

Stormwater Management Narrative

BATCH CONCRETE PLANT

**3260 Route 9W
Town of Lloyd
Ulster County, New York**

Applicant:

**3260 Route 9W Highland NY, LLC
PO Box 189, 248 Watervliet Shaker Rd.
Colonie, NY 12189**

October 2026

Prepared By:

The Environmental Design Partnership, LLP
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Clifton Park, NY 12065



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1.0 Introduction

3260 Route 9W Highland NY, LLC is proposing to redevelop the property located at 3260 Route 9W in the Town of Lloyd, New York. The 4.82 acre property is located on the east side of Route 9W north of the intersection with N Riverside Rd. The project will be designed as a redevelopment project with increase in impervious area. The project will include the construction of a concrete plant with the existing building on site remaining in place and reconfiguration of the driving surfaces to allow for truck turning movements. The proposed area of disturbance is approximately 3.4± acres and approximately 1.66 acres of impervious area will be added to the site.

The stormwater management system has been designed to provide pollutant removal, reduce channel erosion, prevent overbank flooding, and safely control extreme flood events in accordance with the NYS Stormwater Management Design Manual (Design Manual). The proposed stormwater management system for the project will include one bioretention filtration area and one micropool extended detention pond.

This narrative presents a review of the design concepts and parameters of the stormwater management system for the proposed development. The purpose of the stormwater management narrative is to assure that changes in the surface runoff characteristics, as a result of the proposed construction, will not adversely impact adjacent or downstream properties. On-site stormwater management will be implemented in accordance with the Design Manual to attenuate and treat stormwater runoff from the proposed redevelopment.

2.0 Existing Conditions

The existing site consists of one building parking and driveways; the rest of the site is grass and forest area. A shallow drainage corridor runs through the middle of the site south to north with wetlands located along the corridor with an additional area of wetland on the south eastern side of the parcel. The majority of the site topography is relatively flat with most slopes ranging from 1% to 10% and some areas getting up to 40% along an exposed area of bedrock on the eastern side of the site. Elevations at the site vary between 346 to 378 feet above sea level.

The site is bounded by private property to the north, east and south, and by Route 9W to the west.

2.1 Soil and Groundwater Conditions

The USDA Natural Resources Conservation Service Soil Survey (Soil Survey) identifies the primary soil groups to be MgB – Mardin-Nassau complex, Cd – Canandaigua silt loam and BOD – Bath-Nassau-Rock outcrop complex. The Mardin-Nassau complex (MgB), Canandaigua silt loam (Cd) and Bath-Nassau-Rock outcrop complex (BOD) generally consists of moderately well drained soils, very poorly drained soils and somewhat excessively drained soils respectively.

The Soil Survey categorizes the Mardin-Nassau complex (MgB), Canandaigua silt loam (Cd) and Bath-Nassau-Rock outcrop complex (BOD) as Hydrological Soil Group (HSG) “D”, “C/D” and “D” respectively.

3.0 Predevelopment Stormwater Analysis

The existing hydrologic conditions, in the area to be disturbed as a result of the proposed construction, were analyzed using Applied Microcomputer Systems’ “HydroCAD” computer modeling program. The HydroCAD stormwater modeling program employs the United States Department of Agriculture’s Soil Conservation Service (SCS) Technical Release 20 (TR-20) method for stormwater analysis. Using this modeling technique, the site is divided into “subcatchments” that represent specific areas contributing stormwater runoff to an existing, or proposed drainage feature. The subcatchments typically flow through “reaches” (i.e., swales, channels, or pipes) that convey the stormwater to storm basins or discharge areas.

Four (4) subcatchment were used to represent the existing drainage condition with a drainage area of approximately 8.69 acres, see Figure 2. The site has three (3) drainage corridors; one to a low point off site to the northeast, one to a culvert leading off site to the north and one to a low point off site to the northwest. All drainage corridors are tributary to the Hudson River.

The existing parameters of topography, vegetation, slope and soil type are all incorporated into the predevelopment model.

Table 1 presents a summary of the pre-development stormwater peak discharge for the 1-year, 10-year and 100-year design storm events at the respective Design Points. As will be discussed in subsequent sections, the post development stormwater discharge rate has been limited to the predevelopment discharge rate for the 1-year, 10-year and 100-year storm events.

Table 1: Pre-Development Runoff Rates

Storm Event	Design Point Peak Discharge (cfs)		
	OFF1	OFF2	OFF3
1-Year (2.62")	1.30	3.71	1.31
10-Year (4.70")	3.83	10.90	3.06
100-Year (8.28")	8.68	25.99	6.14

The pre-development Curve Number (CN) for the existing impervious and grassy areas was established as 98 and 80, respectively. The weighted predevelopment curve number was

established as 79. The HydroCAD model results for the pre-development conditions are included within Attachment B.

4.0 Stormwater Management Planning and Practice Selection

The site layout and stormwater design for this project was completed while taking into consideration the potential impacts on the existing site and downstream hydrology. The existing site topography and poorly draining soils throughout the site make the use of infiltration practices not feasible on the site. Therefore, one bioretention filtration area and one micropool extended detention area are proposed as the stormwater management devices to treat and attenuate runoff from the site.

Various measures were taken to help ensure that the post-development hydrology of the site will closely resemble the pre-development hydrology. These measures included reduction of clearing, soil restoration locating the development in less sensitive areas.

The existing parcel consists of 4.82 acres of land; the area of disturbance will encompass 3.4± acres, which includes the proposed concrete plant, driving surfaces and stormwater management areas. Existing vegetation will be preserved on site to the greatest extent possible.

5.0 Post-Development Stormwater Analysis

The project falls under the re-development regulations of NYS Stormwater Management Design Manual. A hydrologic model of the proposed project area was analyzed using the HydroCAD program. Eight (8) subcatchments were used to represent the post development drainage conditions of the site with a drainage area of approximately 8.69 acres. Site improvements will include the construction of a batch concrete plant with associated access drives, parking and an entrance road from NYS ROUTE 9W and two stormwater management areas.

Stormwater runoff from the site will be managed with one bioretention filtration area and one micropool extended detention pond. Runoff from the parking lot and rooftops will be directed to either the bioretention filtration area or the micropool extended detention pond. The stormwater management practices have been designed to provide storage, filtration, and attenuation of stormwater runoff from the proposed impervious surfaces on the site.

A post-development Curve Number (CN) of 98 was assigned to all impervious surface within the proposed project. A post-development CN of 80 was assigned to all new grassed areas directly contributing to the proposed stormwater device. Wooded areas on site are given the CN value of 77. The weighted CN for the post-development conditions for the site is approximately 83. The HydroCAD model results for the post-development conditions are included within Attachment B.

5.1 Stormwater Management Area #1 – Micropool Extended Detention Pond

Stormwater Management Area #1 (SMA#1) will provide treatment and attenuation of runoff from portions of the building, parking and travel surfaces within the site. The total usable storage volume of SMA #1 will be on the order of 35,375 CF and the area directly contributing to SMA #1 includes approximately 5.00 acres with approximately 1.05 acres of impervious area.

SMA #1 has been designed as a micropool extended detention pond in accordance with Chapter 6 of the Design Manual. Chapter 6 of the Design Manual recognizes Micropool Extended Detention Ponds as suitable for projects with a suggested minimum contributing drainage area of 5 acres when a water balance calculation is performed.

The proposed basin will include the use of a stand pipe outlet with a small diameter, low flow, orifice and a shallow catch basin with an outlet pipe to control discharge from the 1-year, 10-year and 100-year design storm events. The standpipe will be installed with an anticlogging device. Micropool Extended Detention Pond are considered a standard stormwater management practice acceptable for water quality when the required sizing, performance and maintenance criteria are followed.

Pretreatment of the contributing water quality volume will be provided by a sediment forebay. The pond also contains a larger, permanent pool which with a volume greater than the required minimum of 20 percent of the water quality volume contributing to SMA #1. The pond has been designed with additional storage above the permanent pool for attenuation of runoff from large storm events.

SMA #1 will be located on the south side of the site, with discharge from the basin being directed to an existing onsite drainage corridor. The stormwater management area has been designed with a large emergency outflow weir that will direct overflows to the stream corridor.

5.2 Stormwater Management Area #2 – Bioretention Area

Stormwater Management Area #2 will provide treatment of stormwater runoff from portions the buildings, parking and travel surfaces within the site. The total usable storage volume of SMA #2 will be on the order of 4,047 cubic feet; the contributing area of this basin includes approximately 0.91 acres with approximately 0.67 acres of impervious area.

SMA#2 has been designed as a Bioretention Filtration (F-5). The NYS Stormwater Design Manual (Manual) SMP selection matrix recognizes the use of bioretention systems as a suitable method for commercial/high density sites. The bioretention area has been designed to treat the contributing Water Quality Volume and will incorporate planting soils and landscaping which will provide treatment and filtration of the contributing runoff. The upstream sediment forebay will provide pretreatment to the runoff entering the bioretention area.

SMA #2 will be located within the northern portion of the property, close to paved travel surfaces with an overflow weir directing any flows toward the existing onsite drainage corridor.

5.3 NYS Unified Stormwater Sizing Criteria

The proposed post-development site conditions were analyzed using the HydroCAD computer modeling program, the results have been included with this report. A technical description of the HydroCAD stormwater modeling program was provided in a previous section.

The area to be disturbed as a result of the proposed development was modeled under the post-development conditions using four (4) subcatchment areas routed into the stormwater management area. The contributing area of the stormwater management areas are identified in Figure 3. The post-development stormwater management system has been designed based on the Unified Stormwater Sizing Criteria as described in the following sections.

The proposed site is required to meet the standards of the NYSDEC Stormwater Management Design Manual (Design Manual). The project proposes the disturbance and reconstruction of existing impervious surfaces with increase in impervious area and therefore the project falls under Redevelopment guidelines in accordance with Chapter 9 of the NYSDEC Stormwater Management Design Manual. NYSDEC encourages the redevelopment of existing sites and recognizes that there are challenges to implementing the standards technical standards for new development projects. Therefore, they have developed alternative sizing criteria for redevelopment projects.

5.3.1 Water Quality (WQ_v)

Section 9.2.1 of the NYSDEC Design Manual specifies five options for treating the water quality volume from redevelopment sites. These options are as follows:

- I. The plan proposes a reduction of existing impervious cover by a minimum of 25% of the total disturbed, impervious area.
- II. Treat a minimum of 25% of the WQ_v from the disturbed impervious areas by implementation of Standard SMPs or through reduction with Green Infrastructure Practices. (any increase in impervious area would need 100% water quality treatment)
- III. Treat at least 75% of the water quality volume from the disturbed impervious areas with volume based alternative SMPs. (any increase in impervious area would need 100% water quality treatment)
- IV. Treat at least 75% of the water quality volume from the disturbed impervious areas with flow-through alternative SMPs. (any increase in impervious area would need 100% water quality treatment)

- V. Use a combination of methods I, II, III and IV. In order to achieve at least 25% WQv treatment.

This project has used option II to meet the WQv requirements. See **Table 2** for a breakdown for existing impervious area water quality volume and the proposed impervious area water quality volume.

Table 2: Impervious Area Water Quality

	Impervious Area (sf)	WQv (cf)	Percent Treatment	Required WQv (cf)
Disturbed Impervious	4,554	505	25%	126
Increase in Impervious	72,504	8,036	100%	8,036

The proposed site will contain more impervious area than the existing site conditions. Since option II was chosen at least 25% of the disturbed impervious area must be treated along with 100% of the additional impervious area. This results in a WQv of 8,162 cf that must be treated on site.

5.3.1.1 Pretreatment Practices

The bioretention area will contain a sediment forebay to allow for the pretreatment of the runoff that directly enters the area without going through another stormwater management device first. As per the Design Manual, the sediment forebay will be sized to have a minimum volume equal to 25% of the contributing WQv. The contributing WQv to the sediment forebay is 3,285 cf, the minimum required volume of the forebay is 821 cf, the proposed forebay has a volume of 1,046 cf. The bioretention area has been designed with a total WQv of 4,047 cf.

Per Section 6.1.4. of the Design Manual, Micropool Extended Detention Ponds are required to have a pretreatment forebay sized for 10% of the total contributing WQv and a permanent pool sized for at least 20% of the total contributing WQv. Up to 80% of the WQv can be treated in the extended detention area.

The following table summarizes the treatment of the WQv in the Micropool Extended Detention Pond stormwater management area.

Table 3: Micropool Extended Detention Pond WQv Treatment

SMA ID	CONTRIBUTING WQV (CU-FT)	SECTION	% WQV REQUIRED	REQUIRED WQV (CU-FT)	WQV PROVIDED (CU-FT)	% WQV PROVIDED
SMA #1	6,068	Forebay	>10%	609	1,438	23%
		Permanent Pool	>20%	1,214	7,785	128%
		Extended Detention	>80%	4,854	10,678	176%
		Total (SMA #1)	>100%	6,068	18,463	304%

5.3.2 Runoff Reduction Volume (RRv)

The NYSDEC Manual states that for redevelopment projects, RRv shall be applied for at least the increase in impervious area. The WQv for the increase in impervious area is on the order of 8,036 CF. Due to site constraints such as high bedrock and poorly draining soils the full WQv cannot be reduced, as such the Minimum allowable RRv for the site was calculated. The Minimum RRv for the site, based on increase in impervious area and soil type, is on the order of 1,603 CF. Standard SMPs with RRv capacity have been proposed on the project within order to meet the min. RRv requirements.

The proposed bioretention area is considered SMP's with RRv capacity. In HSG C and D soils, bioretention areas with underdrain can provide up to 40% RRv capacity. Table 4 provides a summary of the bioretention area and its contributing Runoff Reduction Volume.

Table 4: Runoff Reduction Volume Summary

Runoff Reduction Technique	RRv (cf)
SMA #2 (Bioretention Basin)	1,619
Total Site Reduction	1,619
Required Minimum RRv	1,603
% RRV Reduction	100%

5.3.3 Channel Protection (Cp_v)

Section 9.2.1 of the NYSDEC Design Manual states that Channel Protection for redevelopment activities is not required if there are no changes to the hydrology that increases the discharge rate from the project site. **Table 5** summarizes the discharge rates for the 1-year design storm event. Since the rates are lower for the post-development conditions that standard Channel Protection criteria does not apply.

Table 5: 1-Year Runoff Rate

Design Point	1-year (2.62") runoff rate (cfs)	
	Predevelopment	Post-Development
OFF1	1.30	0.56
OFF2	3.71	1.99
OFF3	1.31	0.97

5.3.4 Overbank Flood (Q_p)

Overbank Flood Control Criteria has been established to limit the frequency and magnitude of out-of-bank flooding generated through changes in runoff characteristics as a result of increased impervious surface area. In accordance with the Design Manual, providing sufficient storage volume to attenuate the post development 10-year, 24-hour peak discharge rate to the equivalent pre-development discharge rate controls overbank flooding.

The 10-year design storm event was analyzed using the HydroCAD stormwater modeling program (TR-20) under the post-development drainage conditions shown on Figure 3. Using a 10-year, 24-hour design storm of 4.70 inches, the stormwater management areas were designed with sufficient storage volume to limit the post-development 10-year, 24-hour peak discharge rate to the pre-development discharge rate. The following table presents the pre- and post-development discharge rates for the offsite discharge. As indicated, the post-development discharge rate is less than the pre-development rate as required.

Table 6: Overbank Flow Runoff Summary

Design Point	10-year (4.70") runoff rate (cfs)	
	Predevelopment	Post-Development
OFF1	3.83	1.72
OFF2	10.90	9.05
OFF3	3.06	2.26

5.3.5 Extreme Storm (Q_f)

In accordance with the Design Manual, the stormwater management system must attenuate the post development 100-year, 24-hour peak discharge rate to the predevelopment rate while providing safe passage of this storm event.

The 100-year storm event was analyzed using the HydroCAD stormwater modeling program (TR-20) under the post-development drainage conditions shown in Figure 3. Using a 100-year, 24-hour design storm of 8.28 inches, the stormwater management areas were designed with sufficient storage volume to limit the post-development 100-year, 24-hour peak discharge rate to the predevelopment discharge rate. The following table presents the pre- and post-development discharge rates for the offsite discharge. As indicated, the post-development discharge rate is less than the predevelopment rate as required.

Table 7: Extreme Storm Runoff Summary

Design Point	100-year (8.28") runoff rate (cfs)	
	Predevelopment	Post-Development
OFF1	8.68	3.96
OFF2	25.99	23.44
OFF3	6.14	4.53

6.0 Summary

Development of the proposed property will change the stormwater drainage characteristics of the site; impervious area will be added and the site will be re-graded to support the proposed improvements. Changes to the stormwater drainage characteristics of the site have been evaluated in accordance with the Design Manual. The proposed stormwater management system has been designed to comply with the recommendations in the Design Manual related to water quality, runoff reduction, channel protection, overbank flood control and extreme flood control for redevelopment projects.

The proposed stormwater management system has been designed to attenuate and treat the stormwater runoff generated from the contributing areas for storm events up to and including the 100-year design storm event. The proposed stormwater management design includes the use of one bioretention filtration area and one micropool extended detention pond. Stormwater modeling results, based on the proposed site layout, indicate the ability to reduce the overall post-development discharge rate from the site as summarized in **Table 8**.

Table 8: Post Development Stormwater Peak Discharge Rates

Peak Discharge Rates in cfs	1-Year Storm	10-Year Storm	100-Year Storm
Pre-Development	6.32	17.79	40.81
Post-Development	3.52	13.03	31.93
Overall Reduction (cfs)	2.80	4.76	8.88

Through the implementation of acceptable stormwater management practices, recommended by the NYS Stormwater Management Design Manual, the proposed project will not adversely affect adjacent or downstream properties.

Prepared by:

Reviewed by:



Evan Klein, E.I.T.

Brandon Ferguson, P.E.

