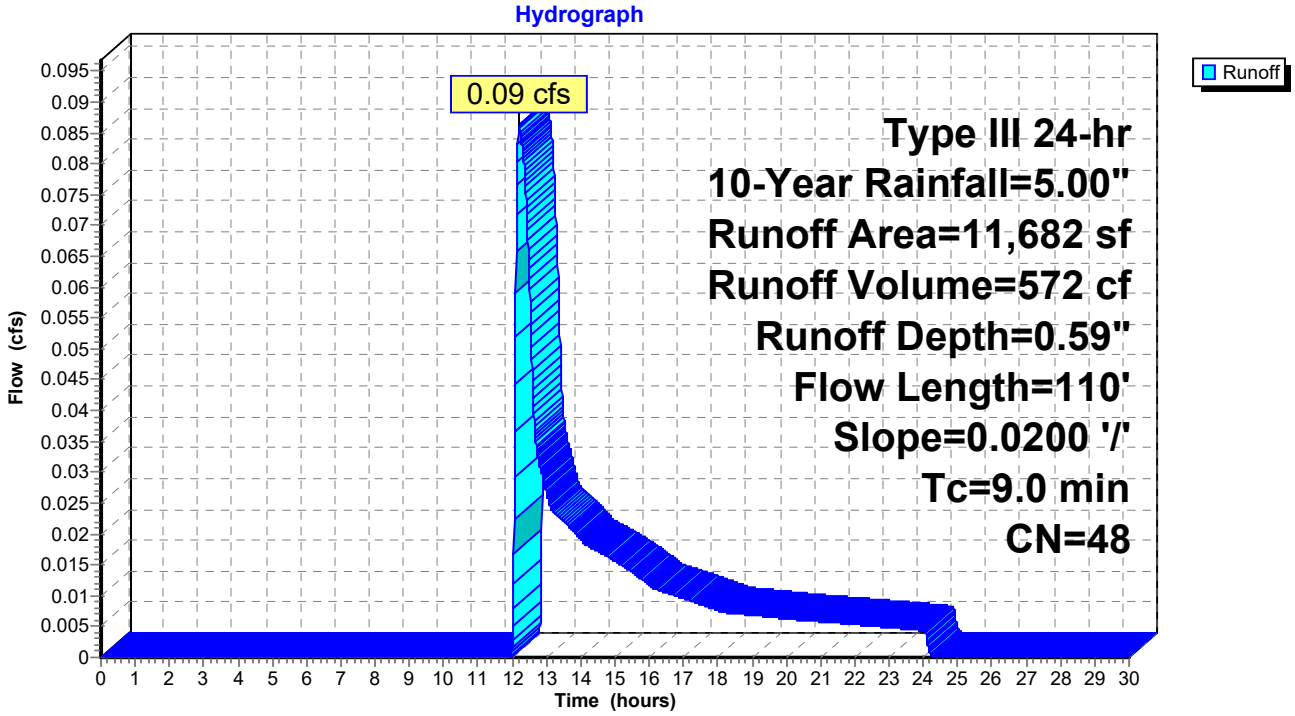
Runoff = 0.09 cfs @ 12.19 hrs, Volume= 572 cf, Depth= 0.59"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (sf)	CN	Description
9,631	39	Pasture/grassland/range, Good, HSG A
2,051	92	Paved roads w/open ditches, 50% imp, HSG C
11,682	48	Weighted Average
10,657		91.22% Pervious Area
1,026		8.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0200	0.19		**Sheet Flow, SHEET FLOW ACROSS PARK & GRASS** Grass: Short n= 0.150 P2= 4.00"
0.2	10	0.0200	0.99		**Shallow Concentrated Flow, SHALLOW FLOW TO DP1** Short Grass Pasture Kv= 7.0 fps
9.0	110	Total			

Subcatchment 1POST: WS #1 POST



Summary for Subcatchment 1PRE: WS #1 PRE

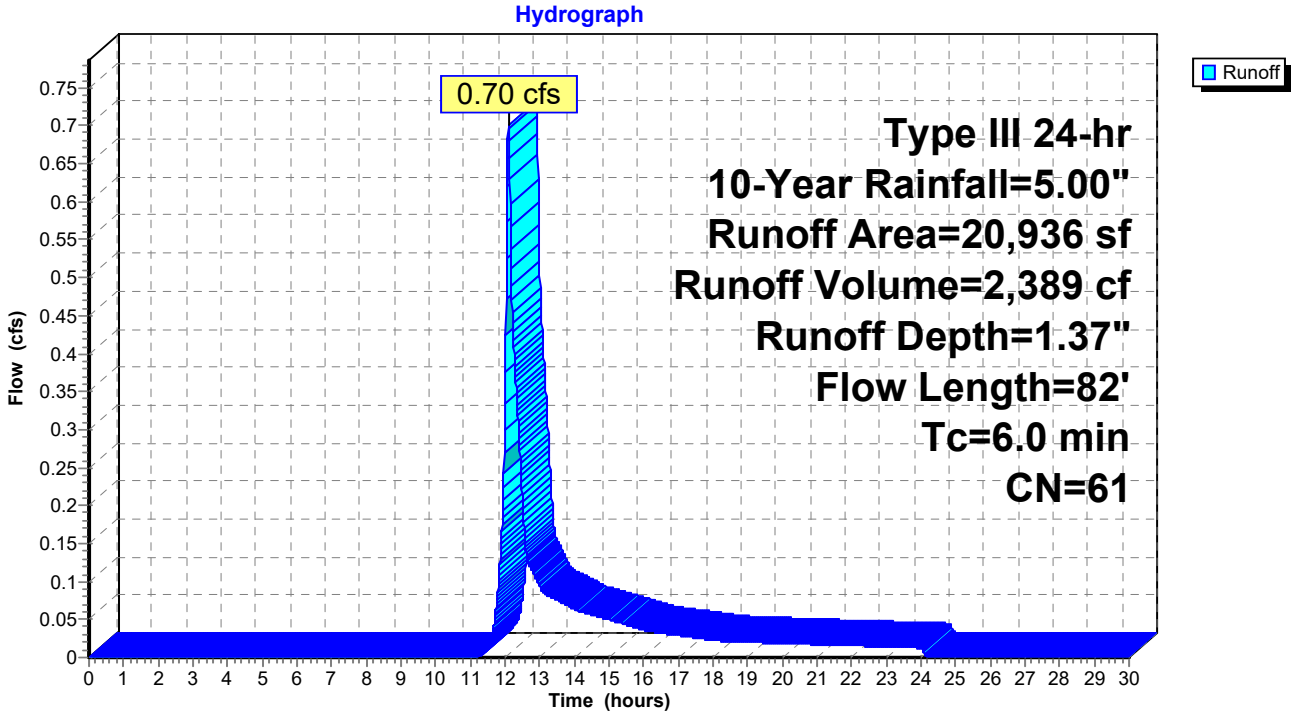
Runoff = 0.70 cfs @ 12.10 hrs, Volume= 2,389 cf, Depth= 1.37"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (sf)	CN	Description
12,436	39	Pasture/grassland/range, Good, HSG A
8,500	92	Paved roads w/open ditches, 50% imp, HSG C
20,936	61	Weighted Average
16,686		79.70% Pervious Area
4,250		20.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0625	1.68		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
2.7	32	0.0375	0.19		**Sheet Flow, SHEET FLOW ACROSS LAWN** Grass: Short n= 0.150 P2= 4.00"
0.2	12	0.0400	1.33		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
1.9	22	0.0450	0.19		**Sheet Flow, SHEET FLOW TO DP1** Grass: Short n= 0.150 P2= 4.00"
5.0	82	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1PRE: WS #1 PRE



Summary for Subcatchment 2POST: WS #2 POST

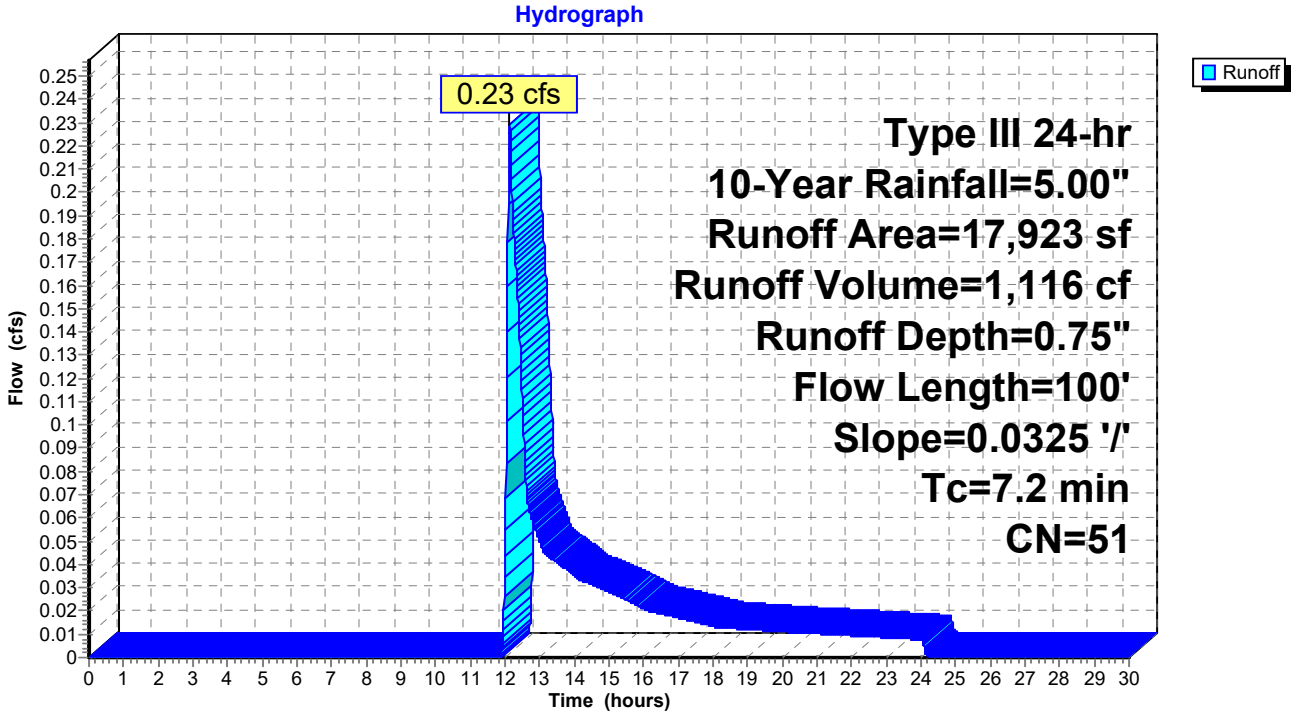
Runoff = 0.23 cfs @ 12.14 hrs, Volume= 1,116 cf, Depth= 0.75"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (sf)	CN	Description
14,142	39	Pasture/grassland/range, Good, HSG A
3,781	98	Paved roads w/curbs & sewers, HSG C
17,923	51	Weighted Average
14,142		78.90% Pervious Area
3,781		21.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0325	0.23		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"

Subcatchment 2POST: WS #2 POST



Summary for Subcatchment 2PRE: WS #2 PRE

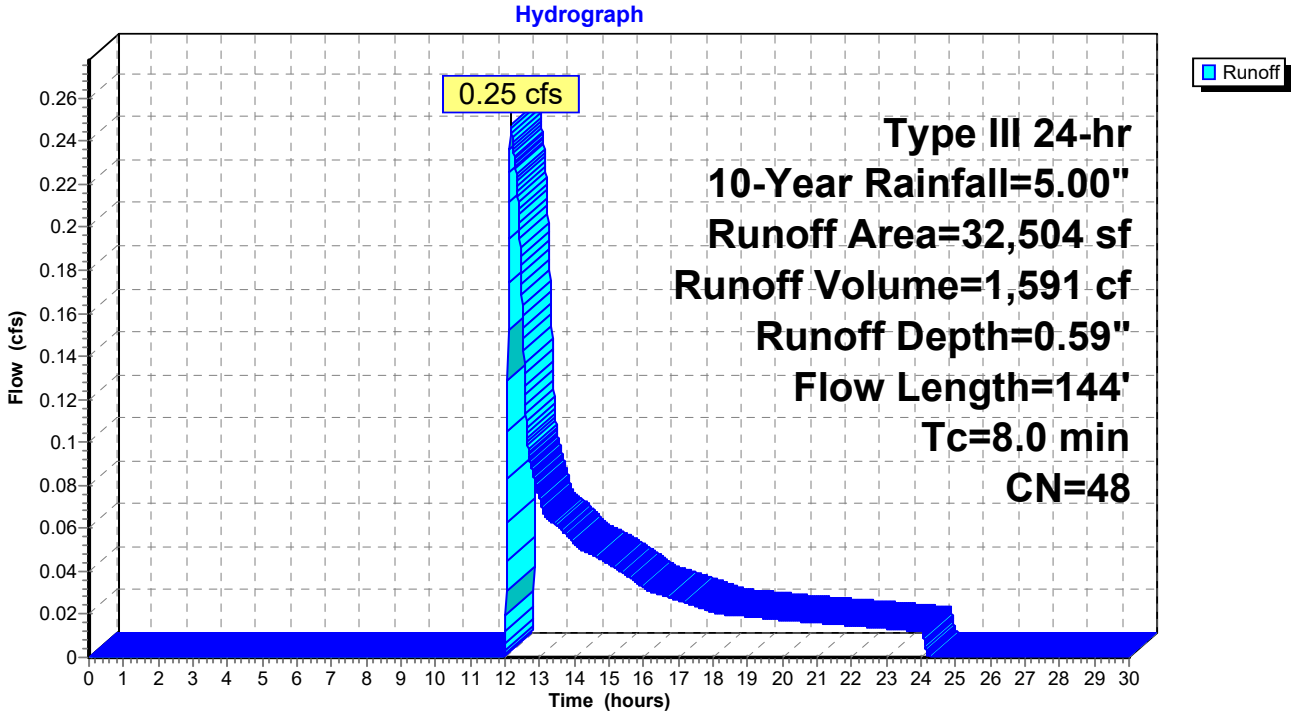
Runoff = 0.25 cfs @ 12.17 hrs, Volume= 1,591 cf, Depth= 0.59"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (sf)	CN	Description
26,730	39	Pasture/grassland/range, Good, HSG A
5,774	92	Paved roads w/open ditches, 50% imp, HSG C
32,504	48	Weighted Average
29,617		91.12% Pervious Area
2,887		8.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0300	0.22		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
0.5	44	0.0450	1.48		**Shallow Concentrated Flow, SHALLOW FLOW TO DP2** Short Grass Pasture Kv= 7.0 fps
8.0	144	Total			

Subcatchment 2PRE: WS #2 PRE



Summary for Subcatchment 3APOST: WS #3A POST

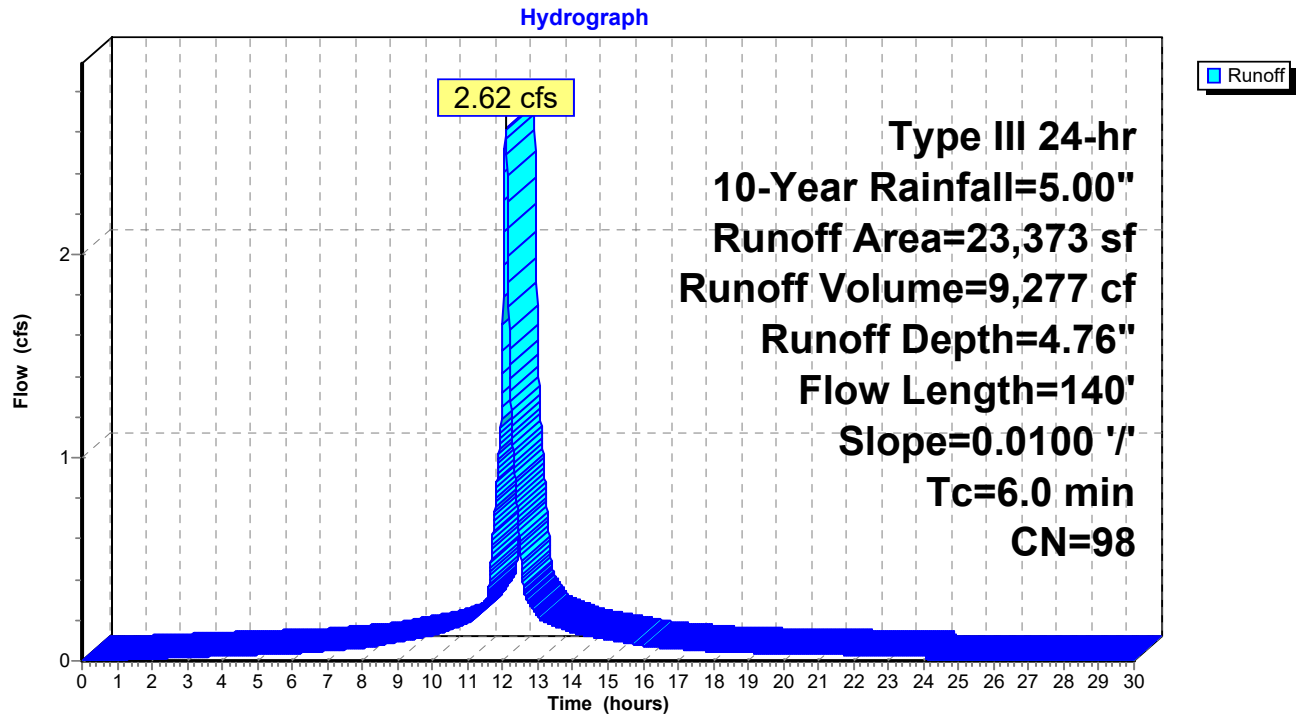
Runoff = 2.62 cfs @ 12.08 hrs, Volume= 9,277 cf, Depth= 4.76"
Routed to Pond CB1 : CB-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (sf)	CN	Description
23,373	98	Paved parking, HSG A
23,373		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0100	1.17		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 4.00"
0.3	40	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-1** Paved Kv= 20.3 fps
1.7	140	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3APOST: WS #3A POST



Summary for Subcatchment 3BPOST: WS #3B POST

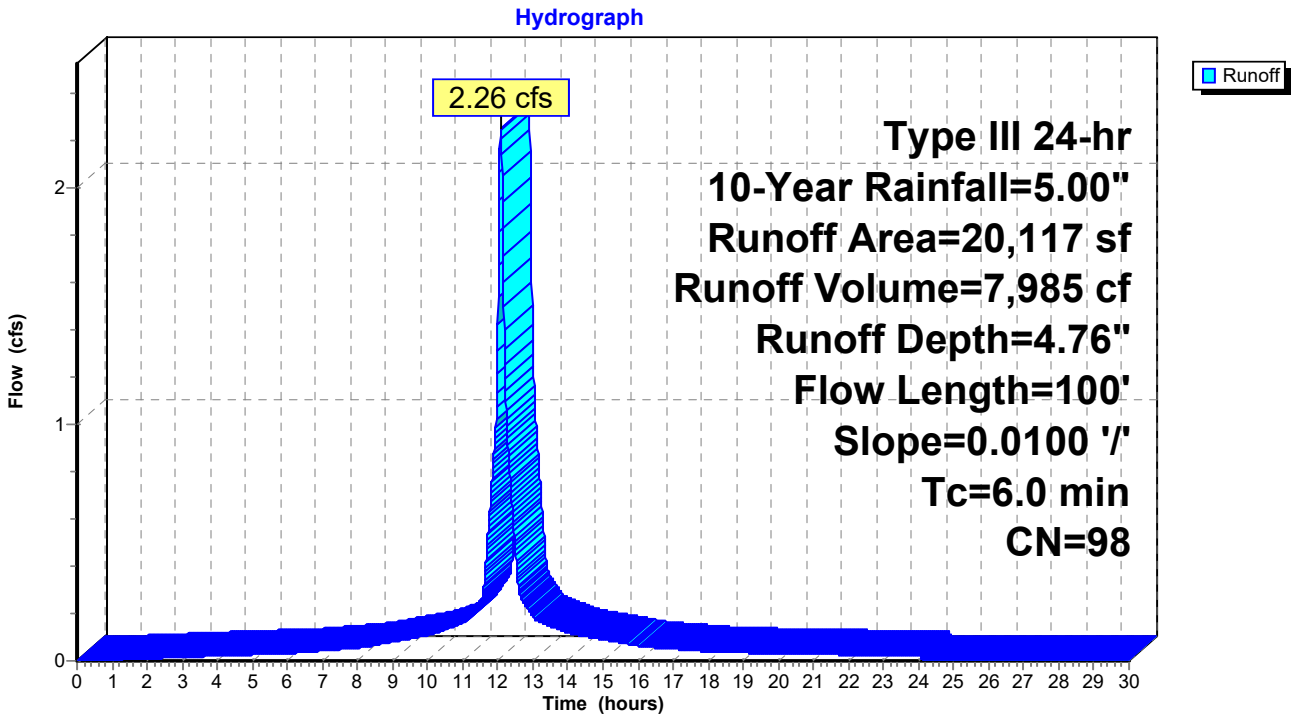
Runoff = 2.26 cfs @ 12.08 hrs, Volume= 7,985 cf, Depth= 4.76"
Routed to Pond CB3 : CB-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (sf)	CN	Description
20,117	98	Paved parking, HSG A
20,117		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0100	1.01		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
0.4	50	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-2** Paved Kv= 20.3 fps
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3BPOST: WS #3B POST



Summary for Subcatchment 3CPOST: WS #3C POST

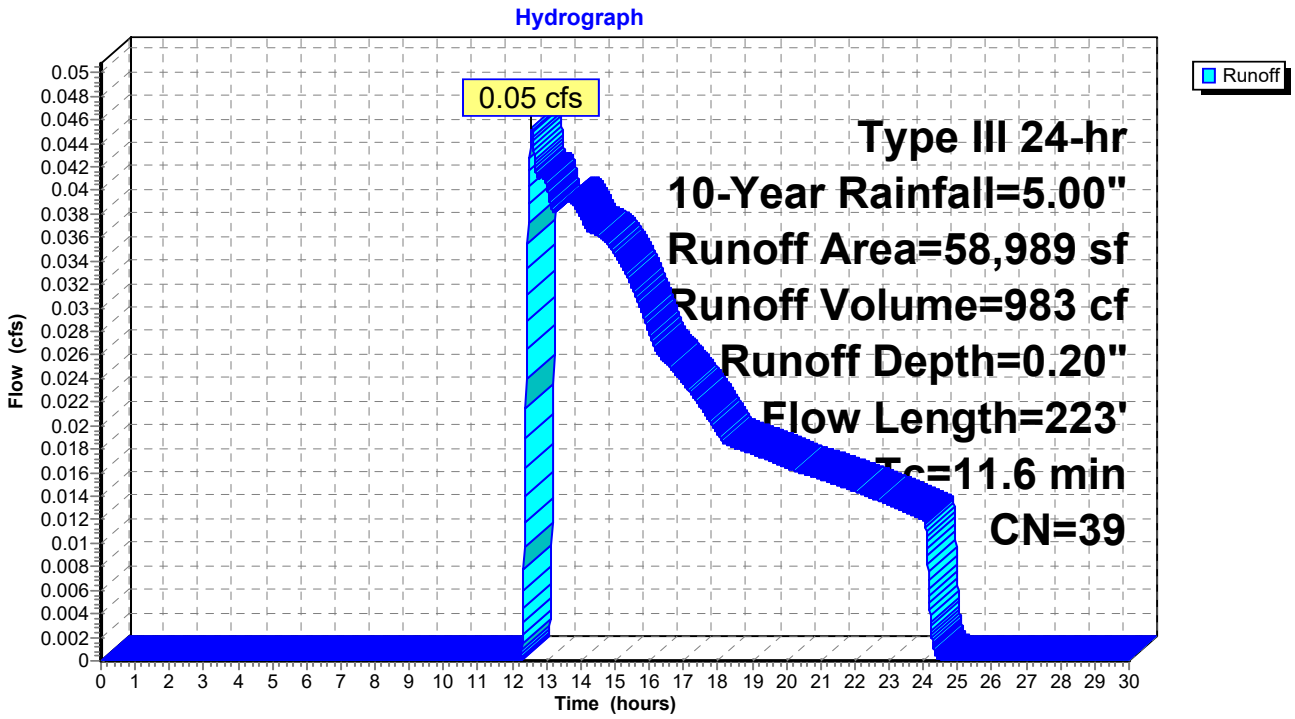
Runoff = 0.05 cfs @ 12.57 hrs, Volume= 983 cf, Depth= 0.20"
Routed to Reach DP3 : DP3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (sf)	CN	Description
58,989	39	Pasture/grassland/range, Good, HSG A
58,989		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	100	0.0400	0.17		**Sheet Flow, SHEET FLOW** Grass: Dense n= 0.240 P2= 4.00"
1.9	123	0.0250	1.11		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	223	Total			

Subcatchment 3CPOST: WS #3C POST



Summary for Subcatchment 3PRE: WS #3 PRE

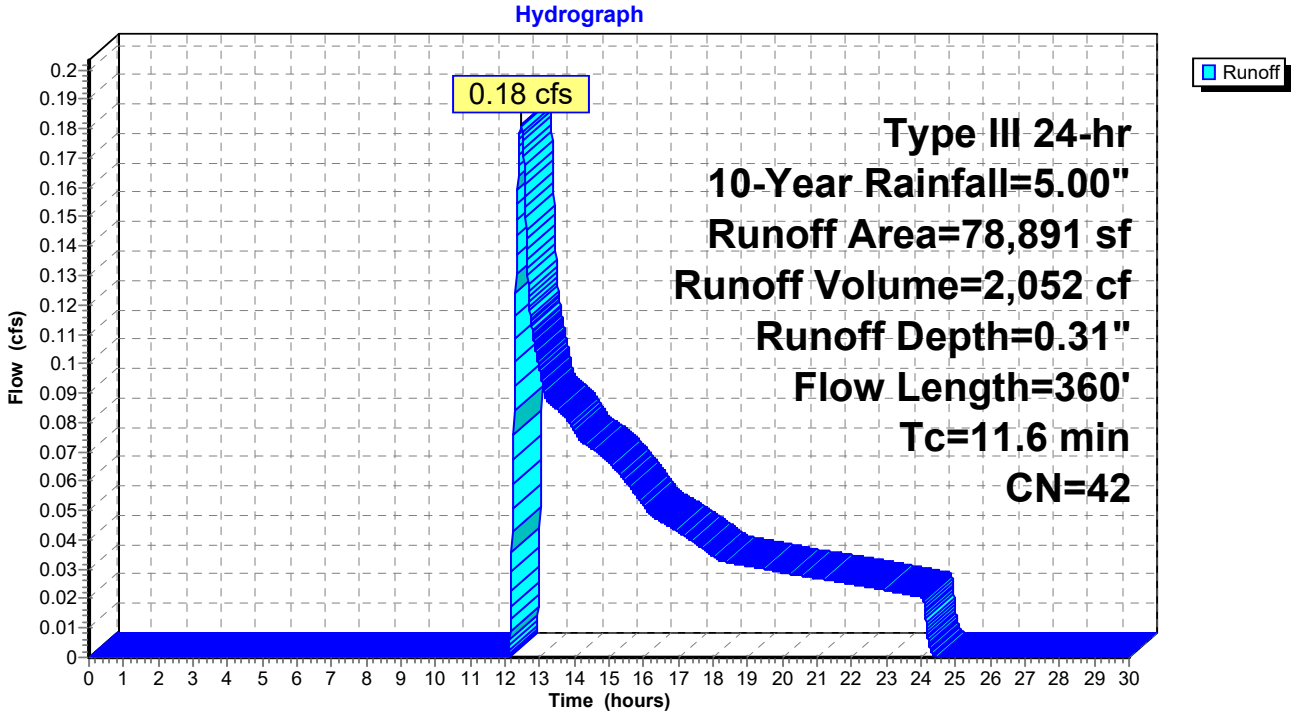
Runoff = 0.18 cfs @ 12.47 hrs, Volume= 2,052 cf, Depth= 0.31"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (sf)	CN	Description
74,772	39	Pasture/grassland/range, Good, HSG A
4,119	92	Paved roads w/open ditches, 50% imp, HSG C
78,891	42	Weighted Average
76,832		97.39% Pervious Area
2,060		2.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0250	0.21		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
3.6	260	0.0300	1.21		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	360	Total			

Subcatchment 3PRE: WS #3 PRE

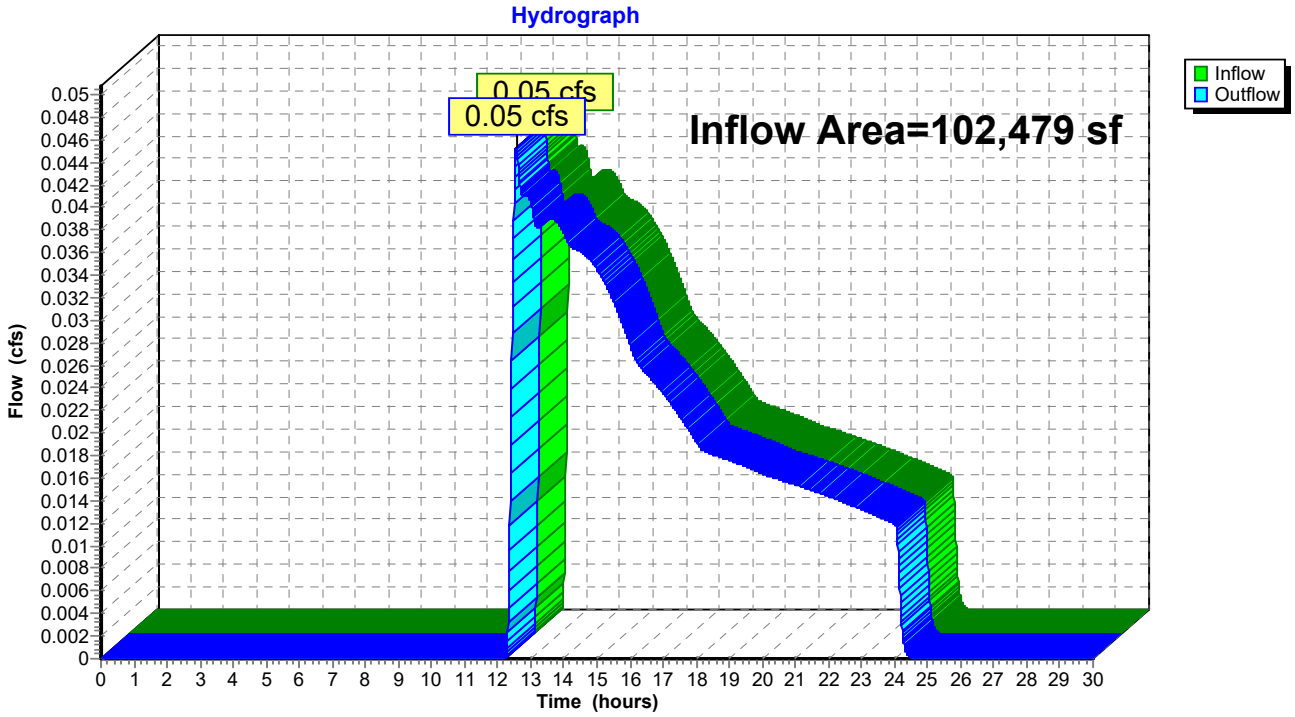


Summary for Reach DP3: DP3

Inflow Area = 102,479 sf, 42.44% Impervious, Inflow Depth = 0.12" for 10-Year event
Inflow = 0.05 cfs @ 12.57 hrs, Volume= 983 cf
Outflow = 0.05 cfs @ 12.57 hrs, Volume= 983 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP3: DP3



Summary for Pond ADS #1: ADS #1

Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 4.76" for 10-Year event
Inflow = 2.62 cfs @ 12.08 hrs, Volume= 9,277 cf
Outflow = 0.34 cfs @ 12.61 hrs, Volume= 9,277 cf, Atten= 87%, Lag= 31.4 min
Discarded = 0.34 cfs @ 12.61 hrs, Volume= 9,277 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 303.40' @ 12.61 hrs Surf.Area= 4,571 sf Storage= 2,783 cf
Flood Elev= 306.91' Surf.Area= 4,571 sf Storage= 9,872 cf

Plug-Flow detention time= 50.9 min calculated for 9,274 cf (100% of inflow)
Center-of-Mass det. time= 50.9 min (798.9 - 748.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	4,084 cf	**44.25'W x 103.30'L x 3.50'H Field A** 15,998 cf Overall - 5,788 cf Embedded = 10,210 cf x 40.0% Voids
#2A	302.91'	5,788 cf	**ADS_StormTech SC-740 +Cap** x 126 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 126 Chambers in 9 Rows
		9,872 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 145.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.34 cfs @ 12.61 hrs HW=303.40' (Free Discharge)
└**4=Exfiltration** (Controls 0.34 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=302.41' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #1: ADS #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

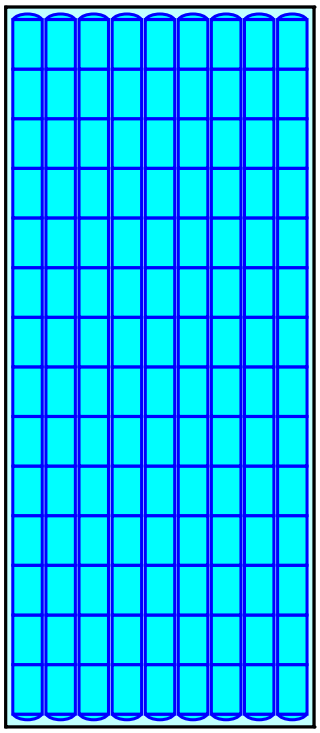
14 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 101.30' Row Length +12.0" End Stone x 2 = 103.30' Base Length
9 Rows x 51.0" Wide + 6.0" Spacing x 8 + 12.0" Side Stone x 2 = 44.25' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

126 Chambers x 45.9 cf = 5,788.4 cf Chamber Storage

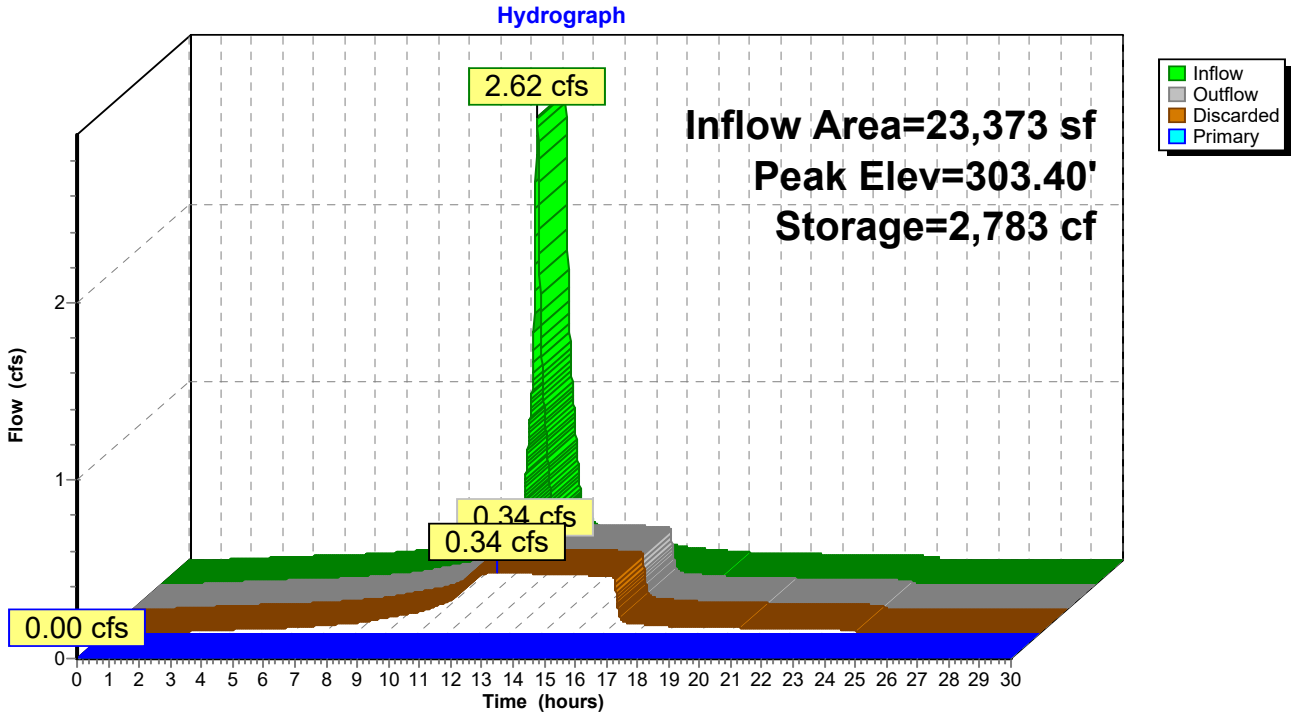
15,998.1 cf Field - 5,788.4 cf Chambers = 10,209.6 cf Stone x 40.0% Voids = 4,083.9 cf Stone Storage

Chamber Storage + Stone Storage = 9,872.3 cf = 0.227 af
Overall Storage Efficiency = 61.7%
Overall System Size = 103.30' x 44.25' x 3.50'

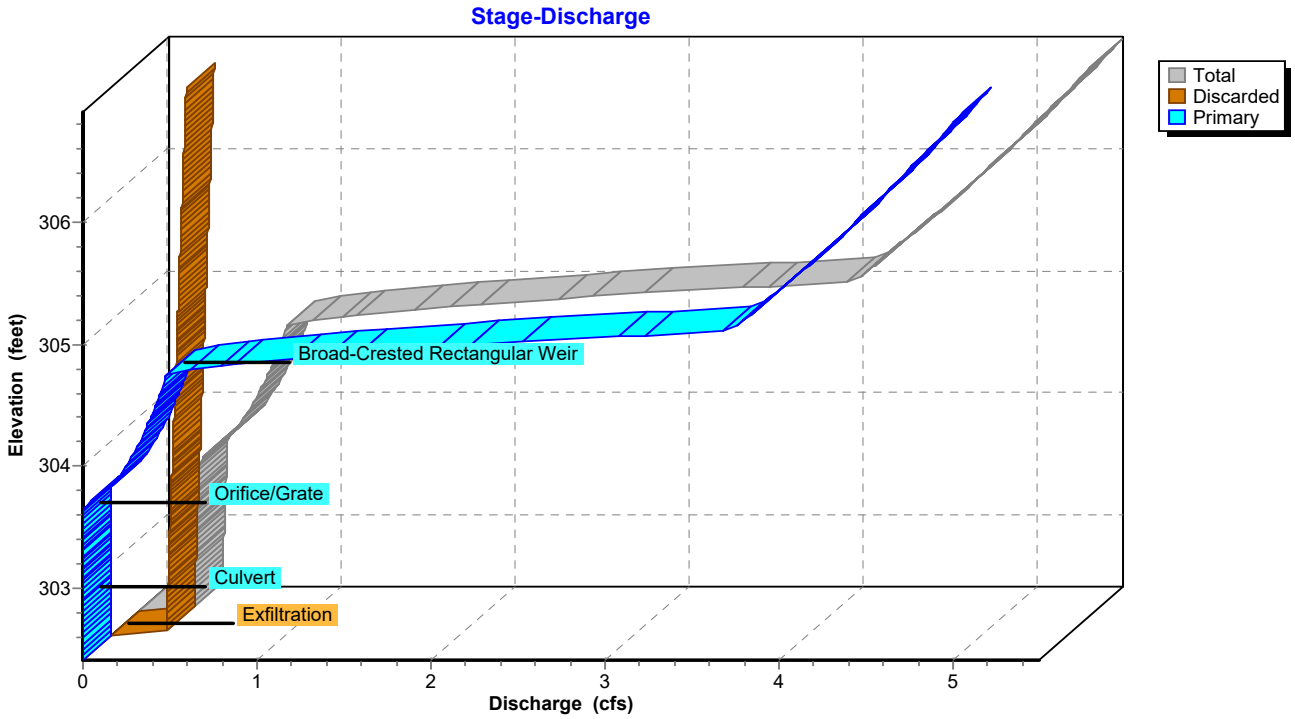
126 Chambers
592.5 cy Field
378.1 cy Stone



Pond ADS #1: ADS #1



Pond ADS #1: ADS #1



Summary for Pond ADS #2: ADS #2

Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 4.76" for 10-Year event
Inflow = 2.26 cfs @ 12.08 hrs, Volume= 7,985 cf
Outflow = 0.29 cfs @ 12.62 hrs, Volume= 7,985 cf, Atten= 87%, Lag= 32.2 min
Discarded = 0.29 cfs @ 12.62 hrs, Volume= 7,985 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 303.44' @ 12.62 hrs Surf.Area= 3,799 sf Storage= 2,429 cf
Flood Elev= 306.91' Surf.Area= 3,799 sf Storage= 8,185 cf

Plug-Flow detention time= 54.0 min calculated for 7,982 cf (100% of inflow)
Center-of-Mass det. time= 54.0 min (802.0 - 748.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	3,407 cf	**39.50'W x 96.18'L x 3.50'H Field A** 13,296 cf Overall - 4,778 cf Embedded = 8,519 cf x 40.0% Voids
#2A	302.91'	4,778 cf	**ADS_StormTech SC-740 +Cap** x 104 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 104 Chambers in 8 Rows
		8,185 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0065 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.29 cfs @ 12.62 hrs HW=303.44' (Free Discharge)
└**4=Exfiltration** (Controls 0.29 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=302.41' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #2: ADS #2 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

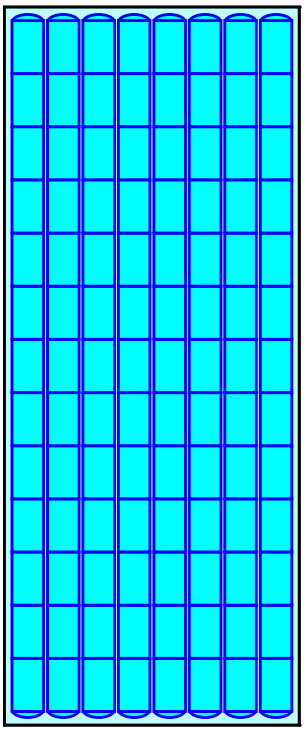
13 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 94.18' Row Length +12.0" End Stone x 2 = 96.18' Base Length
8 Rows x 51.0" Wide + 6.0" Spacing x 7 + 12.0" Side Stone x 2 = 39.50' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

104 Chambers x 45.9 cf = 4,777.8 cf Chamber Storage

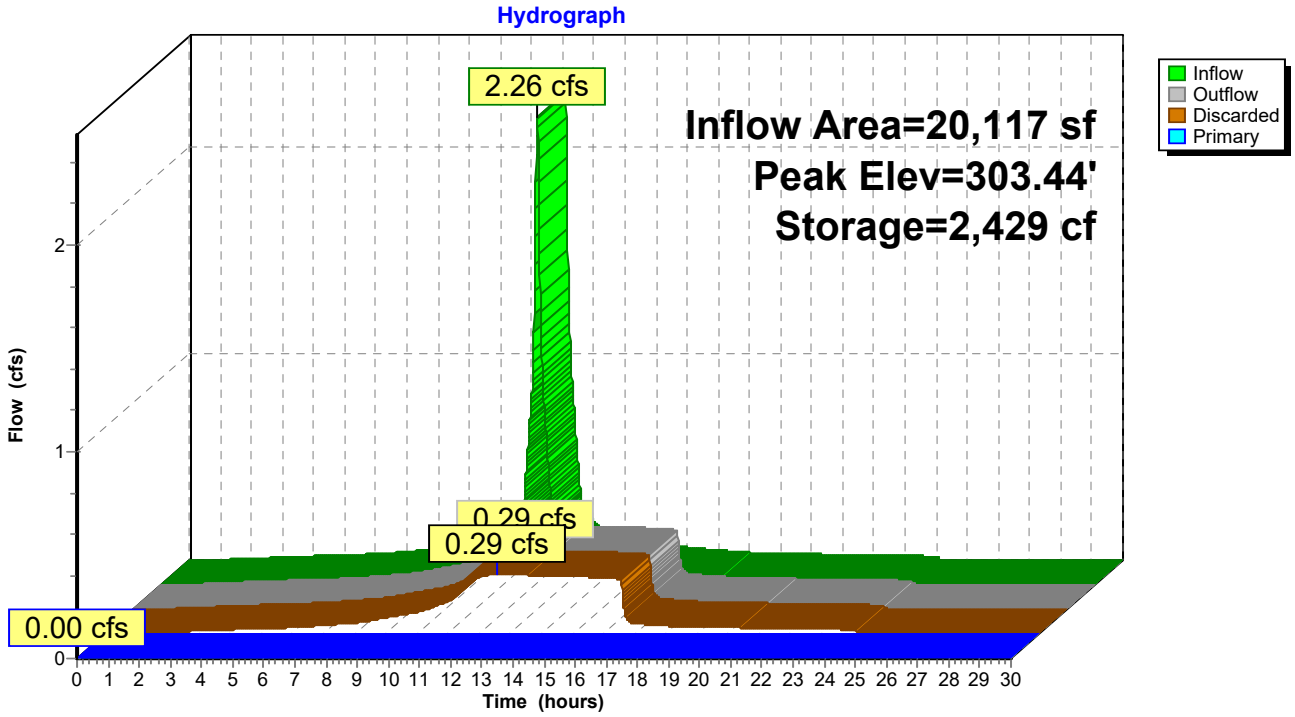
13,296.4 cf Field - 4,777.8 cf Chambers = 8,518.7 cf Stone x 40.0% Voids = 3,407.5 cf Stone Storage

Chamber Storage + Stone Storage = 8,185.2 cf = 0.188 af
Overall Storage Efficiency = 61.6%
Overall System Size = 96.18' x 39.50' x 3.50'

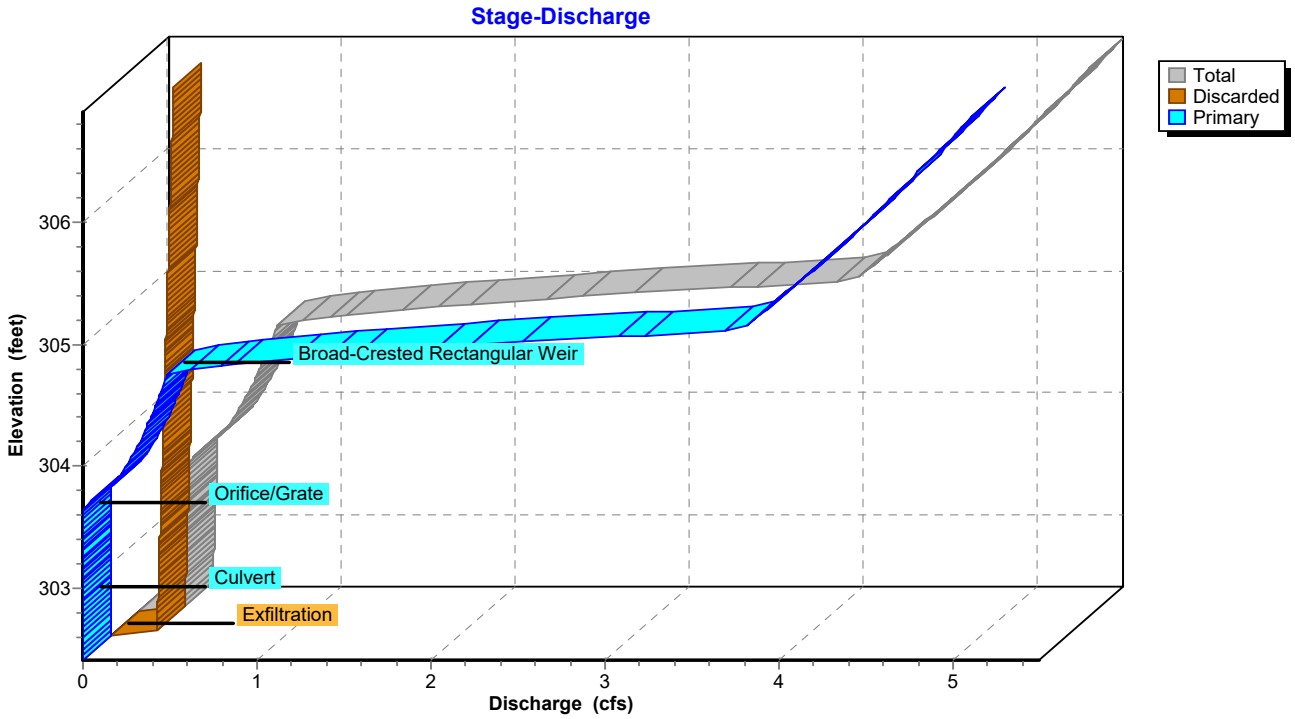
104 Chambers
492.5 cy Field
315.5 cy Stone



Pond ADS #2: ADS #2



Pond ADS #2: ADS #2



Summary for Pond CB1: CB-1

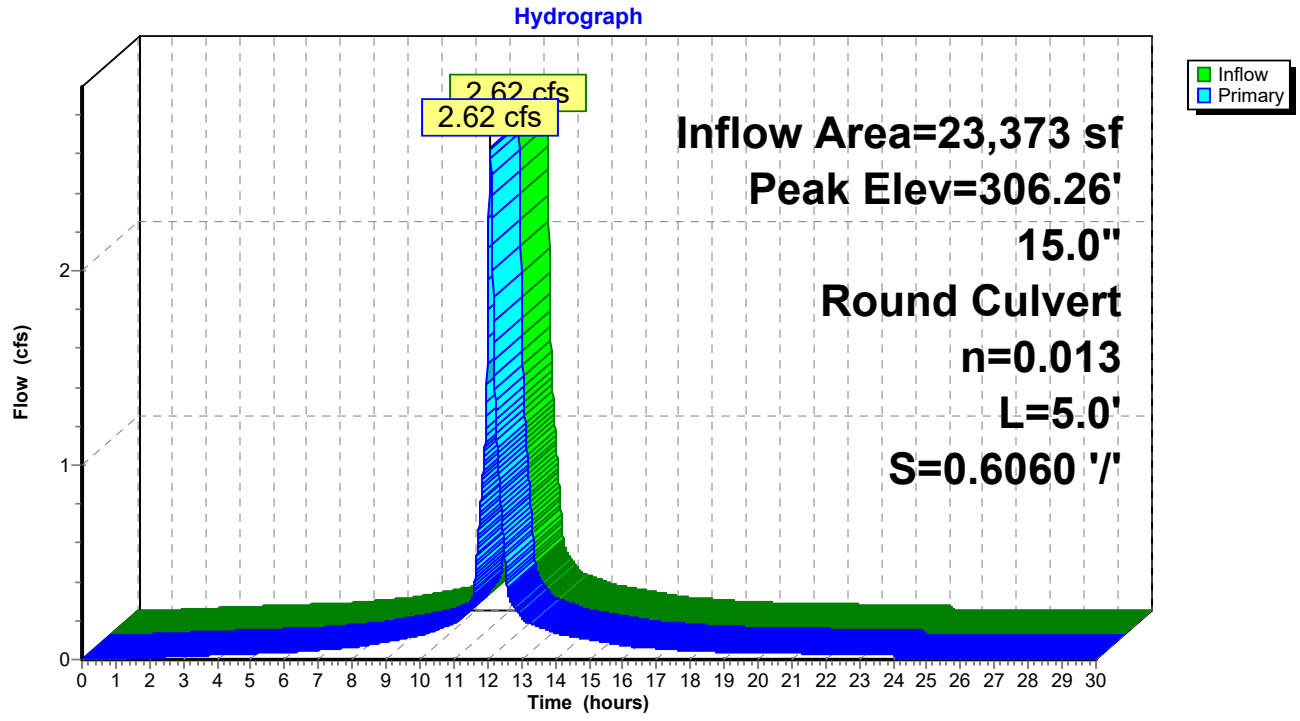
Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 4.76" for 10-Year event
Inflow = 2.62 cfs @ 12.08 hrs, Volume= 9,277 cf
Outflow = 2.62 cfs @ 12.08 hrs, Volume= 9,277 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.62 cfs @ 12.08 hrs, Volume= 9,277 cf
Routed to Pond ADS #1 : ADS #1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 306.26' @ 12.08 hrs
Flood Elev= 308.59'

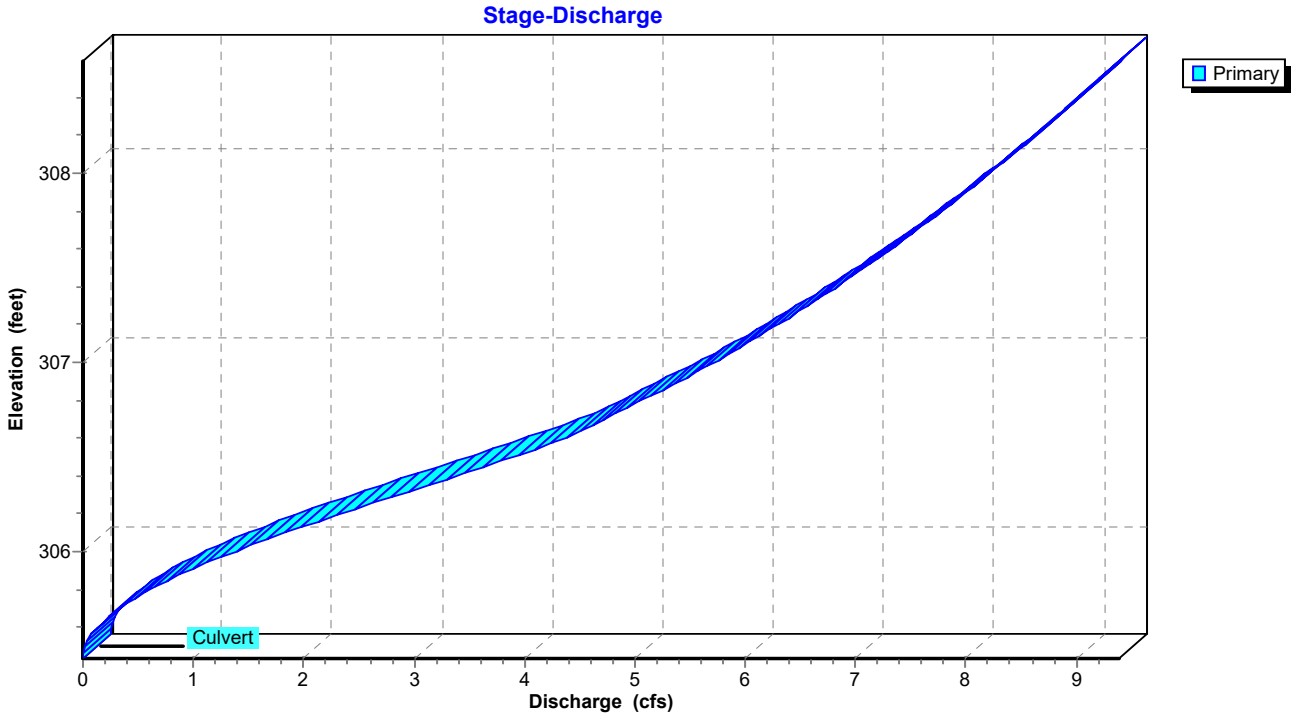
Device	Routing	Invert	Outlet Devices
#1	Primary	305.44'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 305.44' / 302.41' S= 0.6060 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=2.62 cfs @ 12.08 hrs HW=306.26' (Free Discharge)
1=Culvert (Inlet Controls 2.62 cfs @ 3.08 fps)

Pond CB1: CB-1



Pond CB1: CB-1


Stage-Discharge
Primary
Elevation (feet)
308
307
306
Culvert
0
1
2
3
4
5
6
7
8
9
Discharge (cfs)

Summary for Pond CB3: CB-3

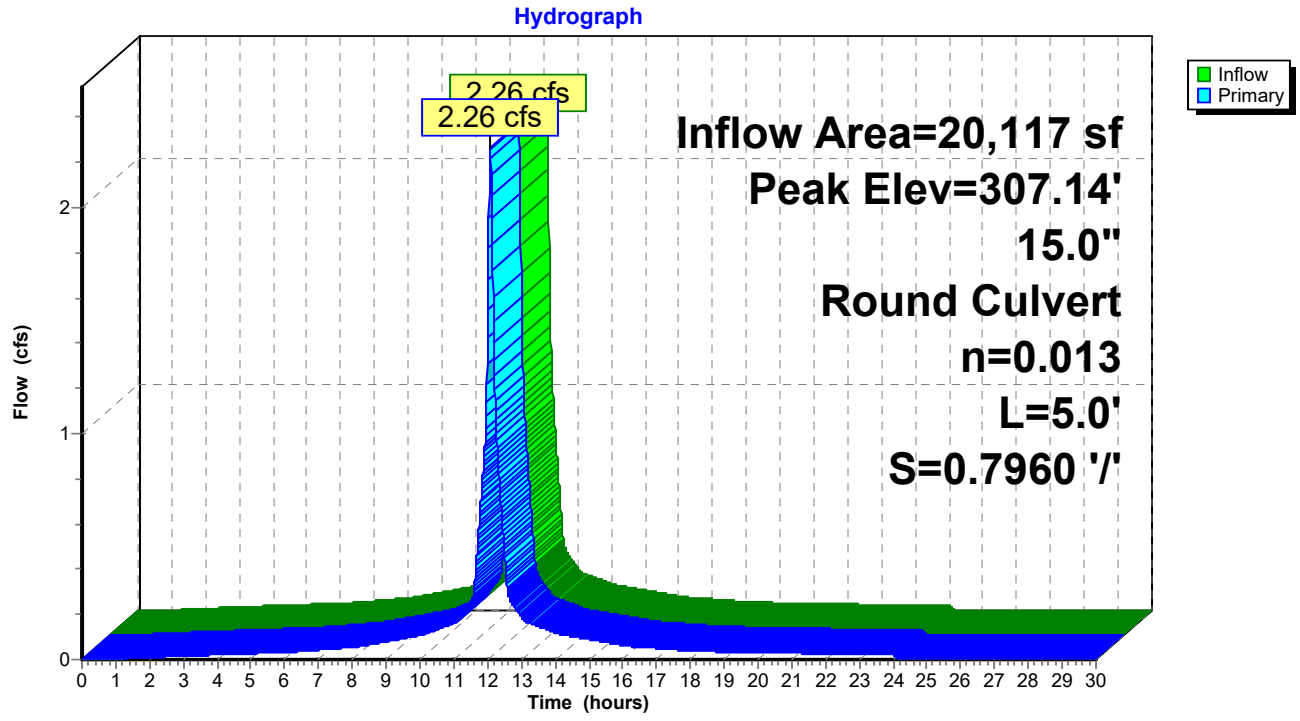
Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 4.76" for 10-Year event
Inflow = 2.26 cfs @ 12.08 hrs, Volume= 7,985 cf
Outflow = 2.26 cfs @ 12.08 hrs, Volume= 7,985 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.26 cfs @ 12.08 hrs, Volume= 7,985 cf
Routed to Pond ADS #2 : ADS #2

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 307.14' @ 12.08 hrs
Flood Elev= 308.80'

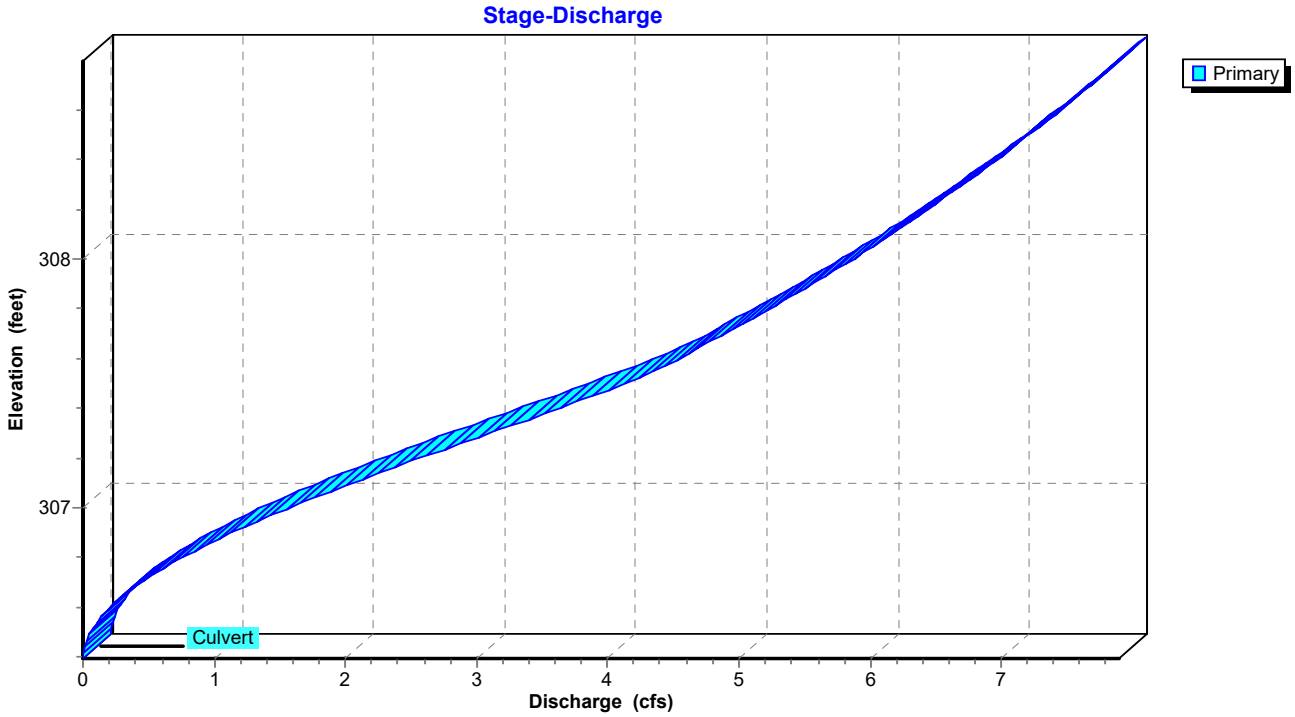
Device	Routing	Invert	Outlet Devices
#1	Primary	306.39'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 306.39' / 302.41' S= 0.7960 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=2.26 cfs @ 12.08 hrs HW=307.14' (Free Discharge)
1=Culvert (Inlet Controls 2.26 cfs @ 2.94 fps)

Pond CB3: CB-3



Pond CB3: CB-3


Stage-Discharge
Primary
Elevation (feet)
308
307
Culvert
0
1
2
3
4
5
6
7
Discharge (cfs)

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1POST: WS #1 POST Runoff Area=11,682 sf 8.78% Impervious Runoff Depth=1.24"
Flow Length=110' Slope=0.0200 '/' Tc=9.0 min CN=48 Runoff=0.27 cfs 1,205 cf

Subcatchment 1PRE: WS #1 PRE Runoff Area=20,936 sf 20.30% Impervious Runoff Depth=2.35"
Flow Length=82' Tc=6.0 min CN=61 Runoff=1.28 cfs 4,095 cf

Subcatchment 2POST: WS #2 POST Runoff Area=17,923 sf 21.10% Impervious Runoff Depth=1.48"
Flow Length=100' Slope=0.0325 '/' Tc=7.2 min CN=51 Runoff=0.58 cfs 2,207 cf

Subcatchment 2PRE: WS #2 PRE Runoff Area=32,504 sf 8.88% Impervious Runoff Depth=1.24"
Flow Length=144' Tc=8.0 min CN=48 Runoff=0.79 cfs 3,354 cf

Subcatchment 3APOST: WS #3A POST Runoff Area=23,373 sf 100.00% Impervious Runoff Depth=6.26"
Flow Length=140' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=3.42 cfs 12,196 cf

Subcatchment 3BPOST: WS #3B POST Runoff Area=20,117 sf 100.00% Impervious Runoff Depth=6.26"
Flow Length=100' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=2.94 cfs 10,497 cf

Subcatchment 3CPOST: WS #3C POST Runoff Area=58,989 sf 0.00% Impervious Runoff Depth=0.60"
Flow Length=223' Tc=11.6 min CN=39 Runoff=0.36 cfs 2,939 cf

Subcatchment 3PRE: WS #3 PRE Runoff Area=78,891 sf 2.61% Impervious Runoff Depth=0.80"
Flow Length=360' Tc=11.6 min CN=42 Runoff=0.78 cfs 5,235 cf

Reach DP3: DP3 Inflow=0.46 cfs 3,378 cf
Outflow=0.46 cfs 3,378 cf

Pond ADS #1: ADS #1 Peak Elev=303.73' Storage=3,974 cf Inflow=3.42 cfs 12,196 cf
Discarded=0.35 cfs 12,033 cf Primary=0.06 cfs 163 cf Outflow=0.41 cfs 12,196 cf

Pond ADS #2: ADS #2 Peak Elev=303.77' Storage=3,419 cf Inflow=2.94 cfs 10,497 cf
Discarded=0.29 cfs 10,221 cf Primary=0.10 cfs 276 cf Outflow=0.39 cfs 10,497 cf

Pond CB1: CB-1 Peak Elev=306.41' Inflow=3.42 cfs 12,196 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.6060 '/' Outflow=3.42 cfs 12,196 cf

Pond CB3: CB-3 Peak Elev=307.27' Inflow=2.94 cfs 10,497 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.7960 '/' Outflow=2.94 cfs 10,497 cf

Summary for Subcatchment 1POST: WS #1 POST

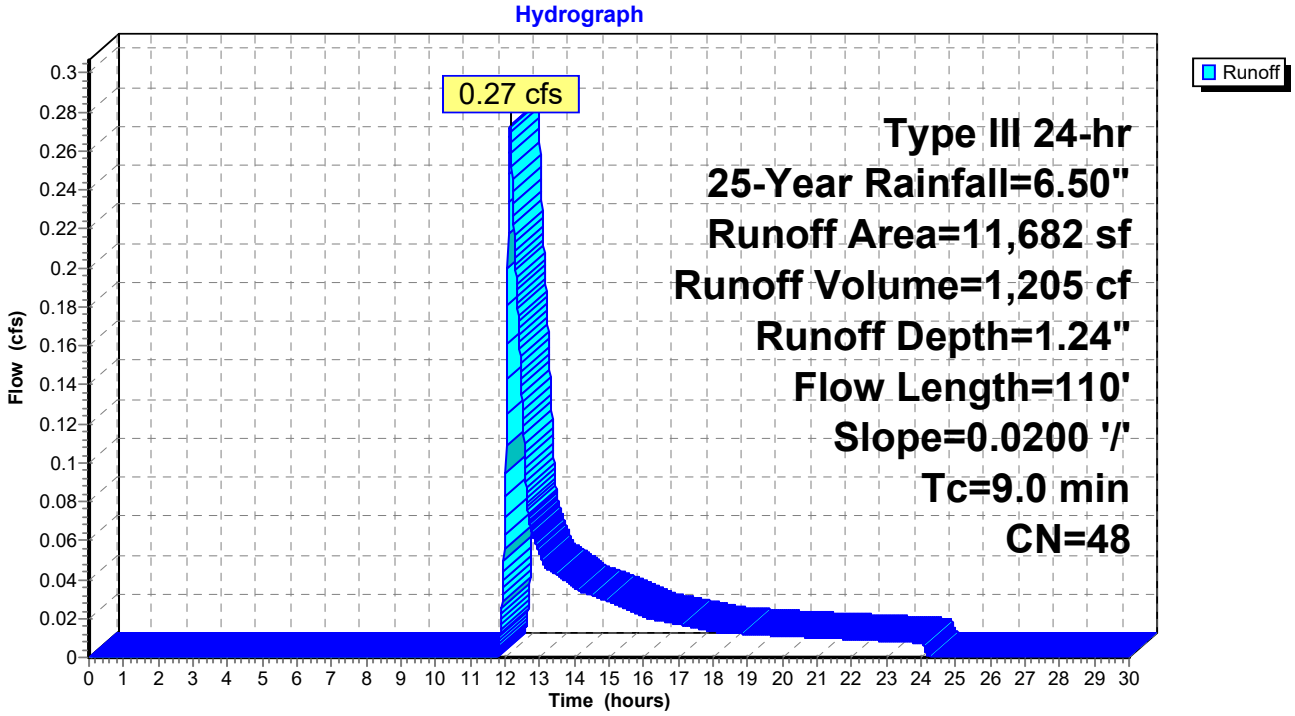
Runoff = 0.27 cfs @ 12.15 hrs, Volume= 1,205 cf, Depth= 1.24"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.50"

Area (sf)	CN	Description
9,631	39	Pasture/grassland/range, Good, HSG A
2,051	92	Paved roads w/open ditches, 50% imp, HSG C
11,682	48	Weighted Average
10,657		91.22% Pervious Area
1,026		8.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0200	0.19		**Sheet Flow, SHEET FLOW ACROSS PARK & GRASS** Grass: Short n= 0.150 P2= 4.00"
0.2	10	0.0200	0.99		**Shallow Concentrated Flow, SHALLOW FLOW TO DP1** Short Grass Pasture Kv= 7.0 fps
9.0	110	Total			

Subcatchment 1POST: WS #1 POST



Summary for Subcatchment 1PRE: WS #1 PRE

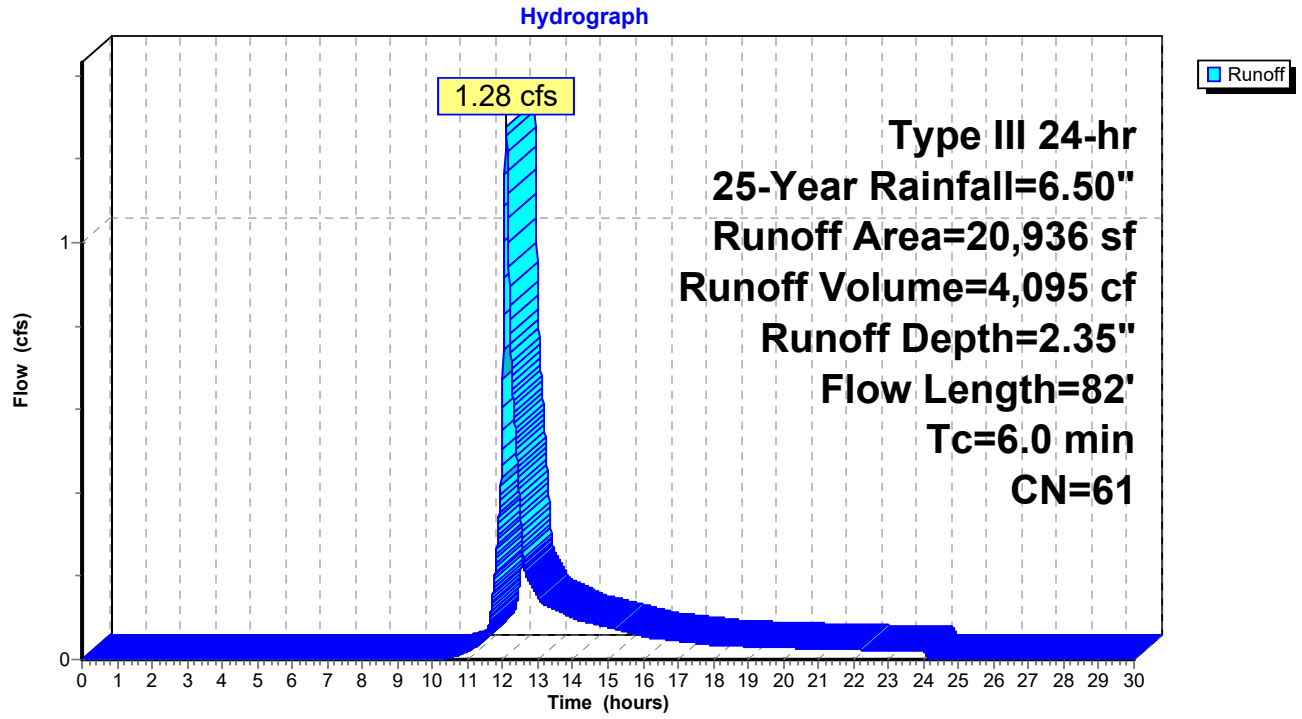
Runoff = 1.28 cfs @ 12.09 hrs, Volume= 4,095 cf, Depth= 2.35"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.50"

Area (sf)	CN	Description
12,436	39	Pasture/grassland/range, Good, HSG A
8,500	92	Paved roads w/open ditches, 50% imp, HSG C
20,936	61	Weighted Average
16,686		79.70% Pervious Area
4,250		20.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0625	1.68		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
2.7	32	0.0375	0.19		**Sheet Flow, SHEET FLOW ACROSS LAWN** Grass: Short n= 0.150 P2= 4.00"
0.2	12	0.0400	1.33		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
1.9	22	0.0450	0.19		**Sheet Flow, SHEET FLOW TO DP1** Grass: Short n= 0.150 P2= 4.00"
5.0	82	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1PRE: WS #1 PRE



Summary for Subcatchment 2POST: WS #2 POST

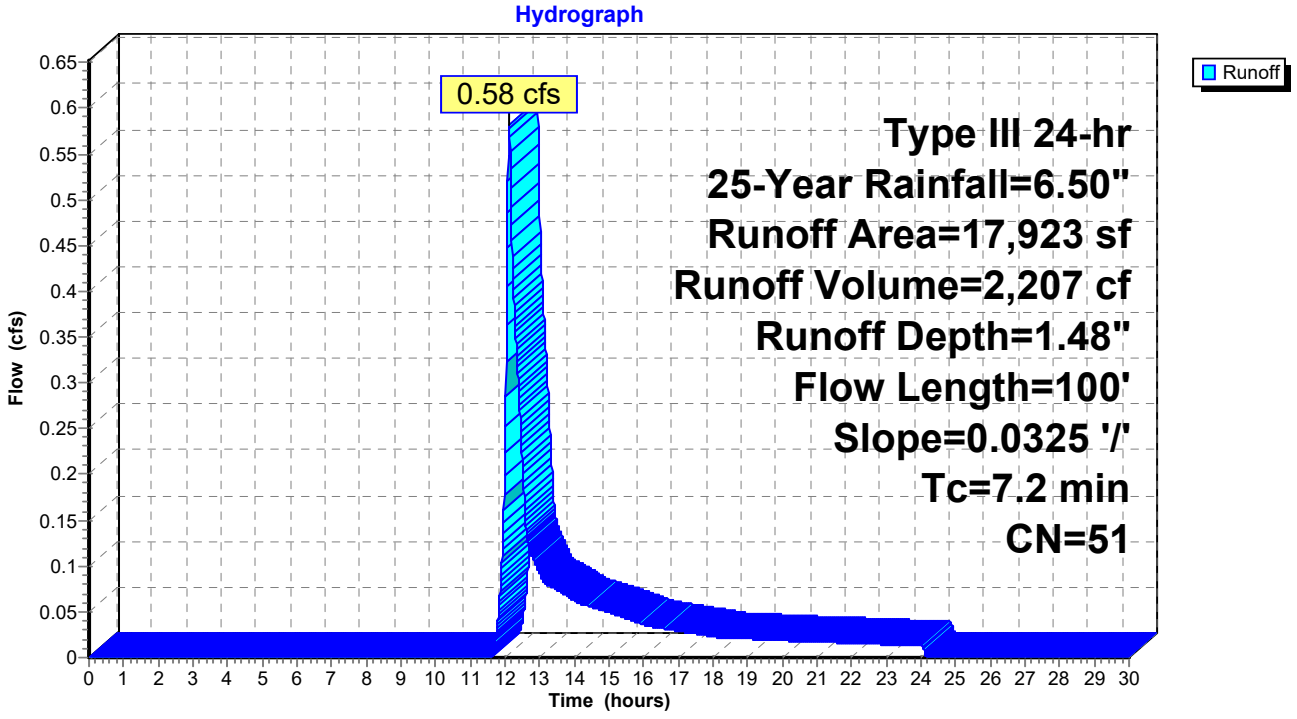
Runoff = 0.58 cfs @ 12.12 hrs, Volume= 2,207 cf, Depth= 1.48"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.50"

Area (sf)	CN	Description
14,142	39	Pasture/grassland/range, Good, HSG A
3,781	98	Paved roads w/curbs & sewers, HSG C
17,923	51	Weighted Average
14,142		78.90% Pervious Area
3,781		21.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0325	0.23		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"

Subcatchment 2POST: WS #2 POST



Summary for Subcatchment 2PRE: WS #2 PRE

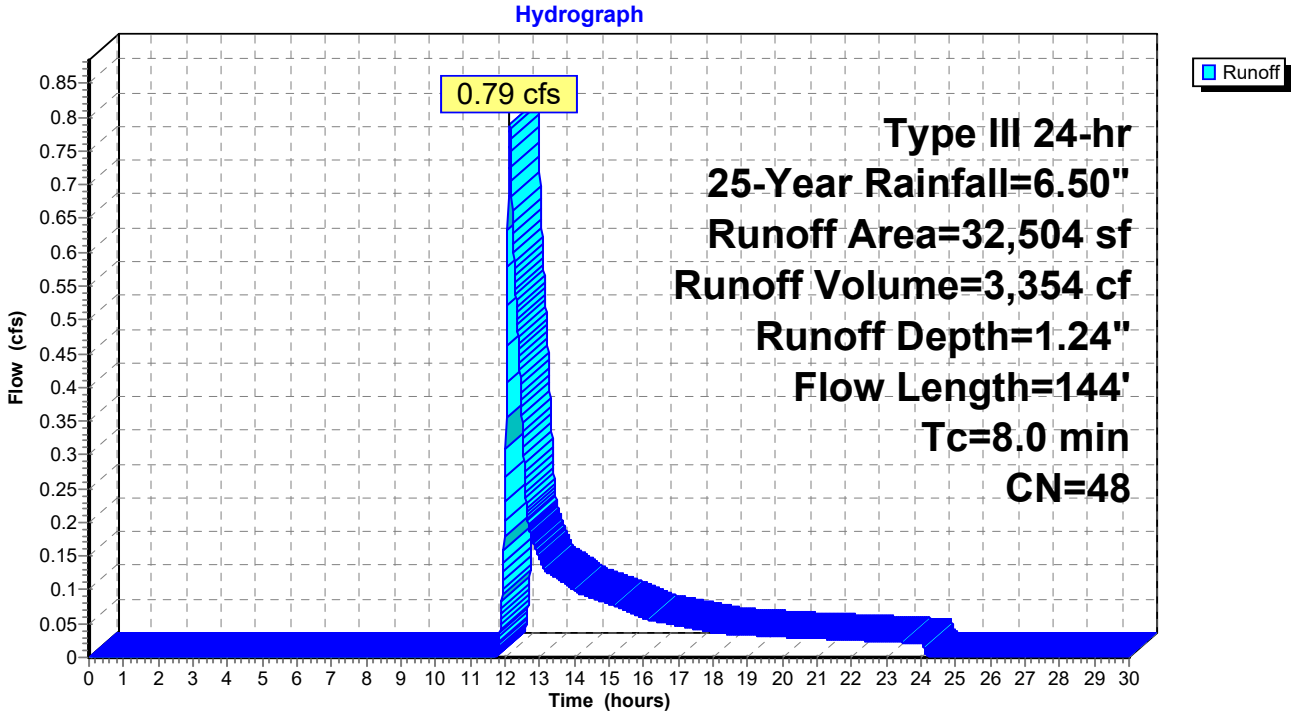
Runoff = 0.79 cfs @ 12.14 hrs, Volume= 3,354 cf, Depth= 1.24"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.50"

Area (sf)	CN	Description
26,730	39	Pasture/grassland/range, Good, HSG A
5,774	92	Paved roads w/open ditches, 50% imp, HSG C
32,504	48	Weighted Average
29,617		91.12% Pervious Area
2,887		8.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0300	0.22		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
0.5	44	0.0450	1.48		**Shallow Concentrated Flow, SHALLOW FLOW TO DP2** Short Grass Pasture Kv= 7.0 fps
8.0	144	Total			

Subcatchment 2PRE: WS #2 PRE



Summary for Subcatchment 3APOST: WS #3A POST

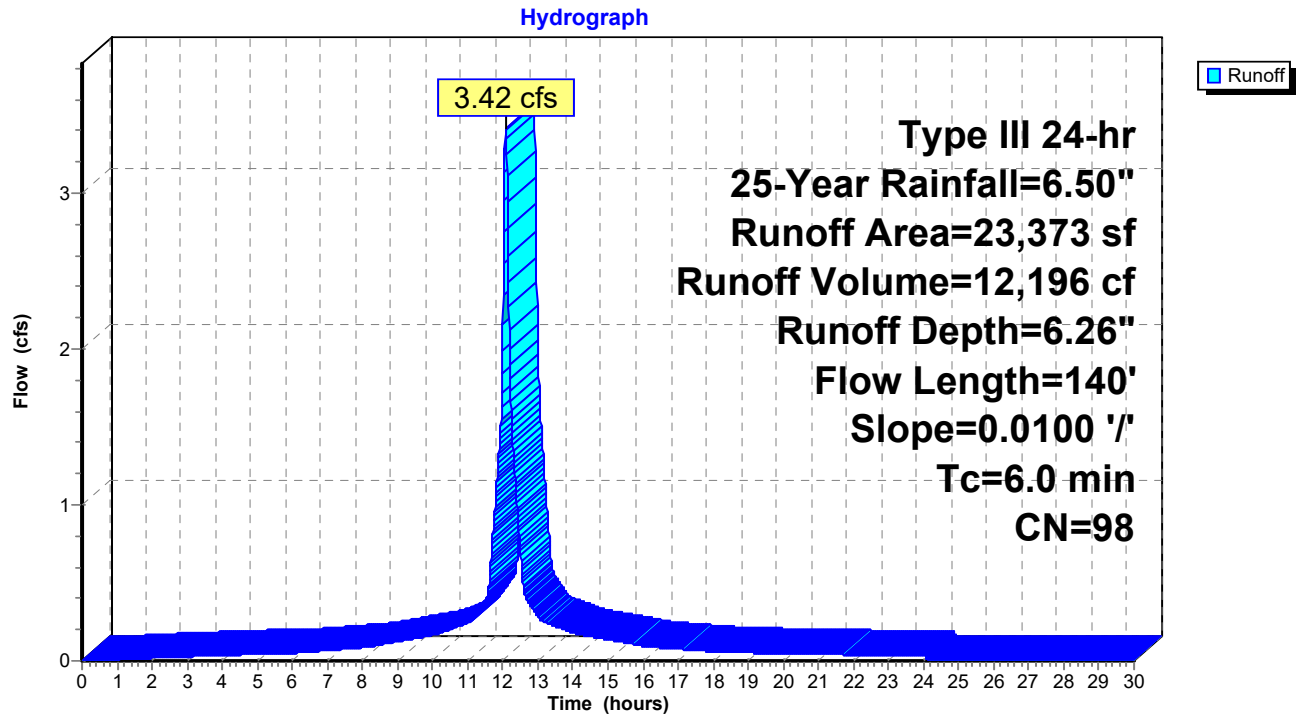
Runoff = 3.42 cfs @ 12.08 hrs, Volume= 12,196 cf, Depth= 6.26"
Routed to Pond CB1 : CB-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.50"

Area (sf)	CN	Description
23,373	98	Paved parking, HSG A
23,373		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0100	1.17		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 4.00"
0.3	40	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-1** Paved Kv= 20.3 fps
1.7	140	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3APOST: WS #3A POST



Summary for Subcatchment 3BPOST: WS #3B POST

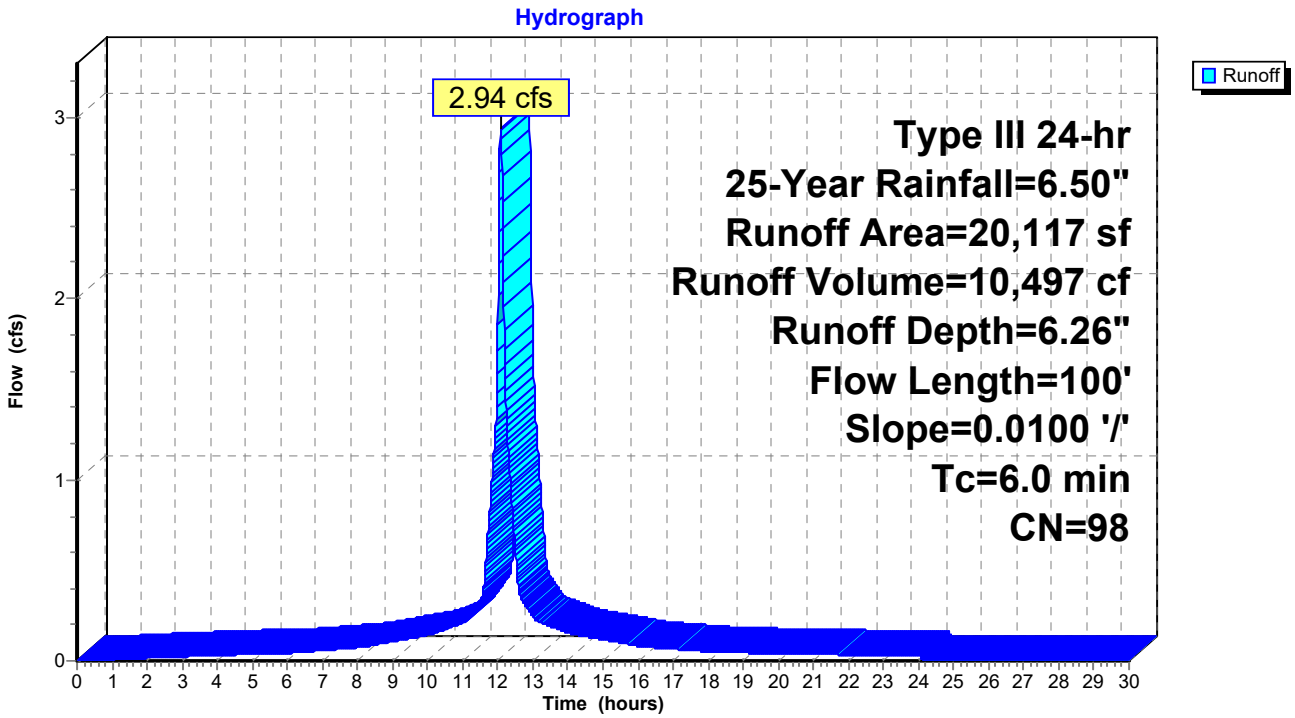
Runoff = 2.94 cfs @ 12.08 hrs, Volume= 10,497 cf, Depth= 6.26"
Routed to Pond CB3 : CB-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.50"

Area (sf)	CN	Description
20,117	98	Paved parking, HSG A
20,117		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0100	1.01		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
0.4	50	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-2** Paved Kv= 20.3 fps
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3BPOST: WS #3B POST