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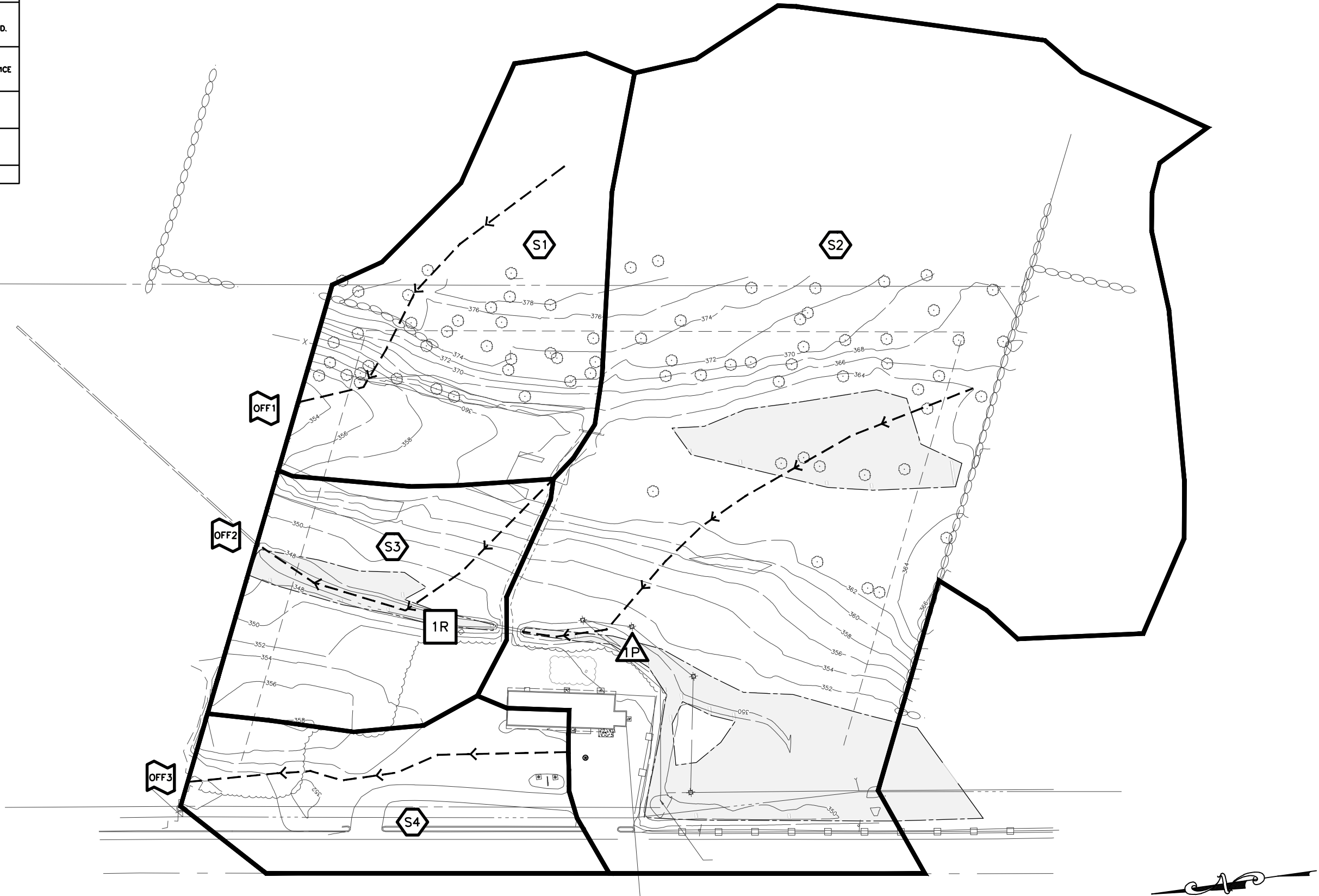
Figures

1. Site Location map
2. Pre-Development Drainage Map
3. Post Development Drainage Map



Figure 1: Site Location Map

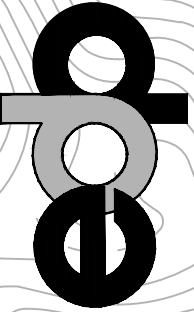
MAP KEY	
	SUBCATCHMENT BOUNDARY
	SUBCATCHMENT I.D.
	STORMWATER DEVICE
	DESIGN POINT
	REACH
	TC PATH



GRAPHIC SCALE



(IN FEET)
1 INCH = 80 FT.



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LIGHT INDUSTRIAL DEVELOPMENT
BATCH CONCRETE PLANT

3260 ROUTE 9W
TOWN OF LLOYD
ULSTER COUNTY, NEW YORK

TAX MAP, No. 80.3-2-8
SEPTEMBER 29, 2026

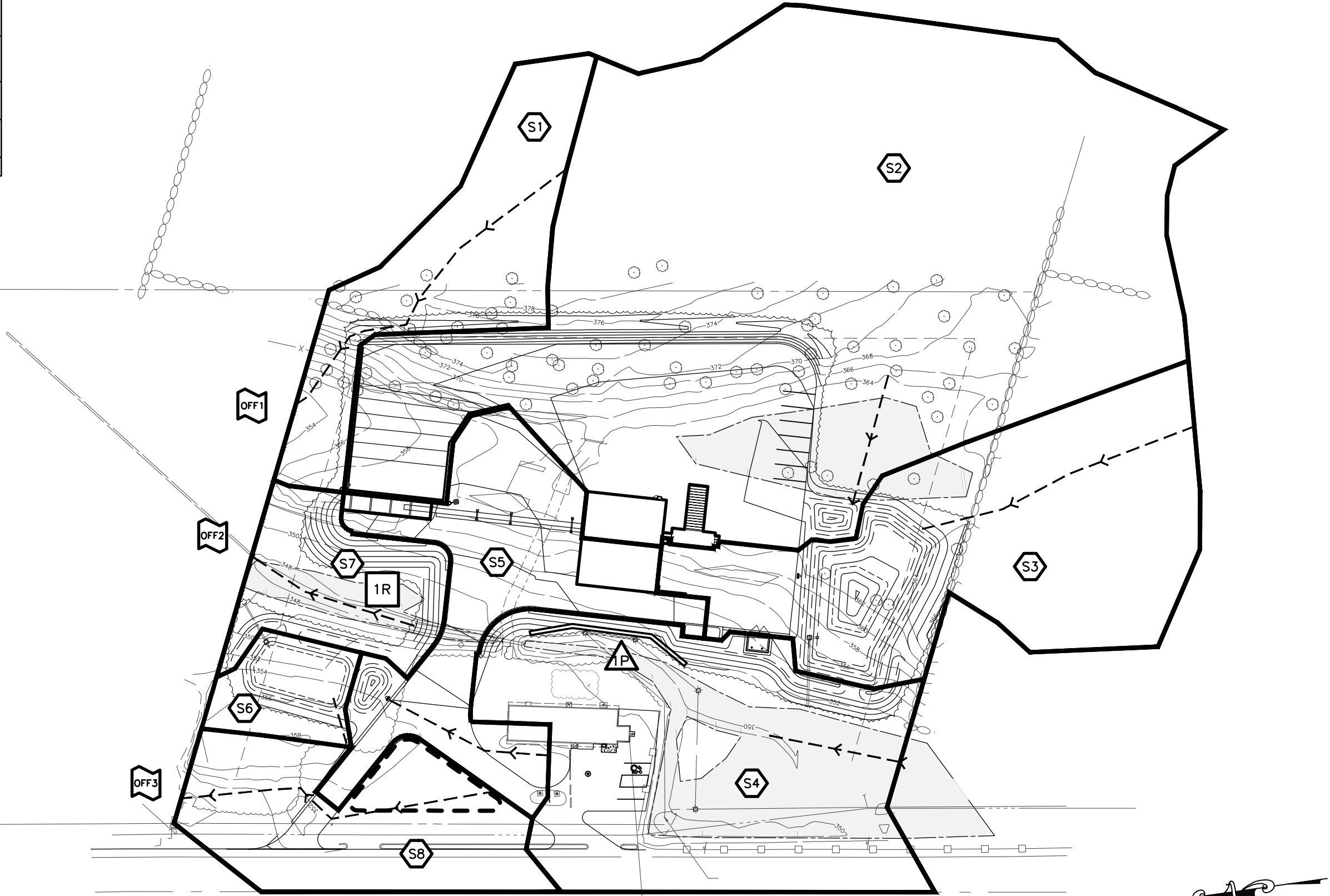
REVISION	DATE	BY

SCALE:
1"=80'

SHEET TITLE:
PREDEVELOPMENT

SHEET NO.
FIGURE 2

MAP KEY	
	SUBCATCHMENT BOUNDARY
	SUBCATCHMENT I.D.
	STORMWATER DEVICE
	DESIGN POINT
	REACH
	TC PATH



GRAPHIC SCALE



LIGHT INDUSTRIAL DEVELOPMENT
BATCH CONCRETE PLANT

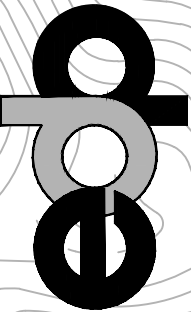
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SHEET TITLE:

POSTDEVELOPMENT

SHEET NO.
FIGURE 3

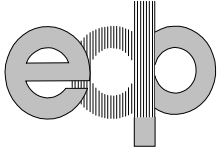


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TAX MAP, No. 80.3-2-8
SEPTEMBER 29, 2026

3260 ROUTE 9W
TOWN OF LLOYD
ULSTER COUNTY, NEW YORK

Attachment A
Runoff Reduction Volume Calculations



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Runoff Reduction Volume (RRv) Calculations

Project: Batch Concrete Plant

Date: 10/5/2026

Total Drainage Area = 8.69 acres
I = 26.3 %
Rv = 0.2867

P = 1.4 in
WQv = See Report

Minimum Reduction

Aic (ac)	S	Ai (ac)	Rv*	RRv (ac-ft)	Min Reduction (RRv) (cf)
1.66	0.2	0.33	0.95	0.04	1,603

Standard SMP with RRv

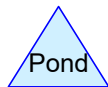
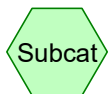
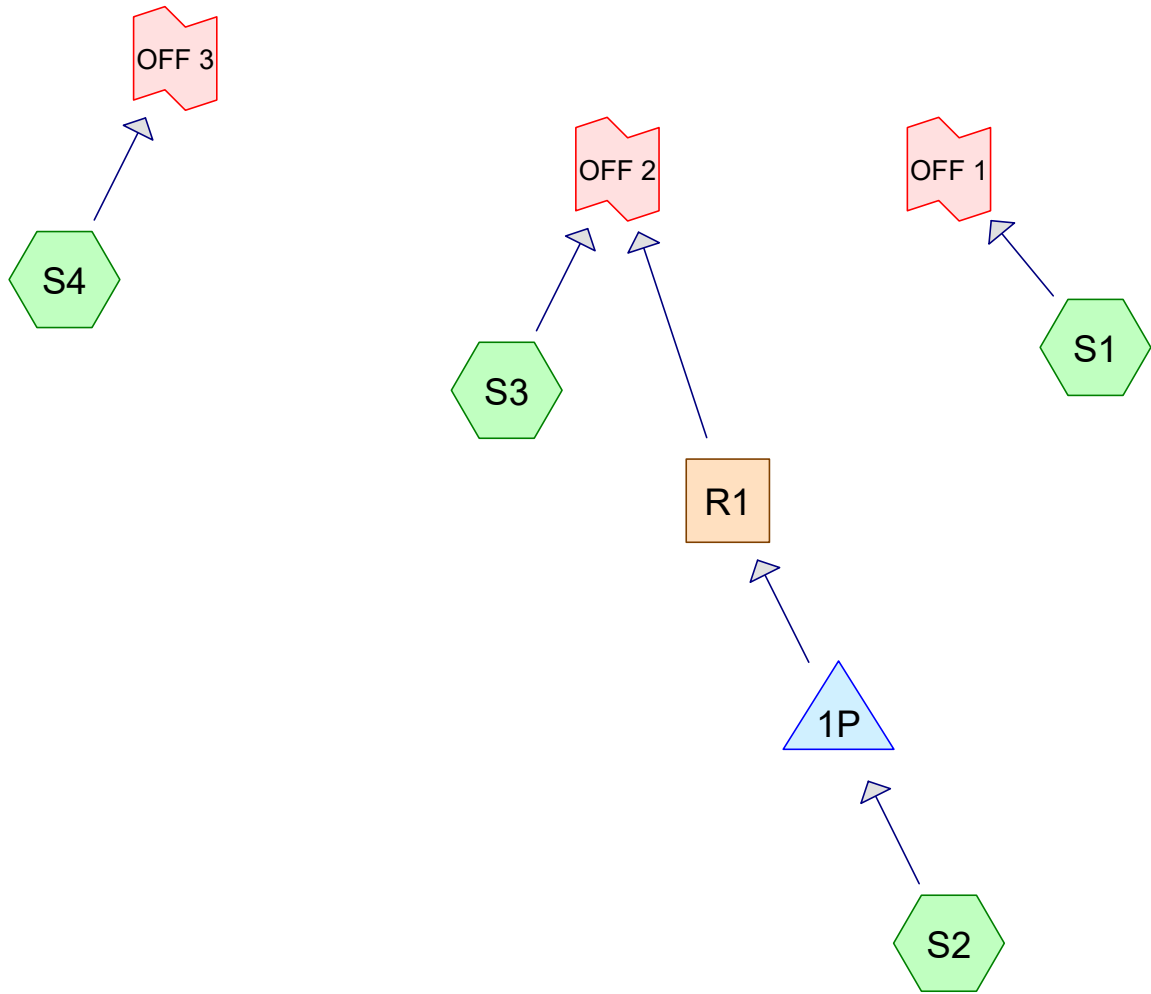
Bioretention Area

I.D.	WQv (cf)	Filter Depth (ft)	k (ft/day)	Pond Depth (ft)	Design Time	Area Required (sf)	Area Proposed (sf)	WQv Provided (cf)	Reduction
SMA#2	3,285	2.5	0.5	1	3	1,564	2,050	4,047	1,619

Reduction from Standard SMPs = **1,619** cf
Total Overall RRv = **1,619** cf
% Min RRv Reduction = **101%**

Attachment B

Stormwater Modeling Calculations



Routing Diagram for PRE

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PRE

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	Type II 24-hr		Default	24.00	1	2.62	2
2	10-yr	Type II 24-hr		Default	24.00	1	4.70	2
3	100-yr	Type II 24-hr		Default	24.00	1	8.28	2
4	WQv	Type II 24-hr		Default	24.00	1	1.40	2

PRE**Area Listing (all nodes)**

Area (sq-ft)	CN	Description (subcatchment-numbers)
31,304	80	>75% Grass cover, Good, HSG D (S2, S3, S4)
4,191	98	Bed Rock (S1, S2, S3)
24,908	98	Paved parking, HSG D (S2, S4)
2,341	98	Roofs, HSG D (S2, S4)
315,635	77	Woods, Good, HSG D (S1, S2, S3, S4)
378,379	79	TOTAL AREA

PRE

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Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
374,188	HSG D	S1, S2, S3, S4
4,191	Other	S1, S2, S3
378,379		TOTAL AREA

PRE

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
0	0	0	31,304	0	31,304	>75% Grass cover, Good
0	0	0	0	4,191	4,191	Bed Rock
0	0	0	24,908	0	24,908	Paved parking
0	0	0	2,341	0	2,341	Roofs
0	0	0	315,635	0	315,635	Woods, Good
0	0	0	374,188	4,191	378,379	TOTAL AREA

PRE

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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)	Node Name
1	1P	347.10	347.10	20.5	0.0000	0.012	0.0	24.0	0.0	

PRE

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HydroCAD® 10.20-5c s/n 00476 © 2023 HydroCAD Software Solutions LLC

Type II 24-hr 1-yr Rainfall=2.62"

Printed 10/6/2026

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Time span=0.00-200.00 hrs, dt=0.05 hrs, 4001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1:Runoff Area=55,644 sf 2.61% Impervious Runoff Depth=0.87"
Flow Length=285' Tc=16.7 min CN=78 Runoff=1.30 cfs 4,019 cf**SubcatchmentS2:**Runoff Area=250,495 sf 6.08% Impervious Runoff Depth=0.87"
Flow Length=407' Tc=34.9 min CN=78 Runoff=3.63 cfs 18,093 cf**SubcatchmentS3:**Runoff Area=38,299 sf 5.91% Impervious Runoff Depth=0.92"
Flow Length=272' Tc=16.2 min CN=79 Runoff=0.97 cfs 2,932 cf**SubcatchmentS4:**Runoff Area=33,941 sf 36.82% Impervious Runoff Depth=1.34"
Flow Length=296' Tc=15.8 min CN=86 Runoff=1.31 cfs 3,796 cf**Reach R1:**Avg. Flow Depth=0.82' Max Vel=0.71 fps Inflow=3.59 cfs 18,093 cf
n=0.100 L=190.0' S=0.0053 '/' Capacity=5.39 cfs Outflow=3.49 cfs 18,093 cf**Pond 1P:**Peak Elev=348.16' Storage=332 cf Inflow=3.63 cfs 18,093 cf
24.0" Round Culvert n=0.012 L=20.5' S=0.0000 '/' Outflow=3.59 cfs 18,093 cf**Link OFF 1:**Inflow=1.30 cfs 4,019 cf
Primary=1.30 cfs 4,019 cf**Link OFF 2:**Inflow=3.71 cfs 21,026 cf
Primary=3.71 cfs 21,026 cf**Link OFF 3:**Inflow=1.31 cfs 3,796 cf
Primary=1.31 cfs 3,796 cf**Total Runoff Area = 378,379 sf Runoff Volume = 28,841 cf Average Runoff Depth = 0.91"**
91.69% Pervious = 346,939 sf 8.31% Impervious = 31,440 sf