Summary for Subcatchment 3CPOST: WS #3C POST

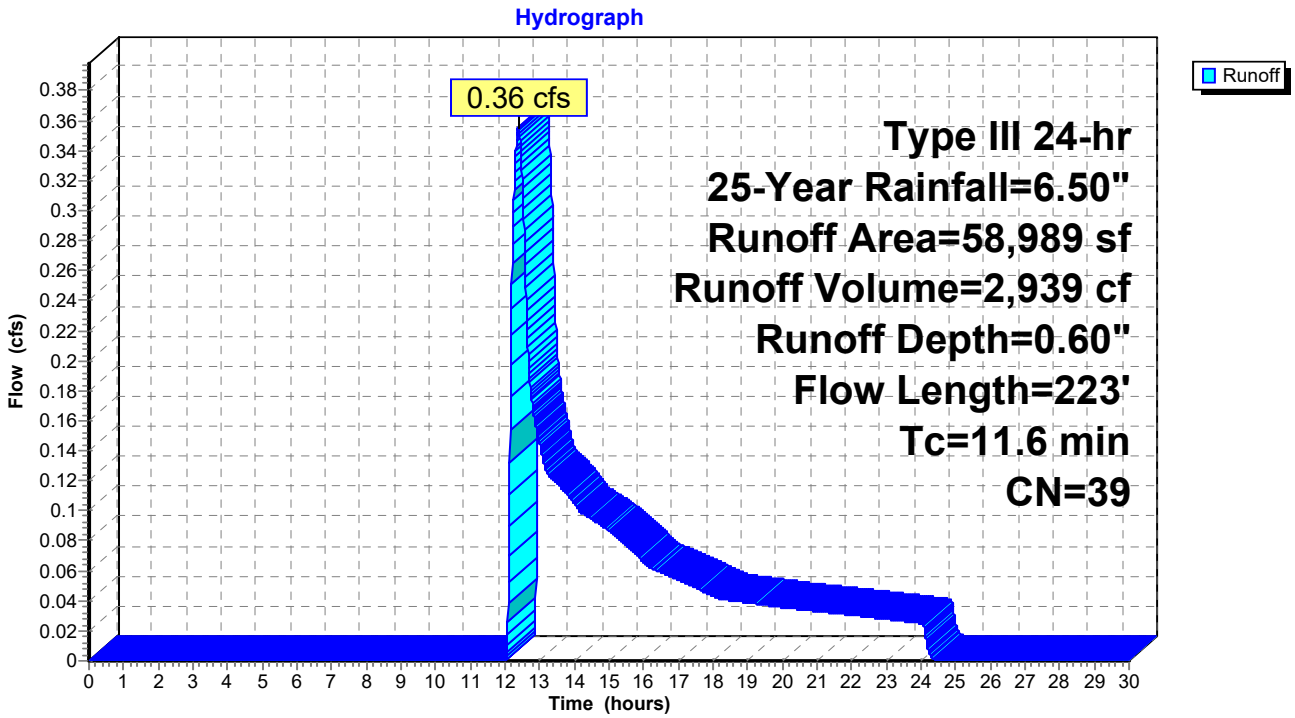
Runoff = 0.36 cfs @ 12.39 hrs, Volume= 2,939 cf, Depth= 0.60"
Routed to Reach DP3 : DP3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.50"

Area (sf)	CN	Description
58,989	39	Pasture/grassland/range, Good, HSG A
58,989		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	100	0.0400	0.17		**Sheet Flow, SHEET FLOW** Grass: Dense n= 0.240 P2= 4.00"
1.9	123	0.0250	1.11		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	223	Total			

Subcatchment 3CPOST: WS #3C POST



Summary for Subcatchment 3PRE: WS #3 PRE

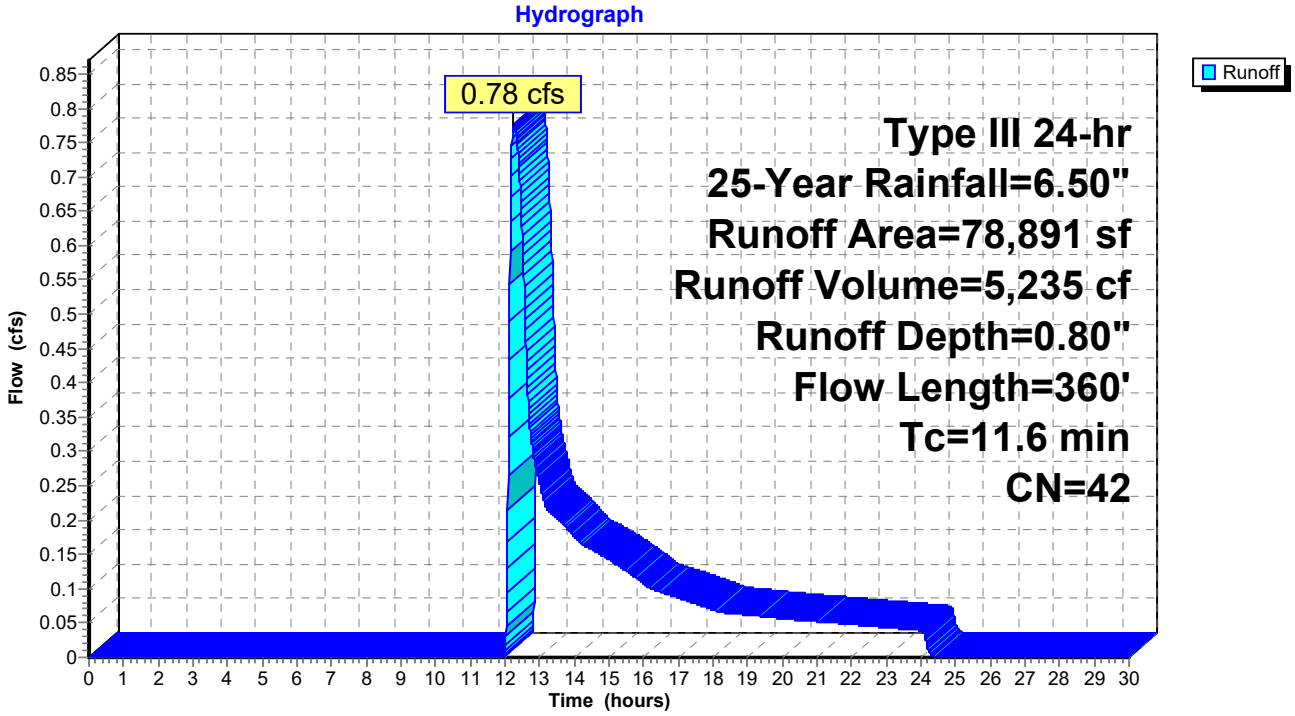
Runoff = 0.78 cfs @ 12.25 hrs, Volume= 5,235 cf, Depth= 0.80"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.50"

Area (sf)	CN	Description
74,772	39	Pasture/grassland/range, Good, HSG A
4,119	92	Paved roads w/open ditches, 50% imp, HSG C
78,891	42	Weighted Average
76,832		97.39% Pervious Area
2,060		2.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0250	0.21		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
3.6	260	0.0300	1.21		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	360	Total			

Subcatchment 3PRE: WS #3 PRE

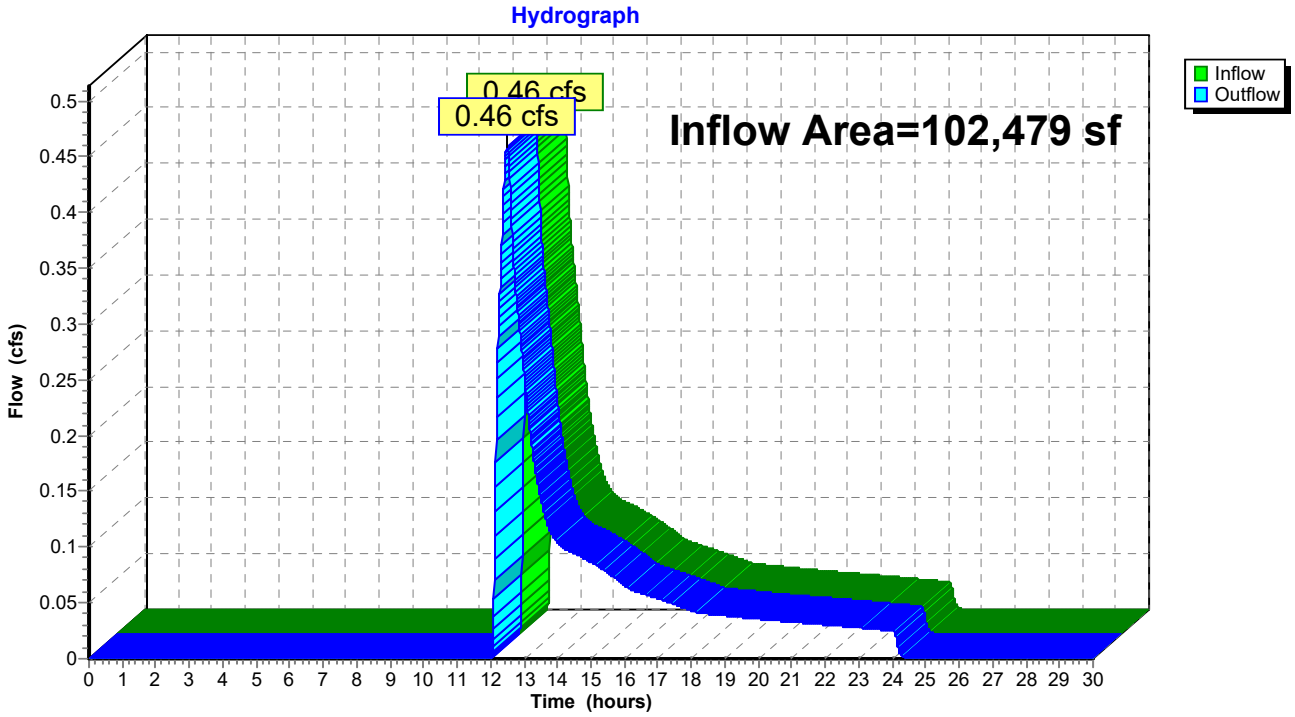


Summary for Reach DP3: DP3

Inflow Area = 102,479 sf, 42.44% Impervious, Inflow Depth = 0.40" for 25-Year event
Inflow = 0.46 cfs @ 12.49 hrs, Volume= 3,378 cf
Outflow = 0.46 cfs @ 12.49 hrs, Volume= 3,378 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP3: DP3



Summary for Pond ADS #1: ADS #1

Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 6.26" for 25-Year event
Inflow = 3.42 cfs @ 12.08 hrs, Volume= 12,196 cf
Outflow = 0.41 cfs @ 12.65 hrs, Volume= 12,196 cf, Atten= 88%, Lag= 33.8 min
Discarded = 0.35 cfs @ 12.65 hrs, Volume= 12,033 cf
Primary = 0.06 cfs @ 12.65 hrs, Volume= 163 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 303.73' @ 12.65 hrs Surf.Area= 4,571 sf Storage= 3,974 cf
Flood Elev= 306.91' Surf.Area= 4,571 sf Storage= 9,872 cf

Plug-Flow detention time= 74.0 min calculated for 12,191 cf (100% of inflow)
Center-of-Mass det. time= 74.0 min (818.0 - 744.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	4,084 cf	**44.25'W x 103.30'L x 3.50'H Field A** 15,998 cf Overall - 5,788 cf Embedded = 10,210 cf x 40.0% Voids
#2A	302.91'	5,788 cf	**ADS_StormTech SC-740 +Cap** x 126 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 126 Chambers in 9 Rows
		9,872 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 145.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.35 cfs @ 12.65 hrs HW=303.73' (Free Discharge)
└**4=Exfiltration** (Controls 0.35 cfs)

Primary OutFlow Max=0.06 cfs @ 12.65 hrs HW=303.73' (Free Discharge)
└**1=Culvert** (Passes 0.06 cfs of 1.84 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.22 fps)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #1: ADS #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

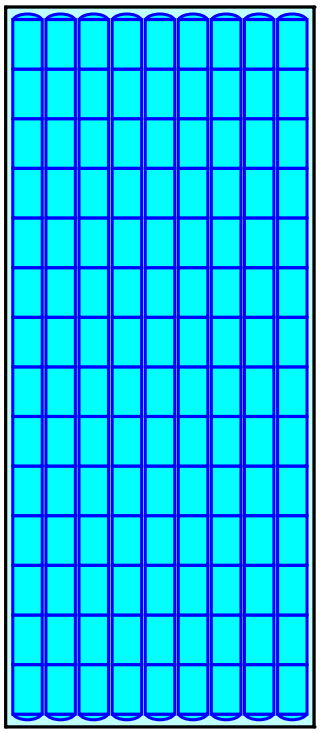
14 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 101.30' Row Length +12.0" End Stone x 2 = 103.30' Base Length
9 Rows x 51.0" Wide + 6.0" Spacing x 8 + 12.0" Side Stone x 2 = 44.25' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

126 Chambers x 45.9 cf = 5,788.4 cf Chamber Storage

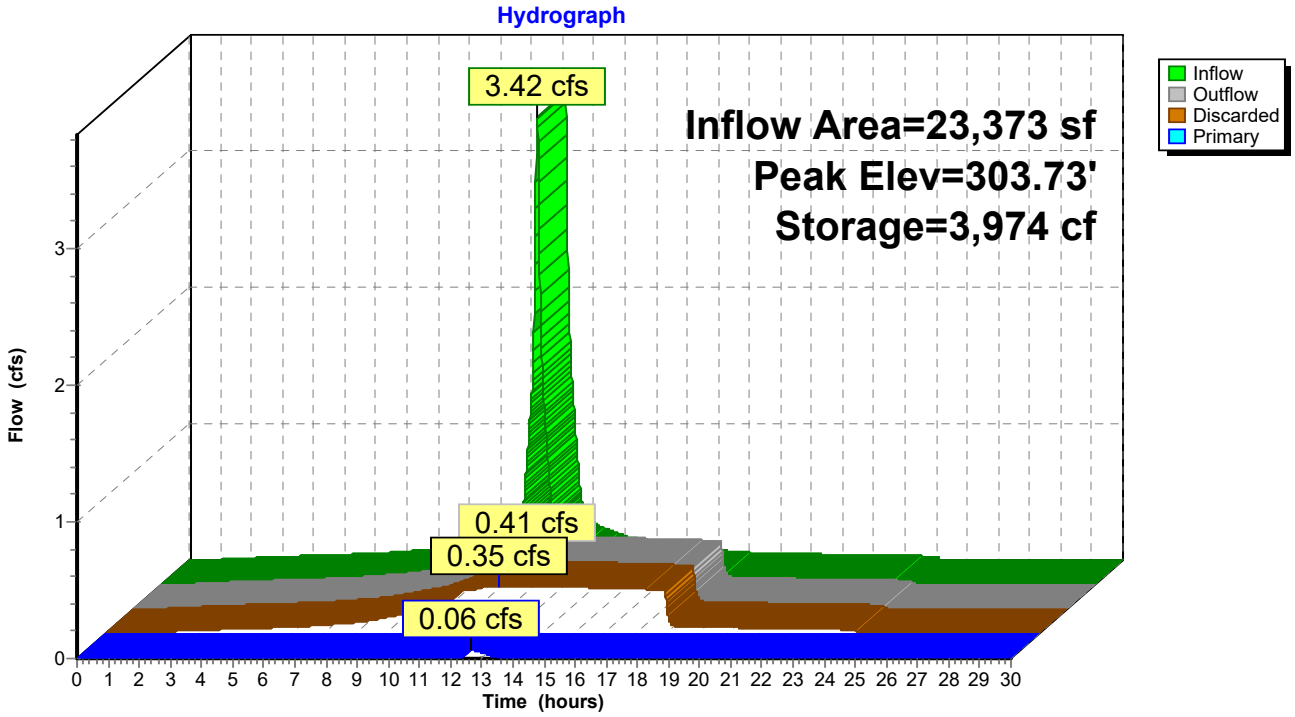
15,998.1 cf Field - 5,788.4 cf Chambers = 10,209.6 cf Stone x 40.0% Voids = 4,083.9 cf Stone Storage

Chamber Storage + Stone Storage = 9,872.3 cf = 0.227 af
Overall Storage Efficiency = 61.7%
Overall System Size = 103.30' x 44.25' x 3.50'

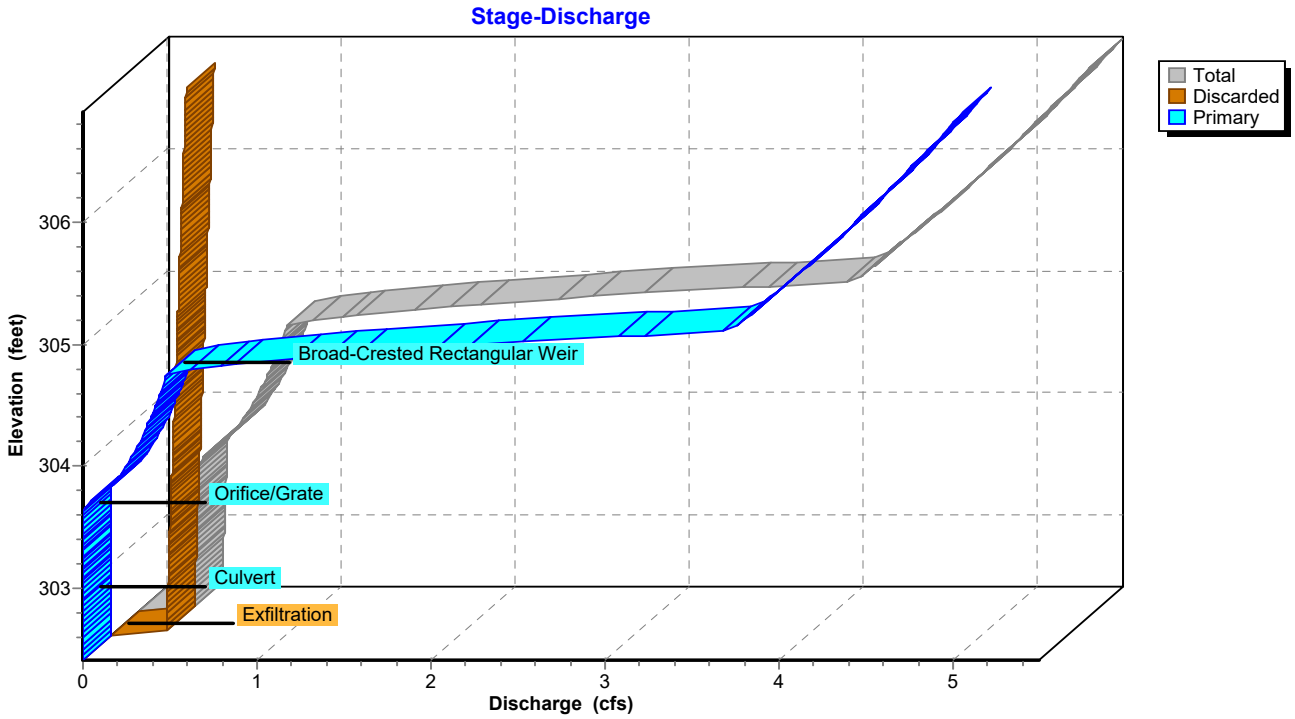
126 Chambers
592.5 cy Field
378.1 cy Stone



Pond ADS #1: ADS #1



Pond ADS #1: ADS #1



Summary for Pond ADS #2: ADS #2

Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 6.26" for 25-Year event
Inflow = 2.94 cfs @ 12.08 hrs, Volume= 10,497 cf
Outflow = 0.39 cfs @ 12.60 hrs, Volume= 10,497 cf, Atten= 87%, Lag= 31.0 min
Discarded = 0.29 cfs @ 12.60 hrs, Volume= 10,221 cf
Primary = 0.10 cfs @ 12.60 hrs, Volume= 276 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 303.77' @ 12.60 hrs Surf.Area= 3,799 sf Storage= 3,419 cf
Flood Elev= 306.91' Surf.Area= 3,799 sf Storage= 8,185 cf

Plug-Flow detention time= 74.4 min calculated for 10,493 cf (100% of inflow)
Center-of-Mass det. time= 74.4 min (818.4 - 744.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	3,407 cf	**39.50'W x 96.18'L x 3.50'H Field A** 13,296 cf Overall - 4,778 cf Embedded = 8,519 cf x 40.0% Voids
#2A	302.91'	4,778 cf	**ADS_StormTech SC-740 +Cap** x 104 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 104 Chambers in 8 Rows
		8,185 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0065 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.29 cfs @ 12.60 hrs HW=303.77' (Free Discharge)
└**4=Exfiltration** (Controls 0.29 cfs)

Primary OutFlow Max=0.10 cfs @ 12.60 hrs HW=303.77' (Free Discharge)
└**1=Culvert** (Passes 0.10 cfs of 2.01 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.10 cfs @ 1.40 fps)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #2: ADS #2 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

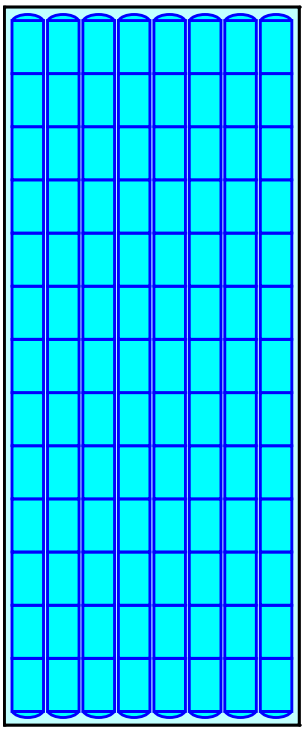
13 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 94.18' Row Length +12.0" End Stone x 2 = 96.18' Base Length
8 Rows x 51.0" Wide + 6.0" Spacing x 7 + 12.0" Side Stone x 2 = 39.50' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

104 Chambers x 45.9 cf = 4,777.8 cf Chamber Storage

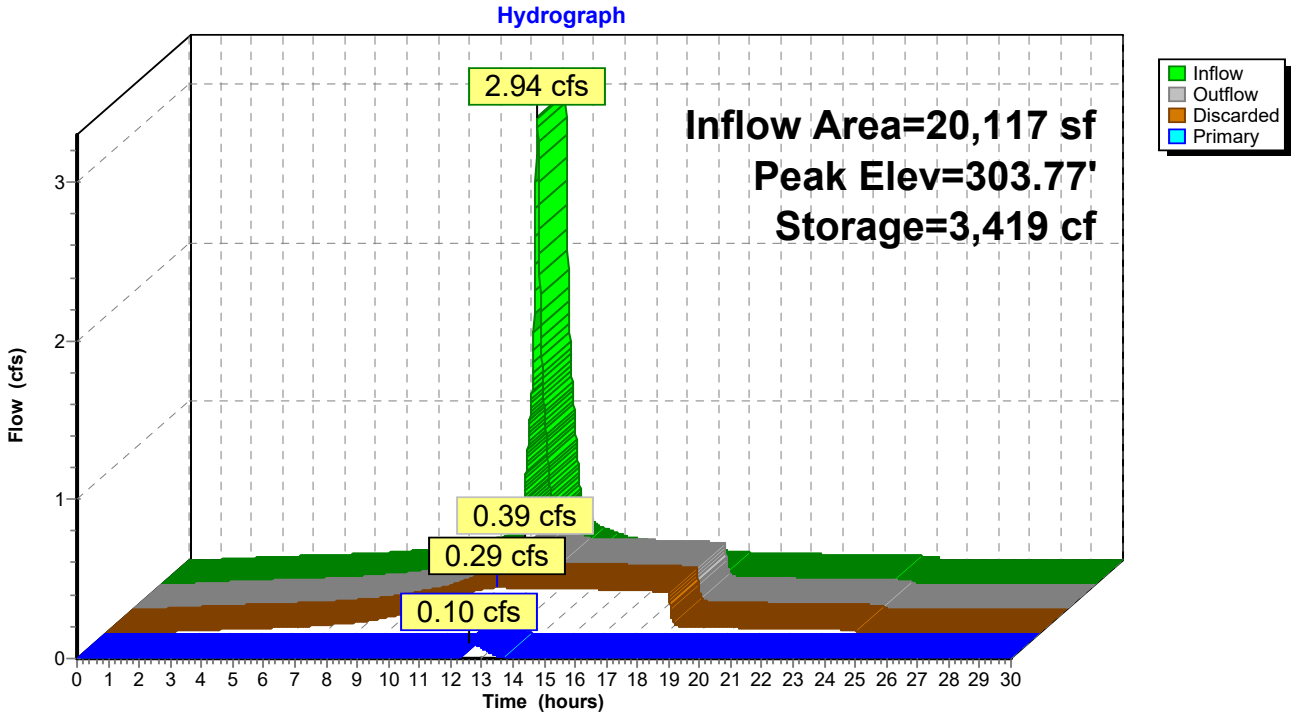
13,296.4 cf Field - 4,777.8 cf Chambers = 8,518.7 cf Stone x 40.0% Voids = 3,407.5 cf Stone Storage

Chamber Storage + Stone Storage = 8,185.2 cf = 0.188 af
Overall Storage Efficiency = 61.6%
Overall System Size = 96.18' x 39.50' x 3.50'

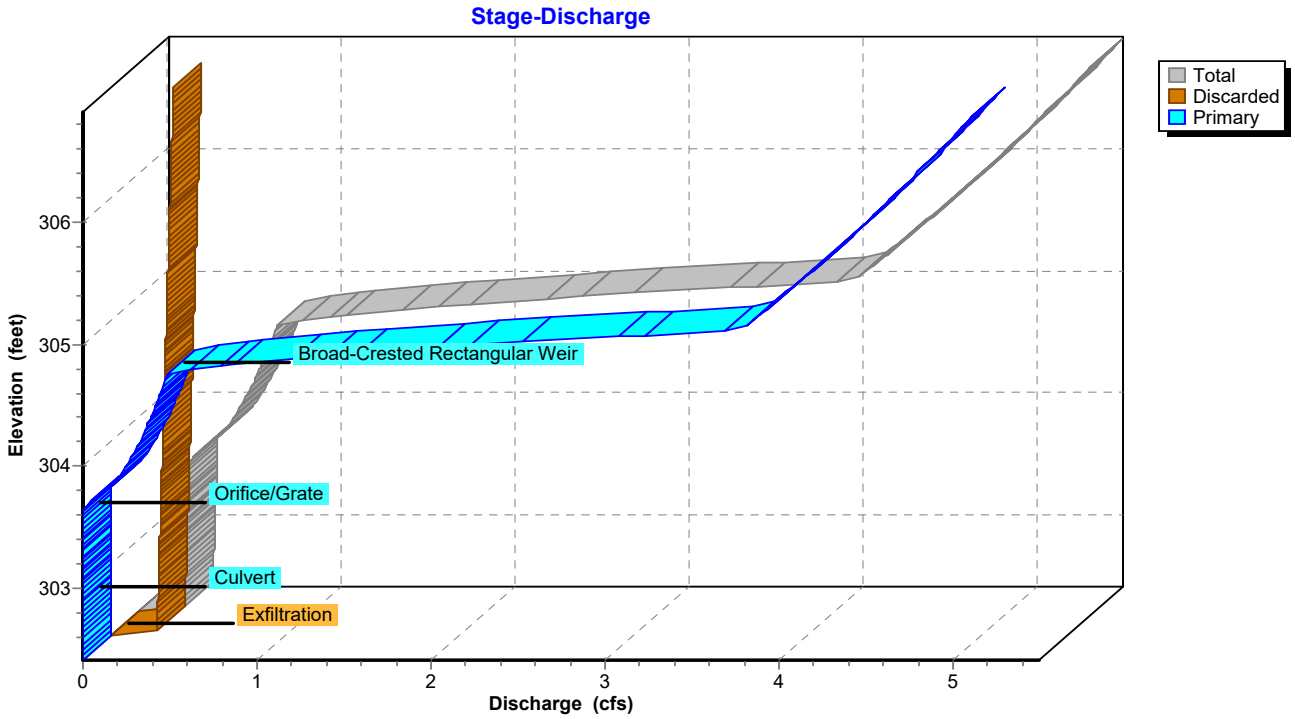
104 Chambers
492.5 cy Field
315.5 cy Stone



Pond ADS #2: ADS #2



Pond ADS #2: ADS #2



Summary for Pond CB1: CB-1

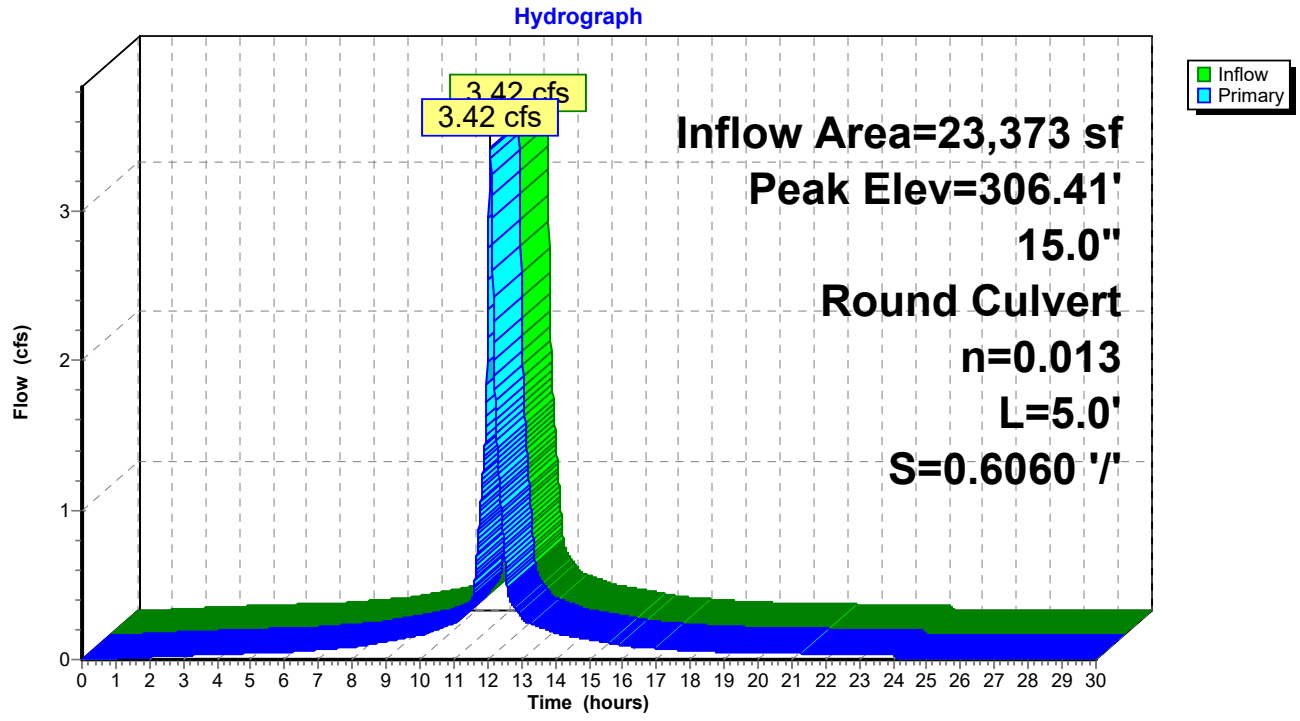
Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 6.26" for 25-Year event
Inflow = 3.42 cfs @ 12.08 hrs, Volume= 12,196 cf
Outflow = 3.42 cfs @ 12.08 hrs, Volume= 12,196 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.42 cfs @ 12.08 hrs, Volume= 12,196 cf
Routed to Pond ADS #1 : ADS #1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 306.41' @ 12.08 hrs
Flood Elev= 308.59'

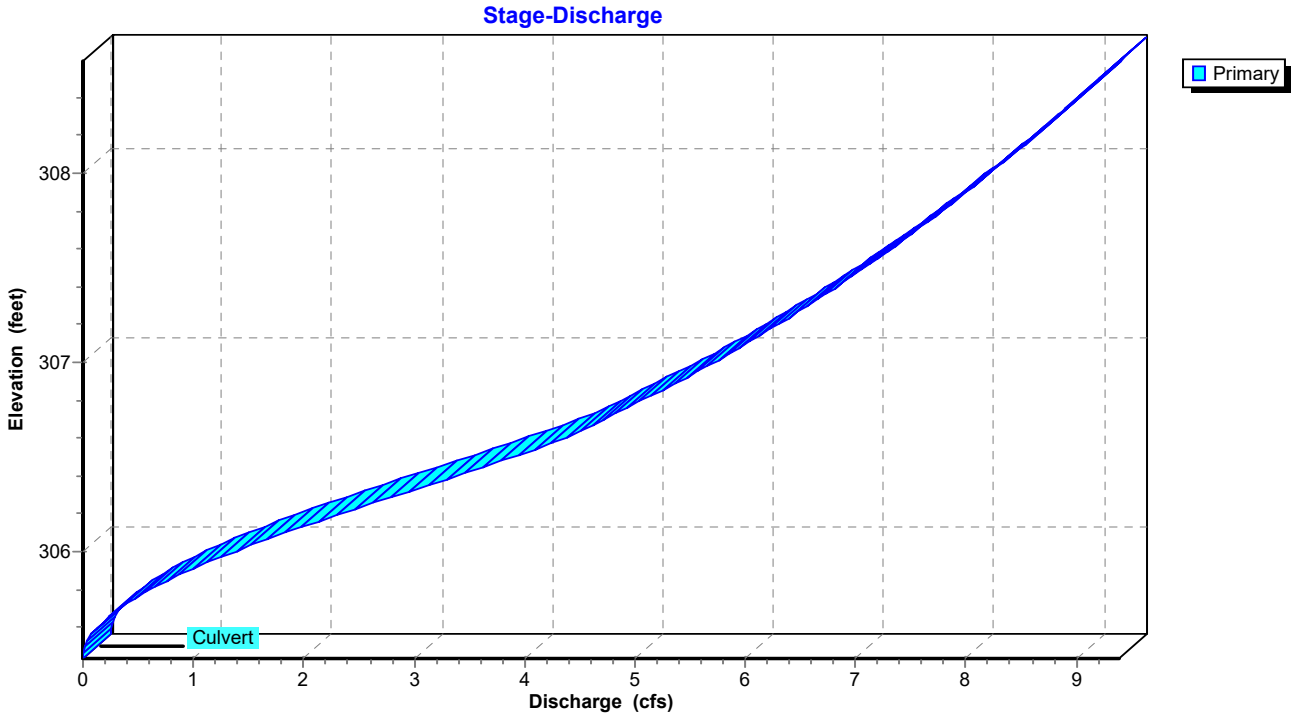
Device	Routing	Invert	Outlet Devices
#1	Primary	305.44'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 305.44' / 302.41' S= 0.6060 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=3.41 cfs @ 12.08 hrs HW=306.41' (Free Discharge)
1=Culvert (Inlet Controls 3.41 cfs @ 3.35 fps)

Pond CB1: CB-1



Pond CB1: CB-1


Stage-Discharge
Primary
Elevation (feet)
308
307
306
Culvert
0
1
2
3
4
5
6
7
8
9
Discharge (cfs)

Summary for Pond CB3: CB-3

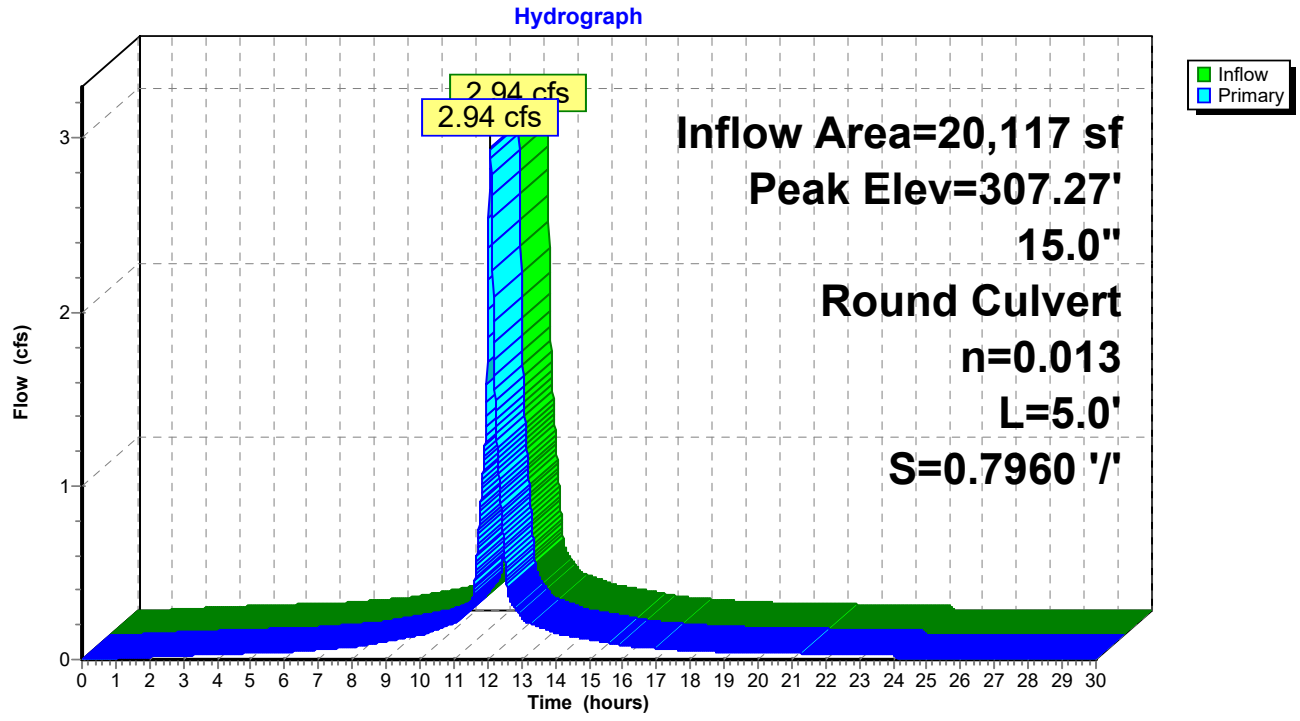
Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 6.26" for 25-Year event
Inflow = 2.94 cfs @ 12.08 hrs, Volume= 10,497 cf
Outflow = 2.94 cfs @ 12.08 hrs, Volume= 10,497 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.94 cfs @ 12.08 hrs, Volume= 10,497 cf
Routed to Pond ADS #2 : ADS #2

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 307.27' @ 12.08 hrs
Flood Elev= 308.80'

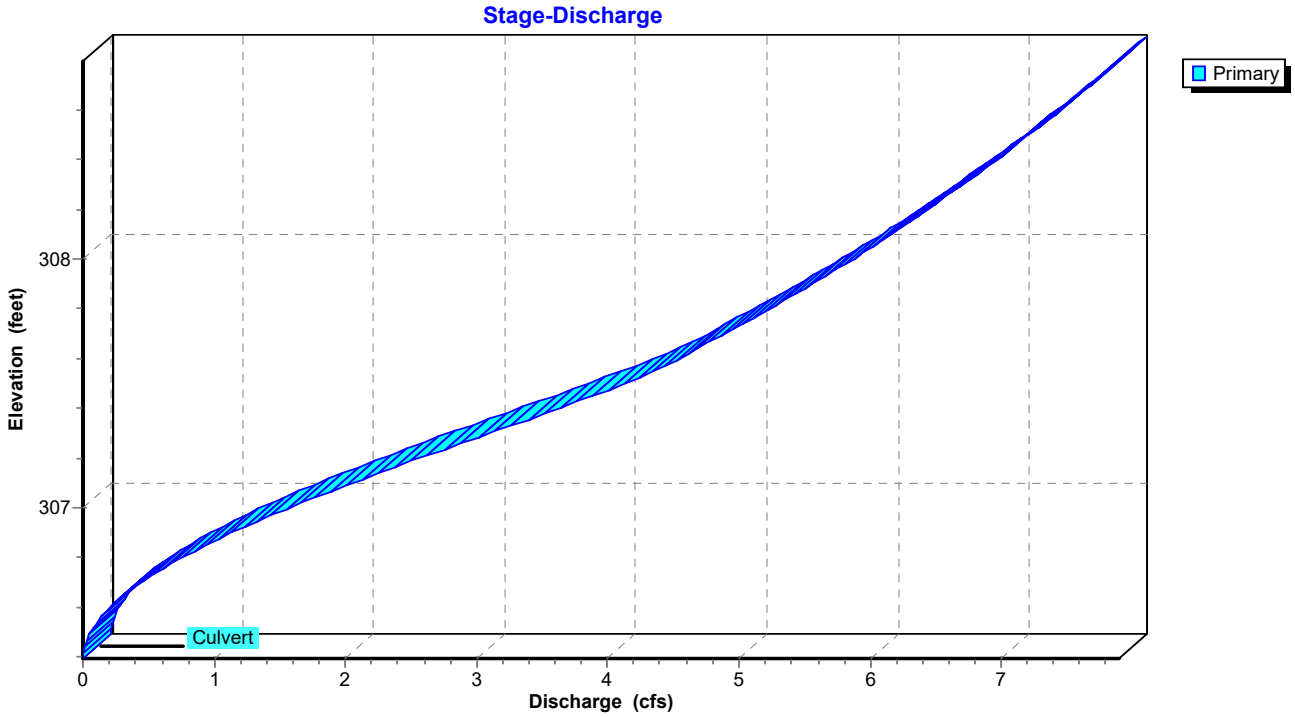
Device	Routing	Invert	Outlet Devices
#1	Primary	306.39'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 306.39' / 302.41' S= 0.7960 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=2.94 cfs @ 12.08 hrs HW=307.27' (Free Discharge)
1=Culvert (Inlet Controls 2.94 cfs @ 3.19 fps)

Pond CB3: CB-3



Pond CB3: CB-3


Stage-Discharge
Primary
Elevation (feet)
308
307
Culvert
0
1
2
3
4
5
6
7
Discharge (cfs)

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1POST: WS #1 POST Runoff Area=11,682 sf 8.78% Impervious Runoff Depth=1.49"
Flow Length=110' Slope=0.0200 '/' Tc=9.0 min CN=48 Runoff=0.35 cfs 1,452 cf

Subcatchment 1PRE: WS #1 PRE Runoff Area=20,936 sf 20.30% Impervious Runoff Depth=2.70"
Flow Length=82' Tc=6.0 min CN=61 Runoff=1.49 cfs 4,714 cf

Subcatchment 2POST: WS #2 POST Runoff Area=17,923 sf 21.10% Impervious Runoff Depth=1.76"
Flow Length=100' Slope=0.0325 '/' Tc=7.2 min CN=51 Runoff=0.72 cfs 2,623 cf

Subcatchment 2PRE: WS #2 PRE Runoff Area=32,504 sf 8.88% Impervious Runoff Depth=1.49"
Flow Length=144' Tc=8.0 min CN=48 Runoff=1.01 cfs 4,039 cf

Subcatchment 3APOST: WS #3A POST Runoff Area=23,373 sf 100.00% Impervious Runoff Depth=6.76"
Flow Length=140' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=3.68 cfs 13,169 cf

Subcatchment 3BPOST: WS #3B POST Runoff Area=20,117 sf 100.00% Impervious Runoff Depth=6.76"
Flow Length=100' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=3.17 cfs 11,334 cf

Subcatchment 3CPOST: WS #3C POST Runoff Area=58,989 sf 0.00% Impervious Runoff Depth=0.77"
Flow Length=223' Tc=11.6 min CN=39 Runoff=0.51 cfs 3,777 cf

Subcatchment 3PRE: WS #3 PRE Runoff Area=78,891 sf 2.61% Impervious Runoff Depth=1.00"
Flow Length=360' Tc=11.6 min CN=42 Runoff=1.11 cfs 6,543 cf

Reach DP3: DP3 Inflow=0.75 cfs 4,840 cf
Outflow=0.75 cfs 4,840 cf

Pond ADS #1: ADS #1 Peak Elev=303.82' Storage=4,309 cf Inflow=3.68 cfs 13,169 cf
Discarded=0.35 cfs 12,695 cf Primary=0.15 cfs 474 cf Outflow=0.50 cfs 13,169 cf

Pond ADS #2: ADS #2 Peak Elev=303.86' Storage=3,693 cf Inflow=3.17 cfs 11,334 cf
Discarded=0.29 cfs 10,744 cf Primary=0.17 cfs 590 cf Outflow=0.47 cfs 11,334 cf

Pond CB1: CB-1 Peak Elev=306.46' Inflow=3.68 cfs 13,169 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.6060 '/' Outflow=3.68 cfs 13,169 cf

Pond CB3: CB-3 Peak Elev=307.31' Inflow=3.17 cfs 11,334 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.7960 '/' Outflow=3.17 cfs 11,334 cf