PRE

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Type II 24-hr 1-yr Rainfall=2.62"

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Summary for Subcatchment S1:

Runoff = 1.30 cfs @ 12.10 hrs, Volume= 4,019 cf, Depth= 0.87"
 Routed to Link OFF 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 1-yr Rainfall=2.62"

Area (sf)	CN	Description
54,189	77	Woods, Good, HSG D
* 1,455	98	Bed Rock
55,644	78	Weighted Average
54,189		97.39% Pervious Area
1,455		2.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	100	0.0500	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
1.8	185	0.1200	1.73		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.7	285	Total			

Summary for Subcatchment S2:

Runoff = 3.63 cfs @ 12.33 hrs, Volume= 18,093 cf, Depth= 0.87"
 Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 1-yr Rainfall=2.62"

Area (sf)	CN	Description
223,956	77	Woods, Good, HSG D
11,315	80	>75% Grass cover, Good, HSG D
* 473	98	Bed Rock
13,053	98	Paved parking, HSG D
1,698	98	Roofs, HSG D
250,495	78	Weighted Average
235,271		93.92% Pervious Area
15,224		6.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
4.5	134	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.0	173	0.0870	1.47		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
34.9	407	Total			

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Type II 24-hr 1-yr Rainfall=2.62"

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Summary for Subcatchment S3:

Runoff = 0.97 cfs @ 12.10 hrs, Volume= 2,932 cf, Depth= 0.92"
Routed to Link OFF 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.62"

Area (sf)	CN	Description
32,485	77	Woods, Good, HSG D
3,551	80	>75% Grass cover, Good, HSG D
* 2,263	98	Bed Rock
38,299	79	Weighted Average
36,036		94.09% Pervious Area
2,263		5.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1200	0.16		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
5.7	172	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.2	272	Total			

Summary for Subcatchment S4:

Runoff = 1.31 cfs @ 12.08 hrs, Volume= 3,796 cf, Depth= 1.34"
Routed to Link OFF 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-yr Rainfall=2.62"

Area (sf)	CN	Description
5,005	77	Woods, Good, HSG D
16,438	80	>75% Grass cover, Good, HSG D
11,855	98	Paved parking, HSG D
643	98	Roofs, HSG D
33,941	86	Weighted Average
21,443		63.18% Pervious Area
12,498		36.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.18"
1.2	106	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
1.6	90	0.0333	0.91		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
15.8	296	Total			

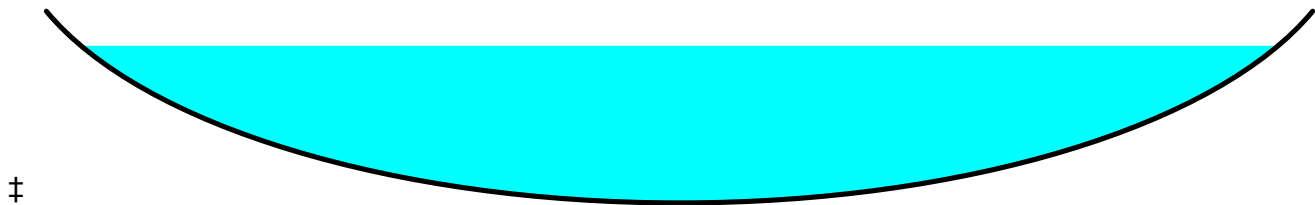
Summary for Reach R1:

Inflow Area = 250,495 sf, 6.08% Impervious, Inflow Depth = 0.87" for 1-yr event
 Inflow = 3.59 cfs @ 12.36 hrs, Volume= 18,093 cf
 Outflow = 3.49 cfs @ 12.50 hrs, Volume= 18,093 cf, Atten= 3%, Lag= 7.9 min
 Routed to Link OFF 2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.71 fps, Min. Travel Time= 4.5 min
 Avg. Velocity = 0.21 fps, Avg. Travel Time= 15.1 min

Peak Storage= 940 cf @ 12.42 hrs
 Average Depth at Peak Storage= 0.82' , Surface Width= 9.05'
 Bank-Full Depth= 1.00' Flow Area= 6.7 sf, Capacity= 5.39 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
 Length= 190.0' Slope= 0.0053 '
 Inlet Invert= 347.10', Outlet Invert= 346.10'

**Summary for Pond 1P:**

Inflow Area = 250,495 sf, 6.08% Impervious, Inflow Depth = 0.87" for 1-yr event
 Inflow = 3.63 cfs @ 12.33 hrs, Volume= 18,093 cf
 Outflow = 3.59 cfs @ 12.36 hrs, Volume= 18,093 cf, Atten= 1%, Lag= 2.2 min
 Primary = 3.59 cfs @ 12.36 hrs, Volume= 18,093 cf
 Routed to Reach R1 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Peak Elev= 348.16' @ 12.36 hrs Surf.Area= 847 sf Storage= 332 cf

Plug-Flow detention time= 1.6 min calculated for 18,089 cf (100% of inflow)
 Center-of-Mass det. time= 1.6 min (885.8 - 884.3)

Volume	Invert	Avail.Storage	Storage Description
#1	347.10'	5,641 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
347.10	1	0	0
348.00	501	226	226
350.00	4,914	5,415	5,641

Device	Routing	Invert	Outlet Devices
#1	Primary	347.10'	24.0" Round Culvert

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Type II 24-hr 1-yr Rainfall=2.62"

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L= 20.5' CPP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 347.10' / 347.10' S= 0.0000 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=3.58 cfs @ 12.36 hrs HW=348.15' (Free Discharge)↑**1=Culvert** (Barrel Controls 3.58 cfs @ 3.10 fps)**Summary for Link OFF 1:**

Inflow Area = 55,644 sf, 2.61% Impervious, Inflow Depth = 0.87" for 1-yr event
Inflow = 1.30 cfs @ 12.10 hrs, Volume= 4,019 cf
Primary = 1.30 cfs @ 12.10 hrs, Volume= 4,019 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link OFF 2:

Inflow Area = 288,794 sf, 6.06% Impervious, Inflow Depth = 0.87" for 1-yr event
Inflow = 3.71 cfs @ 12.49 hrs, Volume= 21,026 cf
Primary = 3.71 cfs @ 12.49 hrs, Volume= 21,026 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link OFF 3:

Inflow Area = 33,941 sf, 36.82% Impervious, Inflow Depth = 1.34" for 1-yr event
Inflow = 1.31 cfs @ 12.08 hrs, Volume= 3,796 cf
Primary = 1.31 cfs @ 12.08 hrs, Volume= 3,796 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

PRE*Type II 24-hr 10-yr Rainfall=4.70"*

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Time span=0.00-200.00 hrs, dt=0.05 hrs, 4001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1:Runoff Area=55,644 sf 2.61% Impervious Runoff Depth=2.46"
Flow Length=285' Tc=16.7 min CN=78 Runoff=3.83 cfs 11,402 cf**SubcatchmentS2:**Runoff Area=250,495 sf 6.08% Impervious Runoff Depth=2.46"
Flow Length=407' Tc=34.9 min CN=78 Runoff=11.03 cfs 51,330 cf**SubcatchmentS3:**Runoff Area=38,299 sf 5.91% Impervious Runoff Depth=2.55"
Flow Length=272' Tc=16.2 min CN=79 Runoff=2.77 cfs 8,123 cf**SubcatchmentS4:**Runoff Area=33,941 sf 36.82% Impervious Runoff Depth=3.19"
Flow Length=296' Tc=15.8 min CN=86 Runoff=3.06 cfs 9,017 cf**Reach R1:**Avg. Flow Depth=1.43' Max Vel=0.94 fps Inflow=10.49 cfs 51,330 cf
n=0.100 L=190.0' S=0.0053 '/' Capacity=5.39 cfs Outflow=10.33 cfs 51,330 cf**Pond 1P:**Peak Elev=349.03' Storage=1,909 cf Inflow=11.03 cfs 51,330 cf
24.0" Round Culvert n=0.012 L=20.5' S=0.0000 '/' Outflow=10.49 cfs 51,330 cf**Link OFF 1:**Inflow=3.83 cfs 11,402 cf
Primary=3.83 cfs 11,402 cf**Link OFF 2:**Inflow=10.90 cfs 59,453 cf
Primary=10.90 cfs 59,453 cf**Link OFF 3:**Inflow=3.06 cfs 9,017 cf
Primary=3.06 cfs 9,017 cf**Total Runoff Area = 378,379 sf Runoff Volume = 79,873 cf Average Runoff Depth = 2.53"**
91.69% Pervious = 346,939 sf 8.31% Impervious = 31,440 sf

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Type II 24-hr 10-yr Rainfall=4.70"

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Summary for Subcatchment S1:

Runoff = 3.83 cfs @ 12.09 hrs, Volume= 11,402 cf, Depth= 2.46"
 Routed to Link OFF 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
54,189	77	Woods, Good, HSG D
* 1,455	98	Bed Rock
55,644	78	Weighted Average
54,189		97.39% Pervious Area
1,455		2.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	100	0.0500	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
1.8	185	0.1200	1.73		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.7	285	Total			

Summary for Subcatchment S2:

Runoff = 11.03 cfs @ 12.31 hrs, Volume= 51,330 cf, Depth= 2.46"
 Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
223,956	77	Woods, Good, HSG D
11,315	80	>75% Grass cover, Good, HSG D
* 473	98	Bed Rock
13,053	98	Paved parking, HSG D
1,698	98	Roofs, HSG D
250,495	78	Weighted Average
235,271		93.92% Pervious Area
15,224		6.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
4.5	134	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.0	173	0.0870	1.47		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
34.9	407	Total			

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Type II 24-hr 10-yr Rainfall=4.70"

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Summary for Subcatchment S3:

Runoff = 2.77 cfs @ 12.09 hrs, Volume= 8,123 cf, Depth= 2.55"
Routed to Link OFF 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
32,485	77	Woods, Good, HSG D
3,551	80	>75% Grass cover, Good, HSG D
* 2,263	98	Bed Rock
38,299	79	Weighted Average
36,036		94.09% Pervious Area
2,263		5.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1200	0.16		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
5.7	172	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.2	272	Total			

Summary for Subcatchment S4:

Runoff = 3.06 cfs @ 12.08 hrs, Volume= 9,017 cf, Depth= 3.19"
Routed to Link OFF 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
5,005	77	Woods, Good, HSG D
16,438	80	>75% Grass cover, Good, HSG D
11,855	98	Paved parking, HSG D
643	98	Roofs, HSG D
33,941	86	Weighted Average
21,443		63.18% Pervious Area
12,498		36.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.18"
1.2	106	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
1.6	90	0.0333	0.91		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
15.8	296	Total			

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Type II 24-hr 10-yr Rainfall=4.70"

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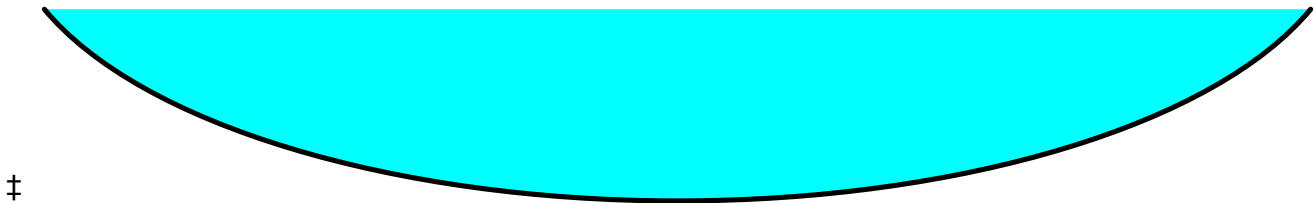
Summary for Reach R1:

Inflow Area = 250,495 sf, 6.08% Impervious, Inflow Depth = 2.46" for 10-yr event
 Inflow = 10.49 cfs @ 12.39 hrs, Volume= 51,330 cf
 Outflow = 10.33 cfs @ 12.49 hrs, Volume= 51,330 cf, Atten= 2%, Lag= 6.2 min
 Routed to Link OFF 2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.94 fps, Min. Travel Time= 3.4 min
 Avg. Velocity = 0.27 fps, Avg. Travel Time= 11.7 min

Peak Storage= 2,081 cf @ 12.43 hrs
 Average Depth at Peak Storage= 1.43' , Surface Width= 11.96'
 Bank-Full Depth= 1.00' Flow Area= 6.7 sf, Capacity= 5.39 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
 Length= 190.0' Slope= 0.0053 '
 Inlet Invert= 347.10', Outlet Invert= 346.10'



Summary for Pond 1P:

Inflow Area = 250,495 sf, 6.08% Impervious, Inflow Depth = 2.46" for 10-yr event
 Inflow = 11.03 cfs @ 12.31 hrs, Volume= 51,330 cf
 Outflow = 10.49 cfs @ 12.39 hrs, Volume= 51,330 cf, Atten= 5%, Lag= 4.7 min
 Primary = 10.49 cfs @ 12.39 hrs, Volume= 51,330 cf
 Routed to Reach R1 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Peak Elev= 349.03' @ 12.39 hrs Surf.Area= 2,771 sf Storage= 1,909 cf

Plug-Flow detention time= 2.0 min calculated for 51,317 cf (100% of inflow)
 Center-of-Mass det. time= 2.0 min (855.6 - 853.6)

Volume	Invert	Avail.Storage	Storage Description
#1	347.10'	5,641 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
347.10	1	0	0
348.00	501	226	226
350.00	4,914	5,415	5,641

Device	Routing	Invert	Outlet Devices
#1	Primary	347.10'	24.0" Round Culvert

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Type II 24-hr 10-yr Rainfall=4.70"

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L= 20.5' CPP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 347.10' / 347.10' S= 0.0000 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.46 cfs @ 12.39 hrs HW=349.02' (Free Discharge)

↑1=Culvert (Barrel Controls 10.46 cfs @ 4.31 fps)

Summary for Link OFF 1:

Inflow Area = 55,644 sf, 2.61% Impervious, Inflow Depth = 2.46" for 10-yr event
Inflow = 3.83 cfs @ 12.09 hrs, Volume= 11,402 cf
Primary = 3.83 cfs @ 12.09 hrs, Volume= 11,402 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link OFF 2:

Inflow Area = 288,794 sf, 6.06% Impervious, Inflow Depth = 2.47" for 10-yr event
Inflow = 10.90 cfs @ 12.48 hrs, Volume= 59,453 cf
Primary = 10.90 cfs @ 12.48 hrs, Volume= 59,453 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link OFF 3:

Inflow Area = 33,941 sf, 36.82% Impervious, Inflow Depth = 3.19" for 10-yr event
Inflow = 3.06 cfs @ 12.08 hrs, Volume= 9,017 cf
Primary = 3.06 cfs @ 12.08 hrs, Volume= 9,017 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

PRE*Type II 24-hr 100-yr Rainfall=8.28"*

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Time span=0.00-200.00 hrs, dt=0.05 hrs, 4001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1:Runoff Area=55,644 sf 2.61% Impervious Runoff Depth=5.65"
Flow Length=285' Tc=16.7 min CN=78 Runoff=8.68 cfs 26,201 cf**SubcatchmentS2:**Runoff Area=250,495 sf 6.08% Impervious Runoff Depth=5.65"
Flow Length=407' Tc=34.9 min CN=78 Runoff=25.36 cfs 117,950 cf**SubcatchmentS3:**Runoff Area=38,299 sf 5.91% Impervious Runoff Depth=5.77"
Flow Length=272' Tc=16.2 min CN=79 Runoff=6.17 cfs 18,413 cf**SubcatchmentS4:**Runoff Area=33,941 sf 36.82% Impervious Runoff Depth=6.60"
Flow Length=296' Tc=15.8 min CN=86 Runoff=6.14 cfs 18,676 cf**Reach R1:**Avg. Flow Depth=2.66' Max Vel=1.06 fps Inflow=29.22 cfs 117,950 cf
n=0.100 L=190.0' S=0.0053 ' / ' Capacity=5.39 cfs Outflow=24.51 cfs 117,950 cf**Pond 1P:**Peak Elev=351.83' Storage=5,641 cf Inflow=25.36 cfs 117,950 cf
24.0" Round Culvert n=0.012 L=20.5' S=0.0000 ' / ' Outflow=29.22 cfs 117,950 cf**Link OFF 1:**Inflow=8.68 cfs 26,201 cf
Primary=8.68 cfs 26,201 cf**Link OFF 2:**Inflow=25.99 cfs 136,363 cf
Primary=25.99 cfs 136,363 cf**Link OFF 3:**Inflow=6.14 cfs 18,676 cf
Primary=6.14 cfs 18,676 cf**Total Runoff Area = 378,379 sf Runoff Volume = 181,240 cf Average Runoff Depth = 5.75"**
91.69% Pervious = 346,939 sf 8.31% Impervious = 31,440 sf

PRE

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Type II 24-hr 100-yr Rainfall=8.28"

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Summary for Subcatchment S1:

Runoff = 8.68 cfs @ 12.09 hrs, Volume= 26,201 cf, Depth= 5.65"
 Routed to Link OFF 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 100-yr Rainfall=8.28"

Area (sf)	CN	Description
54,189	77	Woods, Good, HSG D
* 1,455	98	Bed Rock
55,644	78	Weighted Average
54,189		97.39% Pervious Area
1,455		2.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	100	0.0500	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
1.8	185	0.1200	1.73		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.7	285	Total			

Summary for Subcatchment S2:

Runoff = 25.36 cfs @ 12.30 hrs, Volume= 117,950 cf, Depth= 5.65"
 Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 100-yr Rainfall=8.28"

Area (sf)	CN	Description
223,956	77	Woods, Good, HSG D
11,315	80	>75% Grass cover, Good, HSG D
* 473	98	Bed Rock
13,053	98	Paved parking, HSG D
1,698	98	Roofs, HSG D
250,495	78	Weighted Average
235,271		93.92% Pervious Area
15,224		6.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
4.5	134	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.0	173	0.0870	1.47		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
34.9	407	Total			