Summary for Subcatchment 1POST: WS #1 POST

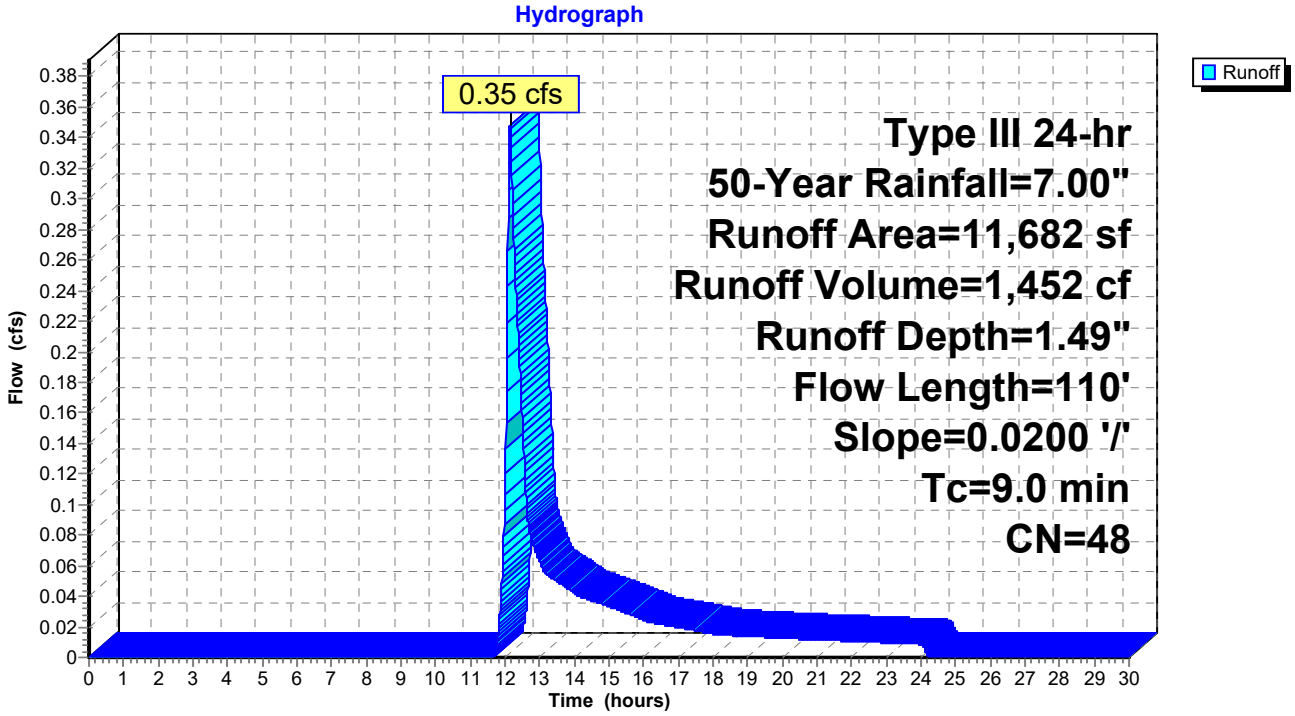
Runoff = 0.35 cfs @ 12.15 hrs, Volume= 1,452 cf, Depth= 1.49"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.00"

Area (sf)	CN	Description
9,631	39	Pasture/grassland/range, Good, HSG A
2,051	92	Paved roads w/open ditches, 50% imp, HSG C
11,682	48	Weighted Average
10,657		91.22% Pervious Area
1,026		8.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0200	0.19		**Sheet Flow, SHEET FLOW ACROSS PARK & GRASS** Grass: Short n= 0.150 P2= 4.00"
0.2	10	0.0200	0.99		**Shallow Concentrated Flow, SHALLOW FLOW TO DP1** Short Grass Pasture Kv= 7.0 fps
9.0	110	Total			

Subcatchment 1POST: WS #1 POST



Summary for Subcatchment 1PRE: WS #1 PRE

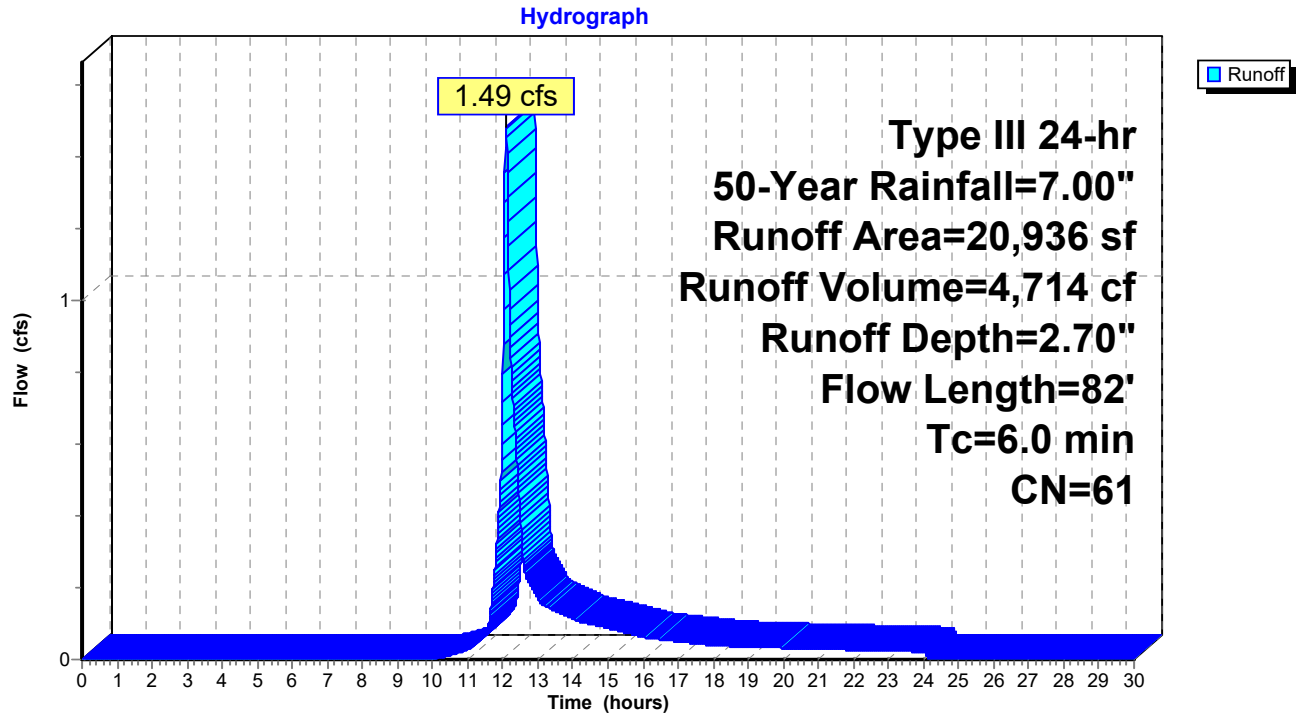
Runoff = 1.49 cfs @ 12.09 hrs, Volume= 4,714 cf, Depth= 2.70"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.00"

Area (sf)	CN	Description
12,436	39	Pasture/grassland/range, Good, HSG A
8,500	92	Paved roads w/open ditches, 50% imp, HSG C
20,936	61	Weighted Average
16,686		79.70% Pervious Area
4,250		20.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0625	1.68		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
2.7	32	0.0375	0.19		**Sheet Flow, SHEET FLOW ACROSS LAWN** Grass: Short n= 0.150 P2= 4.00"
0.2	12	0.0400	1.33		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
1.9	22	0.0450	0.19		**Sheet Flow, SHEET FLOW TO DP1** Grass: Short n= 0.150 P2= 4.00"
5.0	82	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1PRE: WS #1 PRE



Summary for Subcatchment 2POST: WS #2 POST

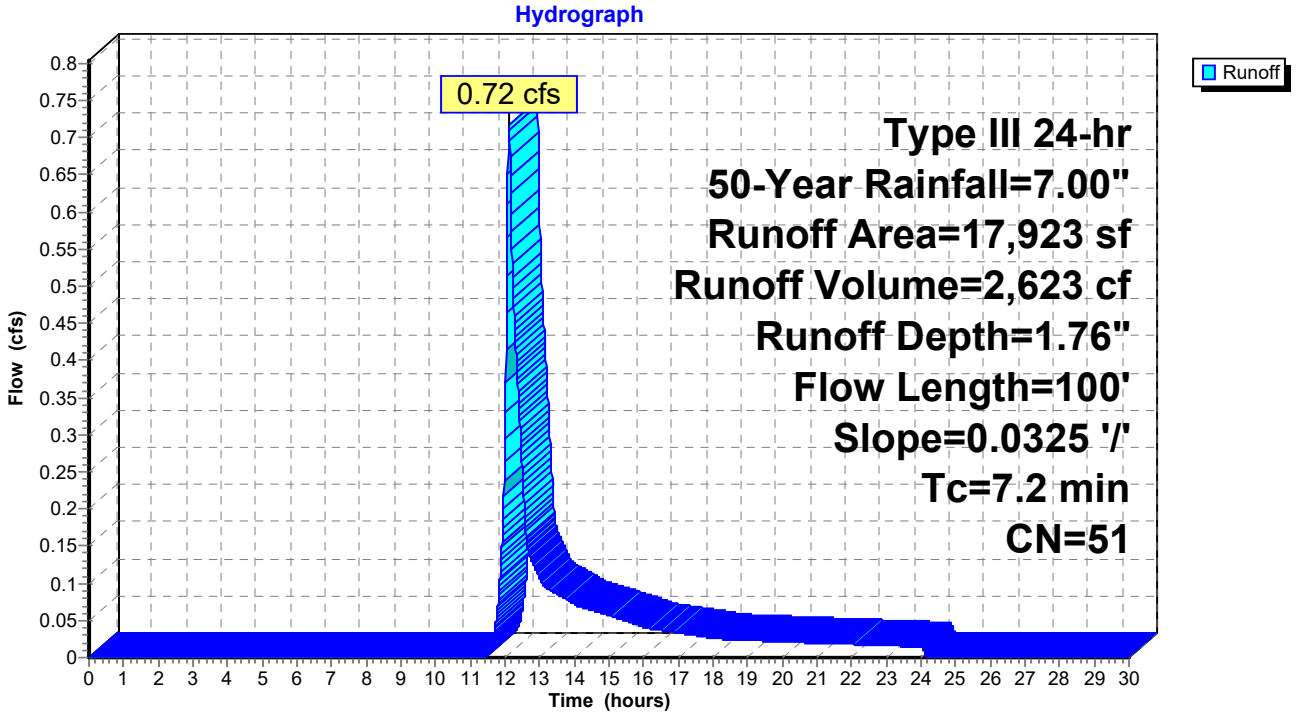
Runoff = 0.72 cfs @ 12.12 hrs, Volume= 2,623 cf, Depth= 1.76"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.00"

Area (sf)	CN	Description
14,142	39	Pasture/grassland/range, Good, HSG A
3,781	98	Paved roads w/curbs & sewers, HSG C
17,923	51	Weighted Average
14,142		78.90% Pervious Area
3,781		21.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0325	0.23		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"

Subcatchment 2POST: WS #2 POST



Summary for Subcatchment 2PRE: WS #2 PRE

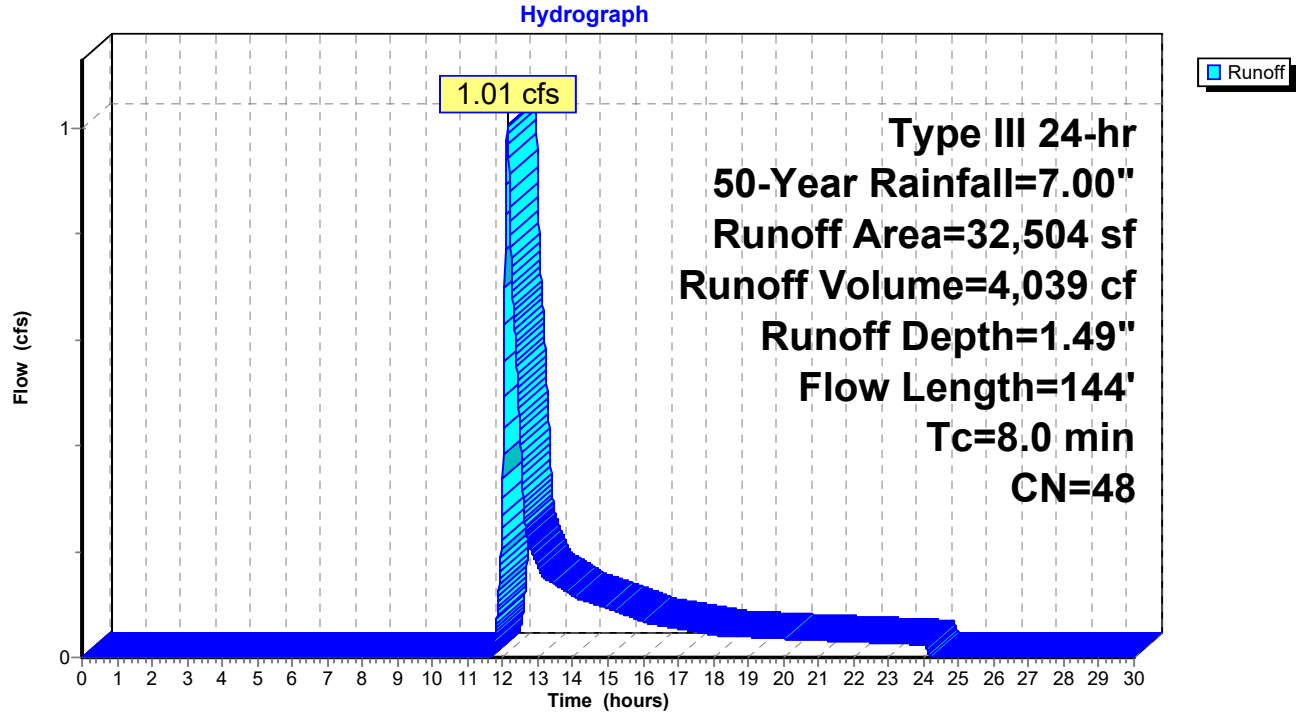
Runoff = 1.01 cfs @ 12.13 hrs, Volume= 4,039 cf, Depth= 1.49"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.00"

Area (sf)	CN	Description
26,730	39	Pasture/grassland/range, Good, HSG A
5,774	92	Paved roads w/open ditches, 50% imp, HSG C
32,504	48	Weighted Average
29,617		91.12% Pervious Area
2,887		8.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0300	0.22		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
0.5	44	0.0450	1.48		**Shallow Concentrated Flow, SHALLOW FLOW TO DP2** Short Grass Pasture Kv= 7.0 fps
8.0	144	Total			

Subcatchment 2PRE: WS #2 PRE



Summary for Subcatchment 3APOST: WS #3A POST

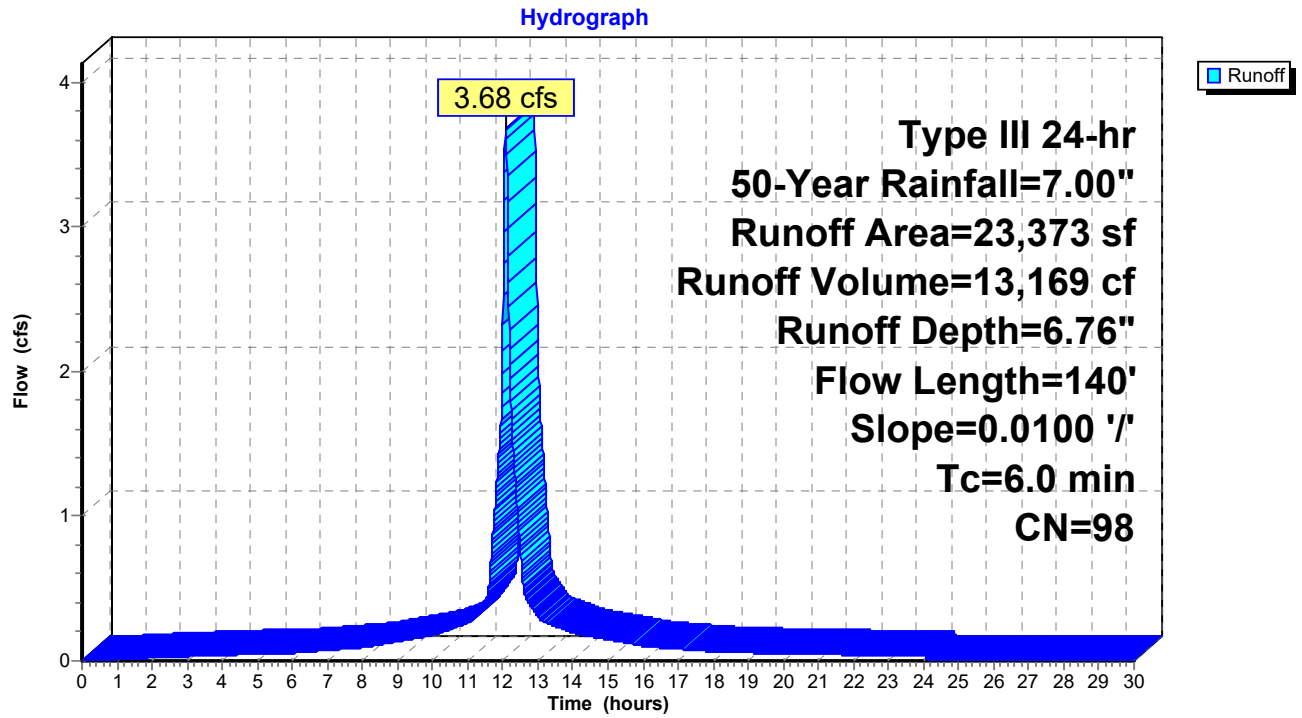
Runoff = 3.68 cfs @ 12.08 hrs, Volume= 13,169 cf, Depth= 6.76"
Routed to Pond CB1 : CB-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.00"

Area (sf)	CN	Description
23,373	98	Paved parking, HSG A
23,373		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0100	1.17		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 4.00"
0.3	40	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-1** Paved Kv= 20.3 fps
1.7	140	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3APOST: WS #3A POST



Summary for Subcatchment 3BPOST: WS #3B POST

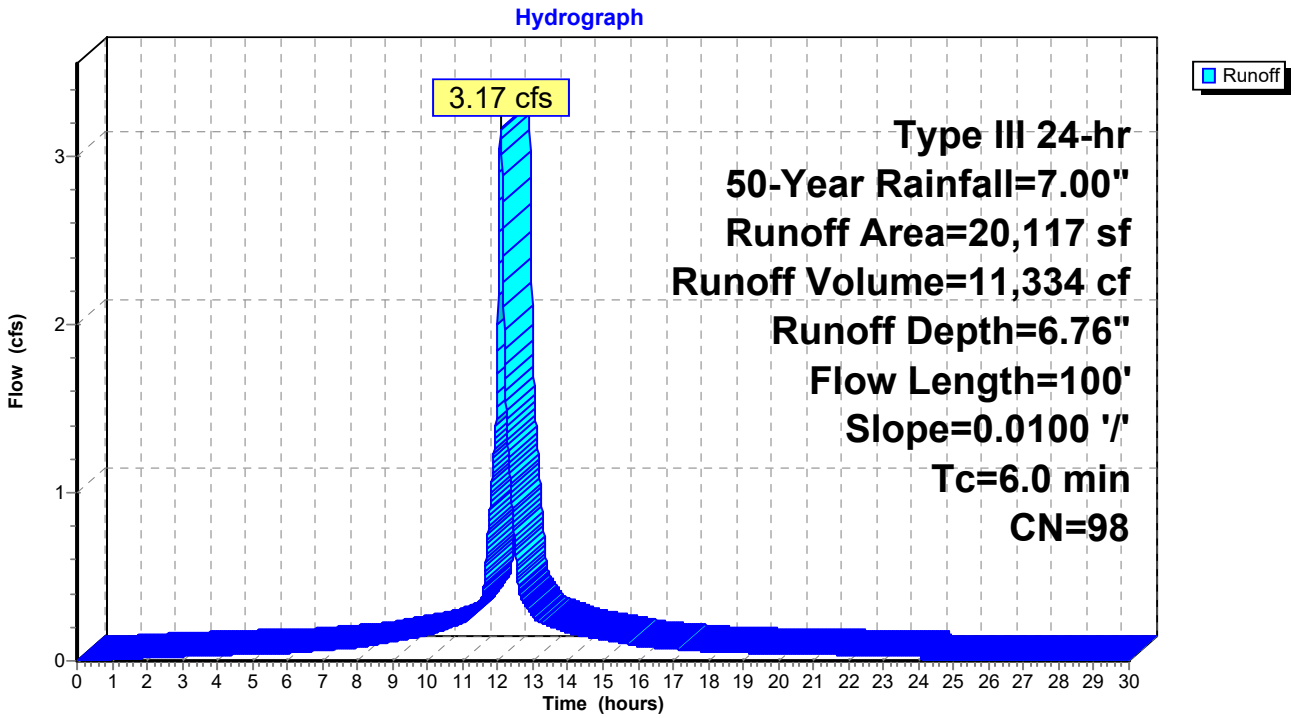
Runoff = 3.17 cfs @ 12.08 hrs, Volume= 11,334 cf, Depth= 6.76"
Routed to Pond CB3 : CB-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.00"

Area (sf)	CN	Description
20,117	98	Paved parking, HSG A
20,117		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0100	1.01		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
0.4	50	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-2** Paved Kv= 20.3 fps
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3BPOST: WS #3B POST



Summary for Subcatchment 3CPOST: WS #3C POST

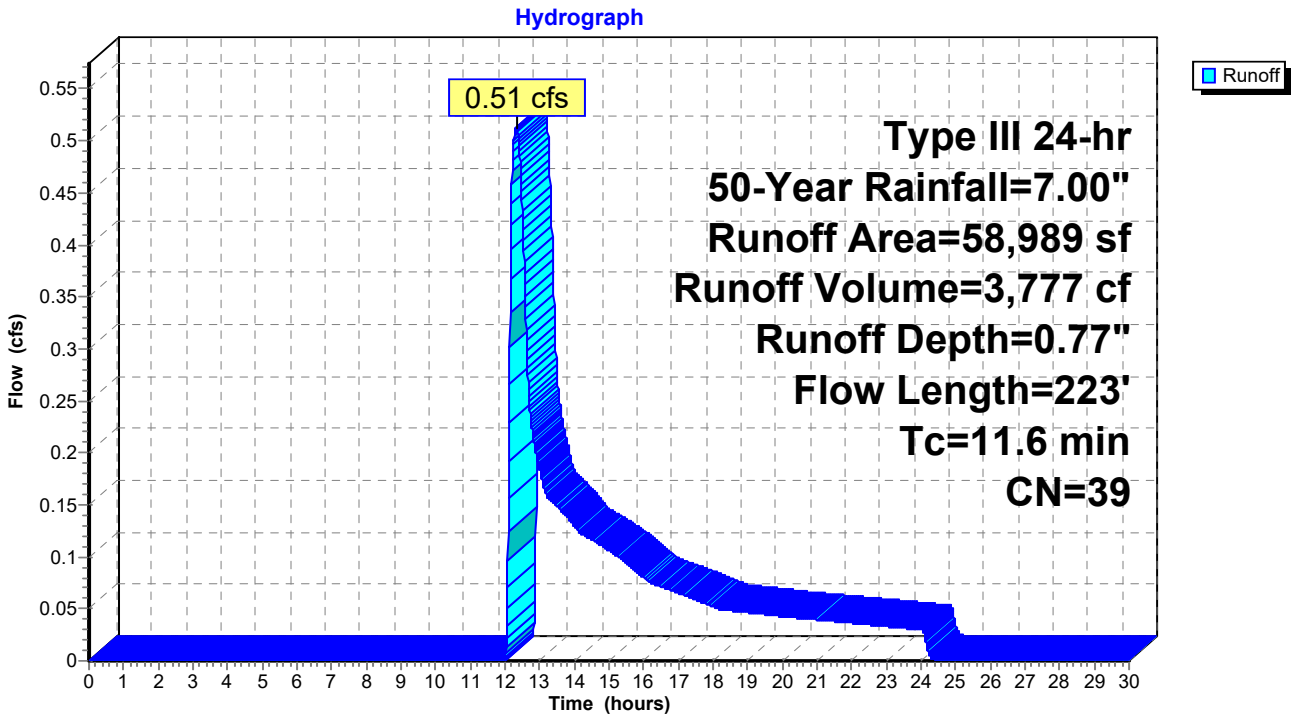
Runoff = 0.51 cfs @ 12.33 hrs, Volume= 3,777 cf, Depth= 0.77"
Routed to Reach DP3 : DP3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.00"

Area (sf)	CN	Description
58,989	39	Pasture/grassland/range, Good, HSG A
58,989		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	100	0.0400	0.17		**Sheet Flow, SHEET FLOW** Grass: Dense n= 0.240 P2= 4.00"
1.9	123	0.0250	1.11		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	223	Total			

Subcatchment 3CPOST: WS #3C POST



Summary for Subcatchment 3PRE: WS #3 PRE

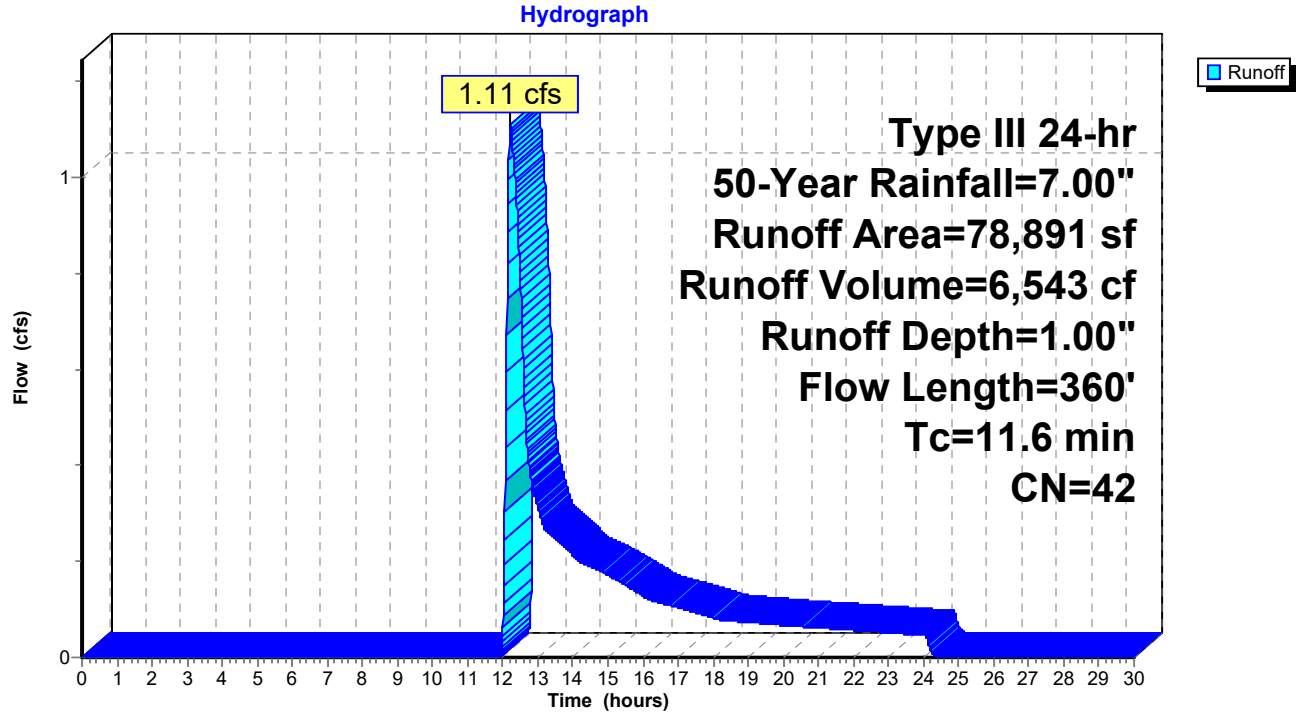
Runoff = 1.11 cfs @ 12.22 hrs, Volume= 6,543 cf, Depth= 1.00"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.00"

Area (sf)	CN	Description
74,772	39	Pasture/grassland/range, Good, HSG A
4,119	92	Paved roads w/open ditches, 50% imp, HSG C
78,891	42	Weighted Average
76,832		97.39% Pervious Area
2,060		2.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0250	0.21		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
3.6	260	0.0300	1.21		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	360	Total			

Subcatchment 3PRE: WS #3 PRE

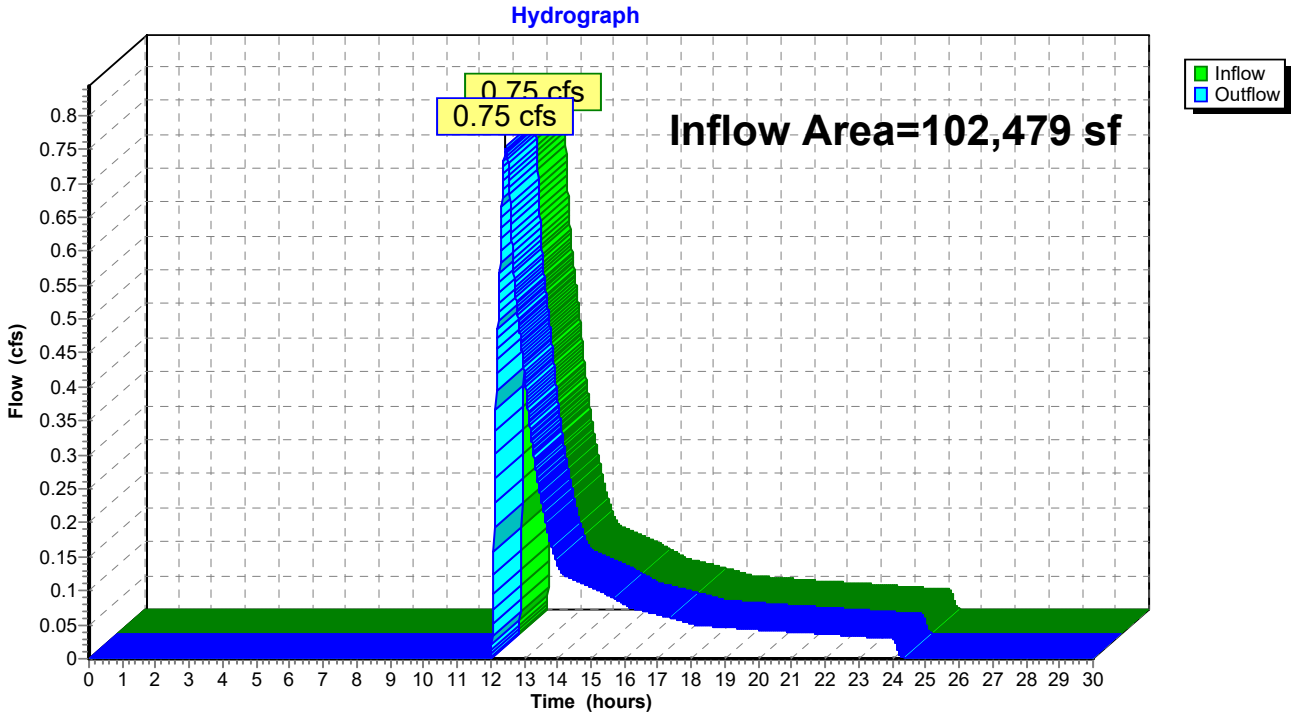


Summary for Reach DP3: DP3

Inflow Area = 102,479 sf, 42.44% Impervious, Inflow Depth = 0.57" for 50-Year event
Inflow = 0.75 cfs @ 12.46 hrs, Volume= 4,840 cf
Outflow = 0.75 cfs @ 12.46 hrs, Volume= 4,840 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP3: DP3



Summary for Pond ADS #1: ADS #1

Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 6.76" for 50-Year event
Inflow = 3.68 cfs @ 12.08 hrs, Volume= 13,169 cf
Outflow = 0.50 cfs @ 12.59 hrs, Volume= 13,169 cf, Atten= 86%, Lag= 30.6 min
Discarded = 0.35 cfs @ 12.59 hrs, Volume= 12,695 cf
Primary = 0.15 cfs @ 12.59 hrs, Volume= 474 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 303.82' @ 12.59 hrs Surf.Area= 4,571 sf Storage= 4,309 cf
Flood Elev= 306.91' Surf.Area= 4,571 sf Storage= 9,872 cf

Plug-Flow detention time= 76.3 min calculated for 13,164 cf (100% of inflow)
Center-of-Mass det. time= 76.3 min (819.2 - 743.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	4,084 cf	**44.25'W x 103.30'L x 3.50'H Field A** 15,998 cf Overall - 5,788 cf Embedded = 10,210 cf x 40.0% Voids
#2A	302.91'	5,788 cf	**ADS_StormTech SC-740 +Cap** x 126 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 126 Chambers in 9 Rows
		9,872 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 145.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.35 cfs @ 12.59 hrs HW=303.82' (Free Discharge)
└**4=Exfiltration** (Controls 0.35 cfs)

Primary OutFlow Max=0.15 cfs @ 12.59 hrs HW=303.82' (Free Discharge)
└**1=Culvert** (Passes 0.15 cfs of 2.15 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.15 cfs @ 1.60 fps)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #1: ADS #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

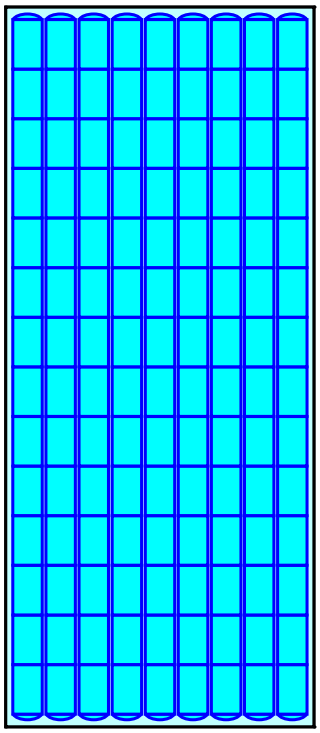
14 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 101.30' Row Length +12.0" End Stone x 2 = 103.30' Base Length
9 Rows x 51.0" Wide + 6.0" Spacing x 8 + 12.0" Side Stone x 2 = 44.25' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

126 Chambers x 45.9 cf = 5,788.4 cf Chamber Storage

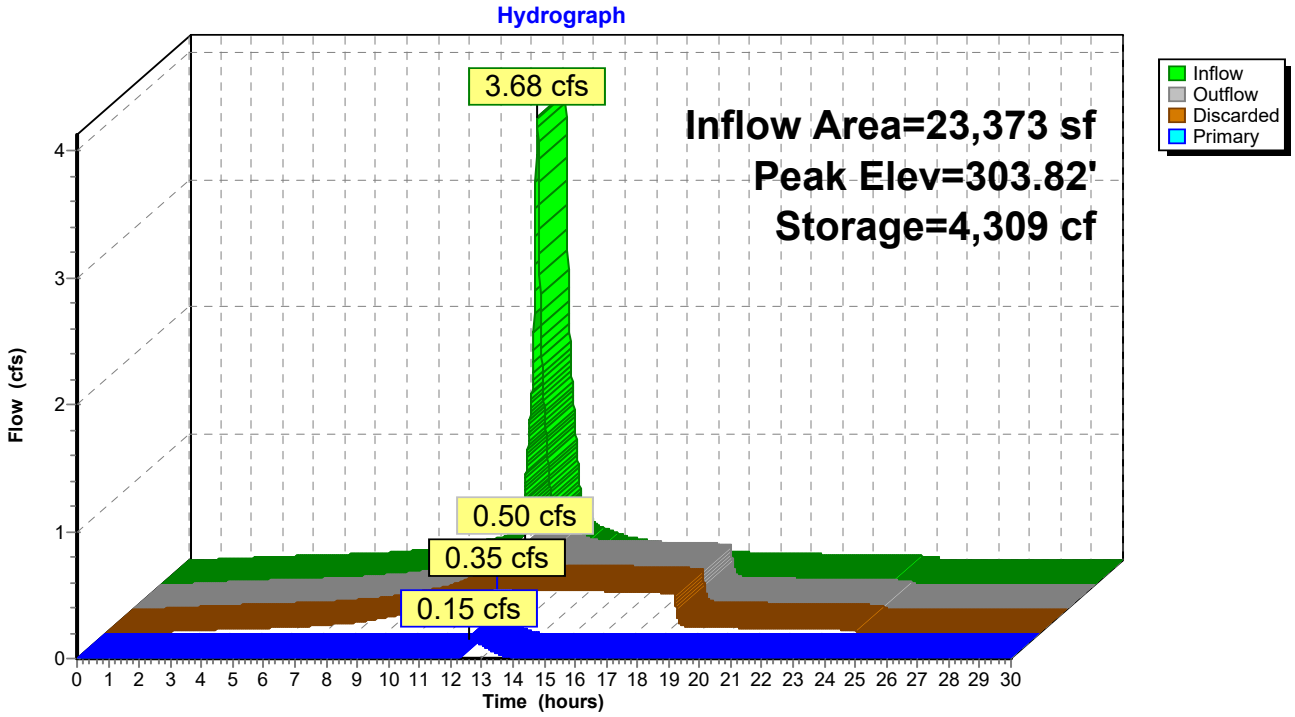
15,998.1 cf Field - 5,788.4 cf Chambers = 10,209.6 cf Stone x 40.0% Voids = 4,083.9 cf Stone Storage

Chamber Storage + Stone Storage = 9,872.3 cf = 0.227 af
Overall Storage Efficiency = 61.7%
Overall System Size = 103.30' x 44.25' x 3.50'

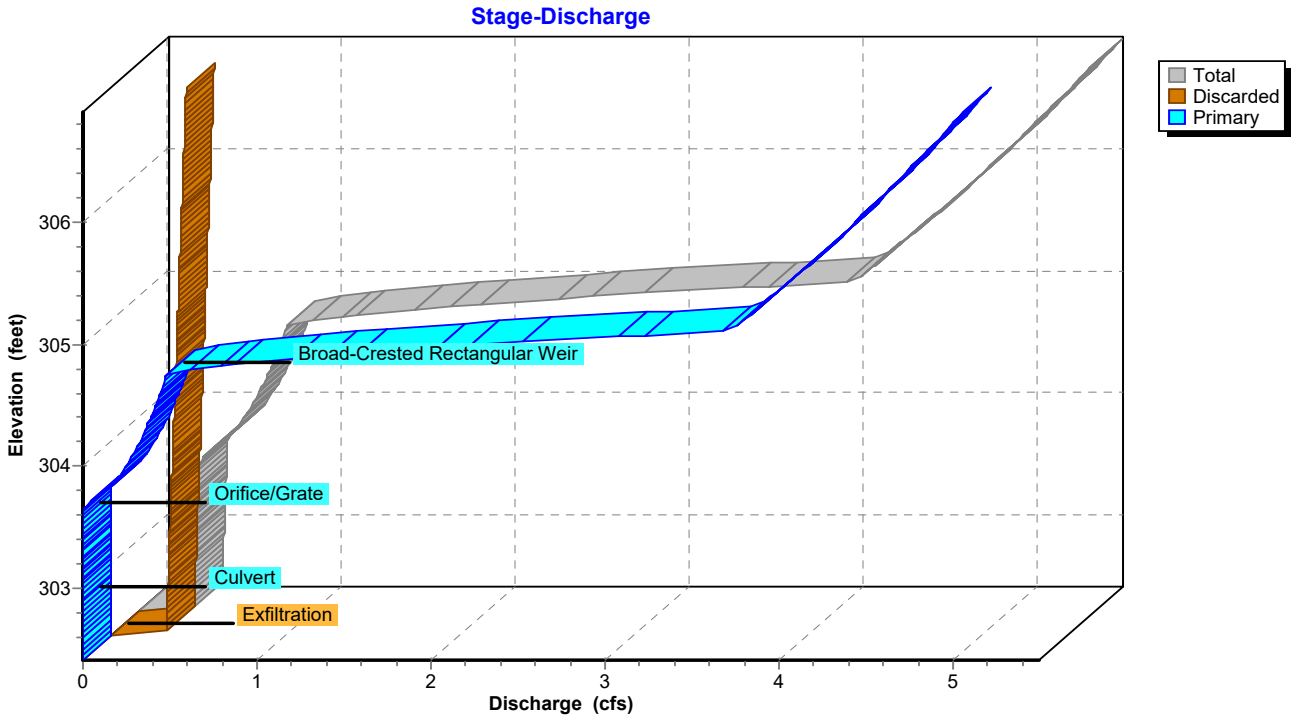
126 Chambers
592.5 cy Field
378.1 cy Stone



Pond ADS #1: ADS #1



Pond ADS #1: ADS #1



Summary for Pond ADS #2: ADS #2

Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 6.76" for 50-Year event
Inflow = 3.17 cfs @ 12.08 hrs, Volume= 11,334 cf
Outflow = 0.47 cfs @ 12.57 hrs, Volume= 11,334 cf, Atten= 85%, Lag= 29.2 min
Discarded = 0.29 cfs @ 12.57 hrs, Volume= 10,744 cf
Primary = 0.17 cfs @ 12.57 hrs, Volume= 590 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 303.86' @ 12.57 hrs Surf.Area= 3,799 sf Storage= 3,693 cf
Flood Elev= 306.91' Surf.Area= 3,799 sf Storage= 8,185 cf

Plug-Flow detention time= 75.6 min calculated for 11,330 cf (100% of inflow)
Center-of-Mass det. time= 75.6 min (818.6 - 743.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	3,407 cf	**39.50'W x 96.18'L x 3.50'H Field A** 13,296 cf Overall - 4,778 cf Embedded = 8,519 cf x 40.0% Voids
#2A	302.91'	4,778 cf	**ADS_StormTech SC-740 +Cap** x 104 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 104 Chambers in 8 Rows
		8,185 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0065 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.29 cfs @ 12.57 hrs HW=303.86' (Free Discharge)
└**4=Exfiltration** (Controls 0.29 cfs)

Primary OutFlow Max=0.18 cfs @ 12.57 hrs HW=303.86' (Free Discharge)
└**1=Culvert** (Passes 0.18 cfs of 2.31 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.18 cfs @ 1.78 fps)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #2: ADS #2 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

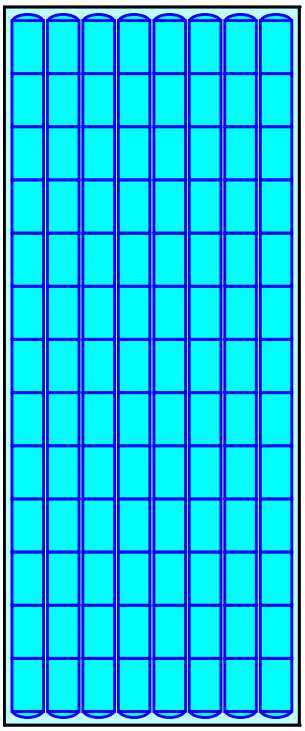
13 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 94.18' Row Length +12.0" End Stone x 2 = 96.18' Base Length
8 Rows x 51.0" Wide + 6.0" Spacing x 7 + 12.0" Side Stone x 2 = 39.50' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

104 Chambers x 45.9 cf = 4,777.8 cf Chamber Storage

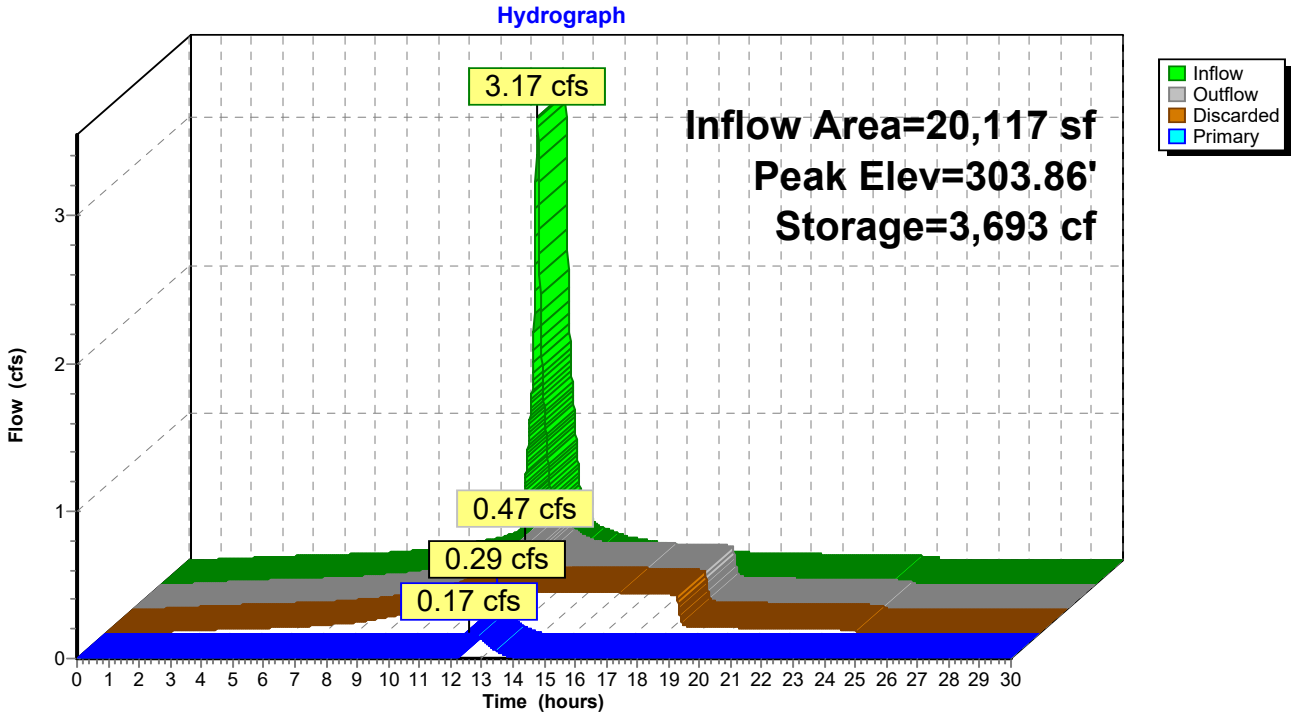
13,296.4 cf Field - 4,777.8 cf Chambers = 8,518.7 cf Stone x 40.0% Voids = 3,407.5 cf Stone Storage

Chamber Storage + Stone Storage = 8,185.2 cf = 0.188 af
Overall Storage Efficiency = 61.6%
Overall System Size = 96.18' x 39.50' x 3.50'

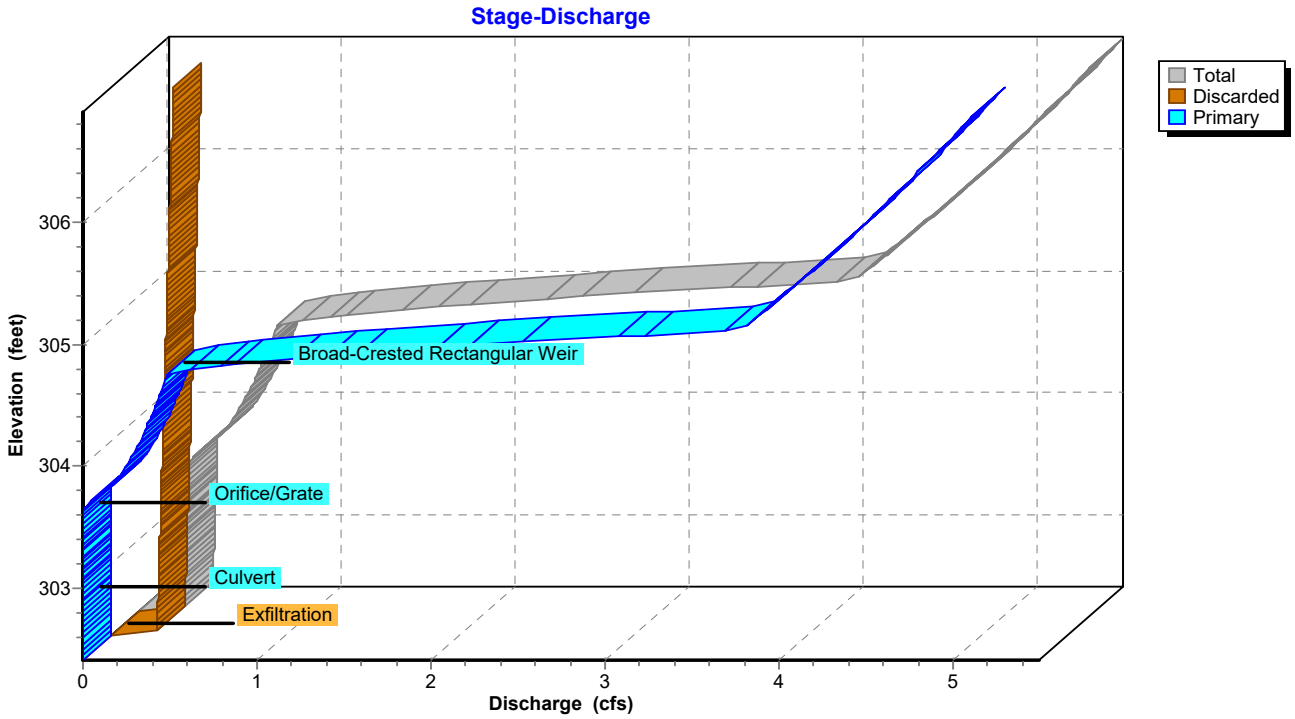
104 Chambers
492.5 cy Field
315.5 cy Stone



Pond ADS #2: ADS #2



Pond ADS #2: ADS #2



Summary for Pond CB1: CB-1

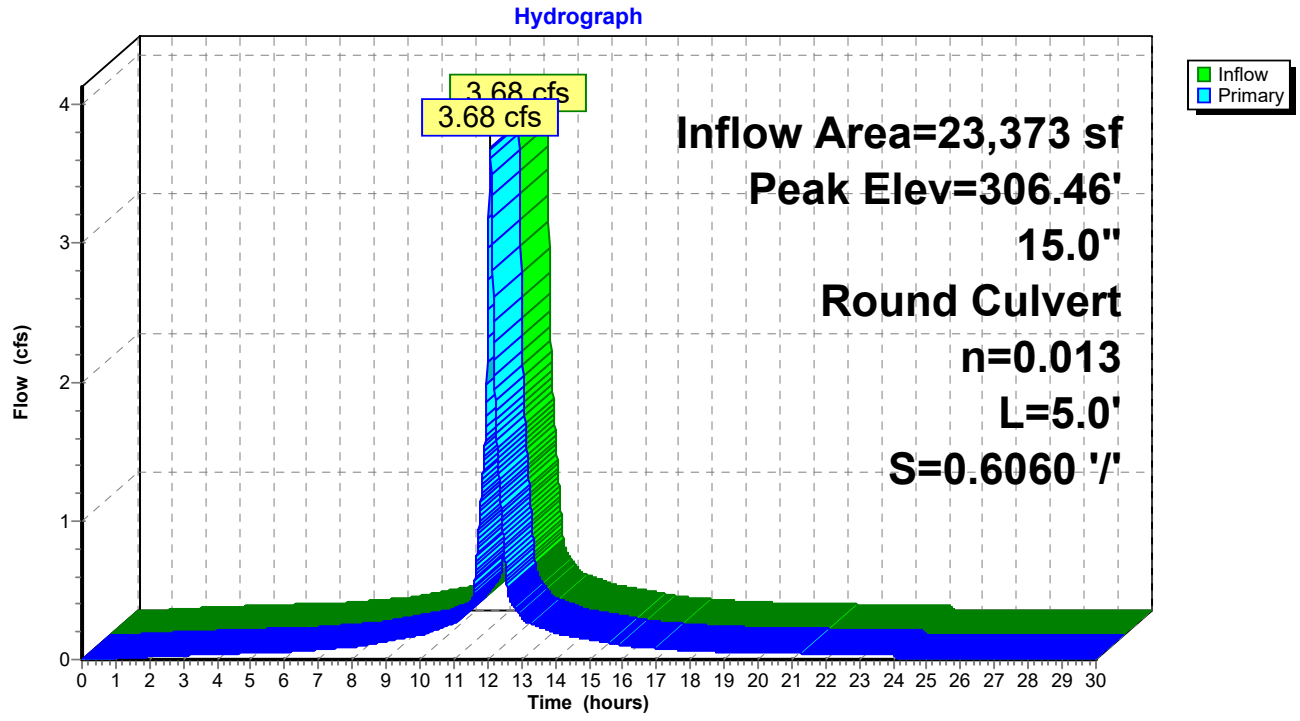
Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 6.76" for 50-Year event
Inflow = 3.68 cfs @ 12.08 hrs, Volume= 13,169 cf
Outflow = 3.68 cfs @ 12.08 hrs, Volume= 13,169 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.68 cfs @ 12.08 hrs, Volume= 13,169 cf
Routed to Pond ADS #1 : ADS #1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 306.46' @ 12.08 hrs
Flood Elev= 308.59'

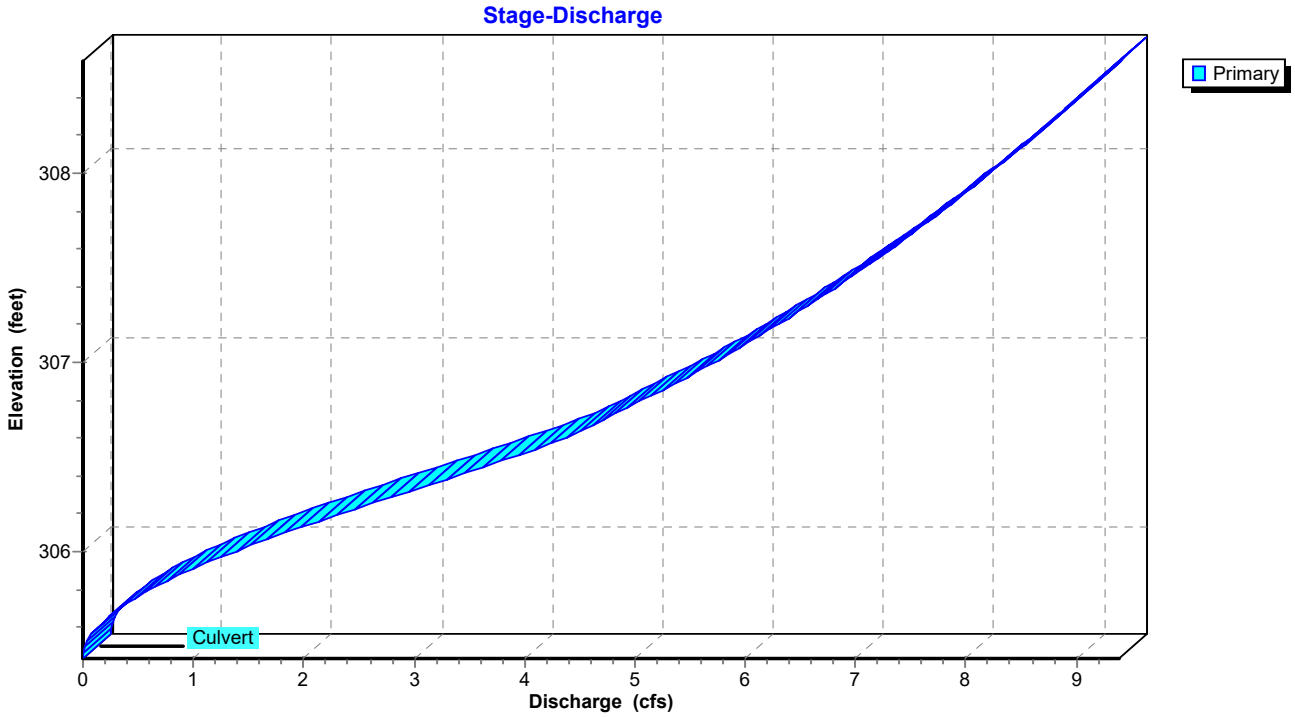
Device	Routing	Invert	Outlet Devices
#1	Primary	305.44'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 305.44' / 302.41' S= 0.6060 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=3.68 cfs @ 12.08 hrs HW=306.46' (Free Discharge)
1=Culvert (Inlet Controls 3.68 cfs @ 3.44 fps)

Pond CB1: CB-1



Pond CB1: CB-1


Stage-Discharge
Primary
Elevation (feet)
308
307
306
Culvert
0
1
2
3
4
5
6
7
8
9
Discharge (cfs)

Summary for Pond CB3: CB-3

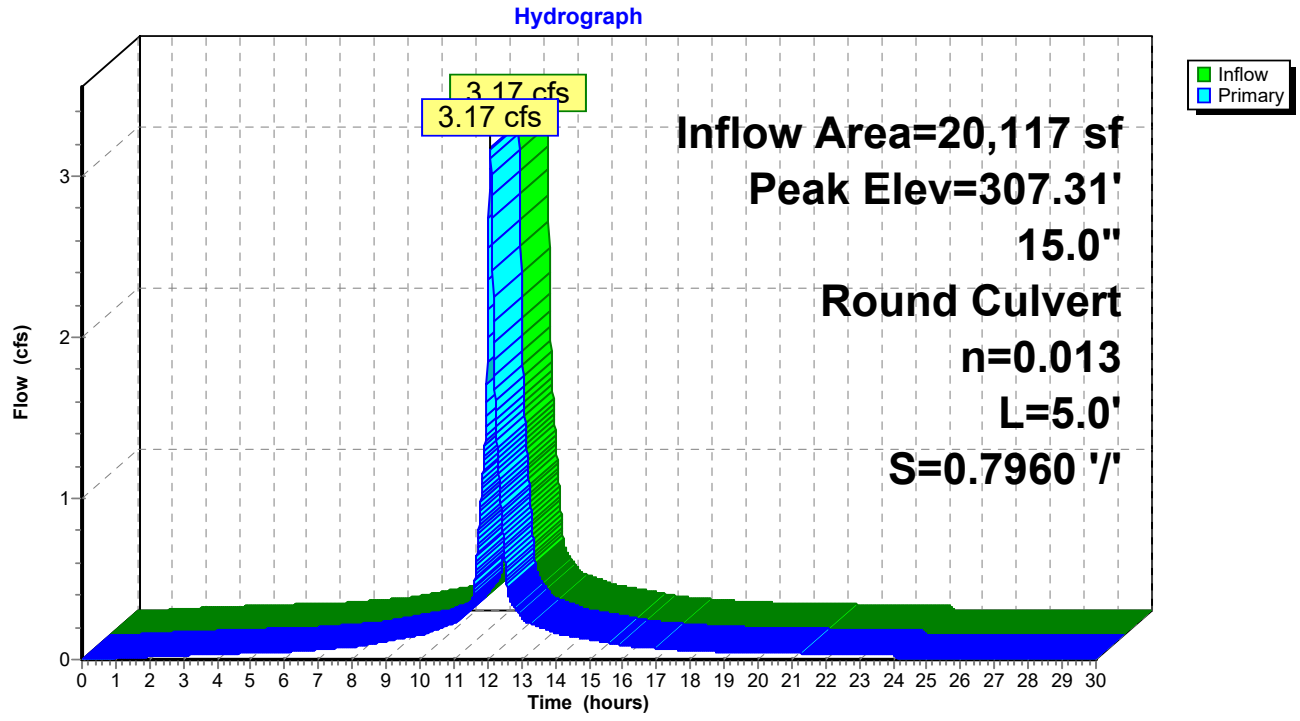
Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 6.76" for 50-Year event
Inflow = 3.17 cfs @ 12.08 hrs, Volume= 11,334 cf
Outflow = 3.17 cfs @ 12.08 hrs, Volume= 11,334 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.17 cfs @ 12.08 hrs, Volume= 11,334 cf
Routed to Pond ADS #2 : ADS #2

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 307.31' @ 12.08 hrs
Flood Elev= 308.80'

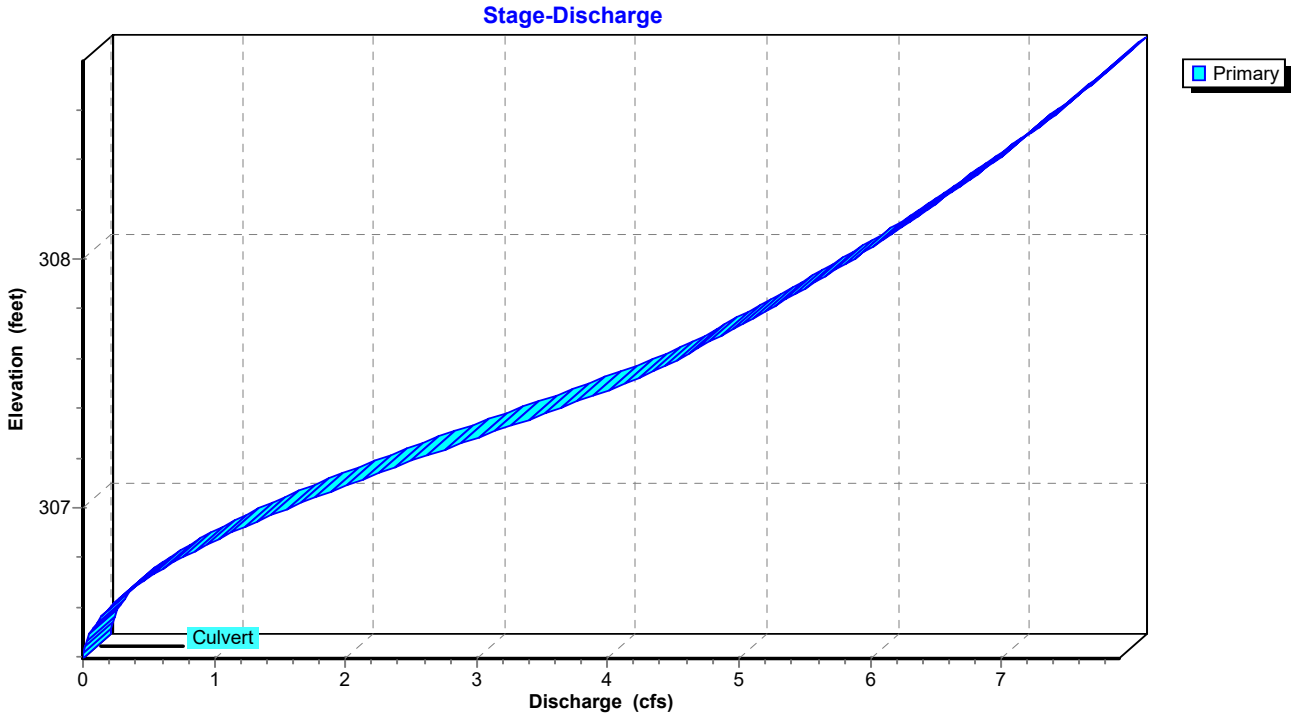
Device	Routing	Invert	Outlet Devices
#1	Primary	306.39'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 306.39' / 302.41' S= 0.7960 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=3.17 cfs @ 12.08 hrs HW=307.31' (Free Discharge)
1=Culvert (Inlet Controls 3.17 cfs @ 3.27 fps)

Pond CB3: CB-3



Pond CB3: CB-3


Stage-Discharge
Primary
Elevation (feet)
308
307
Culvert
0
1
2
3
4
5
6
7
Discharge (cfs)

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1POST: WS #1 POST Runoff Area=11,682 sf 8.78% Impervious Runoff Depth=0.00"
Flow Length=110' Slope=0.0200 '/' Tc=9.0 min CN=48 Runoff=0.00 cfs 0 cf

Subcatchment 1PRE: WS #1 PRE Runoff Area=20,936 sf 20.30% Impervious Runoff Depth=0.00"
Flow Length=82' Tc=6.0 min CN=61 Runoff=0.00 cfs 0 cf

Subcatchment 2POST: WS #2 POST Runoff Area=17,923 sf 21.10% Impervious Runoff Depth=0.00"
Flow Length=100' Slope=0.0325 '/' Tc=7.2 min CN=51 Runoff=0.00 cfs 0 cf

Subcatchment 2PRE: WS #2 PRE Runoff Area=32,504 sf 8.88% Impervious Runoff Depth=0.00"
Flow Length=144' Tc=8.0 min CN=48 Runoff=0.00 cfs 0 cf

Subcatchment 3APOST: WS #3A POST Runoff Area=23,373 sf 100.00% Impervious Runoff Depth=1.08"
Flow Length=140' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=0.64 cfs 2,111 cf

Subcatchment 3BPOST: WS #3B POST Runoff Area=20,117 sf 100.00% Impervious Runoff Depth=1.08"
Flow Length=100' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=0.55 cfs 1,817 cf

Subcatchment 3CPOST: WS #3C POST Runoff Area=58,989 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=223' Tc=11.6 min CN=39 Runoff=0.00 cfs 0 cf

Subcatchment 3PRE: WS #3 PRE Runoff Area=78,891 sf 2.61% Impervious Runoff Depth=0.00"
Flow Length=360' Tc=11.6 min CN=42 Runoff=0.00 cfs 0 cf

Reach DP3: DP3 Inflow=0.00 cfs 0 cf
Outflow=0.00 cfs 0 cf

Pond ADS #1: ADS #1 Peak Elev=302.53' Storage=227 cf Inflow=0.64 cfs 2,111 cf
Discarded=0.32 cfs 2,111 cf Primary=0.00 cfs 0 cf Outflow=0.32 cfs 2,111 cf

Pond ADS #2: ADS #2 Peak Elev=302.54' Storage=202 cf Inflow=0.55 cfs 1,817 cf
Discarded=0.27 cfs 1,817 cf Primary=0.00 cfs 0 cf Outflow=0.27 cfs 1,817 cf

Pond CB1: CB-1 Peak Elev=305.81' Inflow=0.64 cfs 2,111 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.6060 '/' Outflow=0.64 cfs 2,111 cf

Pond CB3: CB-3 Peak Elev=306.74' Inflow=0.55 cfs 1,817 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.7960 '/' Outflow=0.55 cfs 1,817 cf

Summary for Subcatchment 1POST: WS #1 POST

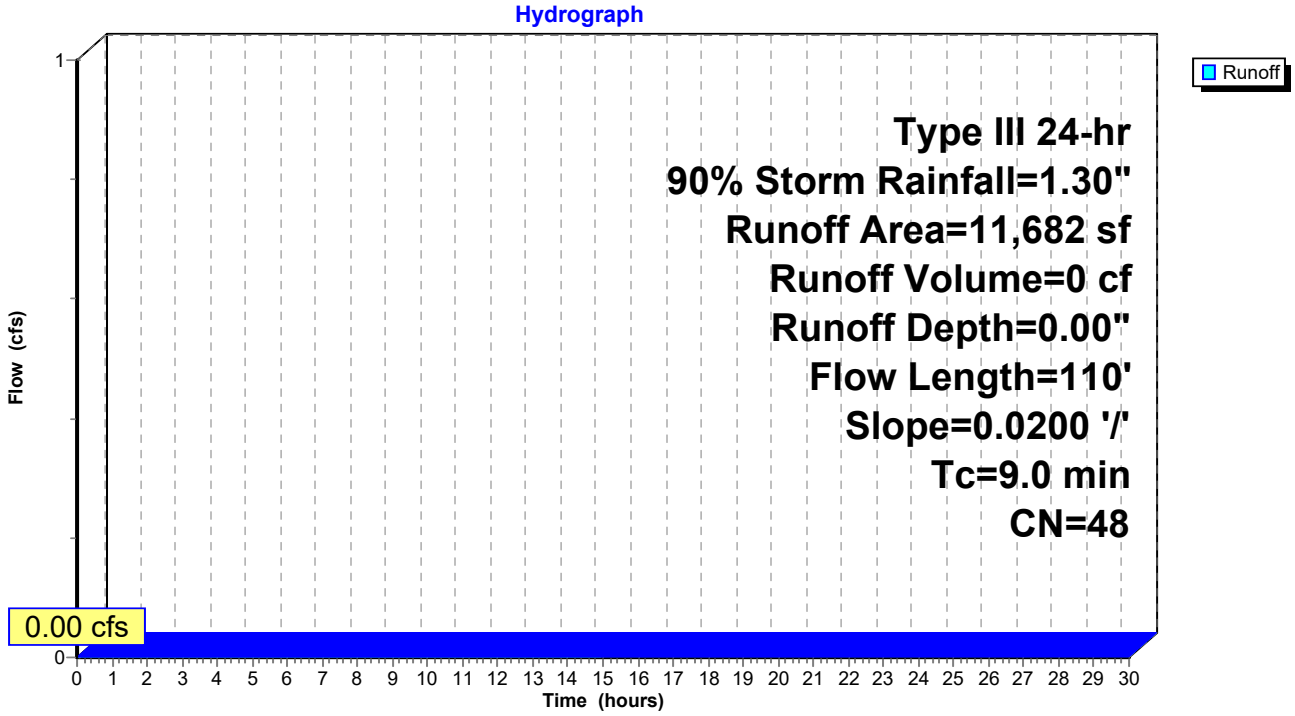
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 90% Storm Rainfall=1.30"

Area (sf)	CN	Description
9,631	39	Pasture/grassland/range, Good, HSG A
2,051	92	Paved roads w/open ditches, 50% imp, HSG C
11,682	48	Weighted Average
10,657		91.22% Pervious Area
1,026		8.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0200	0.19		**Sheet Flow, SHEET FLOW ACROSS PARK & GRASS** Grass: Short n= 0.150 P2= 4.00"
0.2	10	0.0200	0.99		**Shallow Concentrated Flow, SHALLOW FLOW TO DP1** Short Grass Pasture Kv= 7.0 fps
9.0	110	Total			

Subcatchment 1POST: WS #1 POST



Summary for Subcatchment 1PRE: WS #1 PRE

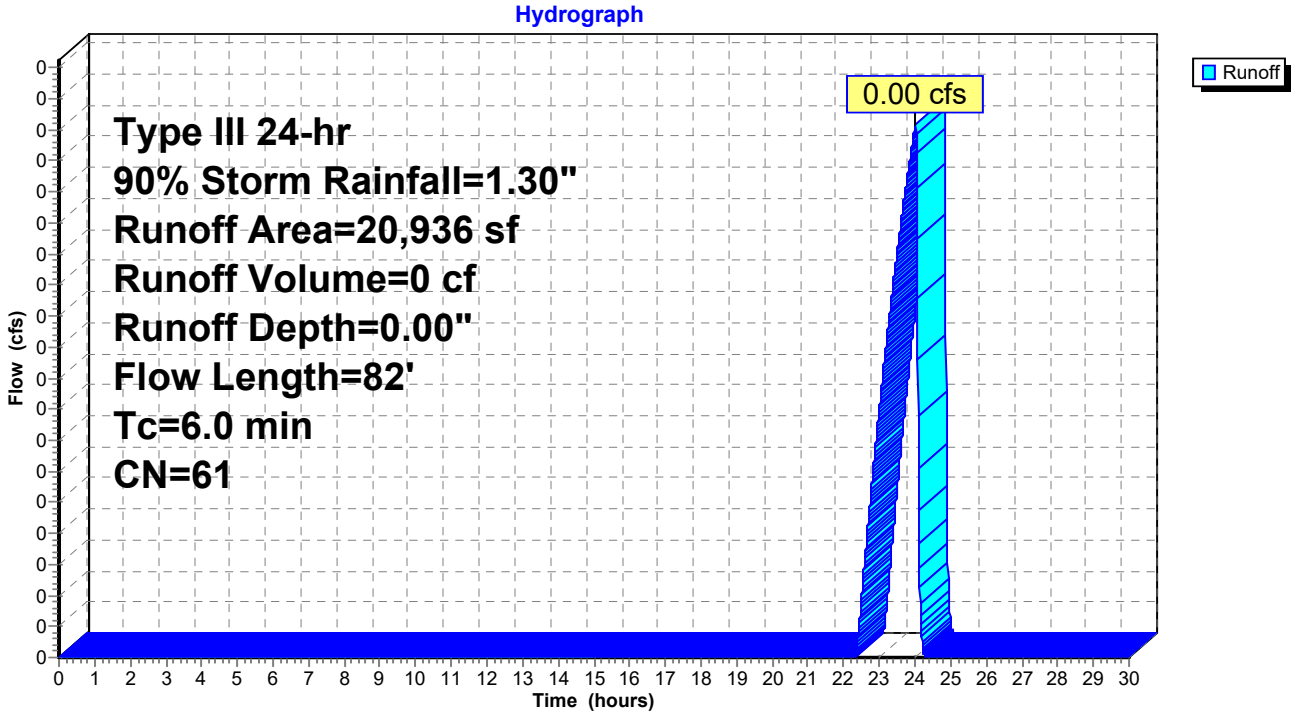
Runoff = 0.00 cfs @ 24.01 hrs, Volume= 0 cf, Depth= 0.00"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 90% Storm Rainfall=1.30"

Area (sf)	CN	Description
12,436	39	Pasture/grassland/range, Good, HSG A
8,500	92	Paved roads w/open ditches, 50% imp, HSG C
20,936	61	Weighted Average
16,686		79.70% Pervious Area
4,250		20.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0625	1.68		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
2.7	32	0.0375	0.19		**Sheet Flow, SHEET FLOW ACROSS LAWN** Grass: Short n= 0.150 P2= 4.00"
0.2	12	0.0400	1.33		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
1.9	22	0.0450	0.19		**Sheet Flow, SHEET FLOW TO DP1** Grass: Short n= 0.150 P2= 4.00"
5.0	82	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1PRE: WS #1 PRE



Summary for Subcatchment 2POST: WS #2 POST

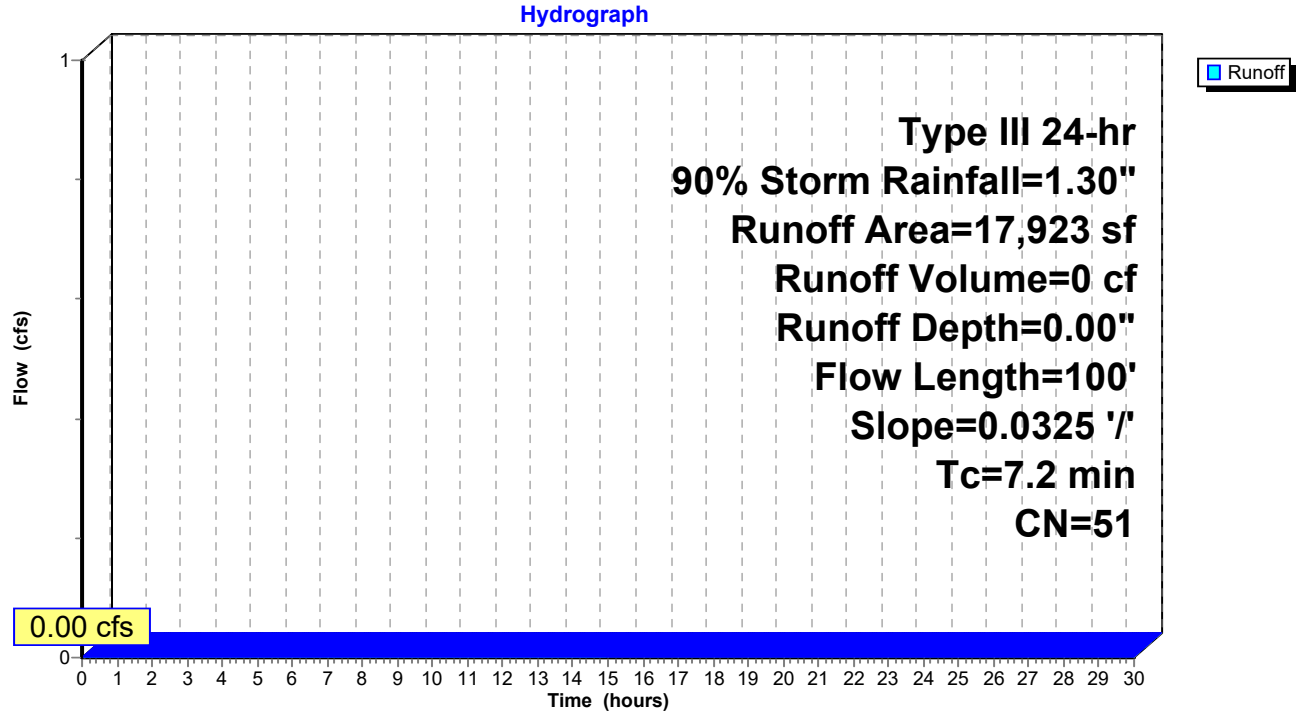
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 90% Storm Rainfall=1.30"

Area (sf)	CN	Description
14,142	39	Pasture/grassland/range, Good, HSG A
3,781	98	Paved roads w/curbs & sewers, HSG C
17,923	51	Weighted Average
14,142		78.90% Pervious Area
3,781		21.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0325	0.23		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"

Subcatchment 2POST: WS #2 POST



Summary for Subcatchment 2PRE: WS #2 PRE

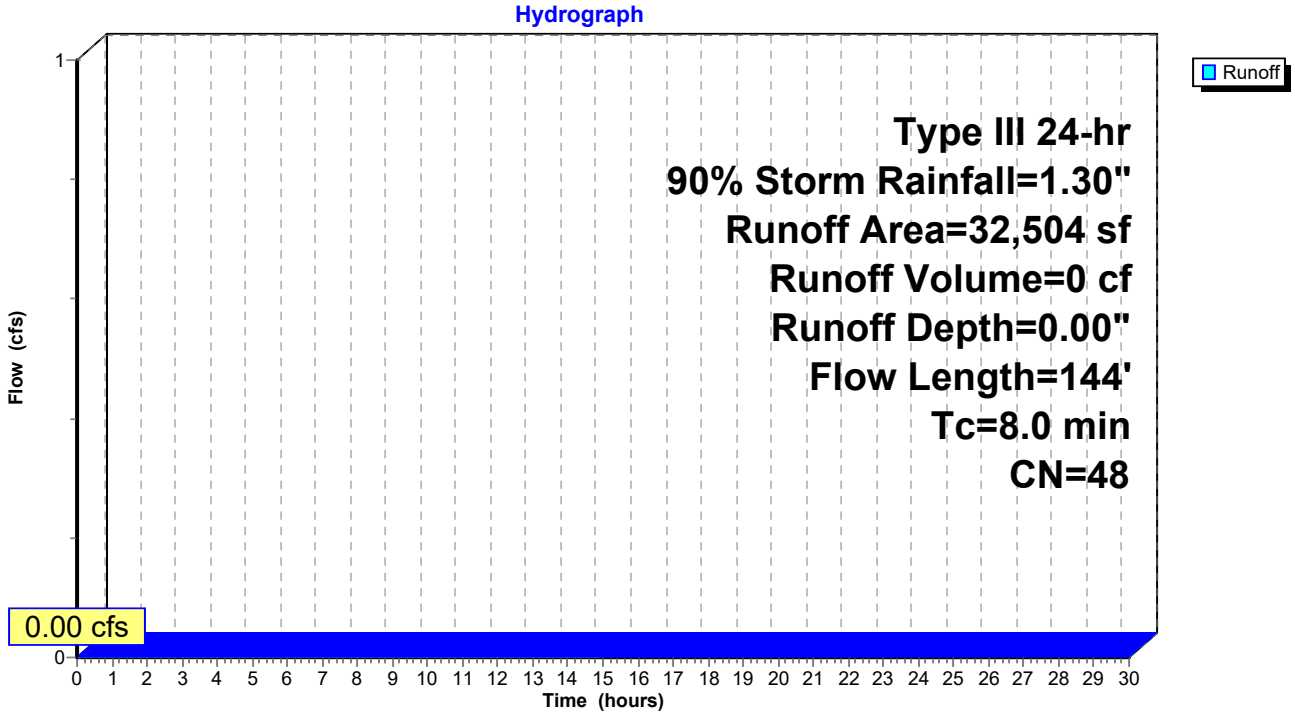
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 90% Storm Rainfall=1.30"

Area (sf)	CN	Description
26,730	39	Pasture/grassland/range, Good, HSG A
5,774	92	Paved roads w/open ditches, 50% imp, HSG C
32,504	48	Weighted Average
29,617		91.12% Pervious Area
2,887		8.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0300	0.22		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
0.5	44	0.0450	1.48		**Shallow Concentrated Flow, SHALLOW FLOW TO DP2** Short Grass Pasture Kv= 7.0 fps
8.0	144	Total			

Subcatchment 2PRE: WS #2 PRE



Summary for Subcatchment 3APOST: WS #3A POST

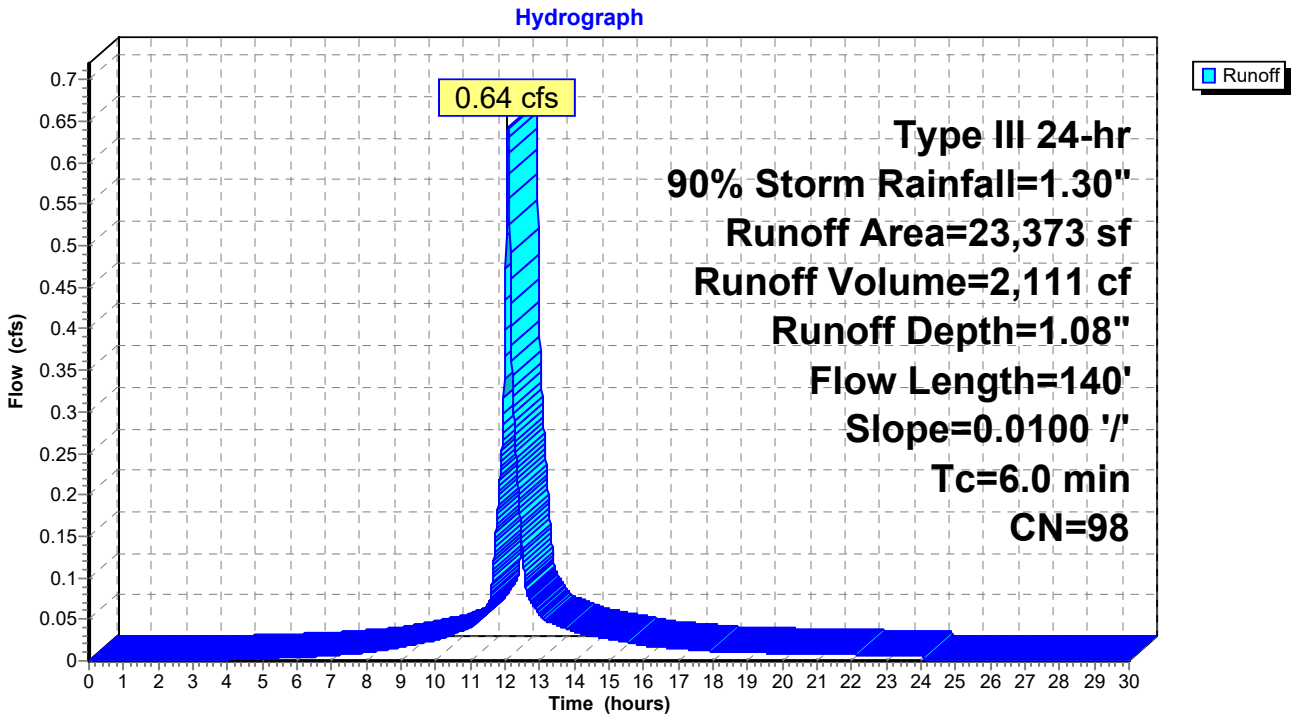
Runoff = 0.64 cfs @ 12.08 hrs, Volume= 2,111 cf, Depth= 1.08"
Routed to Pond CB1 : CB-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 90% Storm Rainfall=1.30"

Area (sf)	CN	Description
23,373	98	Paved parking, HSG A
23,373		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0100	1.17		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 4.00"
0.3	40	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-1** Paved Kv= 20.3 fps
1.7	140	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3APOST: WS #3A POST



Summary for Subcatchment 3BPOST: WS #3B POST

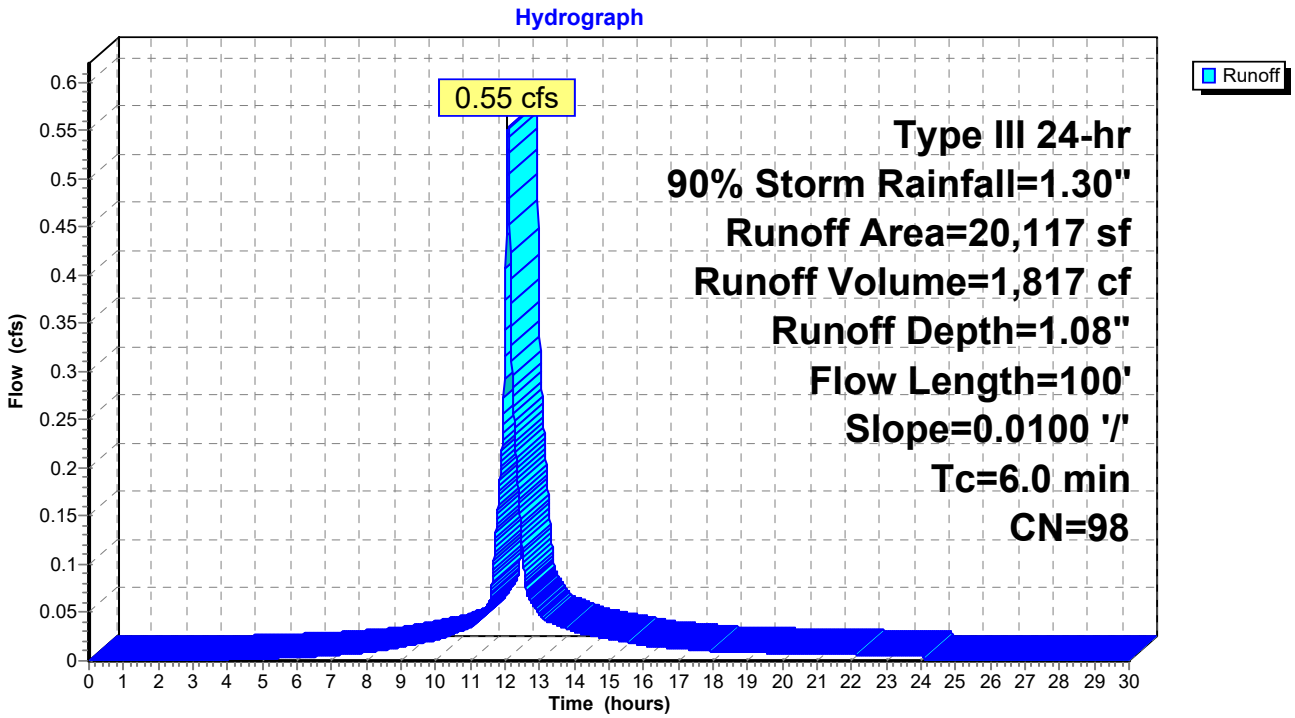
Runoff = 0.55 cfs @ 12.08 hrs, Volume= 1,817 cf, Depth= 1.08"
Routed to Pond CB3 : CB-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 90% Storm Rainfall=1.30"

Area (sf)	CN	Description
20,117	98	Paved parking, HSG A
20,117		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0100	1.01		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
0.4	50	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-2** Paved Kv= 20.3 fps
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3BPOST: WS #3B POST