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Type II 24-hr 100-yr Rainfall=8.28"

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Summary for Subcatchment S3:

Runoff = 6.17 cfs @ 12.08 hrs, Volume= 18,413 cf, Depth= 5.77"
Routed to Link OFF 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=8.28"

Area (sf)	CN	Description
32,485	77	Woods, Good, HSG D
3,551	80	>75% Grass cover, Good, HSG D
* 2,263	98	Bed Rock
38,299	79	Weighted Average
36,036		94.09% Pervious Area
2,263		5.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1200	0.16		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
5.7	172	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.2	272	Total			

Summary for Subcatchment S4:

Runoff = 6.14 cfs @ 12.07 hrs, Volume= 18,676 cf, Depth= 6.60"
Routed to Link OFF 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=8.28"

Area (sf)	CN	Description
5,005	77	Woods, Good, HSG D
16,438	80	>75% Grass cover, Good, HSG D
11,855	98	Paved parking, HSG D
643	98	Roofs, HSG D
33,941	86	Weighted Average
21,443		63.18% Pervious Area
12,498		36.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.18"
1.2	106	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
1.6	90	0.0333	0.91		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
15.8	296	Total			

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Type II 24-hr 100-yr Rainfall=8.28"

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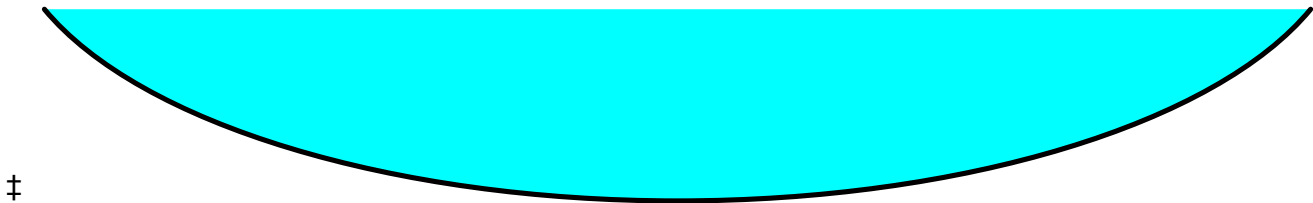
Summary for Reach R1:

Inflow Area = 250,495 sf, 6.08% Impervious, Inflow Depth = 5.65" for 100-yr event
Inflow = 29.22 cfs @ 12.30 hrs, Volume= 117,950 cf
Outflow = 24.51 cfs @ 12.42 hrs, Volume= 117,950 cf, Atten= 16%, Lag= 7.1 min
Routed to Link OFF 2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.06 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 0.33 fps, Avg. Travel Time= 9.5 min

Peak Storage= 4,410 cf @ 12.37 hrs
Average Depth at Peak Storage= 2.66' , Surface Width= 16.31'
Bank-Full Depth= 1.00' Flow Area= 6.7 sf, Capacity= 5.39 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
Length= 190.0' Slope= 0.0053 '/'
Inlet Invert= 347.10', Outlet Invert= 346.10'



Summary for Pond 1P:

Inflow Area = 250,495 sf, 6.08% Impervious, Inflow Depth = 5.65" for 100-yr event
Inflow = 25.36 cfs @ 12.30 hrs, Volume= 117,950 cf
Outflow = 29.22 cfs @ 12.30 hrs, Volume= 117,950 cf, Atten= 0%, Lag= 0.1 min
Primary = 29.22 cfs @ 12.30 hrs, Volume= 117,950 cf
Routed to Reach R1 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Peak Elev= 351.83' @ 12.30 hrs Surf.Area= 4,914 sf Storage= 5,641 cf

Plug-Flow detention time= 2.7 min calculated for 117,921 cf (100% of inflow)
Center-of-Mass det. time= 2.7 min (832.6 - 829.9)

Volume	Invert	Avail.Storage	Storage Description
#1	347.10'	5,641 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
347.10	1	0	0
348.00	501	226	226
350.00	4,914	5,415	5,641

Device	Routing	Invert	Outlet Devices
#1	Primary	347.10'	24.0" Round Culvert

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Type II 24-hr 100-yr Rainfall=8.28"

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L= 20.5' CPP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 347.10' / 347.10' S= 0.0000 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=29.20 cfs @ 12.30 hrs HW=351.83' (Free Discharge)

↑1=Culvert (Inlet Controls 29.20 cfs @ 9.30 fps)

Summary for Link OFF 1:

Inflow Area = 55,644 sf, 2.61% Impervious, Inflow Depth = 5.65" for 100-yr event
Inflow = 8.68 cfs @ 12.09 hrs, Volume= 26,201 cf
Primary = 8.68 cfs @ 12.09 hrs, Volume= 26,201 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link OFF 2:

Inflow Area = 288,794 sf, 6.06% Impervious, Inflow Depth = 5.67" for 100-yr event
Inflow = 25.99 cfs @ 12.41 hrs, Volume= 136,363 cf
Primary = 25.99 cfs @ 12.41 hrs, Volume= 136,363 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link OFF 3:

Inflow Area = 33,941 sf, 36.82% Impervious, Inflow Depth = 6.60" for 100-yr event
Inflow = 6.14 cfs @ 12.07 hrs, Volume= 18,676 cf
Primary = 6.14 cfs @ 12.07 hrs, Volume= 18,676 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

PRE*Type II 24-hr WQv Rainfall=1.40"*

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Time span=0.00-200.00 hrs, dt=0.05 hrs, 4001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1:Runoff Area=55,644 sf 2.61% Impervious Runoff Depth=0.19"
Flow Length=285' Tc=16.7 min CN=78 Runoff=0.20 cfs 886 cf**SubcatchmentS2:**Runoff Area=250,495 sf 6.08% Impervious Runoff Depth=0.19"
Flow Length=407' Tc=34.9 min CN=78 Runoff=0.54 cfs 3,989 cf**SubcatchmentS3:**Runoff Area=38,299 sf 5.91% Impervious Runoff Depth=0.21"
Flow Length=272' Tc=16.2 min CN=79 Runoff=0.17 cfs 682 cf**SubcatchmentS4:**Runoff Area=33,941 sf 36.82% Impervious Runoff Depth=0.43"
Flow Length=296' Tc=15.8 min CN=86 Runoff=0.40 cfs 1,208 cf**Reach R1:**Avg. Flow Depth=0.33' Max Vel=0.39 fps Inflow=0.54 cfs 3,989 cf
n=0.100 L=190.0' S=0.0053 '/' Capacity=5.39 cfs Outflow=0.49 cfs 3,989 cf**Pond 1P:**Peak Elev=347.52' Storage=48 cf Inflow=0.54 cfs 3,989 cf
24.0" Round Culvert n=0.012 L=20.5' S=0.0000 '/' Outflow=0.54 cfs 3,989 cf**Link OFF 1:**Inflow=0.20 cfs 886 cf
Primary=0.20 cfs 886 cf**Link OFF 2:**Inflow=0.53 cfs 4,671 cf
Primary=0.53 cfs 4,671 cf**Link OFF 3:**Inflow=0.40 cfs 1,208 cf
Primary=0.40 cfs 1,208 cf**Total Runoff Area = 378,379 sf Runoff Volume = 6,766 cf Average Runoff Depth = 0.21"**
91.69% Pervious = 346,939 sf 8.31% Impervious = 31,440 sf

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Type II 24-hr WQv Rainfall=1.40"

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Summary for Subcatchment S1:

Runoff = 0.20 cfs @ 12.14 hrs, Volume= 886 cf, Depth= 0.19"
 Routed to Link OFF 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr WQv Rainfall=1.40"

Area (sf)	CN	Description
54,189	77	Woods, Good, HSG D
* 1,455	98	Bed Rock
55,644	78	Weighted Average
54,189		97.39% Pervious Area
1,455		2.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	100	0.0500	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
1.8	185	0.1200	1.73		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.7	285	Total			

Summary for Subcatchment S2:

Runoff = 0.54 cfs @ 12.40 hrs, Volume= 3,989 cf, Depth= 0.19"
 Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr WQv Rainfall=1.40"

Area (sf)	CN	Description
223,956	77	Woods, Good, HSG D
11,315	80	>75% Grass cover, Good, HSG D
* 473	98	Bed Rock
13,053	98	Paved parking, HSG D
1,698	98	Roofs, HSG D
250,495	78	Weighted Average
235,271		93.92% Pervious Area
15,224		6.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
4.5	134	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.0	173	0.0870	1.47		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
34.9	407	Total			

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Type II 24-hr WQv Rainfall=1.40"

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Summary for Subcatchment S3:

Runoff = 0.17 cfs @ 12.12 hrs, Volume= 682 cf, Depth= 0.21"
Routed to Link OFF 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr WQv Rainfall=1.40"

Area (sf)	CN	Description
32,485	77	Woods, Good, HSG D
3,551	80	>75% Grass cover, Good, HSG D
* 2,263	98	Bed Rock
38,299	79	Weighted Average
36,036		94.09% Pervious Area
2,263		5.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1200	0.16		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
5.7	172	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.2	272	Total			

Summary for Subcatchment S4:

Runoff = 0.40 cfs @ 12.09 hrs, Volume= 1,208 cf, Depth= 0.43"
Routed to Link OFF 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr WQv Rainfall=1.40"

Area (sf)	CN	Description
5,005	77	Woods, Good, HSG D
16,438	80	>75% Grass cover, Good, HSG D
11,855	98	Paved parking, HSG D
643	98	Roofs, HSG D
33,941	86	Weighted Average
21,443		63.18% Pervious Area
12,498		36.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.18"
1.2	106	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
1.6	90	0.0333	0.91		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
15.8	296	Total			

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Type II 24-hr WQv Rainfall=1.40"

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Summary for Reach R1:

Inflow Area = 250,495 sf, 6.08% Impervious, Inflow Depth = 0.19" for WQv event
 Inflow = 0.54 cfs @ 12.43 hrs, Volume= 3,989 cf
 Outflow = 0.49 cfs @ 12.68 hrs, Volume= 3,989 cf, Atten= 8%, Lag= 15.0 min
 Routed to Link OFF 2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.39 fps, Min. Travel Time= 8.1 min
 Avg. Velocity = 0.15 fps, Avg. Travel Time= 21.3 min

Peak Storage= 241 cf @ 12.54 hrs
 Average Depth at Peak Storage= 0.33' , Surface Width= 5.75'
 Bank-Full Depth= 1.00' Flow Area= 6.7 sf, Capacity= 5.39 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
 Length= 190.0' Slope= 0.0053 '
 Inlet Invert= 347.10', Outlet Invert= 346.10'



Summary for Pond 1P:

Inflow Area = 250,495 sf, 6.08% Impervious, Inflow Depth = 0.19" for WQv event
 Inflow = 0.54 cfs @ 12.40 hrs, Volume= 3,989 cf
 Outflow = 0.54 cfs @ 12.43 hrs, Volume= 3,989 cf, Atten= 0%, Lag= 1.4 min
 Primary = 0.54 cfs @ 12.43 hrs, Volume= 3,989 cf
 Routed to Reach R1 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Peak Elev= 347.52' @ 12.43 hrs Surf.Area= 232 sf Storage= 48 cf

Plug-Flow detention time= 1.8 min calculated for 3,989 cf (100% of inflow)
 Center-of-Mass det. time= 1.8 min (943.1 - 941.3)

Volume	Invert	Avail.Storage	Storage Description
#1	347.10'	5,641 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
347.10	1	0	0
348.00	501	226	226
350.00	4,914	5,415	5,641

Device	Routing	Invert	Outlet Devices
#1	Primary	347.10'	24.0" Round Culvert

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Type II 24-hr WQv Rainfall=1.40"

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L= 20.5' CPP, square edge headwall, Ke= 0.500
Inlet / Outlet Invert= 347.10' / 347.10' S= 0.0000 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=0.53 cfs @ 12.43 hrs HW=347.51' (Free Discharge)

↑1=Culvert (Barrel Controls 0.53 cfs @ 1.71 fps)

Summary for Link OFF 1:

Inflow Area = 55,644 sf, 2.61% Impervious, Inflow Depth = 0.19" for WQv event
Inflow = 0.20 cfs @ 12.14 hrs, Volume= 886 cf
Primary = 0.20 cfs @ 12.14 hrs, Volume= 886 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link OFF 2:

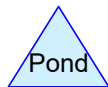
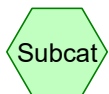
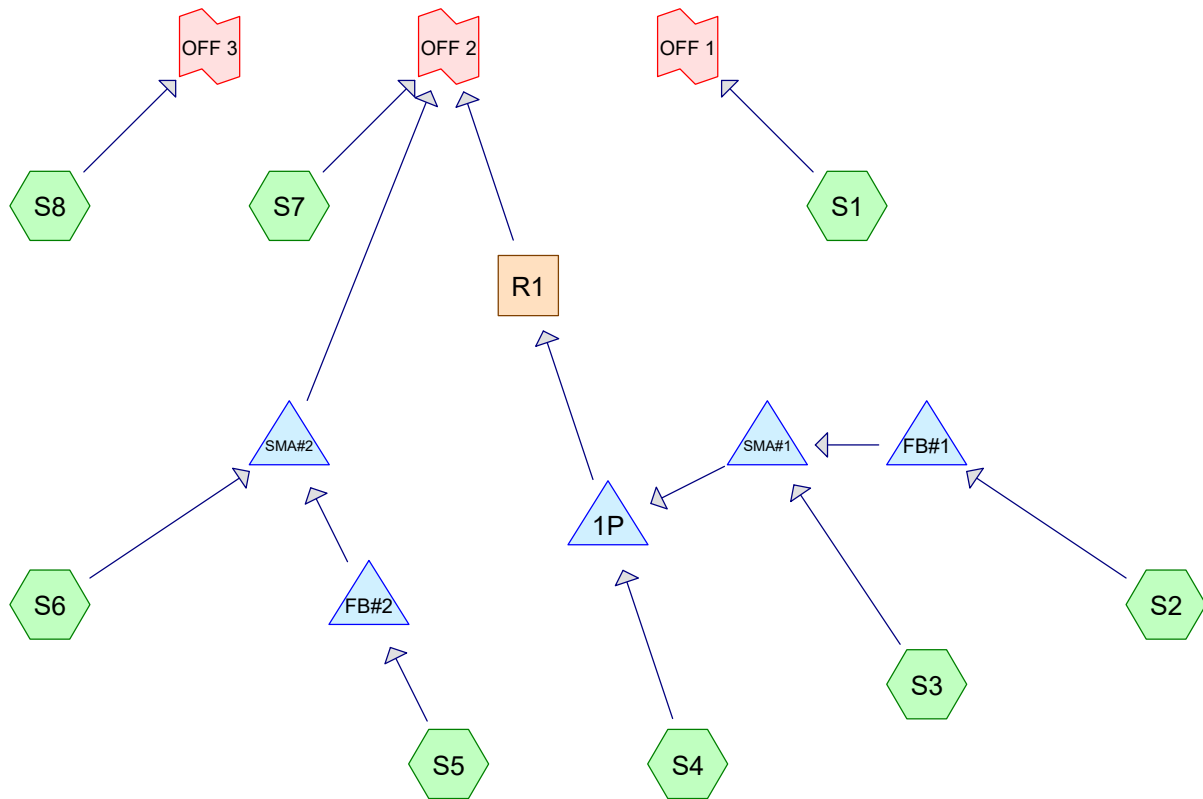
Inflow Area = 288,794 sf, 6.06% Impervious, Inflow Depth = 0.19" for WQv event
Inflow = 0.53 cfs @ 12.67 hrs, Volume= 4,671 cf
Primary = 0.53 cfs @ 12.67 hrs, Volume= 4,671 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link OFF 3:

Inflow Area = 33,941 sf, 36.82% Impervious, Inflow Depth = 0.43" for WQv event
Inflow = 0.40 cfs @ 12.09 hrs, Volume= 1,208 cf
Primary = 0.40 cfs @ 12.09 hrs, Volume= 1,208 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs



Routing Diagram for POST

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	Type II 24-hr		Default	24.00	1	2.62	2
2	10-yr	Type II 24-hr		Default	24.00	1	4.70	2
3	100-yr	Type II 24-hr		Default	24.00	1	8.28	2
4	WQv	Type II 24-hr		Default	24.00	1	1.40	2

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
69,279	80	>75% Grass cover, Good, HSG D (S1, S2, S3, S4, S5, S6, S7, S8)
92,239	98	Paved parking, HSG D (S2, S3, S4, S5, S8)
7,514	98	Roofs, HSG D (S2, S3, S4, S5)
209,340	77	Woods, Good, HSG D (S1, S2, S3, S4, S6, S7, S8)
378,372	83	TOTAL AREA

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Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
378,372	HSG D	S1, S2, S3, S4, S5, S6, S7, S8
0	Other	
378,372		TOTAL AREA

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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
0	0	0	69,279	0	69,279	>75% Grass cover, Good
0	0	0	92,239	0	92,239	Paved parking
0	0	0	7,514	0	7,514	Roofs
0	0	0	209,340	0	209,340	Woods, Good
0	0	0	378,372	0	378,372	TOTAL AREA

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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)	Node Name
1	1P	347.10	347.10	20.5	0.0000	0.012	0.0	36.0	0.0	
2	SMA#1	353.00	352.00	50.0	0.0200	0.012	0.0	15.0	0.0	
3	SMA#2	347.75	347.75	35.0	0.0000	0.012	0.0	6.0	0.0	
4	SMA#2	347.75	347.60	30.0	0.0050	0.012	0.0	12.0	0.0	

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Type II 24-hr 1-yr Rainfall=2.62"