Summary for Subcatchment 3CPOST: WS #3C POST

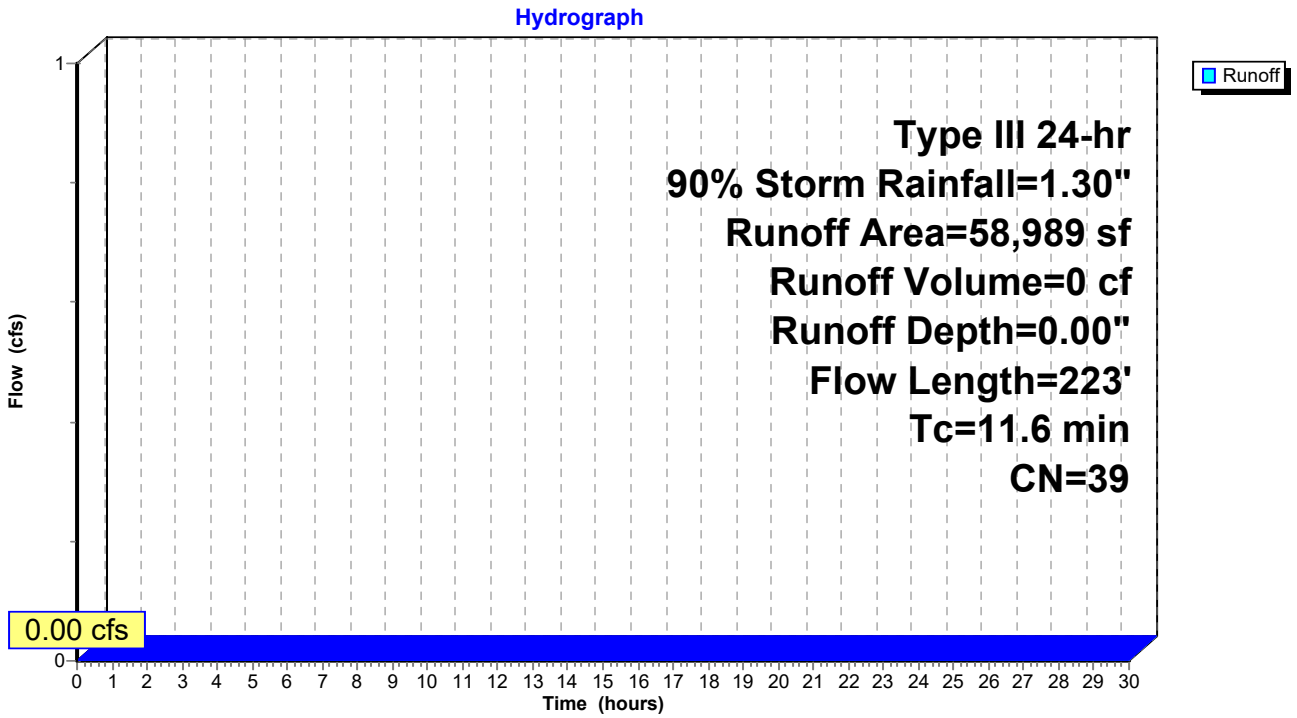
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Reach DP3 : DP3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 90% Storm Rainfall=1.30"

Area (sf)	CN	Description
58,989	39	Pasture/grassland/range, Good, HSG A
58,989		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	100	0.0400	0.17		**Sheet Flow, SHEET FLOW** Grass: Dense n= 0.240 P2= 4.00"
1.9	123	0.0250	1.11		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	223	Total			

Subcatchment 3CPOST: WS #3C POST



Summary for Subcatchment 3PRE: WS #3 PRE

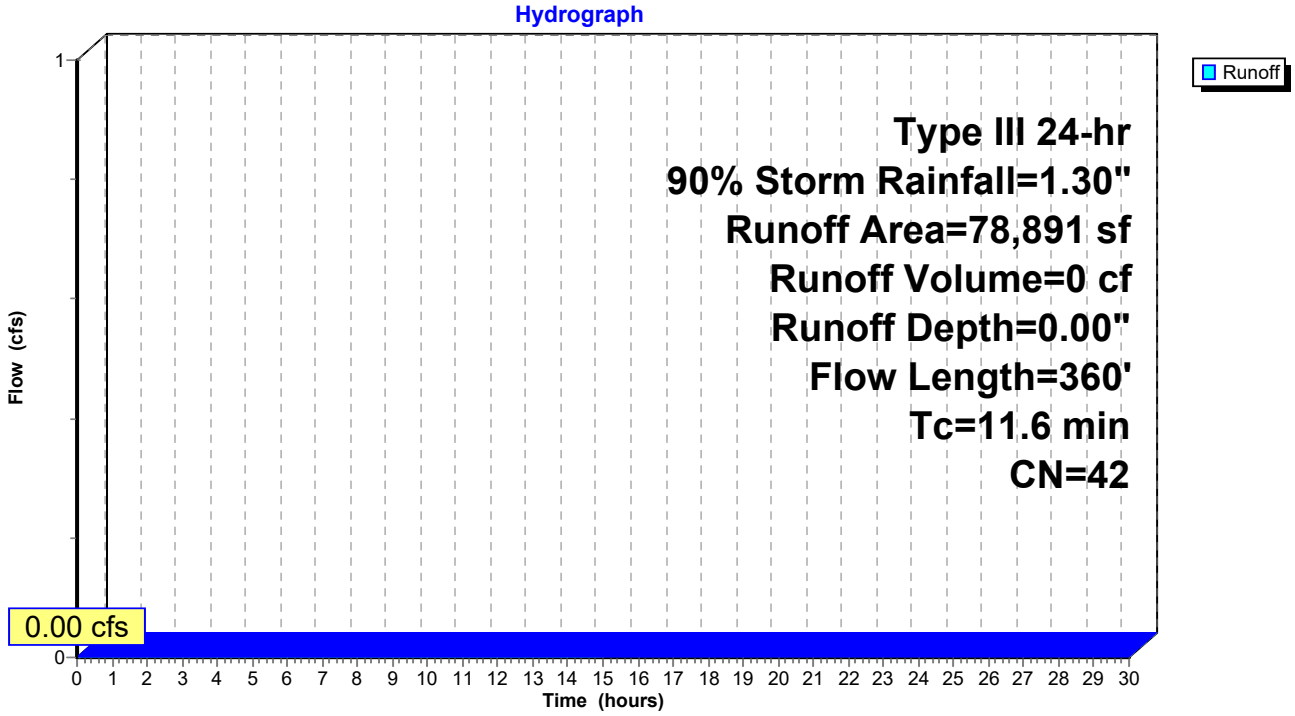
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 90% Storm Rainfall=1.30"

Area (sf)	CN	Description
74,772	39	Pasture/grassland/range, Good, HSG A
4,119	92	Paved roads w/open ditches, 50% imp, HSG C
78,891	42	Weighted Average
76,832		97.39% Pervious Area
2,060		2.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0250	0.21		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
3.6	260	0.0300	1.21		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	360	Total			

Subcatchment 3PRE: WS #3 PRE

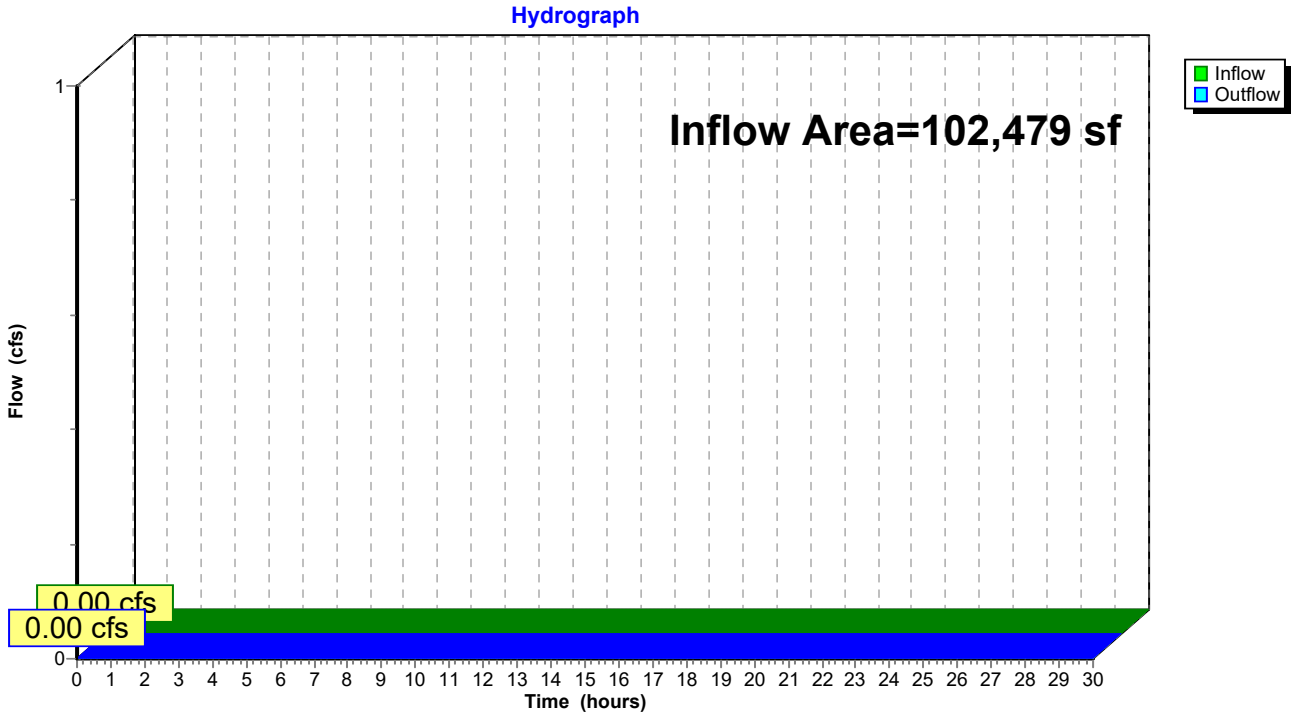


Summary for Reach DP3: DP3

Inflow Area = 102,479 sf, 42.44% Impervious, Inflow Depth = 0.00" for 90% Storm event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP3: DP3



Summary for Pond ADS #1: ADS #1

Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 1.08" for 90% Storm event
Inflow = 0.64 cfs @ 12.08 hrs, Volume= 2,111 cf
Outflow = 0.32 cfs @ 12.23 hrs, Volume= 2,111 cf, Atten= 50%, Lag= 8.6 min
Discarded = 0.32 cfs @ 12.23 hrs, Volume= 2,111 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 302.53' @ 12.23 hrs Surf.Area= 4,571 sf Storage= 227 cf
Flood Elev= 306.91' Surf.Area= 4,571 sf Storage= 9,872 cf

Plug-Flow detention time= 5.7 min calculated for 2,110 cf (100% of inflow)
Center-of-Mass det. time= 5.7 min (785.3 - 779.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	4,084 cf	**44.25'W x 103.30'L x 3.50'H Field A** 15,998 cf Overall - 5,788 cf Embedded = 10,210 cf x 40.0% Voids
#2A	302.91'	5,788 cf	**ADS_StormTech SC-740 +Cap** x 126 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 126 Chambers in 9 Rows
		9,872 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 145.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.32 cfs @ 12.23 hrs HW=302.53' (Free Discharge)
└**4=Exfiltration** (Controls 0.32 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=302.41' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #1: ADS #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

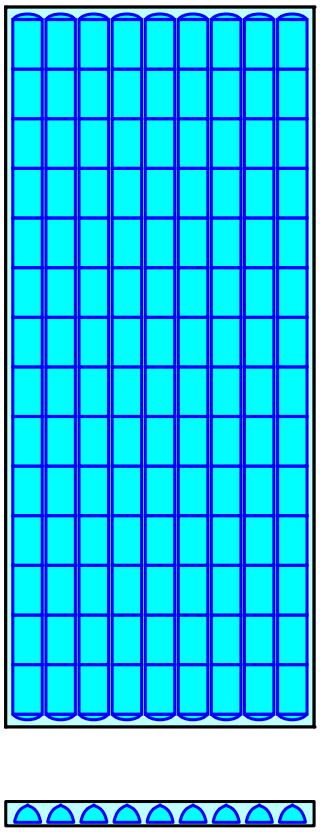
14 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 101.30' Row Length +12.0" End Stone x 2 = 103.30' Base Length
9 Rows x 51.0" Wide + 6.0" Spacing x 8 + 12.0" Side Stone x 2 = 44.25' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

126 Chambers x 45.9 cf = 5,788.4 cf Chamber Storage

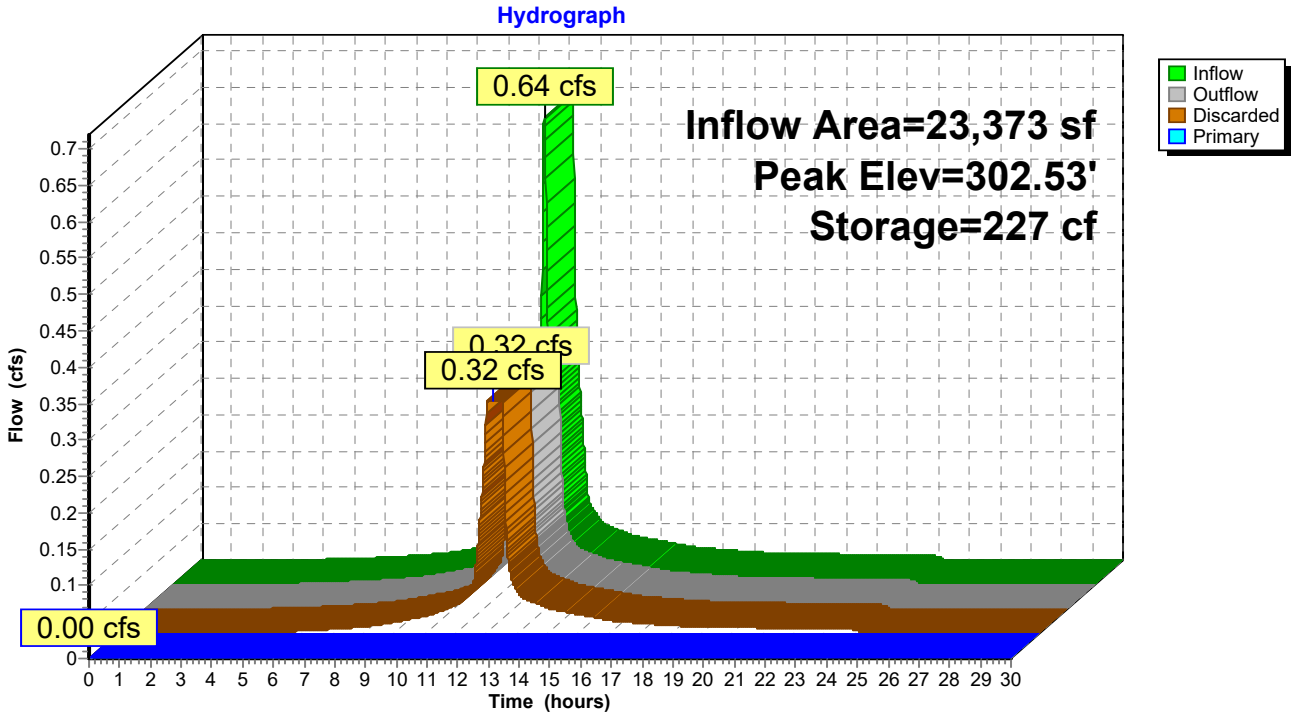
15,998.1 cf Field - 5,788.4 cf Chambers = 10,209.6 cf Stone x 40.0% Voids = 4,083.9 cf Stone Storage

Chamber Storage + Stone Storage = 9,872.3 cf = 0.227 af
Overall Storage Efficiency = 61.7%
Overall System Size = 103.30' x 44.25' x 3.50'

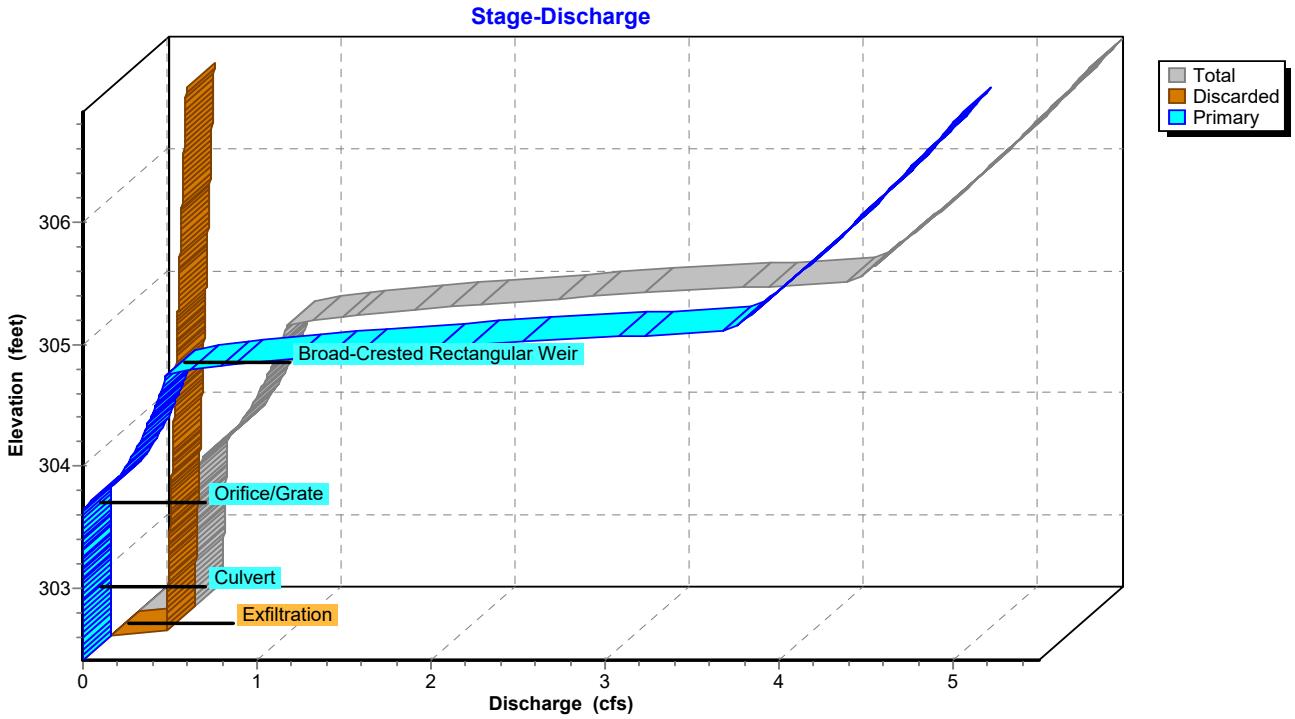
126 Chambers
592.5 cy Field
378.1 cy Stone



Pond ADS #1: ADS #1



Pond ADS #1: ADS #1



Summary for Pond ADS #2: ADS #2

Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 1.08" for 90% Storm event
Inflow = 0.55 cfs @ 12.08 hrs, Volume= 1,817 cf
Outflow = 0.27 cfs @ 12.24 hrs, Volume= 1,817 cf, Atten= 52%, Lag= 9.2 min
Discarded = 0.27 cfs @ 12.24 hrs, Volume= 1,817 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 302.54' @ 12.24 hrs Surf.Area= 3,799 sf Storage= 202 cf
Flood Elev= 306.91' Surf.Area= 3,799 sf Storage= 8,185 cf

Plug-Flow detention time= 5.9 min calculated for 1,816 cf (100% of inflow)
Center-of-Mass det. time= 5.9 min (785.5 - 779.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	3,407 cf	**39.50'W x 96.18'L x 3.50'H Field A** 13,296 cf Overall - 4,778 cf Embedded = 8,519 cf x 40.0% Voids
#2A	302.91'	4,778 cf	**ADS_StormTech SC-740 +Cap** x 104 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 104 Chambers in 8 Rows
		8,185 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0065 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.27 cfs @ 12.24 hrs HW=302.54' (Free Discharge)
└**4=Exfiltration** (Controls 0.27 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=302.41' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #2: ADS #2 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

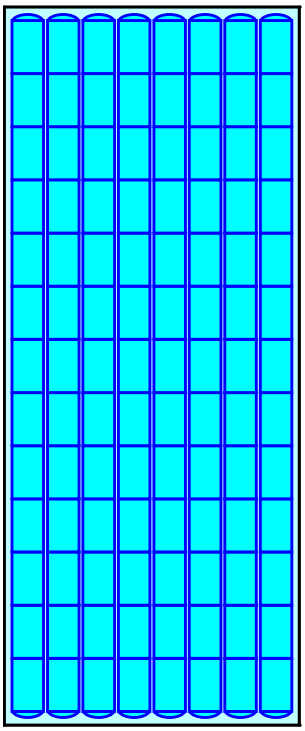
13 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 94.18' Row Length +12.0" End Stone x 2 = 96.18' Base Length
8 Rows x 51.0" Wide + 6.0" Spacing x 7 + 12.0" Side Stone x 2 = 39.50' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

104 Chambers x 45.9 cf = 4,777.8 cf Chamber Storage

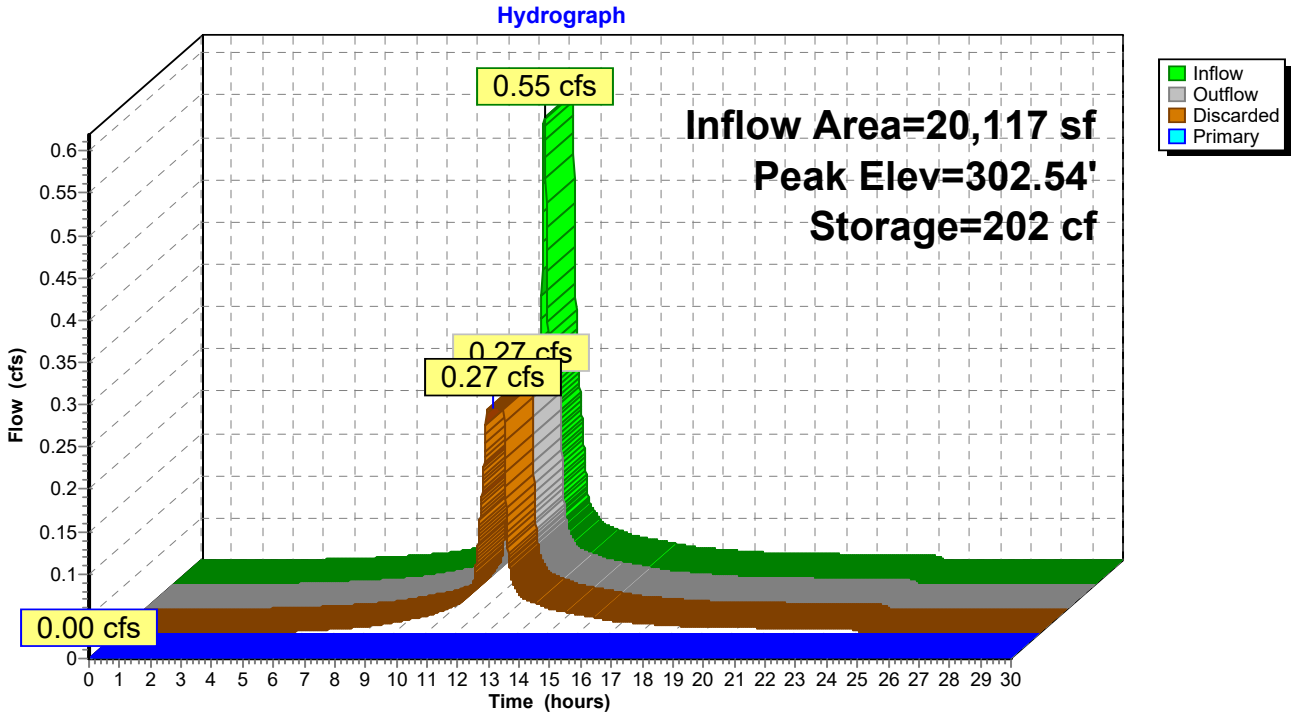
13,296.4 cf Field - 4,777.8 cf Chambers = 8,518.7 cf Stone x 40.0% Voids = 3,407.5 cf Stone Storage

Chamber Storage + Stone Storage = 8,185.2 cf = 0.188 af
Overall Storage Efficiency = 61.6%
Overall System Size = 96.18' x 39.50' x 3.50'

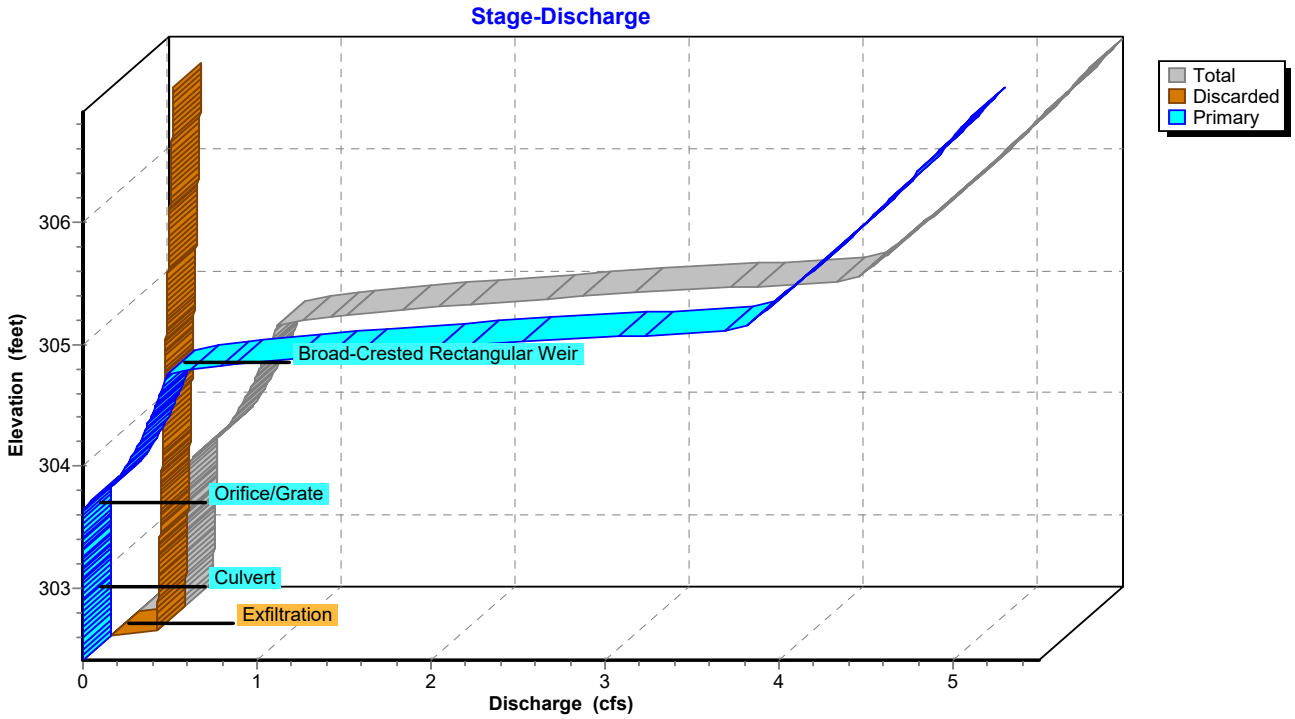
104 Chambers
492.5 cy Field
315.5 cy Stone



Pond ADS #2: ADS #2



Pond ADS #2: ADS #2



Summary for Pond CB1: CB-1

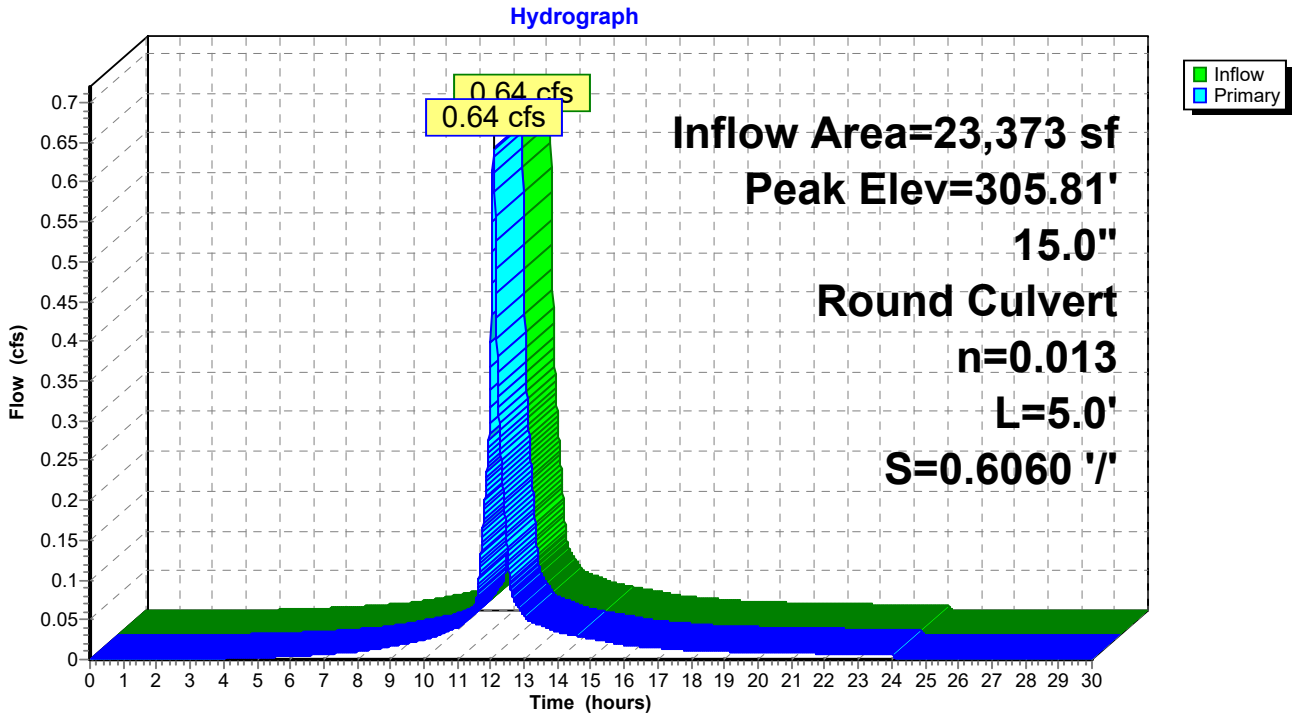
Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 1.08" for 90% Storm event
Inflow = 0.64 cfs @ 12.08 hrs, Volume= 2,111 cf
Outflow = 0.64 cfs @ 12.08 hrs, Volume= 2,111 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.64 cfs @ 12.08 hrs, Volume= 2,111 cf
Routed to Pond ADS #1 : ADS #1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 305.81' @ 12.08 hrs
Flood Elev= 308.59'

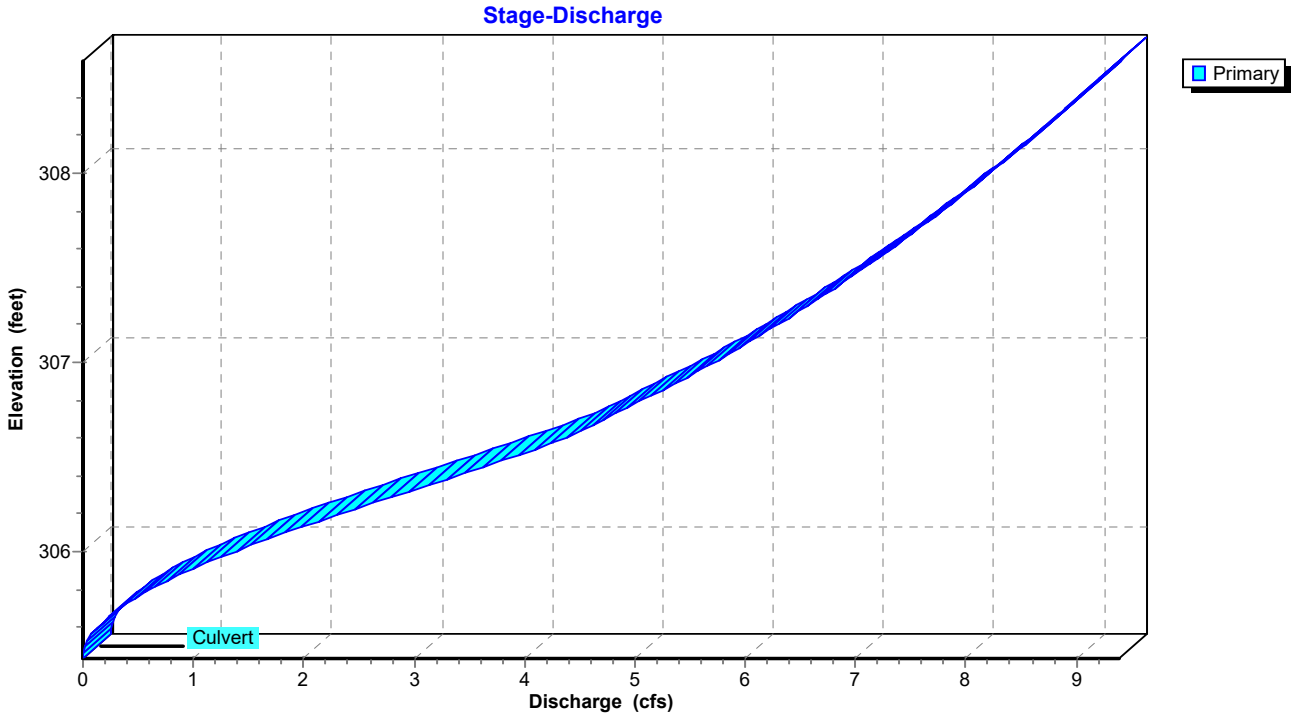
Device	Routing	Invert	Outlet Devices
#1	Primary	305.44'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 305.44' / 302.41' S= 0.6060 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=0.64 cfs @ 12.08 hrs HW=305.81' (Free Discharge)
1=Culvert (Inlet Controls 0.64 cfs @ 2.08 fps)

Pond CB1: CB-1



Pond CB1: CB-1


Stage-Discharge
Primary
Elevation (feet)
308
307
306
Culvert
0
1
2
3
4
5
6
7
8
9
Discharge (cfs)

Summary for Pond CB3: CB-3

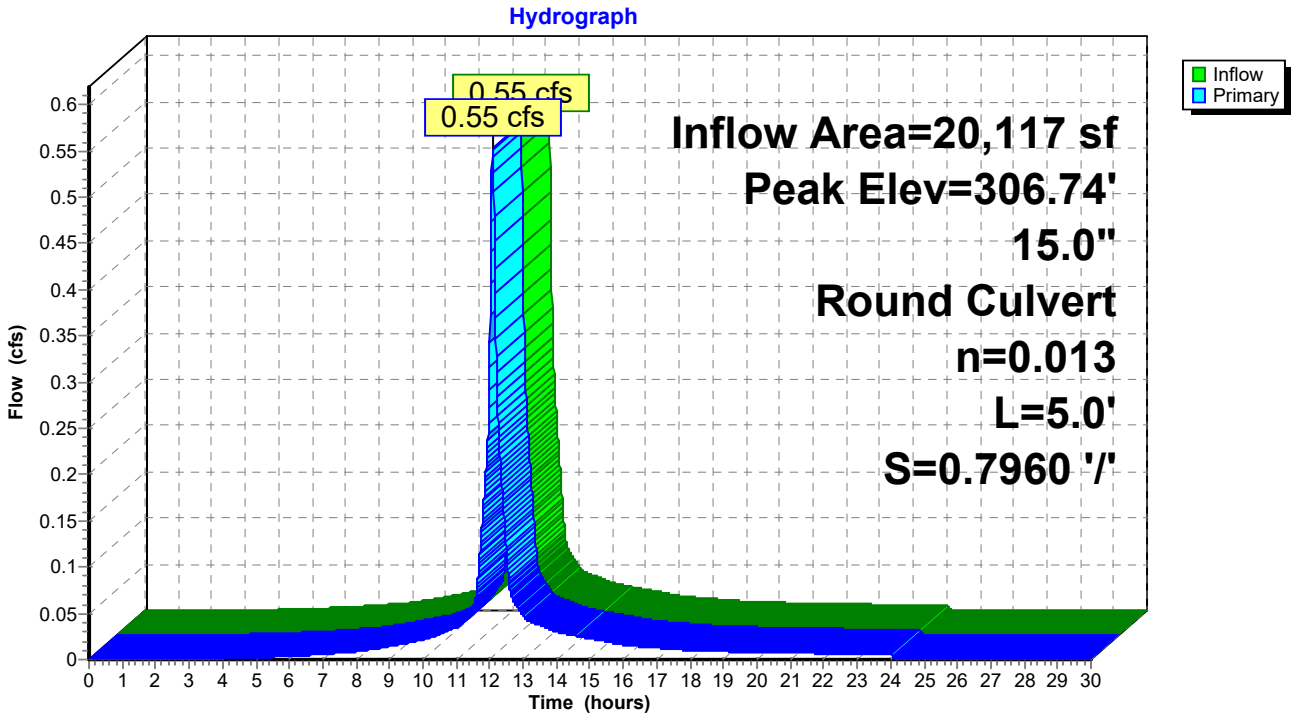
Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 1.08" for 90% Storm event
Inflow = 0.55 cfs @ 12.08 hrs, Volume= 1,817 cf
Outflow = 0.55 cfs @ 12.08 hrs, Volume= 1,817 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.55 cfs @ 12.08 hrs, Volume= 1,817 cf
Routed to Pond ADS #2 : ADS #2

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 306.74' @ 12.08 hrs
Flood Elev= 308.80'

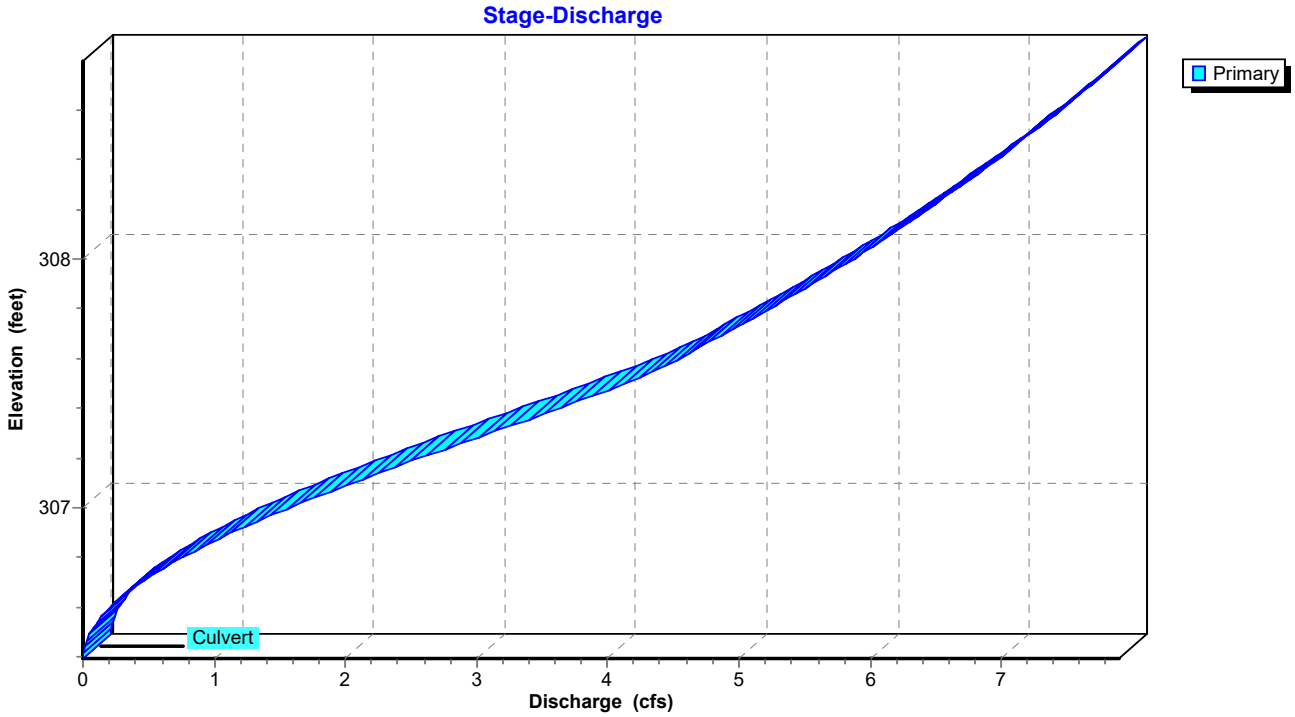
Device	Routing	Invert	Outlet Devices
#1	Primary	306.39'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 306.39' / 302.41' S= 0.7960 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=0.55 cfs @ 12.08 hrs HW=306.74' (Free Discharge)
1=Culvert (Inlet Controls 0.55 cfs @ 2.00 fps)

Pond CB3: CB-3



Pond CB3: CB-3


Stage-Discharge
Primary
Elevation (feet)
308
307
Culvert
0
1
2
3
4
5
6
7
Discharge (cfs)

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1POST: WS #1 POST Runoff Area=11,682 sf 8.78% Impervious Runoff Depth=2.64"
Flow Length=110' Slope=0.0200 '/' Tc=9.0 min CN=48 Runoff=0.69 cfs 2,573 cf

Subcatchment 1PRE: WS #1 PRE Runoff Area=20,936 sf 20.30% Impervious Runoff Depth=4.22"
Flow Length=82' Tc=6.0 min CN=61 Runoff=2.37 cfs 7,369 cf

Subcatchment 2POST: WS #2 POST Runoff Area=17,923 sf 21.10% Impervious Runoff Depth=3.00"
Flow Length=100' Slope=0.0325 '/' Tc=7.2 min CN=51 Runoff=1.32 cfs 4,485 cf

Subcatchment 2PRE: WS #2 PRE Runoff Area=32,504 sf 8.88% Impervious Runoff Depth=2.64"
Flow Length=144' Tc=8.0 min CN=48 Runoff=1.99 cfs 7,159 cf

Subcatchment 3APOST: WS #3A POST Runoff Area=23,373 sf 100.00% Impervious Runoff Depth=8.76"
Flow Length=140' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=4.74 cfs 17,062 cf

Subcatchment 3BPOST: WS #3B POST Runoff Area=20,117 sf 100.00% Impervious Runoff Depth=8.76"
Flow Length=100' Slope=0.0100 '/' Tc=6.0 min CN=98 Runoff=4.08 cfs 14,685 cf

Subcatchment 3CPOST: WS #3C POST Runoff Area=58,989 sf 0.00% Impervious Runoff Depth=1.60"
Flow Length=223' Tc=11.6 min CN=39 Runoff=1.58 cfs 7,878 cf

Subcatchment 3PRE: WS #3 PRE Runoff Area=78,891 sf 2.61% Impervious Runoff Depth=1.94"
Flow Length=360' Tc=11.6 min CN=42 Runoff=2.83 cfs 12,761 cf

Reach DP3: DP3 Inflow=2.02 cfs 11,990 cf
Outflow=2.02 cfs 11,990 cf

Pond ADS #1: ADS #1 Peak Elev=304.23' Storage=5,717 cf Inflow=4.74 cfs 17,062 cf
Discarded=0.36 cfs 15,011 cf Primary=0.33 cfs 2,050 cf Outflow=0.70 cfs 17,062 cf

Pond ADS #2: ADS #2 Peak Elev=304.28' Storage=4,879 cf Inflow=4.08 cfs 14,685 cf
Discarded=0.30 cfs 12,624 cf Primary=0.35 cfs 2,061 cf Outflow=0.65 cfs 14,685 cf

Pond CB1: CB-1 Peak Elev=306.71' Inflow=4.74 cfs 17,062 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.6060 '/' Outflow=4.74 cfs 17,062 cf

Pond CB3: CB-3 Peak Elev=307.49' Inflow=4.08 cfs 14,685 cf
15.0" Round Culvert n=0.013 L=5.0' S=0.7960 '/' Outflow=4.08 cfs 14,685 cf

Summary for Subcatchment 1POST: WS #1 POST

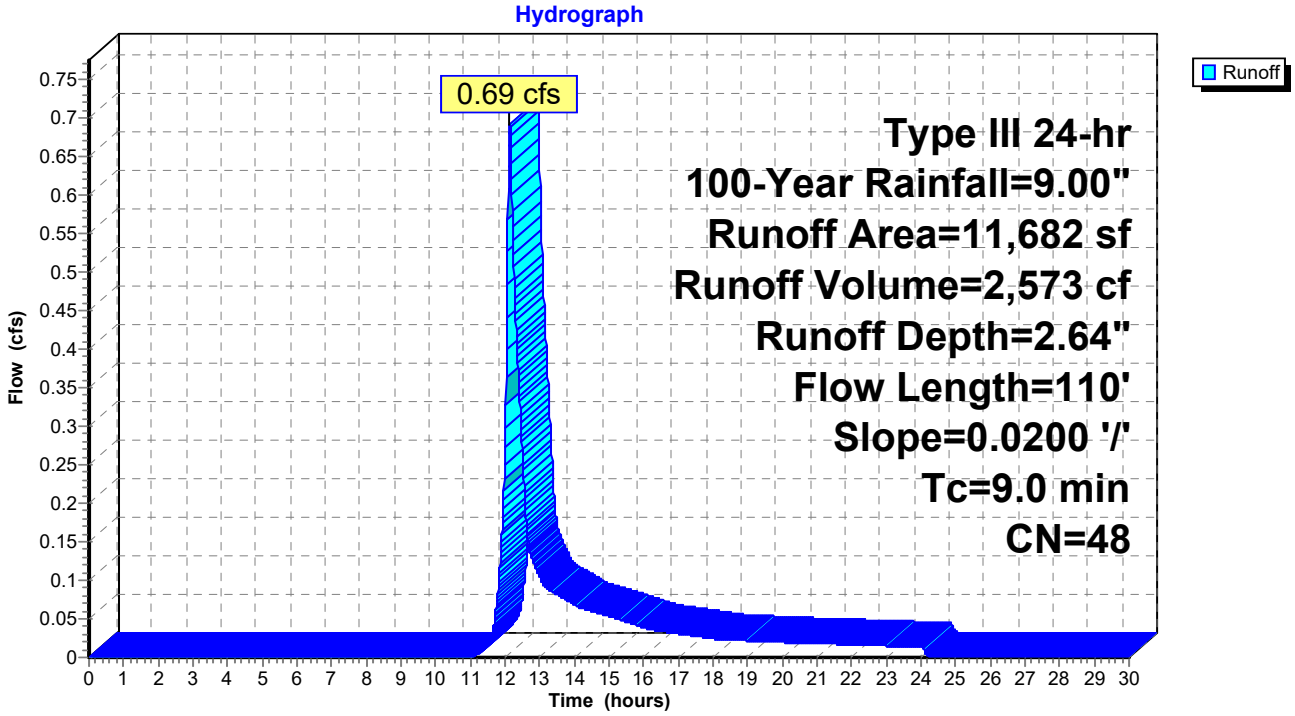
Runoff = 0.69 cfs @ 12.14 hrs, Volume= 2,573 cf, Depth= 2.64"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.00"

Area (sf)	CN	Description
9,631	39	Pasture/grassland/range, Good, HSG A
2,051	92	Paved roads w/open ditches, 50% imp, HSG C
11,682	48	Weighted Average
10,657		91.22% Pervious Area
1,026		8.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0200	0.19		**Sheet Flow, SHEET FLOW ACROSS PARK & GRASS** Grass: Short n= 0.150 P2= 4.00"
0.2	10	0.0200	0.99		**Shallow Concentrated Flow, SHALLOW FLOW TO DP1** Short Grass Pasture Kv= 7.0 fps
9.0	110	Total			

Subcatchment 1POST: WS #1 POST



Summary for Subcatchment 1PRE: WS #1 PRE

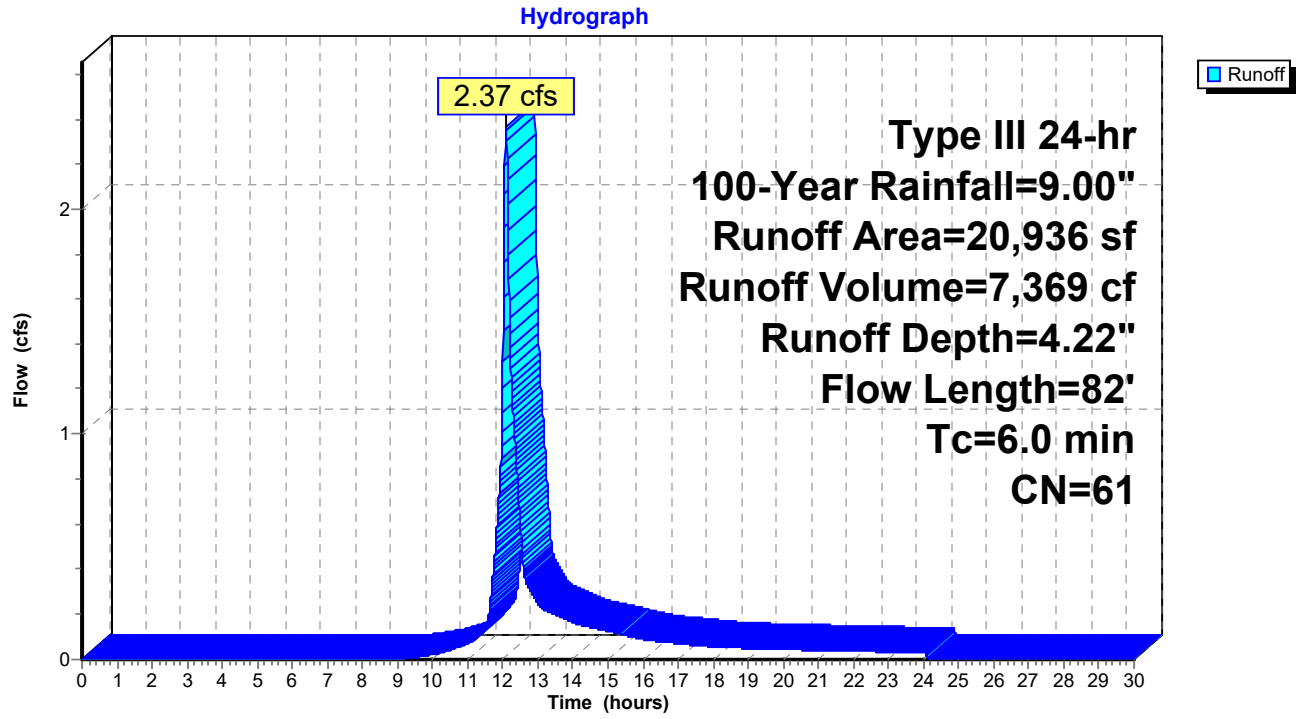
Runoff = 2.37 cfs @ 12.09 hrs, Volume= 7,369 cf, Depth= 4.22"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.00"

Area (sf)	CN	Description
12,436	39	Pasture/grassland/range, Good, HSG A
8,500	92	Paved roads w/open ditches, 50% imp, HSG C
20,936	61	Weighted Average
16,686		79.70% Pervious Area
4,250		20.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	16	0.0625	1.68		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
2.7	32	0.0375	0.19		**Sheet Flow, SHEET FLOW ACROSS LAWN** Grass: Short n= 0.150 P2= 4.00"
0.2	12	0.0400	1.33		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
1.9	22	0.0450	0.19		**Sheet Flow, SHEET FLOW TO DP1** Grass: Short n= 0.150 P2= 4.00"
5.0	82	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1PRE: WS #1 PRE



Summary for Subcatchment 2POST: WS #2 POST

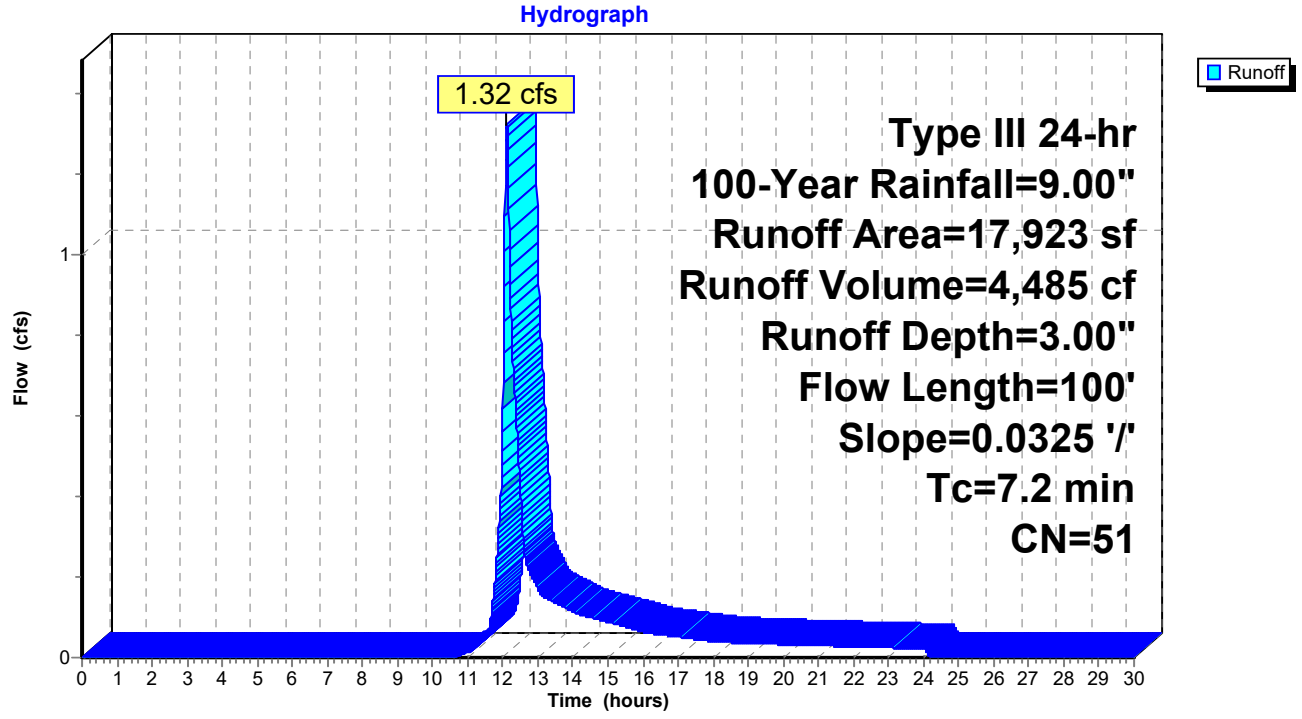
Runoff = 1.32 cfs @ 12.11 hrs, Volume= 4,485 cf, Depth= 3.00"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.00"

Area (sf)	CN	Description
14,142	39	Pasture/grassland/range, Good, HSG A
3,781	98	Paved roads w/curbs & sewers, HSG C
17,923	51	Weighted Average
14,142		78.90% Pervious Area
3,781		21.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0325	0.23		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"

Subcatchment 2POST: WS #2 POST



Summary for Subcatchment 2PRE: WS #2 PRE

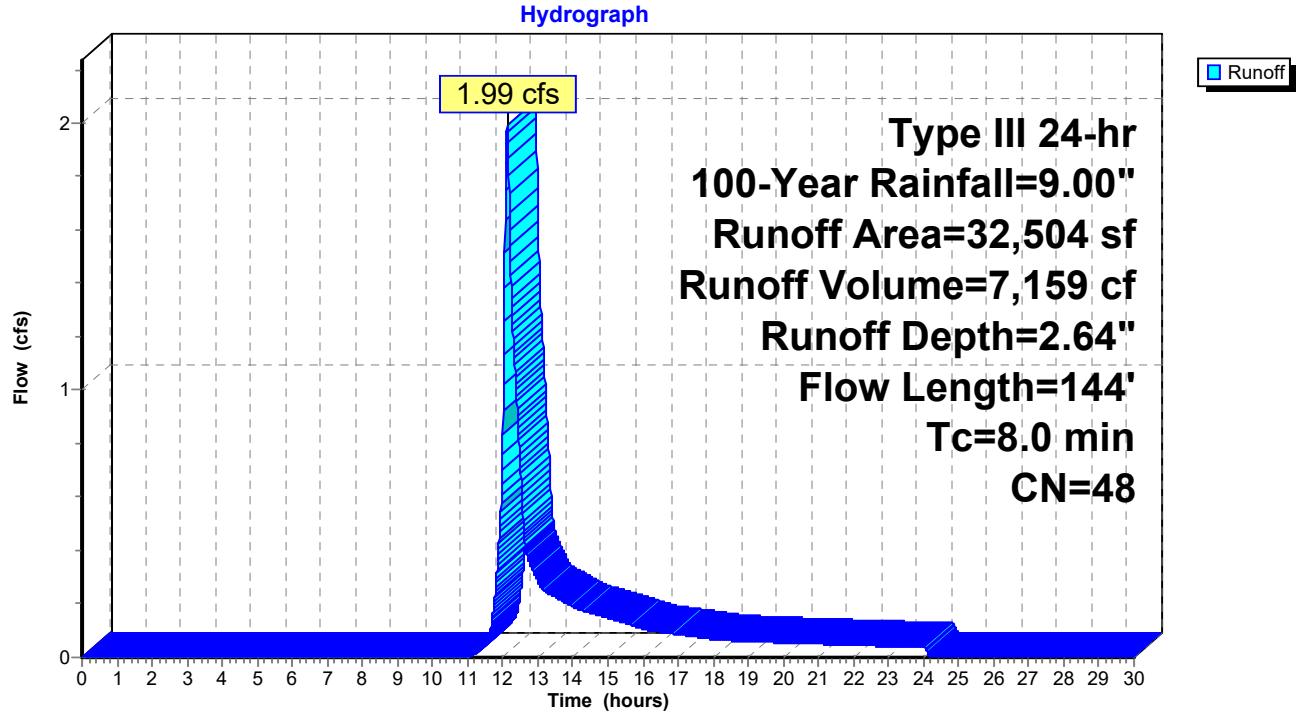
Runoff = 1.99 cfs @ 12.12 hrs, Volume= 7,159 cf, Depth= 2.64"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.00"

Area (sf)	CN	Description
26,730	39	Pasture/grassland/range, Good, HSG A
5,774	92	Paved roads w/open ditches, 50% imp, HSG C
32,504	48	Weighted Average
29,617		91.12% Pervious Area
2,887		8.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0300	0.22		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
0.5	44	0.0450	1.48		**Shallow Concentrated Flow, SHALLOW FLOW TO DP2** Short Grass Pasture Kv= 7.0 fps
8.0	144	Total			

Subcatchment 2PRE: WS #2 PRE



Summary for Subcatchment 3APOST: WS #3A POST

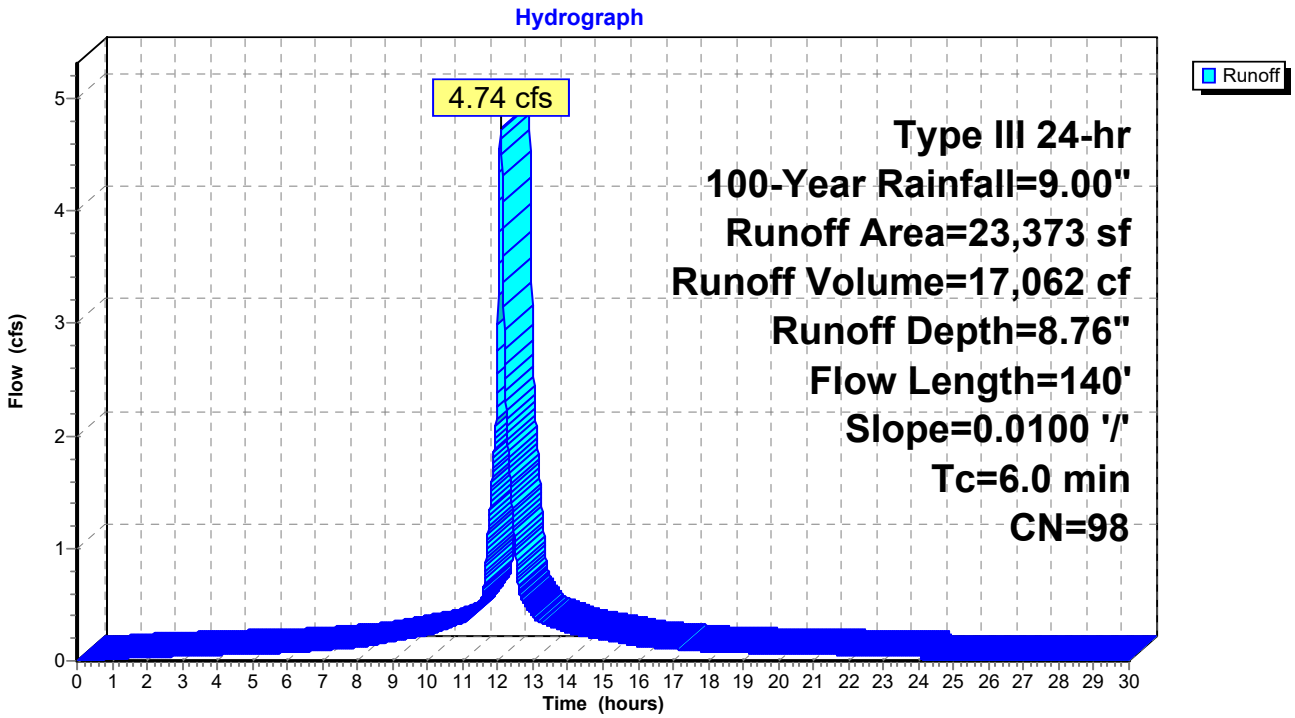
Runoff = 4.74 cfs @ 12.08 hrs, Volume= 17,062 cf, Depth= 8.76"
Routed to Pond CB1 : CB-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.00"

Area (sf)	CN	Description
23,373	98	Paved parking, HSG A
23,373		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0100	1.17		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 4.00"
0.3	40	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-1** Paved Kv= 20.3 fps
1.7	140	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3APOST: WS #3A POST



Summary for Subcatchment 3BPOST: WS #3B POST

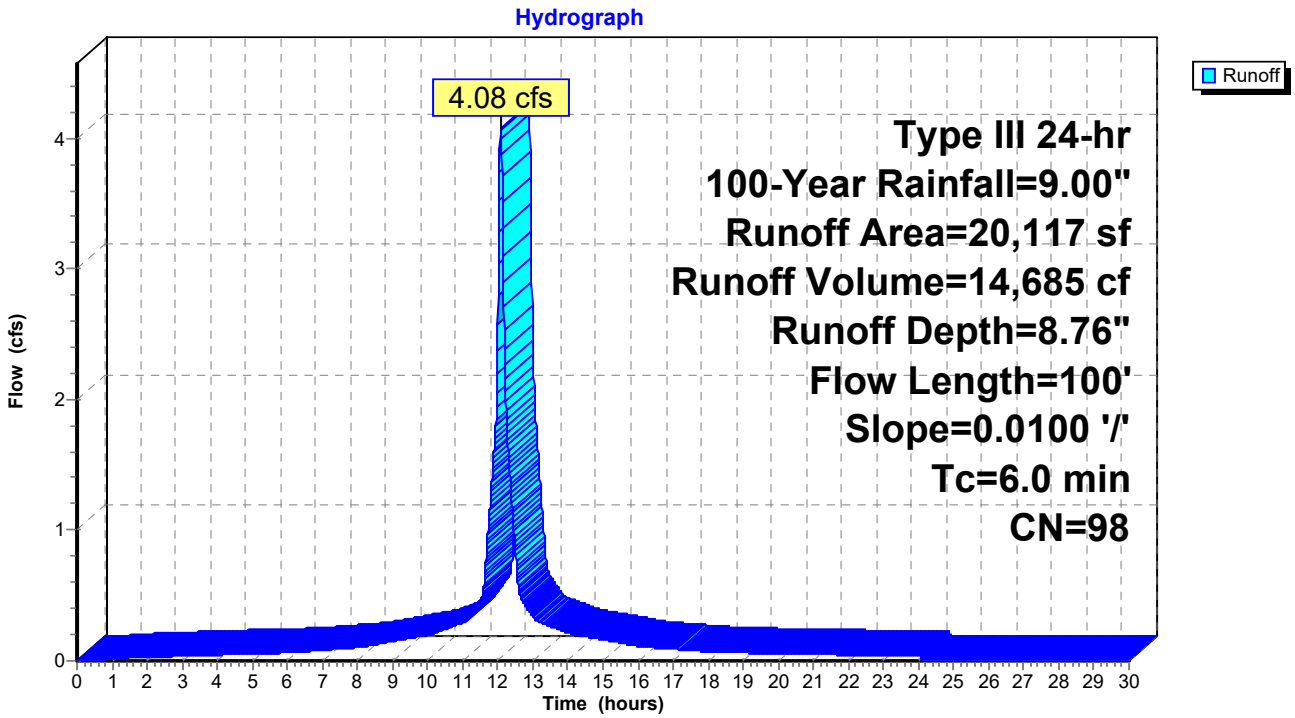
Runoff = 4.08 cfs @ 12.08 hrs, Volume= 14,685 cf, Depth= 8.76"
Routed to Pond CB3 : CB-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.00"

Area (sf)	CN	Description
20,117	98	Paved parking, HSG A
20,117		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	50	0.0100	1.01		**Sheet Flow, SHEET FLOW ACROSS DRIVEWAY** Smooth surfaces n= 0.011 P2= 4.00"
0.4	50	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW FLOW TO CB-2** Paved Kv= 20.3 fps
1.2	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3BPOST: WS #3B POST



Summary for Subcatchment 3CPOST: WS #3C POST

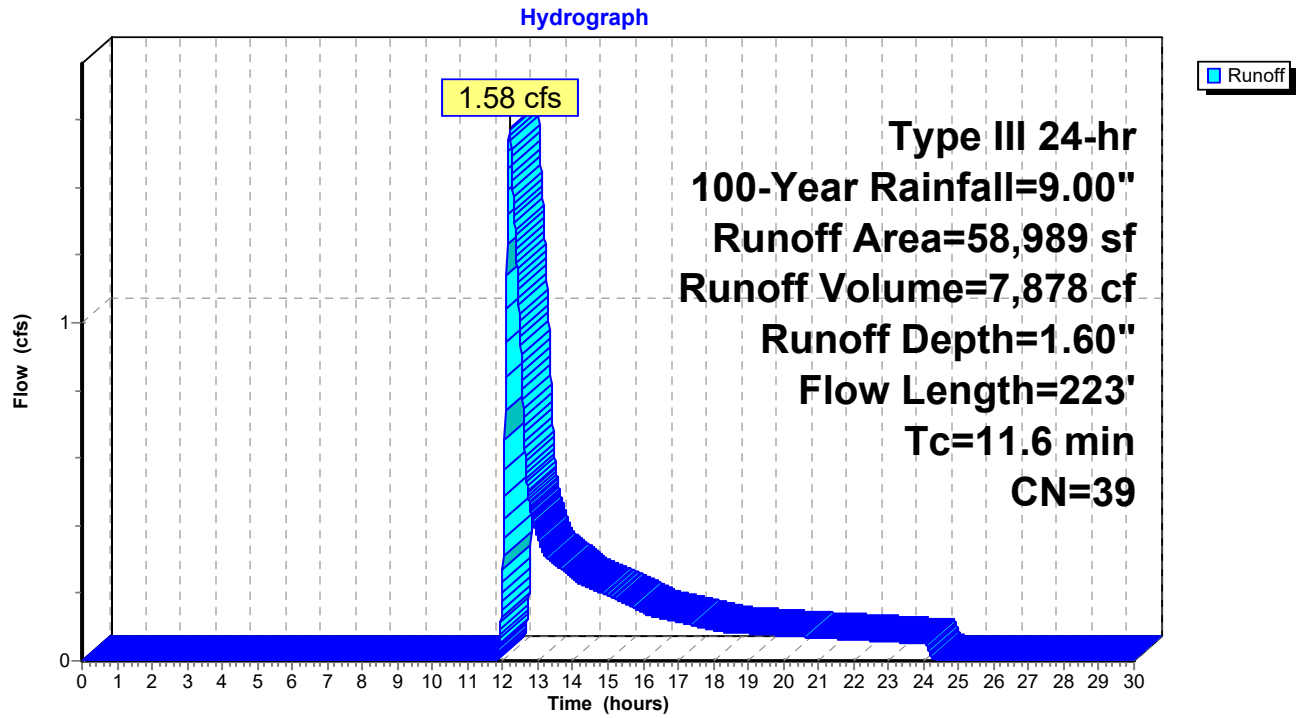
Runoff = 1.58 cfs @ 12.20 hrs, Volume= 7,878 cf, Depth= 1.60"
Routed to Reach DP3 : DP3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.00"

Area (sf)	CN	Description
58,989	39	Pasture/grassland/range, Good, HSG A
58,989		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	100	0.0400	0.17		**Sheet Flow, SHEET FLOW** Grass: Dense n= 0.240 P2= 4.00"
1.9	123	0.0250	1.11		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	223	Total			

Subcatchment 3CPOST: WS #3C POST



Summary for Subcatchment 3PRE: WS #3 PRE

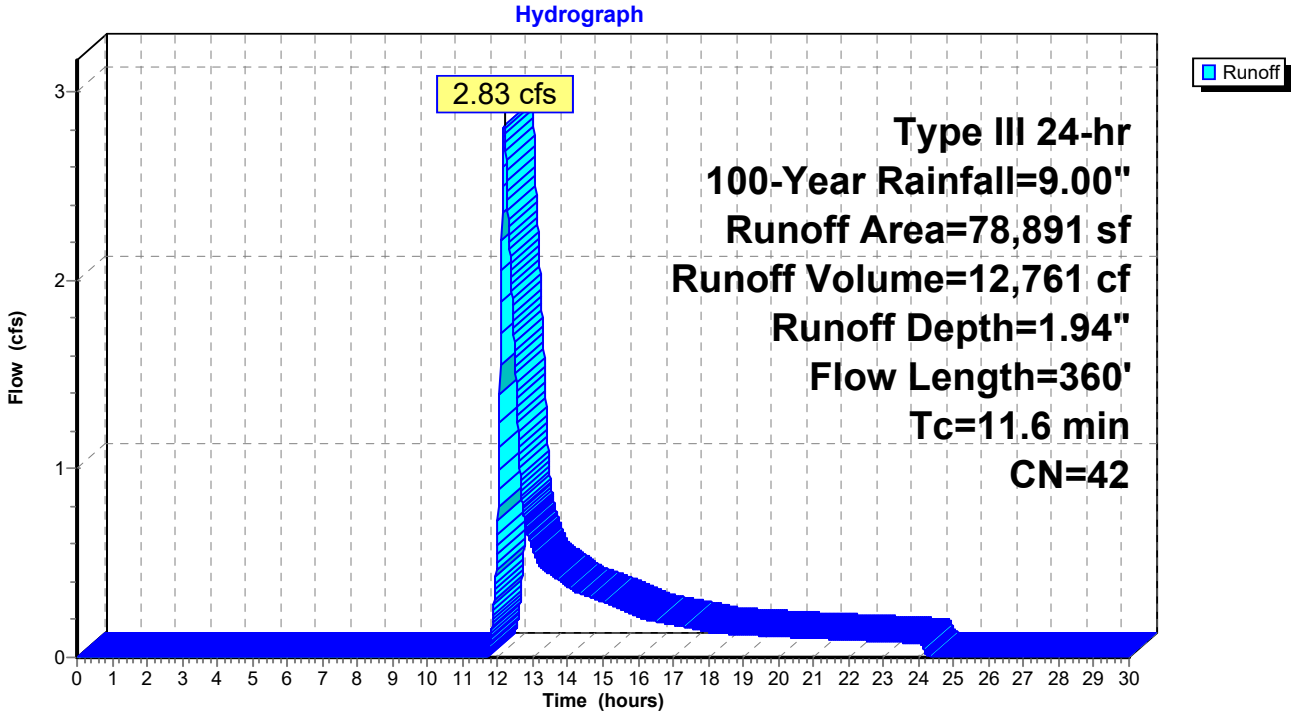
Runoff = 2.83 cfs @ 12.18 hrs, Volume= 12,761 cf, Depth= 1.94"
Routed to nonexistent node 4R

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.00"

Area (sf)	CN	Description
74,772	39	Pasture/grassland/range, Good, HSG A
4,119	92	Paved roads w/open ditches, 50% imp, HSG C
78,891	42	Weighted Average
76,832		97.39% Pervious Area
2,060		2.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0250	0.21		**Sheet Flow, SHEET FLOW** Grass: Short n= 0.150 P2= 4.00"
3.6	260	0.0300	1.21		**Shallow Concentrated Flow, SHALLOW FLOW TO DP3** Short Grass Pasture Kv= 7.0 fps
11.6	360	Total			

Subcatchment 3PRE: WS #3 PRE

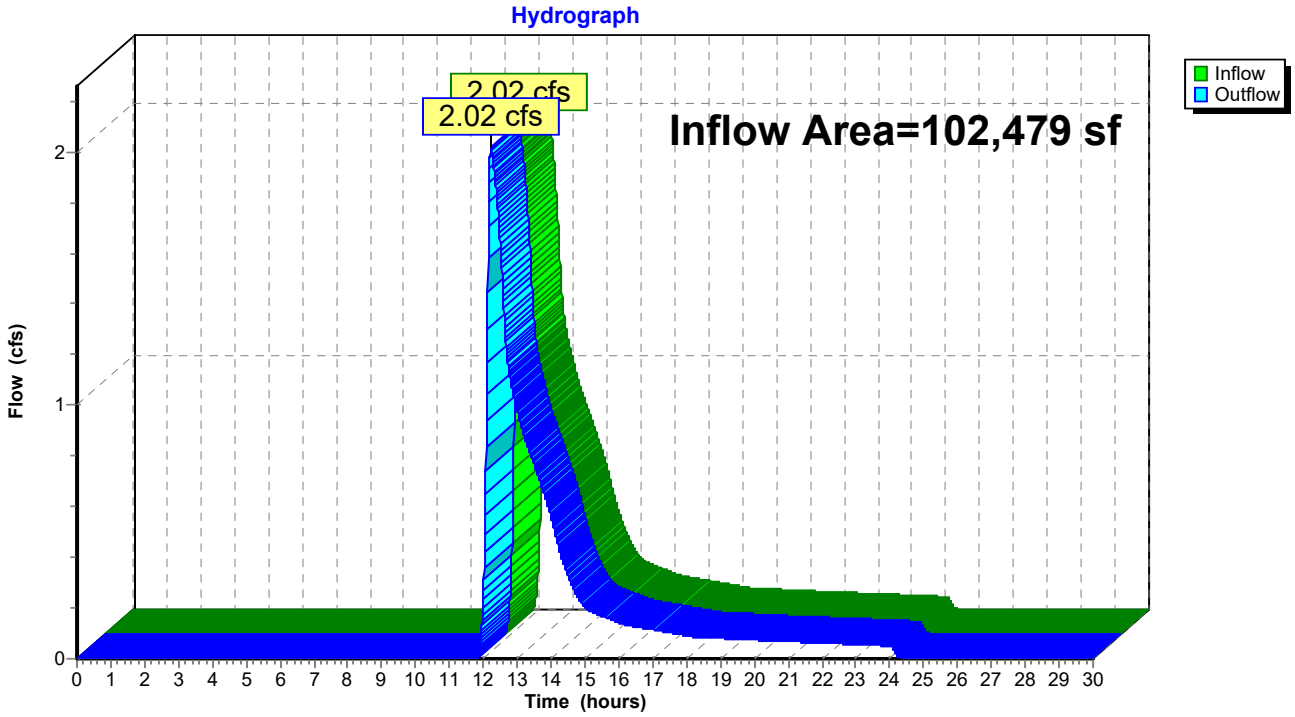


Summary for Reach DP3: DP3

Inflow Area = 102,479 sf, 42.44% Impervious, Inflow Depth = 1.40" for 100-Year event
Inflow = 2.02 cfs @ 12.22 hrs, Volume= 11,990 cf
Outflow = 2.02 cfs @ 12.22 hrs, Volume= 11,990 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP3: DP3



Summary for Pond ADS #1: ADS #1

Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 8.76" for 100-Year event
Inflow = 4.74 cfs @ 12.08 hrs, Volume= 17,062 cf
Outflow = 0.70 cfs @ 12.57 hrs, Volume= 17,062 cf, Atten= 85%, Lag= 29.3 min
Discarded = 0.36 cfs @ 12.57 hrs, Volume= 15,011 cf
Primary = 0.33 cfs @ 12.57 hrs, Volume= 2,050 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 304.23' @ 12.57 hrs Surf.Area= 4,571 sf Storage= 5,717 cf
Flood Elev= 306.91' Surf.Area= 4,571 sf Storage= 9,872 cf

Plug-Flow detention time= 82.2 min calculated for 17,056 cf (100% of inflow)
Center-of-Mass det. time= 82.2 min (822.0 - 739.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	4,084 cf	**44.25'W x 103.30'L x 3.50'H Field A** 15,998 cf Overall - 5,788 cf Embedded = 10,210 cf x 40.0% Voids
#2A	302.91'	5,788 cf	**ADS_StormTech SC-740 +Cap** x 126 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 126 Chambers in 9 Rows
		9,872 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 145.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.36 cfs @ 12.57 hrs HW=304.23' (Free Discharge)
└**4=Exfiltration** (Controls 0.36 cfs)

Primary OutFlow Max=0.33 cfs @ 12.57 hrs HW=304.23' (Free Discharge)
└**1=Culvert** (Passes 0.33 cfs of 2.95 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.33 cfs @ 3.41 fps)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #1: ADS #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

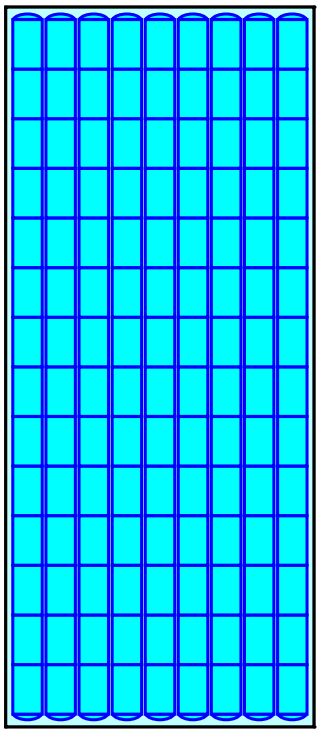
14 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 101.30' Row Length +12.0" End Stone x 2 = 103.30' Base Length
9 Rows x 51.0" Wide + 6.0" Spacing x 8 + 12.0" Side Stone x 2 = 44.25' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

126 Chambers x 45.9 cf = 5,788.4 cf Chamber Storage

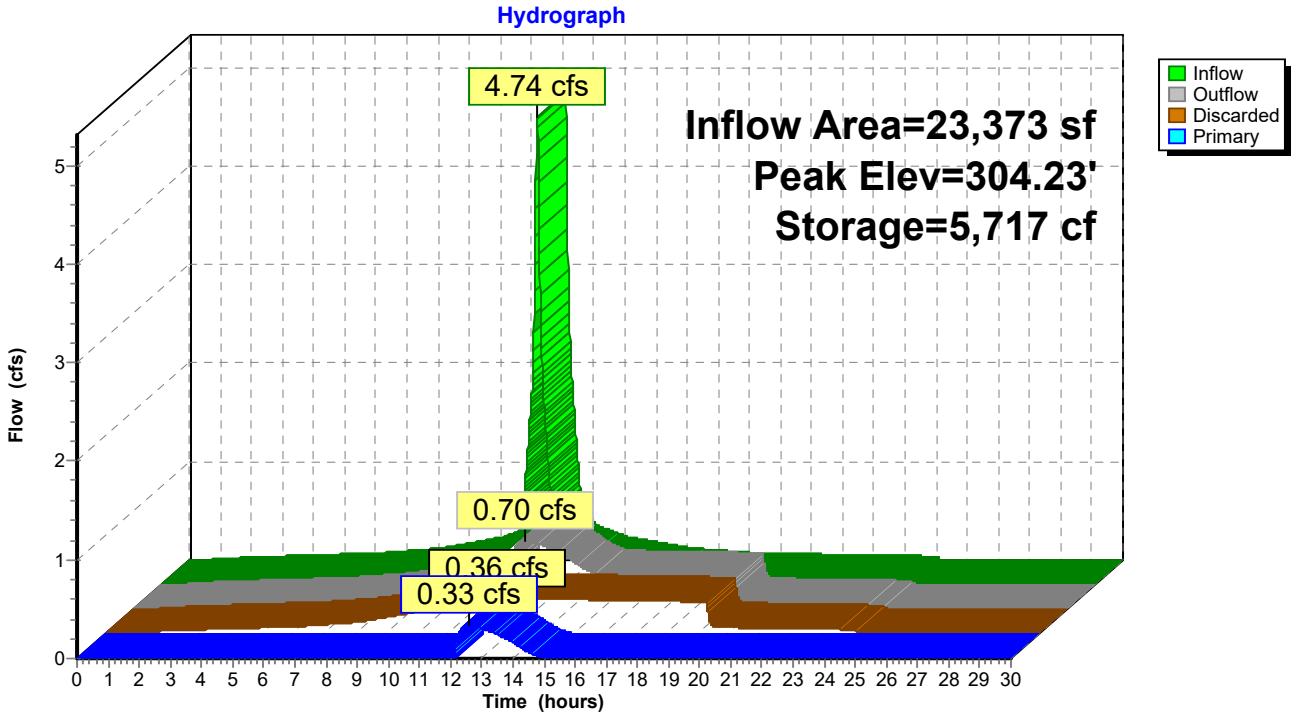
15,998.1 cf Field - 5,788.4 cf Chambers = 10,209.6 cf Stone x 40.0% Voids = 4,083.9 cf Stone Storage

Chamber Storage + Stone Storage = 9,872.3 cf = 0.227 af
Overall Storage Efficiency = 61.7%
Overall System Size = 103.30' x 44.25' x 3.50'

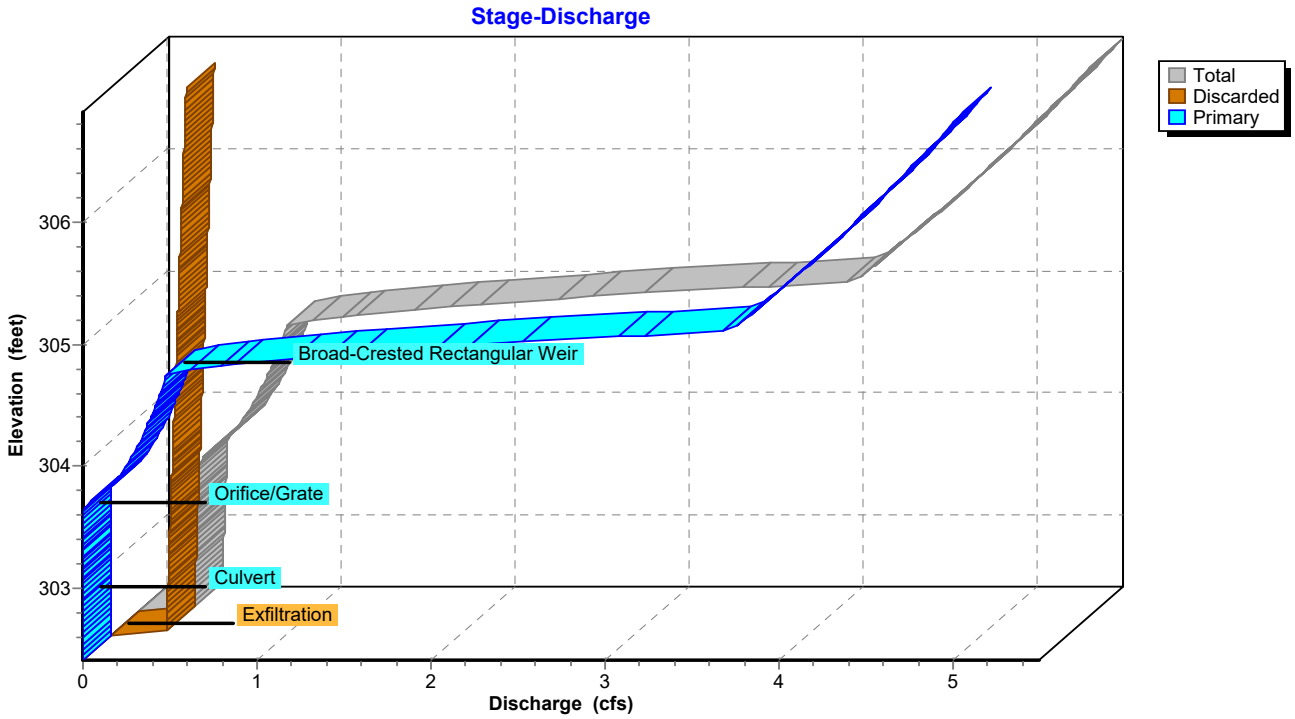
126 Chambers
592.5 cy Field
378.1 cy Stone



Pond ADS #1: ADS #1



Pond ADS #1: ADS #1



Summary for Pond ADS #2: ADS #2

Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 8.76" for 100-Year event
Inflow = 4.08 cfs @ 12.08 hrs, Volume= 14,685 cf
Outflow = 0.65 cfs @ 12.55 hrs, Volume= 14,685 cf, Atten= 84%, Lag= 28.1 min
Discarded = 0.30 cfs @ 12.55 hrs, Volume= 12,624 cf
Primary = 0.35 cfs @ 12.55 hrs, Volume= 2,061 cf
Routed to Reach DP3 : DP3

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 304.28' @ 12.55 hrs Surf.Area= 3,799 sf Storage= 4,879 cf
Flood Elev= 306.91' Surf.Area= 3,799 sf Storage= 8,185 cf

Plug-Flow detention time= 79.6 min calculated for 14,680 cf (100% of inflow)
Center-of-Mass det. time= 79.6 min (819.4 - 739.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	302.41'	3,407 cf	**39.50'W x 96.18'L x 3.50'H Field A** 13,296 cf Overall - 4,778 cf Embedded = 8,519 cf x 40.0% Voids
#2A	302.91'	4,778 cf	**ADS_StormTech SC-740 +Cap** x 104 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 104 Chambers in 8 Rows
		8,185 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	302.91'	**12.0" Round Culvert** L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 302.91' / 302.00' S= 0.0065 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	303.60'	**3.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	304.75'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	302.41'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 290.00'

Discarded OutFlow Max=0.30 cfs @ 12.55 hrs HW=304.28' (Free Discharge)
└**4=Exfiltration** (Controls 0.30 cfs)

Primary OutFlow Max=0.35 cfs @ 12.55 hrs HW=304.28' (Free Discharge)
└**1=Culvert** (Passes 0.35 cfs of 2.93 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.35 cfs @ 3.58 fps)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond ADS #2: ADS #2 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

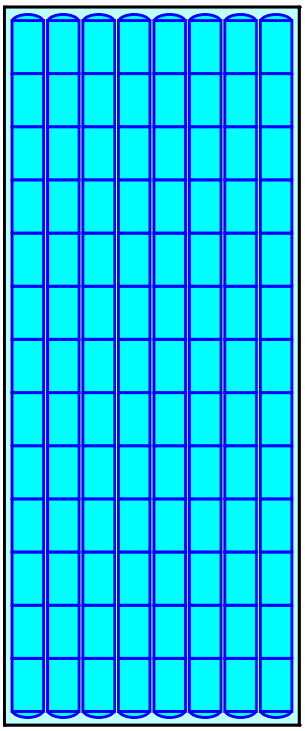
13 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 94.18' Row Length +12.0" End Stone x 2 = 96.18' Base Length
8 Rows x 51.0" Wide + 6.0" Spacing x 7 + 12.0" Side Stone x 2 = 39.50' Base Width
6.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 3.50' Field Height