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Time span=0.00-200.00 hrs, dt=0.05 hrs, 4001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1: Runoff Area=25,478 sf 0.00% Impervious Runoff Depth=0.82"
Flow Length=282' Tc=16.2 min CN=77 Runoff=0.56 cfs 1,734 cf

SubcatchmentS2: Runoff Area=165,878 sf 24.43% Impervious Runoff Depth=1.09"
Flow Length=100' Slope=0.0100 '/' Tc=28.4 min CN=82 Runoff=3.62 cfs 15,025 cf

SubcatchmentS3: Runoff Area=51,994 sf 9.92% Impervious Runoff Depth=0.97"
Flow Length=220' Slope=0.0100 '/' Tc=32.4 min CN=80 Runoff=0.91 cfs 4,215 cf

SubcatchmentS4: Runoff Area=55,292 sf 29.85% Impervious Runoff Depth=1.21"
Flow Length=100' Slope=0.0100 '/' Tc=28.4 min CN=84 Runoff=1.36 cfs 5,575 cf

SubcatchmentS5: Runoff Area=32,279 sf 90.12% Impervious Runoff Depth=2.18"
Flow Length=130' Tc=7.9 min CN=96 Runoff=2.43 cfs 5,861 cf

SubcatchmentS6: Runoff Area=7,222 sf 0.00% Impervious Runoff Depth=0.92"
Flow Length=26' Slope=0.0100 '/' Tc=6.0 min CN=79 Runoff=0.26 cfs 553 cf

SubcatchmentS7: Runoff Area=15,183 sf 0.00% Impervious Runoff Depth=0.87"
Flow Length=132' Slope=0.0100 '/' Tc=28.8 min CN=78 Runoff=0.25 cfs 1,097 cf

SubcatchmentS8: Runoff Area=25,046 sf 33.83% Impervious Runoff Depth=1.34"
Flow Length=296' Tc=15.8 min CN=86 Runoff=0.97 cfs 2,801 cf

Reach R1: Avg. Flow Depth=0.55' Max Vel=0.55 fps Inflow=1.55 cfs 24,815 cf
n=0.100 L=132.0' S=0.0053 '/' Capacity=5.41 cfs Outflow=1.50 cfs 24,815 cf

Pond 1P: Peak Elev=347.72' Storage=106 cf Inflow=1.56 cfs 24,815 cf
36.0" Round Culvert n=0.012 L=20.5' S=0.0000 '/' Outflow=1.55 cfs 24,815 cf

Pond FB#1: Peak Elev=359.26' Storage=1,679 cf Inflow=3.62 cfs 15,025 cf
Outflow=3.62 cfs 15,025 cf

Pond FB#2: Peak Elev=352.80' Storage=1,197 cf Inflow=2.43 cfs 5,861 cf
Outflow=2.39 cfs 5,861 cf

Pond SMA#1: Peak Elev=356.82' Storage=18,270 cf Inflow=4.52 cfs 19,240 cf
Outflow=0.32 cfs 19,240 cf

Pond SMA#2: Peak Elev=351.54' Storage=2,676 cf Inflow=2.65 cfs 6,414 cf
Outflow=0.27 cfs 6,414 cf

Link OFF 1: Inflow=0.56 cfs 1,734 cf
Primary=0.56 cfs 1,734 cf

Link OFF 2: Inflow=1.99 cfs 32,325 cf
Primary=1.99 cfs 32,325 cf

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Link OFF 3:

Inflow=0.97 cfs 2,801 cf

Primary=0.97 cfs 2,801 cf

Total Runoff Area = 378,372 sf Runoff Volume = 36,860 cf Average Runoff Depth = 1.17"
73.64% Pervious = 278,619 sf 26.36% Impervious = 99,753 sf

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Summary for Subcatchment S1:

Runoff = 0.56 cfs @ 12.10 hrs, Volume= 1,734 cf, Depth= 0.82"
 Routed to Link OFF 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 1-yr Rainfall=2.62"

Area (sf)	CN	Description
23,063	77	Woods, Good, HSG D
2,415	80	>75% Grass cover, Good, HSG D
25,478	77	Weighted Average
25,478		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	100	0.0500	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
0.5	47	0.1100	1.66		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	65	0.1000	4.74		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
0.6	70	0.1700	2.06		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.2	282	Total			

Summary for Subcatchment S2:

Runoff = 3.62 cfs @ 12.23 hrs, Volume= 15,025 cf, Depth= 1.09"
 Routed to Pond FB#1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 1-yr Rainfall=2.62"

Area (sf)	CN	Description
117,537	77	Woods, Good, HSG D
7,809	80	>75% Grass cover, Good, HSG D
37,514	98	Paved parking, HSG D
3,018	98	Roofs, HSG D
165,878	82	Weighted Average
125,346		75.57% Pervious Area
40,532		24.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"

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Summary for Subcatchment S3:

Runoff = 0.91 cfs @ 12.29 hrs, Volume= 4,215 cf, Depth= 0.97"
 Routed to Pond SMA#1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 1-yr Rainfall=2.62"

Area (sf)	CN	Description
33,967	77	Woods, Good, HSG D
12,871	80	>75% Grass cover, Good, HSG D
5,140	98	Paved parking, HSG D
16	98	Roofs, HSG D
51,994	80	Weighted Average
46,838		90.08% Pervious Area
5,156		9.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
4.0	120	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
32.4	220	Total			

Summary for Subcatchment S4:

Runoff = 1.36 cfs @ 12.23 hrs, Volume= 5,575 cf, Depth= 1.21"
 Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 1-yr Rainfall=2.62"

Area (sf)	CN	Description
18,972	77	Woods, Good, HSG D
19,817	80	>75% Grass cover, Good, HSG D
14,550	98	Paved parking, HSG D
1,953	98	Roofs, HSG D
55,292	84	Weighted Average
38,789		70.15% Pervious Area
16,503		29.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"

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Summary for Subcatchment S5:

Runoff = 2.43 cfs @ 11.99 hrs, Volume= 5,861 cf, Depth= 2.18"
 Routed to Pond FB#2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 1-yr Rainfall=2.62"

Area (sf)	CN	Description
3,189	80	>75% Grass cover, Good, HSG D
26,563	98	Paved parking, HSG D
2,527	98	Roofs, HSG D
32,279	96	Weighted Average
3,189		9.88% Pervious Area
29,090		90.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0100	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.18"
0.5	80	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.9	130	Total			

Summary for Subcatchment S6:

Runoff = 0.26 cfs @ 11.98 hrs, Volume= 553 cf, Depth= 0.92"
 Routed to Pond SMA#2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 1-yr Rainfall=2.62"

Area (sf)	CN	Description
4,009	80	>75% Grass cover, Good, HSG D
3,213	77	Woods, Good, HSG D
7,222	79	Weighted Average
7,222		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	26	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.18"
4.4	26	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment S7:

Runoff = 0.25 cfs @ 12.25 hrs, Volume= 1,097 cf, Depth= 0.87"
 Routed to Link OFF 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 1-yr Rainfall=2.62"

Area (sf)	CN	Description
7,490	80	>75% Grass cover, Good, HSG D
7,693	77	Woods, Good, HSG D
15,183	78	Weighted Average
15,183		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
0.4	32	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
28.8	132	Total			

Summary for Subcatchment S8:

Runoff = 0.97 cfs @ 12.08 hrs, Volume= 2,801 cf, Depth= 1.34"
 Routed to Link OFF 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 1-yr Rainfall=2.62"

Area (sf)	CN	Description
4,895	77	Woods, Good, HSG D
11,679	80	>75% Grass cover, Good, HSG D
8,472	98	Paved parking, HSG D
25,046	86	Weighted Average
16,574		66.17% Pervious Area
8,472		33.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.18"
1.2	106	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
1.6	90	0.0333	0.91		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
15.8	296	Total			

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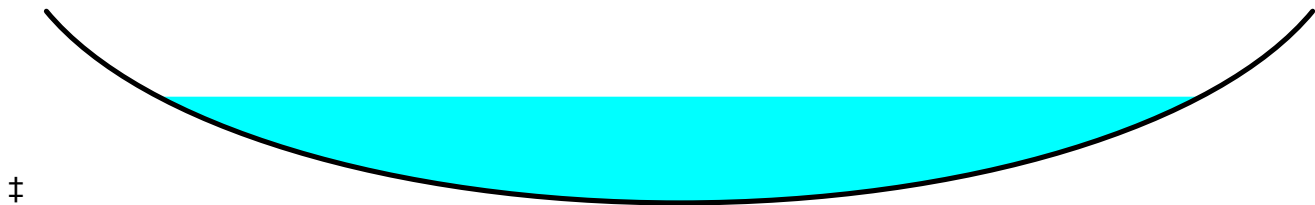
Summary for Reach R1:

Inflow Area = 273,164 sf, 22.77% Impervious, Inflow Depth = 1.09" for 1-yr event
 Inflow = 1.55 cfs @ 12.26 hrs, Volume= 24,815 cf
 Outflow = 1.50 cfs @ 12.38 hrs, Volume= 24,815 cf, Atten= 3%, Lag= 7.2 min
 Routed to Link OFF 2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.55 fps, Min. Travel Time= 4.0 min
 Avg. Velocity = 0.20 fps, Avg. Travel Time= 10.9 min

Peak Storage= 363 cf @ 12.31 hrs
 Average Depth at Peak Storage= 0.55' , Surface Width= 7.44'
 Bank-Full Depth= 1.00' Flow Area= 6.7 sf, Capacity= 5.41 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
 Length= 132.0' Slope= 0.0053 '
 Inlet Invert= 346.80', Outlet Invert= 346.10'



Summary for Pond 1P:

Inflow Area = 273,164 sf, 22.77% Impervious, Inflow Depth = 1.09" for 1-yr event
 Inflow = 1.56 cfs @ 12.24 hrs, Volume= 24,815 cf
 Outflow = 1.55 cfs @ 12.26 hrs, Volume= 24,815 cf, Atten= 0%, Lag= 1.1 min
 Primary = 1.55 cfs @ 12.26 hrs, Volume= 24,815 cf
 Routed to Reach R1 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Peak Elev= 347.72' @ 12.26 hrs Surf.Area= 343 sf Storage= 106 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 1.3 min (1,192.7 - 1,191.4)

Volume	Invert	Avail.Storage	Storage Description
#1	347.10'	5,641 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
347.10	1	0	0
348.00	501	226	226
350.00	4,914	5,415	5,641

Device	Routing	Invert	Outlet Devices
#1	Primary	347.10'	36.0" Round Culvert

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L= 20.5' CPP, square edge headwall, Ke= 0.500
 Inlet / Outlet Invert= 347.10' / 347.10' S= 0.0000 ' S= 0.0000 ' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=1.54 cfs @ 12.26 hrs HW=347.71' (Free Discharge)

↑1=Culvert (Barrel Controls 1.54 cfs @ 2.25 fps)

Summary for Pond FB#1:

Inflow Area = 165,878 sf, 24.43% Impervious, Inflow Depth = 1.09" for 1-yr event
 Inflow = 3.62 cfs @ 12.23 hrs, Volume= 15,025 cf
 Outflow = 3.62 cfs @ 12.25 hrs, Volume= 15,025 cf, Atten= 0%, Lag= 0.9 min
 Primary = 3.62 cfs @ 12.25 hrs, Volume= 15,025 cf
 Routed to Pond SMA#1 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Starting Elev= 359.00' Surf.Area= 876 sf Storage= 1,438 cf
 Peak Elev= 359.26' @ 12.25 hrs Surf.Area= 969 sf Storage= 1,679 cf (241 cf above start)

Plug-Flow detention time= 67.8 min calculated for 13,588 cf (90% of inflow)
 Center-of-Mass det. time= 1.8 min (865.7 - 863.9)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	2,492 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	10	0	0
356.00	118	64	64
358.00	545	663	727
359.00	876	711	1,438
360.00	1,232	1,054	2,492

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=3.61 cfs @ 12.25 hrs HW=359.26' (Free Discharge)

↑1=Broad-Crested Rectangular Weir (Weir Controls 3.61 cfs @ 1.38 fps)

Summary for Pond FB#2:

Inflow Area = 32,279 sf, 90.12% Impervious, Inflow Depth = 2.18" for 1-yr event
 Inflow = 2.43 cfs @ 11.99 hrs, Volume= 5,861 cf
 Outflow = 2.39 cfs @ 12.00 hrs, Volume= 5,861 cf, Atten= 1%, Lag= 0.7 min
 Primary = 2.39 cfs @ 12.00 hrs, Volume= 5,861 cf
 Routed to Pond SMA#2 :

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Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Starting Elev= 352.60' Surf.Area= 725 sf Storage= 1,046 cf

Peak Elev= 352.80' @ 12.00 hrs Surf.Area= 790 sf Storage= 1,197 cf (151 cf above start)

Plug-Flow detention time= 122.0 min calculated for 4,815 cf (82% of inflow)

Center-of-Mass det. time= 2.4 min (780.7 - 778.3)

Volume	Invert	Avail.Storage	Storage Description
#1	350.00'	1,362 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
350.00	120	0	0
352.00	545	665	665
352.60	725	381	1,046
353.00	856	316	1,362

Device	Routing	Invert	Outlet Devices
#1	Primary	352.60'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=2.38 cfs @ 12.00 hrs HW=352.80' (Free Discharge)↑1=**Broad-Crested Rectangular Weir**(Weir Controls 2.38 cfs @ 1.20 fps)**Summary for Pond SMA#1:**

Inflow Area = 217,872 sf, 20.97% Impervious, Inflow Depth = 1.06" for 1-yr event
 Inflow = 4.52 cfs @ 12.26 hrs, Volume= 19,240 cf
 Outflow = 0.32 cfs @ 14.72 hrs, Volume= 19,240 cf, Atten= 93%, Lag= 147.7 min
 Primary = 0.32 cfs @ 14.72 hrs, Volume= 19,240 cf
 Routed to Pond 1P :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Starting Elev= 355.00' Surf.Area= 4,886 sf Storage= 7,785 cf

Peak Elev= 356.82' @ 14.72 hrs Surf.Area= 6,656 sf Storage= 18,270 cf (10,485 cf above start)

Plug-Flow detention time= 787.1 min calculated for 11,455 cf (60% of inflow)

Center-of-Mass det. time= 420.6 min (1,288.3 - 867.7)

Volume	Invert	Avail.Storage	Storage Description
#1	348.00'	45,057 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
348.00	9	0	0
350.00	303	312	312
352.00	878	1,181	1,493
353.50	1,488	1,775	3,268
354.00	2,270	940	4,207
355.00	4,886	3,578	7,785
356.00	5,831	5,359	13,144
356.85	6,685	5,319	18,463
358.00	7,933	8,405	26,868
359.00	9,080	8,507	35,375
360.00	10,285	9,683	45,057

Device	Routing	Invert	Outlet Devices
#1	Primary	353.00'	15.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 353.00' / 352.00' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	355.00'	3.0" Horiz. Permanent Pool C= 0.600 Limited to weir flow at low heads
#3	Device 1	356.85'	15.0" Horiz. Stand Pipe C= 0.600 Limited to weir flow at low heads
#4	Device 1	357.80'	4.0" x 1.0" Horiz. CB X 5.00 columns X 13 rows C= 0.600 in 30.0" x 30.0" Grate (29% open area) Limited to weir flow at low heads
#5	Primary	359.00'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.32 cfs @ 14.72 hrs HW=356.82' (Free Discharge)

- 1=Culvert (Passes 0.32 cfs of 10.56 cfs potential flow)
 2=Permanent Pool (Orifice Controls 0.32 cfs @ 6.50 fps)
 3=Stand Pipe (Controls 0.00 cfs)
 4=CB (Controls 0.00 cfs)
 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond SMA#2:

Inflow Area = 39,501 sf, 73.64% Impervious, Inflow Depth = 1.95" for 1-yr event
 Inflow = 2.65 cfs @ 12.00 hrs, Volume= 6,414 cf
 Outflow = 0.27 cfs @ 12.47 hrs, Volume= 6,414 cf, Atten= 90%, Lag= 28.7 min
 Primary = 0.27 cfs @ 12.47 hrs, Volume= 6,414 cf
 Routed to Link OFF 2 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Peak Elev= 351.54' @ 12.47 hrs Surf.Area= 2,292 sf Storage= 2,676 cf

Plug-Flow detention time= 102.5 min calculated for 6,412 cf (100% of inflow)
 Center-of-Mass det. time= 102.9 min (889.9 - 787.0)

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Volume	Invert	Avail.Storage	Storage Description
#1	347.75'	10,147 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
347.75	2,050	0.0	0	0
348.60	2,050	40.0	697	697
351.10	2,050	20.0	1,025	1,722
352.10	2,600	100.0	2,325	4,047
352.60	2,900	100.0	1,375	5,422
354.00	3,850	100.0	4,725	10,147

Device	Routing	Invert	Outlet Devices
#1	Primary	352.60'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#2	Device 3	347.75'	5.000 in/hr Exfiltration over Surface area
#3	Device 5	347.75'	6.0" Round Culvert L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 347.75' / 347.75' S= 0.0000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#4	Device 5	352.10'	4.0" x 1.0" Horiz. Orifice/Grate X 6.00 columns X 13 rows C= 0.600 in 30.0" x 30.0" Grate (35% open area) Limited to weir flow at low heads
#5	Primary	347.75'	12.0" Round Culvert L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 347.75' / 347.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.27 cfs @ 12.47 hrs HW=351.54' (Free Discharge)

1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
5=Culvert (Passes 0.27 cfs of 6.86 cfs potential flow)
3=Culvert (Passes 0.27 cfs of 1.45 cfs potential flow)
2=Exfiltration (Exfiltration Controls 0.27 cfs)
4=Orifice/Grate (Controls 0.00 cfs)

Summary for Link OFF 1:

Inflow Area = 25,478 sf, 0.00% Impervious, Inflow Depth = 0.82" for 1-yr event
Inflow = 0.56 cfs @ 12.10 hrs, Volume= 1,734 cf
Primary = 0.56 cfs @ 12.10 hrs, Volume= 1,734 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

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Summary for Link OFF 2:

Inflow Area = 327,848 sf, 27.84% Impervious, Inflow Depth = 1.18" for 1-yr event
Inflow = 1.99 cfs @ 12.37 hrs, Volume= 32,325 cf
Primary = 1.99 cfs @ 12.37 hrs, Volume= 32,325 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link OFF 3:

Inflow Area = 25,046 sf, 33.83% Impervious, Inflow Depth = 1.34" for 1-yr event
Inflow = 0.97 cfs @ 12.08 hrs, Volume= 2,801 cf
Primary = 0.97 cfs @ 12.08 hrs, Volume= 2,801 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

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Time span=0.00-200.00 hrs, dt=0.05 hrs, 4001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1:	Runoff Area=25,478 sf 0.00% Impervious Runoff Depth=2.37" Flow Length=282' Tc=16.2 min CN=77 Runoff=1.72 cfs 5,041 cf
SubcatchmentS2:	Runoff Area=165,878 sf 24.43% Impervious Runoff Depth=2.81" Flow Length=100' Slope=0.0100 '/' Tc=28.4 min CN=82 Runoff=9.62 cfs 38,874 cf
SubcatchmentS3:	Runoff Area=51,994 sf 9.92% Impervious Runoff Depth=2.63" Flow Length=220' Slope=0.0100 '/' Tc=32.4 min CN=80 Runoff=2.58 cfs 11,408 cf
SubcatchmentS4:	Runoff Area=55,292 sf 29.85% Impervious Runoff Depth=3.00" Flow Length=100' Slope=0.0100 '/' Tc=28.4 min CN=84 Runoff=3.41 cfs 13,810 cf
SubcatchmentS5:	Runoff Area=32,279 sf 90.12% Impervious Runoff Depth=4.23" Flow Length=130' Tc=7.9 min CN=96 Runoff=4.53 cfs 11,390 cf
SubcatchmentS6:	Runoff Area=7,222 sf 0.00% Impervious Runoff Depth=2.55" Flow Length=26' Slope=0.0100 '/' Tc=6.0 min CN=79 Runoff=0.72 cfs 1,532 cf
SubcatchmentS7:	Runoff Area=15,183 sf 0.00% Impervious Runoff Depth=2.46" Flow Length=132' Slope=0.0100 '/' Tc=28.8 min CN=78 Runoff=0.76 cfs 3,111 cf
SubcatchmentS8:	Runoff Area=25,046 sf 33.83% Impervious Runoff Depth=3.19" Flow Length=296' Tc=15.8 min CN=86 Runoff=2.26 cfs 6,654 cf
Reach R1:	Avg. Flow Depth=1.23' Max Vel=0.90 fps Inflow=8.12 cfs 64,092 cf n=0.100 L=132.0' S=0.0053 '/' Capacity=5.41 cfs Outflow=8.08 cfs 64,092 cf
Pond 1P:	Peak Elev=348.50' Storage=758 cf Inflow=8.19 cfs 64,092 cf 36.0" Round Culvert n=0.012 L=20.5' S=0.0000 '/' Outflow=8.12 cfs 64,092 cf
Pond FB#1:	Peak Elev=359.50' Storage=1,917 cf Inflow=9.62 cfs 38,874 cf Outflow=9.60 cfs 38,874 cf
Pond FB#2:	Peak Elev=352.90' Storage=1,280 cf Inflow=4.53 cfs 11,390 cf Outflow=4.49 cfs 11,390 cf
Pond SMA#1:	Peak Elev=357.78' Storage=25,175 cf Inflow=12.14 cfs 50,281 cf Outflow=6.10 cfs 50,281 cf
Pond SMA#2:	Peak Elev=352.29' Storage=4,544 cf Inflow=5.19 cfs 12,922 cf Outflow=2.97 cfs 12,922 cf
Link OFF 1:	Inflow=1.72 cfs 5,041 cf Primary=1.72 cfs 5,041 cf
Link OFF 2:	Inflow=9.05 cfs 80,125 cf Primary=9.05 cfs 80,125 cf

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Link OFF 3:

Inflow=2.26 cfs 6,654 cf

Primary=2.26 cfs 6,654 cf

Total Runoff Area = 378,372 sf Runoff Volume = 91,819 cf Average Runoff Depth = 2.91"
73.64% Pervious = 278,619 sf 26.36% Impervious = 99,753 sf

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Summary for Subcatchment S1:

Runoff = 1.72 cfs @ 12.09 hrs, Volume= 5,041 cf, Depth= 2.37"

Routed to Link OFF 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
23,063	77	Woods, Good, HSG D
2,415	80	>75% Grass cover, Good, HSG D
25,478	77	Weighted Average
25,478		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	100	0.0500	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
0.5	47	0.1100	1.66		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	65	0.1000	4.74		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
0.6	70	0.1700	2.06		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.2	282	Total			

Summary for Subcatchment S2:

Runoff = 9.62 cfs @ 12.22 hrs, Volume= 38,874 cf, Depth= 2.81"

Routed to Pond FB#1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
117,537	77	Woods, Good, HSG D
7,809	80	>75% Grass cover, Good, HSG D
37,514	98	Paved parking, HSG D
3,018	98	Roofs, HSG D
165,878	82	Weighted Average
125,346		75.57% Pervious Area
40,532		24.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"

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Type II 24-hr 10-yr Rainfall=4.70"

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Summary for Subcatchment S3:

Runoff = 2.58 cfs @ 12.27 hrs, Volume= 11,408 cf, Depth= 2.63"
Routed to Pond SMA#1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
33,967	77	Woods, Good, HSG D
12,871	80	>75% Grass cover, Good, HSG D
5,140	98	Paved parking, HSG D
16	98	Roofs, HSG D
51,994	80	Weighted Average
46,838		90.08% Pervious Area
5,156		9.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
4.0	120	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
32.4	220	Total			

Summary for Subcatchment S4:

Runoff = 3.41 cfs @ 12.22 hrs, Volume= 13,810 cf, Depth= 3.00"
Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
18,972	77	Woods, Good, HSG D
19,817	80	>75% Grass cover, Good, HSG D
14,550	98	Paved parking, HSG D
1,953	98	Roofs, HSG D
55,292	84	Weighted Average
38,789		70.15% Pervious Area
16,503		29.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"

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Type II 24-hr 10-yr Rainfall=4.70"

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Summary for Subcatchment S5:

Runoff = 4.53 cfs @ 11.99 hrs, Volume= 11,390 cf, Depth= 4.23"
 Routed to Pond FB#2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
3,189	80	>75% Grass cover, Good, HSG D
26,563	98	Paved parking, HSG D
2,527	98	Roofs, HSG D
32,279	96	Weighted Average
3,189		9.88% Pervious Area
29,090		90.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0100	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.18"
0.5	80	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.9	130	Total			

Summary for Subcatchment S6:

Runoff = 0.72 cfs @ 11.97 hrs, Volume= 1,532 cf, Depth= 2.55"
 Routed to Pond SMA#2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
4,009	80	>75% Grass cover, Good, HSG D
3,213	77	Woods, Good, HSG D
7,222	79	Weighted Average
7,222		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	26	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.18"
4.4	26	Total, Increased to minimum Tc = 6.0 min			

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Type II 24-hr 10-yr Rainfall=4.70"

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Summary for Subcatchment S7:

Runoff = 0.76 cfs @ 12.23 hrs, Volume= 3,111 cf, Depth= 2.46"
 Routed to Link OFF 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
7,490	80	>75% Grass cover, Good, HSG D
7,693	77	Woods, Good, HSG D
15,183	78	Weighted Average
15,183		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
0.4	32	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
28.8	132	Total			

Summary for Subcatchment S8:

Runoff = 2.26 cfs @ 12.08 hrs, Volume= 6,654 cf, Depth= 3.19"
 Routed to Link OFF 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 10-yr Rainfall=4.70"

Area (sf)	CN	Description
4,895	77	Woods, Good, HSG D
11,679	80	>75% Grass cover, Good, HSG D
8,472	98	Paved parking, HSG D
25,046	86	Weighted Average
16,574		66.17% Pervious Area
8,472		33.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.18"
1.2	106	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
1.6	90	0.0333	0.91		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
15.8	296	Total			

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Type II 24-hr 10-yr Rainfall=4.70"

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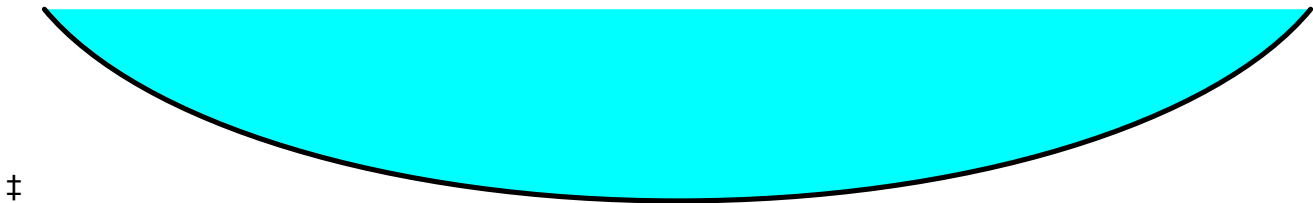
Summary for Reach R1:

Inflow Area = 273,164 sf, 22.77% Impervious, Inflow Depth = 2.82" for 10-yr event
 Inflow = 8.12 cfs @ 12.43 hrs, Volume= 64,092 cf
 Outflow = 8.08 cfs @ 12.51 hrs, Volume= 64,092 cf, Atten= 1%, Lag= 5.0 min
 Routed to Link OFF 2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.90 fps, Min. Travel Time= 2.4 min
 Avg. Velocity = 0.24 fps, Avg. Travel Time= 9.3 min

Peak Storage= 1,185 cf @ 12.47 hrs
 Average Depth at Peak Storage= 1.23' , Surface Width= 11.10'
 Bank-Full Depth= 1.00' Flow Area= 6.7 sf, Capacity= 5.41 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
 Length= 132.0' Slope= 0.0053 '
 Inlet Invert= 346.80', Outlet Invert= 346.10'

**Summary for Pond 1P:**

Inflow Area = 273,164 sf, 22.77% Impervious, Inflow Depth = 2.82" for 10-yr event
 Inflow = 8.19 cfs @ 12.38 hrs, Volume= 64,092 cf
 Outflow = 8.12 cfs @ 12.43 hrs, Volume= 64,092 cf, Atten= 1%, Lag= 3.2 min
 Primary = 8.12 cfs @ 12.43 hrs, Volume= 64,092 cf
 Routed to Reach R1 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Peak Elev= 348.50' @ 12.43 hrs Surf.Area= 1,612 sf Storage= 758 cf

Plug-Flow detention time= 1.3 min calculated for 64,076 cf (100% of inflow)
 Center-of-Mass det. time= 1.3 min (1,024.1 - 1,022.7)

Volume	Invert	Avail.Storage	Storage Description
#1	347.10'	5,641 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
347.10	1	0	0
348.00	501	226	226
350.00	4,914	5,415	5,641

Device	Routing	Invert	Outlet Devices
#1	Primary	347.10'	36.0" Round Culvert

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L= 20.5' CPP, square edge headwall, Ke= 0.500
 Inlet / Outlet Invert= 347.10' / 347.10' S= 0.0000 ' S= 0.0000 ' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=8.10 cfs @ 12.43 hrs HW=348.50' (Free Discharge)↑**1=Culvert** (Barrel Controls 8.10 cfs @ 3.67 fps)**Summary for Pond FB#1:**

Inflow Area = 165,878 sf, 24.43% Impervious, Inflow Depth = 2.81" for 10-yr event
 Inflow = 9.62 cfs @ 12.22 hrs, Volume= 38,874 cf
 Outflow = 9.60 cfs @ 12.23 hrs, Volume= 38,874 cf, Atten= 0%, Lag= 0.7 min
 Primary = 9.60 cfs @ 12.23 hrs, Volume= 38,874 cf
 Routed to Pond SMA#1 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Starting Elev= 359.00' Surf.Area= 876 sf Storage= 1,438 cf
 Peak Elev= 359.50' @ 12.23 hrs Surf.Area= 1,053 sf Storage= 1,917 cf (480 cf above start)

Plug-Flow detention time= 32.4 min calculated for 37,427 cf (96% of inflow)
 Center-of-Mass det. time= 1.5 min (838.1 - 836.6)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	2,492 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	10	0	0
356.00	118	64	64
358.00	545	663	727
359.00	876	711	1,438
360.00	1,232	1,054	2,492

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=9.53 cfs @ 12.23 hrs HW=359.50' (Free Discharge)↑**1=Broad-Crested Rectangular Weir**(Weir Controls 9.53 cfs @ 1.92 fps)**Summary for Pond FB#2:**

Inflow Area = 32,279 sf, 90.12% Impervious, Inflow Depth = 4.23" for 10-yr event
 Inflow = 4.53 cfs @ 11.99 hrs, Volume= 11,390 cf
 Outflow = 4.49 cfs @ 12.00 hrs, Volume= 11,390 cf, Atten= 1%, Lag= 0.6 min
 Primary = 4.49 cfs @ 12.00 hrs, Volume= 11,390 cf
 Routed to Pond SMA#2 :

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Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Starting Elev= 352.60' Surf.Area= 725 sf Storage= 1,046 cf

Peak Elev= 352.90' @ 12.00 hrs Surf.Area= 824 sf Storage= 1,280 cf (234 cf above start)

Plug-Flow detention time= 85.6 min calculated for 10,344 cf (91% of inflow)

Center-of-Mass det. time= 2.0 min (763.9 - 761.9)

Volume	Invert	Avail.Storage	Storage Description
#1	350.00'	1,362 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
350.00	120	0	0
352.00	545	665	665
352.60	725	381	1,046
353.00	856	316	1,362

Device	Routing	Invert	Outlet Devices
#1	Primary	352.60'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=4.43 cfs @ 12.00 hrs HW=352.90' (Free Discharge)↑1=**Broad-Crested Rectangular Weir**(Weir Controls 4.43 cfs @ 1.48 fps)**Summary for Pond SMA#1:**

Inflow Area = 217,872 sf, 20.97% Impervious, Inflow Depth = 2.77" for 10-yr event

Inflow = 12.14 cfs @ 12.24 hrs, Volume= 50,281 cf

Outflow = 6.10 cfs @ 12.55 hrs, Volume= 50,281 cf, Atten= 50%, Lag= 18.6 min

Primary = 6.10 cfs @ 12.55 hrs, Volume= 50,281 cf

Routed to Pond 1P :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Starting Elev= 355.00' Surf.Area= 4,886 sf Storage= 7,785 cf

Peak Elev= 357.78' @ 12.55 hrs Surf.Area= 7,698 sf Storage= 25,175 cf (17,390 cf above start)

Plug-Flow detention time= 370.3 min calculated for 42,496 cf (85% of inflow)

Center-of-Mass det. time= 235.6 min (1,075.5 - 839.8)

Volume	Invert	Avail.Storage	Storage Description
#1	348.00'	45,057 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
348.00	9	0	0
350.00	303	312	312
352.00	878	1,181	1,493
353.50	1,488	1,775	3,268
354.00	2,270	940	4,207
355.00	4,886	3,578	7,785
356.00	5,831	5,359	13,144
356.85	6,685	5,319	18,463
358.00	7,933	8,405	26,868
359.00	9,080	8,507	35,375
360.00	10,285	9,683	45,057

Device	Routing	Invert	Outlet Devices
#1	Primary	353.00'	15.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 353.00' / 352.00' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	355.00'	3.0" Horiz. Permanent Pool C= 0.600 Limited to weir flow at low heads
#3	Device 1	356.85'	15.0" Horiz. Stand Pipe C= 0.600 Limited to weir flow at low heads
#4	Device 1	357.80'	4.0" x 1.0" Horiz. CB X 5.00 columns X 13 rows C= 0.600 in 30.0" x 30.0" Grate (29% open area) Limited to weir flow at low heads
#5	Primary	359.00'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=6.10 cfs @ 12.55 hrs HW=357.78' (Free Discharge)

- 1=Culvert (Passes 6.10 cfs of 12.05 cfs potential flow)
 2=Permanent Pool (Orifice Controls 0.39 cfs @ 8.03 fps)
 3=Stand Pipe (Orifice Controls 5.71 cfs @ 4.65 fps)
 4=CB (Controls 0.00 cfs)
 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond SMA#2:

Inflow Area = 39,501 sf, 73.64% Impervious, Inflow Depth = 3.93" for 10-yr event
 Inflow = 5.19 cfs @ 11.99 hrs, Volume= 12,922 cf
 Outflow = 2.97 cfs @ 12.11 hrs, Volume= 12,922 cf, Atten= 43%, Lag= 7.1 min
 Primary = 2.97 cfs @ 12.11 hrs, Volume= 12,922 cf
 Routed to Link OFF 2 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Peak Elev= 352.29' @ 12.11 hrs Surf.Area= 2,712 sf Storage= 4,544 cf

Plug-Flow detention time= 111.4 min calculated for 12,919 cf (100% of inflow)
 Center-of-Mass det. time= 111.7 min (882.8 - 771.0)

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Volume	Invert	Avail.Storage	Storage Description
#1	347.75'	10,147 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
347.75	2,050	0.0	0	0
348.60	2,050	40.0	697	697
351.10	2,050	20.0	1,025	1,722
352.10	2,600	100.0	2,325	4,047
352.60	2,900	100.0	1,375	5,422
354.00	3,850	100.0	4,725	10,147