104 Chambers x 45.9 cf = 4,777.8 cf Chamber Storage

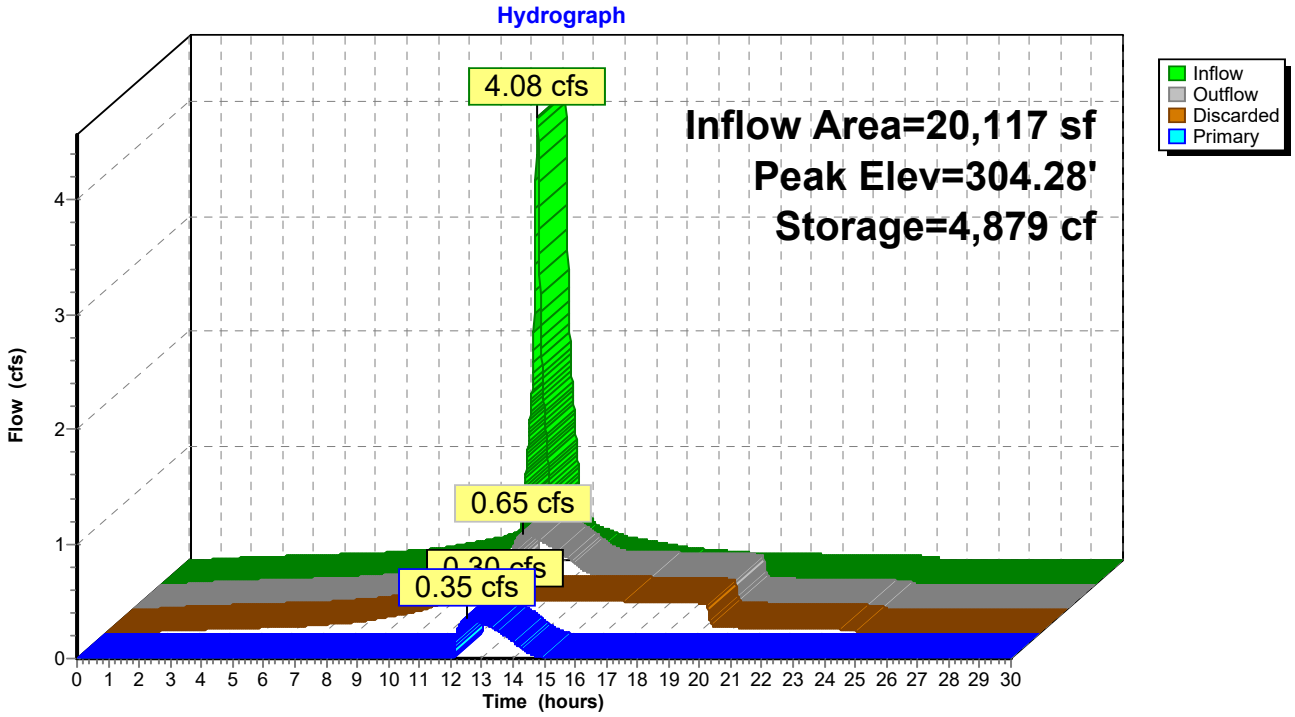
13,296.4 cf Field - 4,777.8 cf Chambers = 8,518.7 cf Stone x 40.0% Voids = 3,407.5 cf Stone Storage

Chamber Storage + Stone Storage = 8,185.2 cf = 0.188 af
Overall Storage Efficiency = 61.6%
Overall System Size = 96.18' x 39.50' x 3.50'

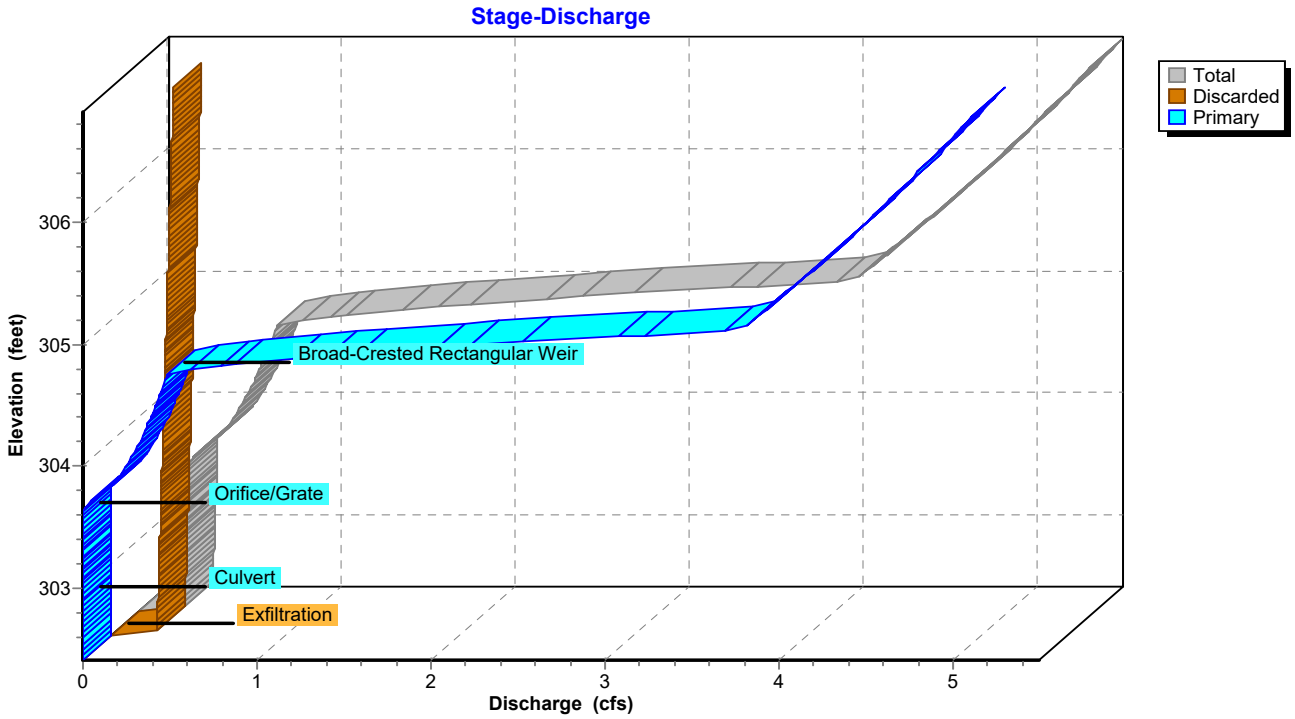
104 Chambers
492.5 cy Field
315.5 cy Stone



Pond ADS #2: ADS #2



Pond ADS #2: ADS #2



Summary for Pond CB1: CB-1

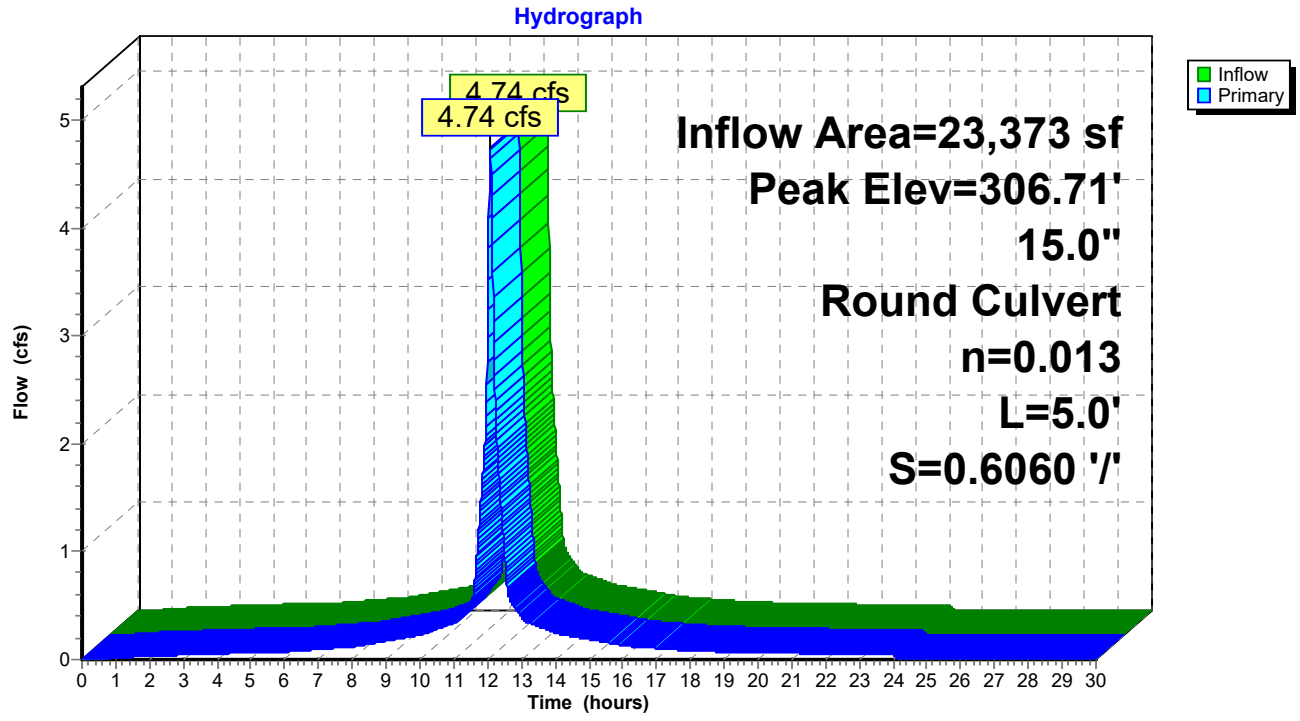
Inflow Area = 23,373 sf,100.00% Impervious, Inflow Depth = 8.76" for 100-Year event
Inflow = 4.74 cfs @ 12.08 hrs, Volume= 17,062 cf
Outflow = 4.74 cfs @ 12.08 hrs, Volume= 17,062 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.74 cfs @ 12.08 hrs, Volume= 17,062 cf
Routed to Pond ADS #1 : ADS #1

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 306.71' @ 12.08 hrs
Flood Elev= 308.59'

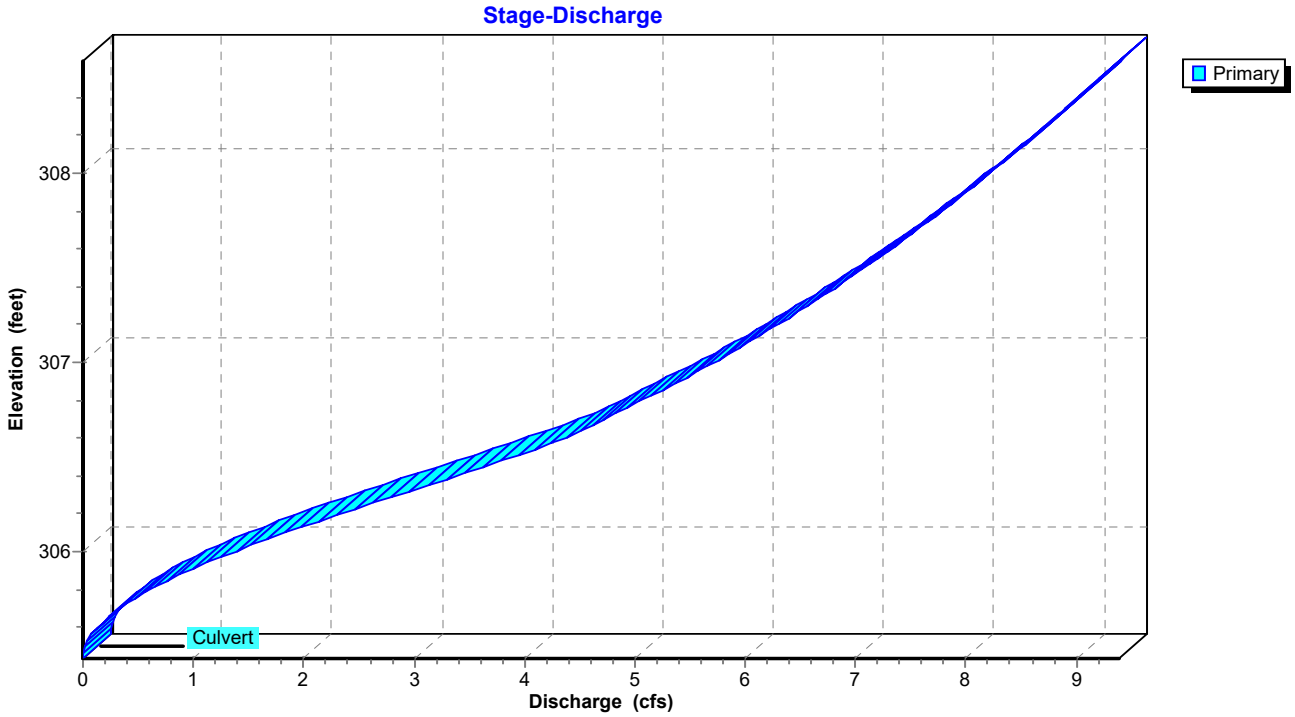
Device	Routing	Invert	Outlet Devices
#1	Primary	305.44'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 305.44' / 302.41' S= 0.6060 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=4.74 cfs @ 12.08 hrs HW=306.71' (Free Discharge)
1=Culvert (Inlet Controls 4.74 cfs @ 3.86 fps)

Pond CB1: CB-1



Pond CB1: CB-1


Stage-Discharge
Primary
Elevation (feet)
308
307
306
Culvert
0
1
2
3
4
5
6
7
8
9
Discharge (cfs)

Summary for Pond CB3: CB-3

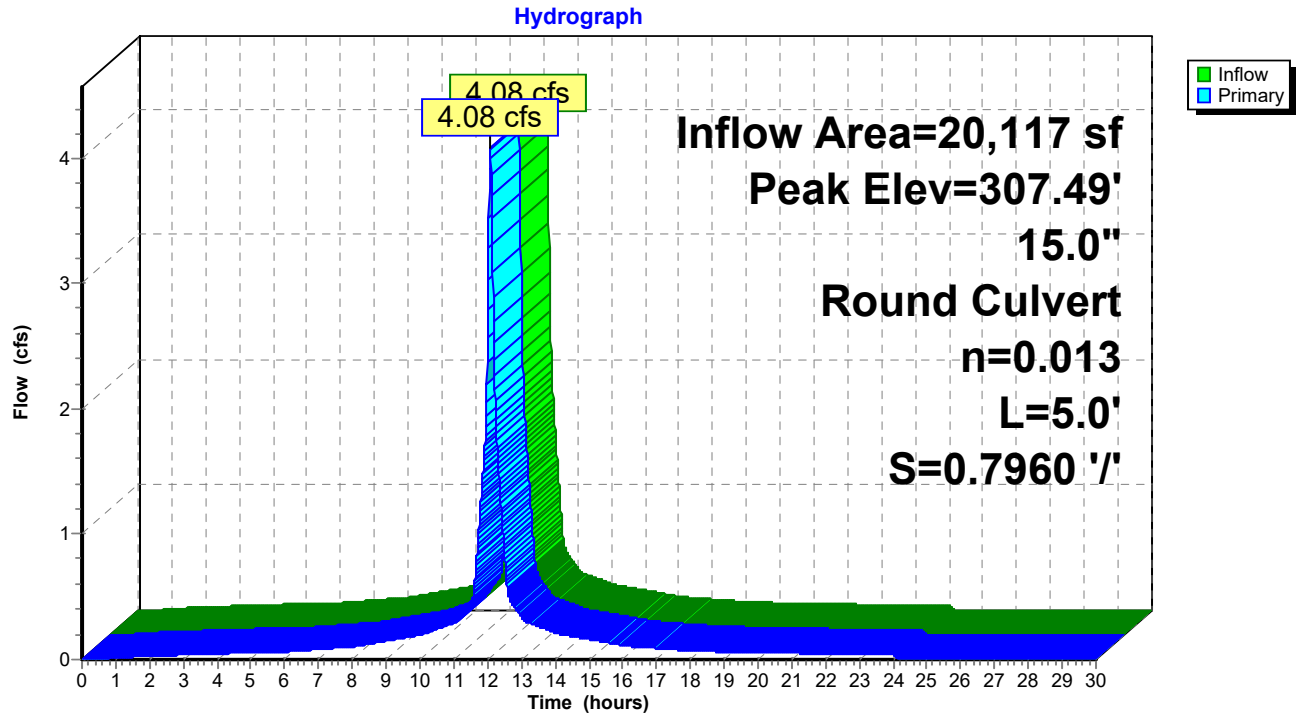
Inflow Area = 20,117 sf,100.00% Impervious, Inflow Depth = 8.76" for 100-Year event
Inflow = 4.08 cfs @ 12.08 hrs, Volume= 14,685 cf
Outflow = 4.08 cfs @ 12.08 hrs, Volume= 14,685 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.08 cfs @ 12.08 hrs, Volume= 14,685 cf
Routed to Pond ADS #2 : ADS #2

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 307.49' @ 12.08 hrs
Flood Elev= 308.80'

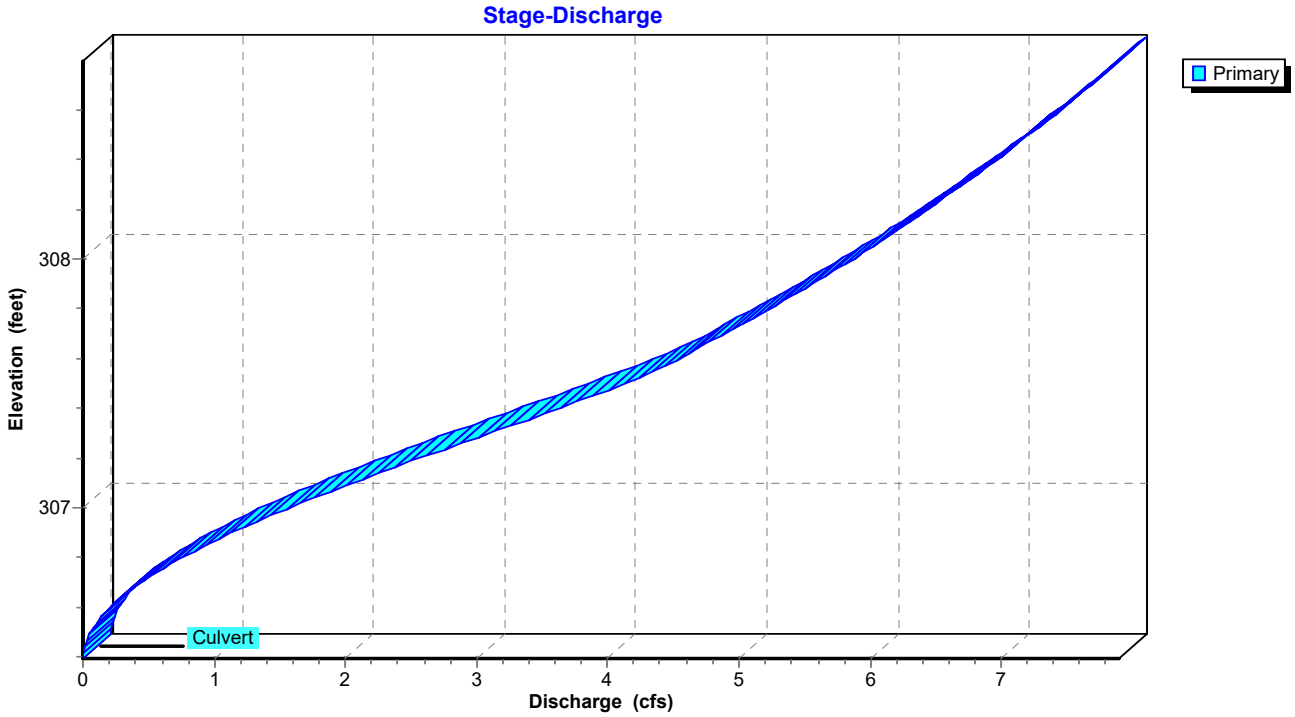
Device	Routing	Invert	Outlet Devices
#1	Primary	306.39'	**15.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 306.39' / 302.41' S= 0.7960 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=4.08 cfs @ 12.08 hrs HW=307.49' (Free Discharge)
1=Culvert (Inlet Controls 4.08 cfs @ 3.57 fps)

Pond CB3: CB-3



Pond CB3: CB-3


Stage-Discharge
Primary
Elevation (feet)
308
307
Culvert
0
1
2
3
4
5
6
7
Discharge (cfs)

ATTACHMENT 1

Construction Stormwater Compliance Inspection Report

Project Name and Location:	Date:	Page 1 of 2
	Permit # (if any): **NYR**	
Municipality: County:	Entry Time:	Exit Time:
On-site Representative(s) and contact information:	Weather Conditions:	
Name and Address of SPDES Permittee/Title/Phone/Fax Numbers: Contacted: Yes ☐ No ☐		

INSPECTION CHECKLIST

SPDES Authority

	Yes	No	N/A		Law, rule or permit citation
1.	☐	☐	☐	Is a copy of the NOI posted at the construction site for public viewing?	
2.	☐	☐	☐	Is an up-to-date copy of the signed SWPPP retained at the construction site?	
3.	☐	☐	☐	Is a copy of the SPDES General Permit retained at the construction site?	

SWPPP Content

	Yes	No	N/A		Law, rule or permit citation
4.	☐	☐	☐	Does the SWPPP describe and identify the erosion & sediment control measures to be employed?	
5.	☐	☐	☐	Does the SWPPP provide a maintenance schedule for the erosion & sediment control measures?	
6.	☐	☐	☐	Does the SWPPP describe and identify the post-construction SW control measures to be employed?	
7.	☐	☐	☐	Does the SWPPP identify the contractor(s) and subcontractor(s) responsible for each measure?	
8.	☐	☐	☐	Does the SWPPP include all the necessary 'CONTRACTOR CERTIFICATION' statements?	
9.	☐	☐	☐	Is the SWPPP signed/certified by the permittee?	

Recordkeeping

	Yes	No	N/A		Law, rule or permit citation
10.	☐	☐	☐	Are inspections performed as required by the permit (every 7 days and after ½" rain event)?	
11.	☐	☐	☐	Are the site inspections performed by a qualified professional?	
12.	☐	☐	☐	Are all required reports properly signed/certified?	
13.	☐	☐	☐	Does the SWPPP include copies of the monthly/quarterly written summaries of compliance status?	

Visual Observations

	Yes	No	N/A		Law, rule or permit citation
14.	☐	☐	☐	Are all erosion and sediment control measures installed/constructed?	
15.	☐	☐	☐	Are all erosion and sediment control measures maintained properly?	
16.	☐	☐	☐	Have all disturbances of 5 acres or more been approved prior to the disturbance?	
17.	☐	☐	☐	Are stabilization measures initiated in inactive areas?	
18.	☐	☐	☐	Are permanent stormwater control measures implemented?	
19.	☐	☐	☐	Was there a discharge into the receiving water on the day of inspection?	
20.	☐	☐	☐	Are receiving waters free of there evidence of turbidity, sedimentation, or oil ? (If no , complete Page 2)	

Overall Inspection Rating: ❑ Satisfactory ❑ Marginal ❑ Unsatisfactory	
Name/Agency of Lead Inspector:	**Signature of Lead Inspector:**
Names/Agencies of Other Inspectors:	

Water Quality Observations

Describe the discharge(s) [source(s), impact on receiving water(s), etc.] ____

____

____

____

____

Describe the quality of the receiving water(s) both upstream and downstream of the discharge________________________________

____

____

____

____

Describe any other water quality standards or permit violations ____

____

____

Additional Comments:____

____

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☐ Photographs attached

APPENDIX C

APPENDIX H

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM FOR CONSTRUCTION ACTIVITIES

CONSTRUCTION SITE LOG BOOK

Table of Contents

Properly completing forms such as those contained in Appendix H meet the inspection requirement of NYS-DEC SPDES GP for Construction Activities. Completed forms shall be kept on site at all times and made available to authorities upon request.

I. PRE-CONSTRUCTION MEETING DOCUMENTS
Project Name _____
Permit No. _____ Date of Authorization _____
Name of Operator _____
Prime Contractor _____

a. Preamble to Site Assessment and Inspections
The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

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

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

When construction starts, site inspections shall be conducted by the qualified professional at least every 7 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater (Construction Duration Inspections). The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request. The Operator shall post at the site, in a publicly accessible location, a summary of the site inspection activities on a monthly basis (Monthly Summary Report).

The operator shall also prepare a written summary of compliance with this general permit at a minimum frequency of every three months (Operator's Compliance Response Form), while coverage exists. The summary should address the status of achieving each component of the SWPPP.

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

1 "Qualified Professional means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a Certified Professional in Erosion and Sediment Control (CPESC), soil scientist, licensed engineer or someone working under the direction and supervision of a licensed engineer (person must have experience in the principles and practices of erosion and sediment control).

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

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

b. Operators Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. Further, I hereby certify that the SWPPP meets all Federal, State, and local erosion and sediment control requirements. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law.

Name (please print): _____

Title _____ **Date:** _____

Address: _____

Phone: _____ **Email:** _____

Signature: _____

c. Qualified Professional's Credentials & Certification

"I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the following Pre-construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction."

Name (please print): _____

Title _____ **Date:** _____

Address: _____

Phone: _____ **Email:** _____

Signature: _____

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

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

Yes No NA

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

2. Resource Protection

Yes No NA

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

3. Surface Water Protection

Yes No NA

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

4. Stabilized Construction Entrance

Yes No NA

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

5. Perimeter Sediment Controls

Yes No NA

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

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

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

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:
Inspection Forms will be filled out during the entire construction phase of the project.
Required Elements:

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

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

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

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

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

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

SITE PLAN/SKETCH

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

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

Maintaining Water Quality

Yes No NA
[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions
Yes No NA
[ ] [ ] [ ] Is construction site litter and debris appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

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

Runoff Control Practices

1. Excavation Dewatering
Yes No NA
[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

2. Level Spreader
Yes No NA
[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

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

Runoff Control Practices (continued)

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

5. Rock Outlet Protection
Yes No NA
[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles
Yes No NA
[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation
Yes No NA
[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Stabilized Construction Entrance
Yes No NA
[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence
Yes No NA
[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

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

Yes No NA

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

Sediment accumulation ___% of design capacity.

4. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.

Sediment accumulation is ___% of design capacity.

5. Temporary Sediment Basin

Yes No NA

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

Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design.
Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

CONSTRUCTION DURATION INSPECTIONS

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

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

Modification & Reason:

III. Monthly Summary of Site Inspection Activities

Name of Permitted Facility:	Today's Date:	Reporting Month:
Location:	Permit Identification #:	
Name and Telephone Number of Site Inspector:		

Date of Inspection	Regular / Rainfall based Inspection	Name of Inspector	Items of Concern

Owner/Operator Certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

_____ _____

Signature of Permittee or Duly Authorized Representative Name of Permittee or Duly Authorized Representative Date

Duly authorized representatives must have written authorization, submitted to DEC, to sign any permit documents.

APPENDIX D

NOI for coverage under Stormwater General Permit for Construction Activity

version 1.34

(Submission #: HPB-H888-ESKNG, version 1)

Details

Originally Started By	Michael Morgante
Submission ID	HPB-H888-ESKNG
Submission Reason	New
Status	Draft

Form Input

Owner/Operator Information

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
61 East Main Street Associates, LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Halpern

Owner/Operator Contact Person First Name
Moshe

Owner/Operator Mailing Address
61 East Main Street

City
Washingtonville

State
New York

Zip
10992

Phone
718-930-1877

Email
moche@bloomingrealty.com

Federal Tax ID
NONE PROVIDED

Project Location

Project/Site Name
Site Plan & Lot Line Removal for 61 East Main Street Assoc., LLC

Street Address (Not P.O. Box)
61 East Main Street

Side of Street
South

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Village - Washingtonville

State
NY

Zip
10992

DEC Region
3

County
ORANGE

Name of Nearest Cross Street
Brotherhood Plaza Drive

Distance to Nearest Cross Street (Feet)
350

Project In Relation to Cross Street
West

Tax Map Numbers Section-Block-Parcel
113-2-31 & 114-1-3.22

Tax Map Numbers
NONE PROVIDED

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:
- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates
41.42709809999999,-74.1617277

Project Details

2. What is the nature of this project?
Redevelopment with increase in impervious area

3. Select the predominant land use for both pre and post development conditions.

Pre-Development Existing Landuse
Multifamily Residential

Post-Development Future Land Use
Multifamily Residential

3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.
NONE PROVIDED

---

4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)
4.5

Total Area to be Disturbed (acres)
2.113

Existing Impervious Area to be Disturbed (acres)
0.43

Future Impervious Area Within Disturbed Area (acres)
1.13

5. Do you plan to disturb more than 5 acres of soil at any one time?
No

---

6. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
70

B (%)
15

C (%)
0

D (%)
15

7. Is this a phased project?
No

8. Enter the planned start and end dates of the disturbance activities.

Start Date
8/1/2022

End Date
8/1/2023

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Otterkill Creek

9a. Type of waterbody identified in question 9?
Stream/Creek On Site

Other Waterbody Type Off Site Description
NONE PROVIDED

9b. If "wetland" was selected in 9A, how was the wetland identified?
NONE PROVIDED

10. Has the surface waterbody(ies in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001?
No

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001?
No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?
No

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey?
No

If Yes, what is the acreage to be disturbed?
NONE PROVIDED

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
No

16. What is the name of the municipality/entity that owns the separate storm sewer system?
NONE PROVIDED

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?
No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

19. Is this property owned by a state authority, state agency, federal government or local government?
No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)
No

Required SWPPP Components

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?
Yes

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?
Yes

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

SWPPP Preparer
Arden Consulting Engineers, PLLC

Contact Name (Last, Space, First)
Michael A. Morgante, P.E.

Mailing Address
POB 340

City
Monroe

State
New York

Zip
10950

Phone
8452342510

Email
mam@ardenconsulting.net

Download SWPPP Preparer Certification Form
Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form

3) Scan the signed form
4) Upload the scanned document
Download SWPPP Preparer Certification Form

Please upload the SWPPP Preparer Certification
swpppcert.pdf - 09/06/2021 11:01 AM
Comment
NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?
Yes

26. Select all of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural
Silt Fence
Stabilized Construction Entrance
Sediment Traps

Biotechnical
None

Vegetative Measures
Seeding
Mulching

Permanent Structural
Rock Outlet Protection

Other
NONE PROVIDED

Post-Construction Criteria

*** IMPORTANT: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
Preservation of Undisturbed Area
Reduction of Clearing and Grading
Locating Development in Less Sensitive Areas

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)
0.18

29. Post-construction SMP Identification
Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)
0.18

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?
Yes

If Yes, go to question 36. If No, go to question 32.

32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)
NONE PROVIDED

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?
NONE PROVIDED

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. SMPs
Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question #29. (acre-feet)
NONE PROVIDED

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).
NONE PROVIDED

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?
NONE PROVIDED

If Yes, go to question 36.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv required and provided or select waiver (#36a), if applicable.

CPv Required (acre-feet)
0.28

CPv Provided (acre-feet)
0.28

36a. The need to provide channel protection has been waived because:
NONE PROVIDED

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (#37a), if applicable.

Overbank Flood Control Criteria (Qp)

Pre-Development (CFS)
0.18

Post-Development (CFS)
0.05

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)
2.83

Post-Development (CFS)
2.01

37a. The need to meet the Qp and Qf criteria has been waived because:
NONE PROVIDED

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
Yes

If Yes, Identify the entity responsible for the long term Operation and Maintenance
Property Owner

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.
NONE PROVIDED

Post-Construction SMP Identification

Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs
Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

RR Techniques (Area Reduction)

Round to the nearest tenth

Total Contributing Acres for Conservation of Natural Area (RR-1)
0.75

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)
1.0

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
NONE PROVIDED

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

Total Contributing Impervious Acres for Vegetated Swale (RR-5)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Garden (RR-6)
NONE PROVIDED

Total Contributing Impervious Acres for Stormwater Planter (RR-7)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)
NONE PROVIDED

Total Contributing Impervious Acres for Porous Pavement (RR-9)
NONE PROVIDED

Total Contributing Impervious Acres for Green Roof (RR-10)
NONE PROVIDED

Standard SMPs with RRv Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)
NONE PROVIDED

Total Contributing Impervious Acres for Infiltration Basin (I-2)
NONE PROVIDED

Total Contributing Impervious Acres for Dry Well (I-3)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Infiltration System (I-4)
1.0

Total Contributing Impervious Acres for Bioretention (F-5)
NONE PROVIDED

Total Contributing Impervious Acres for Dry Swale (O-1)
NONE PROVIDED

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Pond (P-2)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Extended Detention (P-3)
NONE PROVIDED

Total Contributing Impervious Acres for Multiple Pond System (P-4)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Pond (P-5)
NONE PROVIDED

Total Contributing Impervious Acres for Surface Sand Filter (F-1)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Sand Filter (F-2)
NONE PROVIDED

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)
NONE PROVIDED

Total Contributing Impervious Acres for Organic Filter (F-4)
NONE PROVIDED

Total Contributing Impervious Acres for Shallow Wetland (W-1)
NONE PROVIDED

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)
NONE PROVIDED

Total Contributing Impervious Acres for Pond/Wetland System (W-3)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Wetland (W-4)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Swale (O-2)
NONE PROVIDED

Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Total Contributing Impervious Area for Hydrodynamic
NONE PROVIDED

Total Contributing Impervious Area for Wet Vault
NONE PROVIDED

Total Contributing Impervious Area for Media Filter
NONE PROVIDED

"Other" Alternative SMP?
NONE PROVIDED

Total Contributing Impervious Area for "Other"
NONE PROVIDED

Provide the name and manufaturer of the alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

Manufacturer of Alternative SMP
ADS

Name of Alternative SMP
Stormtech Chambers

Other Permits

40. Identify other DEC permits, existing and new, that are required for this project/facility.
None

If SPDES Multi-Sector GP, then give permit ID
NONE PROVIDED

If Other, then identify
NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?
No

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth
NONE PROVIDED

42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.
NONE PROVIDED

MS4 SWPPP Acceptance

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?
Yes - Please attach the MS4 Acceptance form below

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?
NONE PROVIDED

MS4 SWPPP Acceptance Form Download
Download form from the link below. Complete, sign, and upload.
MS4 SWPPP Acceptance Form

MS4 Acceptance Form Upload
swpppaccept.pdf - 09/06/2021 11:20 AM
Comment
NONE PROVIDED

Owner/Operator Certification

Owner/Operator Certification Form Download
Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.
Owner/Operator Certification Form (PDF, 45KB)

Upload Owner/Operator Certification Form
constnoioocert.pdf - 09/06/2021 11:30 AM
Comment
NONE PROVIDED

Attachments

Date	Attachment Name	Context	User
9/6/2021 11:30 AM	constnoioocert.pdf	Attachment	Michael Morgante
9/6/2021 11:20 AM	swpppaccept.pdf	Attachment	Michael Morgante
9/6/2021 11:01 AM	swpppcert.pdf	Attachment	Michael Morgante

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit For Stormwater Discharges From Construction Activity (GP-0-20-001)

Project/Site Name: Site Plan & Lot Line Removal for 61 East Main Street Assoc., LLC

eNOI Submission Number: HPB-H888-ESKNG

eNOI Submitted by: ☐ **Owner/Operator** ☑ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Owner/Operator First Name M.I. Last Name

_____

Signature

_____

Date

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

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

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

I. Project Owner/Operator Information	
1. Owner/Operator Name:	61 East Main Street Assoc., LLC
2. Contact Person:	Moshe Halpern
3. Street Address:	61 East Main Street
4. City/State/Zip:	Washingtonville, NY 10992
II. Project Site Information	
5. Project/Site Name:	Site Plan & Lot Line Removal for 61 East Main Street Assoc., LLC
6. Street Address:	61 East Main Street
7. City/State/Zip:	Washingtonville, NY 10992
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	John Petroccione, P.E.
9. Title/Position:	Planning Board Engineer
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4:	Washingtonville
12. MS4 SPDES Permit Identification Number: NYR20A	236
13. Contact Person:	Joseph Bucco
14. Street Address:	9 Fairlawn Drive
15. City/State/Zip:	Washingtonville, NY 10992
16. Telephone Number:	845-496-3221

MS4 SWPPP Acceptance Form - continued

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

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

Printed Name: Joseph Bucco

Title/Position: Village Mayor

Signature:

Date:

VI. Additional Information

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

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges From Construction Activity (GP-0-20-001)

Project Site Information

Project/Site Name

Site Plan & Lot Line Removal for 61 East Main Street Assoc., LLC

Owner/Operator Information

Owner/Operator (Company Name/Private Owner/Municipality Name)

61 East Main Street Assoc., LLC

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Michael	A	Morgante
First name	MI	Last Name

Signature

Date

Revised: January 2020

APPENDIX E

CONSTRUCTION WASTE MANAGEMENT & SPILL PREVENTION PLAN

At the commencement of construction, land clearing materials will be collected and stored on-site for re-use. Construction debris such as cardboard, concrete, metal, wood and similar garbage will be collected in dumpsters and disposed of properly. An open top container will be on site during construction. The contractor will be responsible for organizing and placing containers on site and timely removal/replacement when containers are filled to capacity.

On-site storage of fuel chemicals shall be equipped with a spill kit. The contractor must provide secondary containment for storing any hazardous chemicals on site.

All equipment stored on site shall be inspected daily by the contractor for any oil or lubricant spills or leaks. Any leaks shall be repaired immediately. In addition, all equipment must be closely inspected prior to working in the Village R.O.W.

The contractor shall clean all spills immediately and shall report all spills to the New York State Department of Environmental Conservation.

This plan will be displayed in the construction jobsite trailer at all times.

APPENDIX F

Contractor Certification Statement

_____ NYR_____ _____

Name of Construction Site | DEC Permit ID | Municipality (MS4)

I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version New York State Pollution Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of State of New York and could subject me to criminal, civil and /or administrative proceedings.

Name _____ Title _____

Signature _____ Date _____

Company Name & Address _____ Phone_____

_____

Project Site Address _____

Provisions Responsible for _____

_____

_____

Information on the Trained Certified Contractor or Subcontractor

_____ _____ _____

Name of Trained Employee | Title of Trained Employee | NYSDEC SWT#

A copy of this signed contractor certification statement must be maintained in the SWPPP on site.

APPENDIX G

Village of Washingtonville
Stormwater Management Facility Easement and Maintenance Agreement

THIS AGREEMENT is made this ____ day of _____ 2022 by and between the Village of Washingtonville, having an address at 9 Fairlawn Drive, Washingtonville, NY 10992 ("Municipality" or "Village") and _____ a New York limited liability company (or individual or corporation) having an address at _____ (the "Facility Owner").

WHEREAS, the Facility Owner is the owner of certain real property in the Village of Washingtonville County of Orange, State of New York, consisting of approximately _____ acres more particularly described in Schedule "A" annexed hereto and made a part hereof (the "Property"); and with a street address of _____ and further known as S-B-L ____-____-____; and further known as the _____ commercial site plan; and

WHEREAS, the project plans were approved by the Village of Washingtonville Planning Board on _____, 2022 with various conditions; and

WHEREAS, the Municipality and the Facility Owner have to enter into an agreement to provide for the long-term maintenance and continuation of stormwater control measures and facilities approved by the Municipality for the below named project; and

WHEREAS, the Municipality and the Facility Owner desire that the stormwater control measures and facilities be built in accordance with the approved project plans and thereafter be maintained, cleaned, repaired, replaced and continued in perpetuity in order to ensure optimum performance of the components.

NOW, THEREFORE, the Municipality and the Facility Owner agree as follows:

1. This agreement binds the Municipality and the Facility Owner, its successors and assigns to the maintenance provisions depicted in the approved project plans and described in the Stormwater Pollution Prevention Plan (SWPPP) which are on file with the Municipality's Stormwater Management Officer and where the operation and maintenance requirements are clearly set forth. The Facility Owner shall remain solely responsible for operation and maintenance in perpetuity and the Village assumes no operation, maintenance, control or responsibility in respect thereof.

2. The Facility Owner shall install, maintain, clean, repair, replace and continue the stormwater control measures depicted on the approved project plans for the Facility on and about the Property, as necessary to ensure optimum performance of the measures and in accordance with the approved design specifications. The stormwater control measures are identified in the Stormwater Pollution Prevention Plan (SWPPP) approved by the Municipality and shall be in accord with the project plans approved by the Planning Board.

3. The Facility Owner shall be responsible for all expenses, costs and professional fees related to the installation and perpetual maintenance of the stormwater control measures and shall promptly comply with any future regulatory requirements as applicable and shall indemnify and hold the Municipality harmless from all actions, proceedings, including regulatory proceedings, including the Villages reasonable professional fees related thereto, and for all claims, damages, injuries and fines relative to the stormwater control measures and facilities.

4. The Facility Owner shall provide for the periodic inspection of the stormwater control measures, not less than once every 2 years, to determine the condition and integrity of the measures. Such inspection shall be performed by a Professional Engineer licensed by the State of New York. The inspecting engineer shall prepare and submit to the Municipality within 30 days of the inspection, a written report of the findings including recommendations for those actions necessary for the continuation of the stormwater control measures. The Facility Owner shall undertake necessary maintenance, repairs and replacement of the stormwater control measures pursuant to the SWPPP or at the direction of the Municipality or in accordance with the recommendations of the inspecting engineer.

5. The Facility Owner shall not authorize, undertake or permit alteration, abandonment, modification or discontinuation of the stormwater control measures except in accordance with written approval of the Municipality. The obligations of the Facility Owner under paragraphs 2, 3 and 4 of this Agreement shall toll upon the completion of the establishment of a drainage district of the Municipality and the acceptance of the dedication of the stormwater control measures by the Municipality. Notwithstanding, the Municipality shall have no obligation to establish any such drainage district nor accept ownership of any of the stormwater control measures.

6. This agreement shall be recorded in the Office of the County Clerk, County of Orange at the expense of the Facility owner and shall be referenced in any offering plan and/or prospectus, lease, contract of sale or future transfer, however, the failure to so reference shall not affect the validity of this Agreement. All rights, title and privileges herein granted, including all benefits and burdens, shall run with the land and shall be binding upon and inure to the benefit of the parties hereto, their respective heirs, executors, administrators, successors, assigns and legal representatives.

7. If ever the Municipality determines that the Facility Owner has failed to construct or maintain the stormwater control measures and facilities in accordance with the project plans or has failed to undertake corrective action specified by the Municipality or by the inspecting engineer, the Municipality is authorized to undertake such steps as reasonably necessary for the preservation, continuation or maintenance of the stormwater control measures and facilities and is hereby authorized by the owner to assess the expenses thereof as a lien against the property to be collected in the same fashion as other municipal taxes. In lieu thereof, the Facility Owner shall reimburse the Municipality for all actual costs and expenses, incurred in enforcing this Agreement and curing a violation.

8. At any time after a violation of this Agreement is alleged by the Municipality, the owner, at the sole discretion of the Municipality, shall post security in an amount and in a form acceptable to the Municipality to ensure the owner's future performance and maintenance of the stormwater control measures.

9. The Facility Owner hereby grants to the Village, its authorized agents, contractors and employees, a permanent easement which runs with the land to enter upon the Property at reasonable times to inspect the stormwater control measures whenever the Village deems necessary to ensure that the facility is maintained in proper working condition to meet design standards, and to undertake such steps as the Village deems reasonably necessary for the preservation, continuation or maintenance of the stormwater control measures. The Facility Owner hereby releases and shall hold the Village harmless from any damages as a result of such entry and work. It is expressly understood and agreed that the Village is under no obligation to construct or routinely maintain or repair the stormwater control facilities, and in no event shall this agreement be construed to impose any such obligation on the Village.

10. The Facility Owner shall complete the site work within one (1) year of the issuance of permits for the site work, and conduct all site disturbance work in accordance with the approved SWPPP and in compliance with the approved project plans. In the event that the Facility Owner fails to complete the site work within one (1) year of the issuance of permits for the site work or fails to maintain/repair the facilities, the Municipality, upon giving twenty (20) days written notice to the Facility Owner, and a demand to complete, perform and correct by a date certain, and upon default of said Facility Owner, the Municipality shall have the right to complete the site work and/or to maintain/repair the facilities and to take such steps as it deems appropriate to either complete the site work or to stabilize and restore the site and/or to maintain/repair the facilities, and to recover its cost per paragraph 7 above. The time required to notice may be reduced to that deemed practicable and reasonable upon recommendation of the Engineer for the Village and upon the engineer's certification that an emergency condition exists which requires action to be undertaken immediately and does not allow time to give notice to the Facility Owner and an opportunity to correct in the manner specified above.

11. The governing bodies of the parties hereto have authorized the respective signatories to this Agreement.

IN WITNESS WHEREOF, the parties have duly executed this agreement as of the day and year first above written.

VILLAGE OF WASHINGTONVILLE **NAME OF RECORD OWNER:**

By: _____ **By:** _____

Joseph Bucco, Mayor [Print name]

STATE OF NEW YORK:)
) SS.
COUNTY OF ORANGE:)

On the ___ day of _____, in the year 2022 before me, the undersigned, personally appeared _____ personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public

STATE OF NEW YORK:)
) SS.
COUNTY OF ORANGE:)

On the ___ day of _____, in the year 2022 before me, the undersigned, personally appeared JOSEPH BUCCO personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public