Device	Routing	Invert	Outlet Devices
#1	Primary	352.60'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#2	Device 3	347.75'	5.000 in/hr Exfiltration over Surface area
#3	Device 5	347.75'	6.0" Round Culvert L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 347.75' / 347.75' S= 0.0000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#4	Device 5	352.10'	4.0" x 1.0" Horiz. Orifice/Grate X 6.00 columns X 13 rows C= 0.600 in 30.0" x 30.0" Grate (35% open area) Limited to weir flow at low heads
#5	Primary	347.75'	12.0" Round Culvert L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 347.75' / 347.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.76 cfs @ 12.11 hrs HW=352.28' (Free Discharge)

1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
5=Culvert (Passes 2.76 cfs of 7.59 cfs potential flow)
3=Culvert (Passes 0.31 cfs of 1.61 cfs potential flow)
2=Exfiltration (Exfiltration Controls 0.31 cfs)
4=Orifice/Grate (Weir Controls 2.45 cfs @ 1.38 fps)

Summary for Link OFF 1:

Inflow Area = 25,478 sf, 0.00% Impervious, Inflow Depth = 2.37" for 10-yr event
Inflow = 1.72 cfs @ 12.09 hrs, Volume= 5,041 cf
Primary = 1.72 cfs @ 12.09 hrs, Volume= 5,041 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

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Type II 24-hr 10-yr Rainfall=4.70"

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Summary for Link OFF 2:

Inflow Area = 327,848 sf, 27.84% Impervious, Inflow Depth = 2.93" for 10-yr event
Inflow = 9.05 cfs @ 12.49 hrs, Volume= 80,125 cf
Primary = 9.05 cfs @ 12.49 hrs, Volume= 80,125 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link OFF 3:

Inflow Area = 25,046 sf, 33.83% Impervious, Inflow Depth = 3.19" for 10-yr event
Inflow = 2.26 cfs @ 12.08 hrs, Volume= 6,654 cf
Primary = 2.26 cfs @ 12.08 hrs, Volume= 6,654 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

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Type II 24-hr 100-yr Rainfall=8.28"

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Time span=0.00-200.00 hrs, dt=0.05 hrs, 4001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1: Runoff Area=25,478 sf 0.00% Impervious Runoff Depth=5.53"
Flow Length=282' Tc=16.2 min CN=77 Runoff=3.96 cfs 11,745 cf

SubcatchmentS2: Runoff Area=165,878 sf 24.43% Impervious Runoff Depth=6.13"
Flow Length=100' Slope=0.0100 ' ' Tc=28.4 min CN=82 Runoff=20.64 cfs 84,680 cf

SubcatchmentS3: Runoff Area=51,994 sf 9.92% Impervious Runoff Depth=5.89"
Flow Length=220' Slope=0.0100 ' ' Tc=32.4 min CN=80 Runoff=5.74 cfs 25,512 cf

SubcatchmentS4: Runoff Area=55,292 sf 29.85% Impervious Runoff Depth=6.36"
Flow Length=100' Slope=0.0100 ' ' Tc=28.4 min CN=84 Runoff=7.10 cfs 29,325 cf

SubcatchmentS5: Runoff Area=32,279 sf 90.12% Impervious Runoff Depth=7.80"
Flow Length=130' Tc=7.9 min CN=96 Runoff=8.10 cfs 20,982 cf

SubcatchmentS6: Runoff Area=7,222 sf 0.00% Impervious Runoff Depth=5.77"
Flow Length=26' Slope=0.0100 ' ' Tc=6.0 min CN=79 Runoff=1.59 cfs 3,472 cf

SubcatchmentS7: Runoff Area=15,183 sf 0.00% Impervious Runoff Depth=5.65"
Flow Length=132' Slope=0.0100 ' ' Tc=28.8 min CN=78 Runoff=1.74 cfs 7,149 cf

SubcatchmentS8: Runoff Area=25,046 sf 33.83% Impervious Runoff Depth=6.60"
Flow Length=296' Tc=15.8 min CN=86 Runoff=4.53 cfs 13,782 cf

Reach R1: Avg. Flow Depth=2.41' Max Vel=1.05 fps Inflow=21.87 cfs 139,517 cf
n=0.100 L=132.0' S=0.0053 ' ' Capacity=5.41 cfs Outflow=21.64 cfs 139,517 cf

Pond 1P: Peak Elev=349.51' Storage=3,502 cf Inflow=22.58 cfs 139,517 cf
36.0" Round Culvert n=0.012 L=20.5' S=0.0000 ' ' Outflow=21.87 cfs 139,517 cf

Pond FB#1: Peak Elev=359.81' Storage=2,259 cf Inflow=20.64 cfs 84,680 cf
Outflow=20.62 cfs 84,680 cf

Pond FB#2: Peak Elev=353.05' Storage=1,362 cf Inflow=8.10 cfs 20,982 cf
Outflow=8.25 cfs 20,982 cf

Pond SMA#1: Peak Elev=359.27' Storage=37,881 cf Inflow=26.24 cfs 110,192 cf
Outflow=17.88 cfs 110,192 cf

Pond SMA#2: Peak Elev=352.64' Storage=5,536 cf Inflow=9.80 cfs 24,454 cf
Outflow=8.13 cfs 24,454 cf

Link OFF 1: Inflow=3.96 cfs 11,745 cf
Primary=3.96 cfs 11,745 cf

Link OFF 2: Inflow=23.44 cfs 171,120 cf
Primary=23.44 cfs 171,120 cf

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Type II 24-hr 100-yr Rainfall=8.28"

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Link OFF 3:

Inflow=4.53 cfs 13,782 cf

Primary=4.53 cfs 13,782 cf

Total Runoff Area = 378,372 sf Runoff Volume = 196,647 cf Average Runoff Depth = 6.24"
73.64% Pervious = 278,619 sf 26.36% Impervious = 99,753 sf

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Type II 24-hr 100-yr Rainfall=8.28"

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Summary for Subcatchment S1:

Runoff = 3.96 cfs @ 12.08 hrs, Volume= 11,745 cf, Depth= 5.53"
 Routed to Link OFF 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 100-yr Rainfall=8.28"

Area (sf)	CN	Description
23,063	77	Woods, Good, HSG D
2,415	80	>75% Grass cover, Good, HSG D
25,478	77	Weighted Average
25,478		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	100	0.0500	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
0.5	47	0.1100	1.66		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	65	0.1000	4.74		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
0.6	70	0.1700	2.06		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.2	282	Total			

Summary for Subcatchment S2:

Runoff = 20.64 cfs @ 12.22 hrs, Volume= 84,680 cf, Depth= 6.13"
 Routed to Pond FB#1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 100-yr Rainfall=8.28"

Area (sf)	CN	Description
117,537	77	Woods, Good, HSG D
7,809	80	>75% Grass cover, Good, HSG D
37,514	98	Paved parking, HSG D
3,018	98	Roofs, HSG D
165,878	82	Weighted Average
125,346		75.57% Pervious Area
40,532		24.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"

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Type II 24-hr 100-yr Rainfall=8.28"

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Summary for Subcatchment S3:

Runoff = 5.74 cfs @ 12.26 hrs, Volume= 25,512 cf, Depth= 5.89"
Routed to Pond SMA#1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=8.28"

Area (sf)	CN	Description
33,967	77	Woods, Good, HSG D
12,871	80	>75% Grass cover, Good, HSG D
5,140	98	Paved parking, HSG D
16	98	Roofs, HSG D
51,994	80	Weighted Average
46,838		90.08% Pervious Area
5,156		9.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
4.0	120	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
32.4	220	Total			

Summary for Subcatchment S4:

Runoff = 7.10 cfs @ 12.21 hrs, Volume= 29,325 cf, Depth= 6.36"
Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=8.28"

Area (sf)	CN	Description
18,972	77	Woods, Good, HSG D
19,817	80	>75% Grass cover, Good, HSG D
14,550	98	Paved parking, HSG D
1,953	98	Roofs, HSG D
55,292	84	Weighted Average
38,789		70.15% Pervious Area
16,503		29.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"

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Type II 24-hr 100-yr Rainfall=8.28"

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Summary for Subcatchment S5:

Runoff = 8.10 cfs @ 11.99 hrs, Volume= 20,982 cf, Depth= 7.80"
 Routed to Pond FB#2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 100-yr Rainfall=8.28"

Area (sf)	CN	Description
3,189	80	>75% Grass cover, Good, HSG D
26,563	98	Paved parking, HSG D
2,527	98	Roofs, HSG D
32,279	96	Weighted Average
3,189		9.88% Pervious Area
29,090		90.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0100	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.18"
0.5	80	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.9	130	Total			

Summary for Subcatchment S6:

Runoff = 1.59 cfs @ 11.97 hrs, Volume= 3,472 cf, Depth= 5.77"
 Routed to Pond SMA#2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 100-yr Rainfall=8.28"

Area (sf)	CN	Description
4,009	80	>75% Grass cover, Good, HSG D
3,213	77	Woods, Good, HSG D
7,222	79	Weighted Average
7,222		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	26	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.18"
4.4	26	Total, Increased to minimum Tc = 6.0 min			

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Type II 24-hr 100-yr Rainfall=8.28"

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Summary for Subcatchment S7:

Runoff = 1.74 cfs @ 12.22 hrs, Volume= 7,149 cf, Depth= 5.65"
 Routed to Link OFF 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 100-yr Rainfall=8.28"

Area (sf)	CN	Description
7,490	80	>75% Grass cover, Good, HSG D
7,693	77	Woods, Good, HSG D
15,183	78	Weighted Average
15,183		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow,
					Woods: Light underbrush n= 0.400 P2= 3.18"
0.4	32	0.0100	1.50		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
28.8	132	Total			

Summary for Subcatchment S8:

Runoff = 4.53 cfs @ 12.07 hrs, Volume= 13,782 cf, Depth= 6.60"
 Routed to Link OFF 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr 100-yr Rainfall=8.28"

Area (sf)	CN	Description
4,895	77	Woods, Good, HSG D
11,679	80	>75% Grass cover, Good, HSG D
8,472	98	Paved parking, HSG D
25,046	86	Weighted Average
16,574		66.17% Pervious Area
8,472		33.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.18"
1.2	106	0.0100	1.50		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
1.6	90	0.0333	0.91		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
15.8	296	Total			

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Type II 24-hr 100-yr Rainfall=8.28"

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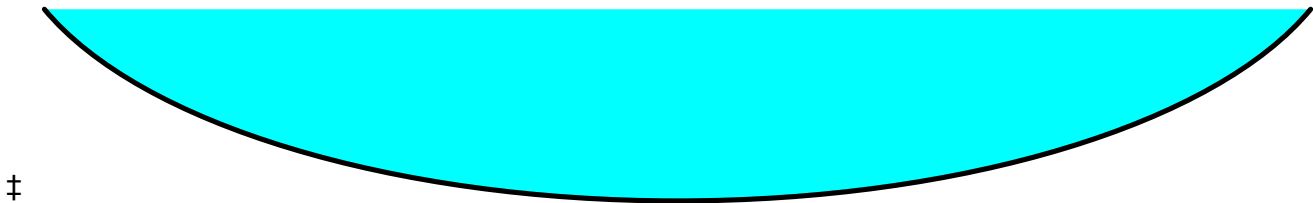
Summary for Reach R1:

Inflow Area = 273,164 sf, 22.77% Impervious, Inflow Depth = 6.13" for 100-yr event
 Inflow = 21.87 cfs @ 12.46 hrs, Volume= 139,517 cf
 Outflow = 21.64 cfs @ 12.53 hrs, Volume= 139,517 cf, Atten= 1%, Lag= 3.9 min
 Routed to Link OFF 2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.05 fps, Min. Travel Time= 2.1 min
 Avg. Velocity = 0.27 fps, Avg. Travel Time= 8.1 min

Peak Storage= 2,736 cf @ 12.49 hrs
 Average Depth at Peak Storage= 2.41' , Surface Width= 15.52'
 Bank-Full Depth= 1.00' Flow Area= 6.7 sf, Capacity= 5.41 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
 Length= 132.0' Slope= 0.0053 '
 Inlet Invert= 346.80', Outlet Invert= 346.10'

**Summary for Pond 1P:**

Inflow Area = 273,164 sf, 22.77% Impervious, Inflow Depth = 6.13" for 100-yr event
 Inflow = 22.58 cfs @ 12.41 hrs, Volume= 139,517 cf
 Outflow = 21.87 cfs @ 12.46 hrs, Volume= 139,517 cf, Atten= 3%, Lag= 3.1 min
 Primary = 21.87 cfs @ 12.46 hrs, Volume= 139,517 cf
 Routed to Reach R1 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Peak Elev= 349.51' @ 12.46 hrs Surf.Area= 3,835 sf Storage= 3,502 cf

Plug-Flow detention time= 1.8 min calculated for 139,482 cf (100% of inflow)
 Center-of-Mass det. time= 1.8 min (922.1 - 920.3)

Volume	Invert	Avail.Storage	Storage Description
#1	347.10'	5,641 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
347.10	1	0	0
348.00	501	226	226
350.00	4,914	5,415	5,641

Device	Routing	Invert	Outlet Devices
#1	Primary	347.10'	36.0" Round Culvert

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L= 20.5' CPP, square edge headwall, Ke= 0.500
 Inlet / Outlet Invert= 347.10' / 347.10' S= 0.0000 ' S= 0.0000 ' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=21.79 cfs @ 12.46 hrs HW=349.51' (Free Discharge)

↑1=Culvert (Barrel Controls 21.79 cfs @ 4.91 fps)

Summary for Pond FB#1:

Inflow Area = 165,878 sf, 24.43% Impervious, Inflow Depth = 6.13" for 100-yr event
 Inflow = 20.64 cfs @ 12.22 hrs, Volume= 84,680 cf
 Outflow = 20.62 cfs @ 12.22 hrs, Volume= 84,680 cf, Atten= 0%, Lag= 0.5 min
 Primary = 20.62 cfs @ 12.22 hrs, Volume= 84,680 cf
 Routed to Pond SMA#1 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Starting Elev= 359.00' Surf.Area= 876 sf Storage= 1,438 cf
 Peak Elev= 359.81' @ 12.22 hrs Surf.Area= 1,163 sf Storage= 2,259 cf (821 cf above start)

Plug-Flow detention time= 18.6 min calculated for 83,243 cf (98% of inflow)
 Center-of-Mass det. time= 1.3 min (815.7 - 814.5)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	2,492 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	10	0	0
356.00	118	64	64
358.00	545	663	727
359.00	876	711	1,438
360.00	1,232	1,054	2,492

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=20.45 cfs @ 12.22 hrs HW=359.80' (Free Discharge)

↑1=Broad-Crested Rectangular Weir (Weir Controls 20.45 cfs @ 2.55 fps)

Summary for Pond FB#2:

Inflow Area = 32,279 sf, 90.12% Impervious, Inflow Depth = 7.80" for 100-yr event
 Inflow = 8.10 cfs @ 11.99 hrs, Volume= 20,982 cf
 Outflow = 8.25 cfs @ 11.99 hrs, Volume= 20,982 cf, Atten= 0%, Lag= 0.3 min
 Primary = 8.25 cfs @ 11.99 hrs, Volume= 20,982 cf
 Routed to Pond SMA#2 :

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Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Starting Elev= 352.60' Surf.Area= 725 sf Storage= 1,046 cf

Peak Elev= 353.05' @ 11.99 hrs Surf.Area= 856 sf Storage= 1,362 cf (316 cf above start)

Plug-Flow detention time= 56.7 min calculated for 19,936 cf (95% of inflow)

Center-of-Mass det. time= 1.7 min (751.1 - 749.5)

Volume	Invert	Avail.Storage	Storage Description
#1	350.00'	1,362 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
350.00	120	0	0
352.00	545	665	665
352.60	725	381	1,046
353.00	856	316	1,362

Device	Routing	Invert	Outlet Devices
#1	Primary	352.60'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=8.03 cfs @ 11.99 hrs HW=353.04' (Free Discharge)↑**1=Broad-Crested Rectangular Weir**(Weir Controls 8.03 cfs @ 1.81 fps)**Summary for Pond SMA#1:**

Inflow Area = 217,872 sf, 20.97% Impervious, Inflow Depth = 6.07" for 100-yr event
 Inflow = 26.24 cfs @ 12.23 hrs, Volume= 110,192 cf
 Outflow = 17.88 cfs @ 12.44 hrs, Volume= 110,192 cf, Atten= 32%, Lag= 12.7 min
 Primary = 17.88 cfs @ 12.44 hrs, Volume= 110,192 cf
 Routed to Pond 1P :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Starting Elev= 355.00' Surf.Area= 4,886 sf Storage= 7,785 cf

Peak Elev= 359.27' @ 12.44 hrs Surf.Area= 9,407 sf Storage= 37,881 cf (30,096 cf above start)

Plug-Flow detention time= 192.5 min calculated for 102,381 cf (93% of inflow)

Center-of-Mass det. time= 132.4 min (949.8 - 817.4)

Volume	Invert	Avail.Storage	Storage Description
#1	348.00'	45,057 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
348.00	9	0	0
350.00	303	312	312
352.00	878	1,181	1,493
353.50	1,488	1,775	3,268
354.00	2,270	940	4,207
355.00	4,886	3,578	7,785
356.00	5,831	5,359	13,144
356.85	6,685	5,319	18,463
358.00	7,933	8,405	26,868
359.00	9,080	8,507	35,375
360.00	10,285	9,683	45,057

Device	Routing	Invert	Outlet Devices
#1	Primary	353.00'	15.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 353.00' / 352.00' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	355.00'	3.0" Horiz. Permanent Pool C= 0.600 Limited to weir flow at low heads
#3	Device 1	356.85'	15.0" Horiz. Stand Pipe C= 0.600 Limited to weir flow at low heads
#4	Device 1	357.80'	4.0" x 1.0" Horiz. CB X 5.00 columns X 13 rows C= 0.600 in 30.0" x 30.0" Grate (29% open area) Limited to weir flow at low heads
#5	Primary	359.00'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=17.79 cfs @ 12.44 hrs HW=359.27' (Free Discharge)

- 1=Culvert (Inlet Controls 14.04 cfs @ 11.44 fps)
 2=Permanent Pool (Passes < 0.49 cfs potential flow)
 3=Stand Pipe (Passes < 9.19 cfs potential flow)
 4=CB (Passes < 10.53 cfs potential flow)
 5=Broad-Crested Rectangular Weir (Weir Controls 3.75 cfs @ 1.40 fps)

Summary for Pond SMA#2:

Inflow Area = 39,501 sf, 73.64% Impervious, Inflow Depth = 7.43" for 100-yr event
 Inflow = 9.80 cfs @ 11.99 hrs, Volume= 24,454 cf
 Outflow = 8.13 cfs @ 12.04 hrs, Volume= 24,454 cf, Atten= 17%, Lag= 3.1 min
 Primary = 8.13 cfs @ 12.04 hrs, Volume= 24,454 cf
 Routed to Link OFF 2 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Peak Elev= 352.64' @ 12.04 hrs Surf.Area= 2,926 sf Storage= 5,536 cf

Plug-Flow detention time= 85.7 min calculated for 24,448 cf (100% of inflow)
 Center-of-Mass det. time= 86.1 min (844.2 - 758.2)

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Type II 24-hr 100-yr Rainfall=8.28"

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Volume	Invert	Avail.Storage	Storage Description
#1	347.75'	10,147 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
347.75	2,050	0.0	0	0
348.60	2,050	40.0	697	697
351.10	2,050	20.0	1,025	1,722
352.10	2,600	100.0	2,325	4,047
352.60	2,900	100.0	1,375	5,422
354.00	3,850	100.0	4,725	10,147

Device	Routing	Invert	Outlet Devices
#1	Primary	352.60'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#2	Device 3	347.75'	5.000 in/hr Exfiltration over Surface area
#3	Device 5	347.75'	6.0" Round Culvert L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 347.75' / 347.75' S= 0.0000 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#4	Device 5	352.10'	4.0" x 1.0" Horiz. Orifice/Grate X 6.00 columns X 13 rows C= 0.600 in 30.0" x 30.0" Grate (35% open area) Limited to weir flow at low heads
#5	Primary	347.75'	12.0" Round Culvert L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 347.75' / 347.60' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=8.03 cfs @ 12.04 hrs HW=352.63' (Free Discharge)

1=**Broad-Crested Rectangular Weir** (Weir Controls 0.12 cfs @ 0.45 fps)

5=**Culvert** (Inlet Controls 7.91 cfs @ 10.07 fps)

3=**Culvert** (Passes < 1.68 cfs potential flow)

2=**Exfiltration** (Passes < 0.34 cfs potential flow)

4=**Orifice/Grate** (Passes < 7.58 cfs potential flow)

Summary for Link OFF 1:

Inflow Area = 25,478 sf, 0.00% Impervious, Inflow Depth = 5.53" for 100-yr event
Inflow = 3.96 cfs @ 12.08 hrs, Volume= 11,745 cf
Primary = 3.96 cfs @ 12.08 hrs, Volume= 11,745 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

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Type II 24-hr 100-yr Rainfall=8.28"

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Summary for Link OFF 2:

Inflow Area = 327,848 sf, 27.84% Impervious, Inflow Depth = 6.26" for 100-yr event
Inflow = 23.44 cfs @ 12.51 hrs, Volume= 171,120 cf
Primary = 23.44 cfs @ 12.51 hrs, Volume= 171,120 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link OFF 3:

Inflow Area = 25,046 sf, 33.83% Impervious, Inflow Depth = 6.60" for 100-yr event
Inflow = 4.53 cfs @ 12.07 hrs, Volume= 13,782 cf
Primary = 4.53 cfs @ 12.07 hrs, Volume= 13,782 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

POST*Type II 24-hr WQv Rainfall=1.40"*

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Time span=0.00-200.00 hrs, dt=0.05 hrs, 4001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS1:	Runoff Area=25,478 sf 0.00% Impervious Runoff Depth=0.17" Flow Length=282' Tc=16.2 min CN=77 Runoff=0.08 cfs 361 cf
SubcatchmentS2:	Runoff Area=165,878 sf 24.43% Impervious Runoff Depth=0.29" Flow Length=100' Slope=0.0100 '/' Tc=28.4 min CN=82 Runoff=0.80 cfs 4,045 cf
SubcatchmentS3:	Runoff Area=51,994 sf 9.92% Impervious Runoff Depth=0.24" Flow Length=220' Slope=0.0100 '/' Tc=32.4 min CN=80 Runoff=0.17 cfs 1,032 cf
SubcatchmentS4:	Runoff Area=55,292 sf 29.85% Impervious Runoff Depth=0.36" Flow Length=100' Slope=0.0100 '/' Tc=28.4 min CN=84 Runoff=0.35 cfs 1,637 cf
SubcatchmentS5:	Runoff Area=32,279 sf 90.12% Impervious Runoff Depth=1.00" Flow Length=130' Tc=7.9 min CN=96 Runoff=1.17 cfs 2,690 cf
SubcatchmentS6:	Runoff Area=7,222 sf 0.00% Impervious Runoff Depth=0.21" Flow Length=26' Slope=0.0100 '/' Tc=6.0 min CN=79 Runoff=0.05 cfs 129 cf
SubcatchmentS7:	Runoff Area=15,183 sf 0.00% Impervious Runoff Depth=0.19" Flow Length=132' Slope=0.0100 '/' Tc=28.8 min CN=78 Runoff=0.04 cfs 242 cf
SubcatchmentS8:	Runoff Area=25,046 sf 33.83% Impervious Runoff Depth=0.43" Flow Length=296' Tc=15.8 min CN=86 Runoff=0.29 cfs 892 cf
Reach R1:	Avg. Flow Depth=0.30' Max Vel=0.37 fps Inflow=0.42 cfs 6,713 cf n=0.100 L=132.0' S=0.0053 '/' Capacity=5.41 cfs Outflow=0.40 cfs 6,713 cf
Pond 1P:	Peak Elev=347.44' Storage=32 cf Inflow=0.42 cfs 6,713 cf 36.0" Round Culvert n=0.012 L=20.5' S=0.0000 '/' Outflow=0.42 cfs 6,713 cf
Pond FB#1:	Peak Elev=359.10' Storage=1,523 cf Inflow=0.80 cfs 4,045 cf Outflow=0.80 cfs 4,045 cf
Pond FB#2:	Peak Elev=352.72' Storage=1,137 cf Inflow=1.17 cfs 2,690 cf Outflow=1.14 cfs 2,690 cf
Pond SMA#1:	Peak Elev=355.37' Storage=9,679 cf Inflow=0.96 cfs 5,077 cf Outflow=0.14 cfs 5,077 cf
Pond SMA#2:	Peak Elev=349.42' Storage=1,032 cf Inflow=1.20 cfs 2,819 cf Outflow=0.24 cfs 2,819 cf
Link OFF 1:	Inflow=0.08 cfs 361 cf Primary=0.08 cfs 361 cf
Link OFF 2:	Inflow=0.67 cfs 9,774 cf Primary=0.67 cfs 9,774 cf

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Type II 24-hr WQv Rainfall=1.40"

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Link OFF 3:

Inflow=0.29 cfs 892 cf

Primary=0.29 cfs 892 cf

Total Runoff Area = 378,372 sf Runoff Volume = 11,027 cf Average Runoff Depth = 0.35"
73.64% Pervious = 278,619 sf 26.36% Impervious = 99,753 sf

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Type II 24-hr WQv Rainfall=1.40"

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Summary for Subcatchment S1:

Runoff = 0.08 cfs @ 12.14 hrs, Volume= 361 cf, Depth= 0.17"
 Routed to Link OFF 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr WQv Rainfall=1.40"

Area (sf)	CN	Description
23,063	77	Woods, Good, HSG D
2,415	80	>75% Grass cover, Good, HSG D
25,478	77	Weighted Average
25,478		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	100	0.0500	0.11		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
0.5	47	0.1100	1.66		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	65	0.1000	4.74		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
0.6	70	0.1700	2.06		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
16.2	282	Total			

Summary for Subcatchment S2:

Runoff = 0.80 cfs @ 12.27 hrs, Volume= 4,045 cf, Depth= 0.29"
 Routed to Pond FB#1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr WQv Rainfall=1.40"

Area (sf)	CN	Description
117,537	77	Woods, Good, HSG D
7,809	80	>75% Grass cover, Good, HSG D
37,514	98	Paved parking, HSG D
3,018	98	Roofs, HSG D
165,878	82	Weighted Average
125,346		75.57% Pervious Area
40,532		24.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"

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Type II 24-hr WQv Rainfall=1.40"

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Summary for Subcatchment S3:

Runoff = 0.17 cfs @ 12.34 hrs, Volume= 1,032 cf, Depth= 0.24"
Routed to Pond SMA#1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr WQv Rainfall=1.40"

Area (sf)	CN	Description
33,967	77	Woods, Good, HSG D
12,871	80	>75% Grass cover, Good, HSG D
5,140	98	Paved parking, HSG D
16	98	Roofs, HSG D
51,994	80	Weighted Average
46,838		90.08% Pervious Area
5,156		9.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"
4.0	120	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
32.4	220	Total			

Summary for Subcatchment S4:

Runoff = 0.35 cfs @ 12.26 hrs, Volume= 1,637 cf, Depth= 0.36"
Routed to Pond 1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
Type II 24-hr WQv Rainfall=1.40"

Area (sf)	CN	Description
18,972	77	Woods, Good, HSG D
19,817	80	>75% Grass cover, Good, HSG D
14,550	98	Paved parking, HSG D
1,953	98	Roofs, HSG D
55,292	84	Weighted Average
38,789		70.15% Pervious Area
16,503		29.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.18"

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Type II 24-hr WQv Rainfall=1.40"

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Summary for Subcatchment S5:

Runoff = 1.17 cfs @ 11.99 hrs, Volume= 2,690 cf, Depth= 1.00"
 Routed to Pond FB#2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr WQv Rainfall=1.40"

Area (sf)	CN	Description
3,189	80	>75% Grass cover, Good, HSG D
26,563	98	Paved parking, HSG D
2,527	98	Roofs, HSG D
32,279	96	Weighted Average
3,189		9.88% Pervious Area
29,090		90.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0100	0.11		Sheet Flow, Grass: Short n= 0.150 P2= 3.18"
0.5	80	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.9	130	Total			

Summary for Subcatchment S6:

Runoff = 0.05 cfs @ 12.00 hrs, Volume= 129 cf, Depth= 0.21"
 Routed to Pond SMA#2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr WQv Rainfall=1.40"

Area (sf)	CN	Description
4,009	80	>75% Grass cover, Good, HSG D
3,213	77	Woods, Good, HSG D
7,222	79	Weighted Average
7,222		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	26	0.0100	0.10		Sheet Flow, Grass: Short n= 0.150 P2= 3.18"
4.4	26	Total, Increased to minimum Tc = 6.0 min			

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Type II 24-hr WQv Rainfall=1.40"

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Summary for Subcatchment S7:

Runoff = 0.04 cfs @ 12.31 hrs, Volume= 242 cf, Depth= 0.19"
 Routed to Link OFF 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr WQv Rainfall=1.40"

Area (sf)	CN	Description
7,490	80	>75% Grass cover, Good, HSG D
7,693	77	Woods, Good, HSG D
15,183	78	Weighted Average
15,183		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.4	100	0.0100	0.06		Sheet Flow,
					Woods: Light underbrush n= 0.400 P2= 3.18"
0.4	32	0.0100	1.50		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
28.8	132	Total			

Summary for Subcatchment S8:

Runoff = 0.29 cfs @ 12.09 hrs, Volume= 892 cf, Depth= 0.43"
 Routed to Link OFF 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Type II 24-hr WQv Rainfall=1.40"

Area (sf)	CN	Description
4,895	77	Woods, Good, HSG D
11,679	80	>75% Grass cover, Good, HSG D
8,472	98	Paved parking, HSG D
25,046	86	Weighted Average
16,574		66.17% Pervious Area
8,472		33.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.18"
1.2	106	0.0100	1.50		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
1.6	90	0.0333	0.91		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
15.8	296	Total			

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Type II 24-hr WQv Rainfall=1.40"

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Summary for Reach R1:

Inflow Area = 273,164 sf, 22.77% Impervious, Inflow Depth = 0.29" for WQv event
 Inflow = 0.42 cfs @ 12.31 hrs, Volume= 6,713 cf
 Outflow = 0.40 cfs @ 12.50 hrs, Volume= 6,713 cf, Atten= 5%, Lag= 11.3 min
 Routed to Link OFF 2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.37 fps, Min. Travel Time= 6.0 min
 Avg. Velocity = 0.15 fps, Avg. Travel Time= 15.1 min

Peak Storage= 144 cf @ 12.40 hrs
 Average Depth at Peak Storage= 0.30' , Surface Width= 5.47'
 Bank-Full Depth= 1.00' Flow Area= 6.7 sf, Capacity= 5.41 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
 Length= 132.0' Slope= 0.0053 '
 Inlet Invert= 346.80', Outlet Invert= 346.10'

**Summary for Pond 1P:**

Inflow Area = 273,164 sf, 22.77% Impervious, Inflow Depth = 0.29" for WQv event
 Inflow = 0.42 cfs @ 12.29 hrs, Volume= 6,713 cf
 Outflow = 0.42 cfs @ 12.31 hrs, Volume= 6,713 cf, Atten= 0%, Lag= 1.2 min
 Primary = 0.42 cfs @ 12.31 hrs, Volume= 6,713 cf
 Routed to Reach R1 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Peak Elev= 347.44' @ 12.31 hrs Surf.Area= 188 sf Storage= 32 cf

Plug-Flow detention time= 1.5 min calculated for 6,712 cf (100% of inflow)
 Center-of-Mass det. time= 1.5 min (1,040.3 - 1,038.8)

Volume	Invert	Avail.Storage	Storage Description
#1	347.10'	5,641 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
347.10	1	0	0
348.00	501	226	226
350.00	4,914	5,415	5,641

Device	Routing	Invert	Outlet Devices
#1	Primary	347.10'	36.0" Round Culvert

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Type II 24-hr WQv Rainfall=1.40"

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L= 20.5' CPP, square edge headwall, Ke= 0.500
 Inlet / Outlet Invert= 347.10' / 347.10' S= 0.0000 ' S= 0.0000 ' Cc= 0.900
 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=0.42 cfs @ 12.31 hrs HW=347.44' (Free Discharge)

↑1=Culvert (Barrel Controls 0.42 cfs @ 1.48 fps)

Summary for Pond FB#1:

Inflow Area = 165,878 sf, 24.43% Impervious, Inflow Depth = 0.29" for WQv event
 Inflow = 0.80 cfs @ 12.27 hrs, Volume= 4,045 cf
 Outflow = 0.80 cfs @ 12.29 hrs, Volume= 4,045 cf, Atten= 1%, Lag= 1.5 min
 Primary = 0.80 cfs @ 12.29 hrs, Volume= 4,045 cf
 Routed to Pond SMA#1 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Starting Elev= 359.00' Surf.Area= 876 sf Storage= 1,438 cf

Peak Elev= 359.10' @ 12.29 hrs Surf.Area= 910 sf Storage= 1,523 cf (85 cf above start)

Plug-Flow detention time= 226.8 min calculated for 2,607 cf (64% of inflow)

Center-of-Mass det. time= 2.3 min (909.0 - 906.8)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	2,492 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	10	0	0
356.00	118	64	64
358.00	545	663	727
359.00	876	711	1,438
360.00	1,232	1,054	2,492

Device	Routing	Invert	Outlet Devices
#1	Primary	359.00'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.79 cfs @ 12.29 hrs HW=359.10' (Free Discharge)

↑1=Broad-Crested Rectangular Weir (Weir Controls 0.79 cfs @ 0.83 fps)

Summary for Pond FB#2:

Inflow Area = 32,279 sf, 90.12% Impervious, Inflow Depth = 1.00" for WQv event
 Inflow = 1.17 cfs @ 11.99 hrs, Volume= 2,690 cf
 Outflow = 1.14 cfs @ 12.00 hrs, Volume= 2,690 cf, Atten= 2%, Lag= 0.8 min
 Primary = 1.14 cfs @ 12.00 hrs, Volume= 2,690 cf
 Routed to Pond SMA#2 :

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Type II 24-hr WQv Rainfall=1.40"

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Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Starting Elev= 352.60' Surf.Area= 725 sf Storage= 1,046 cf

Peak Elev= 352.72' @ 12.00 hrs Surf.Area= 765 sf Storage= 1,137 cf (91 cf above start)

Plug-Flow detention time= 186.8 min calculated for 1,644 cf (61% of inflow)

Center-of-Mass det. time= 2.8 min (802.5 - 799.7)

Volume	Invert	Avail.Storage	Storage Description
#1	350.00'	1,362 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
350.00	120	0	0
352.00	545	665	665
352.60	725	381	1,046
353.00	856	316	1,362

Device	Routing	Invert	Outlet Devices
#1	Primary	352.60'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=1.13 cfs @ 12.00 hrs HW=352.72' (Free Discharge)↑1=**Broad-Crested Rectangular Weir**(Weir Controls 1.13 cfs @ 0.93 fps)**Summary for Pond SMA#1:**

Inflow Area = 217,872 sf, 20.97% Impervious, Inflow Depth = 0.28" for WQv event

Inflow = 0.96 cfs @ 12.30 hrs, Volume= 5,077 cf

Outflow = 0.14 cfs @ 13.85 hrs, Volume= 5,077 cf, Atten= 85%, Lag= 92.9 min

Primary = 0.14 cfs @ 13.85 hrs, Volume= 5,077 cf

Routed to Pond 1P :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Starting Elev= 355.00' Surf.Area= 4,886 sf Storage= 7,785 cf

Peak Elev= 355.37' @ 13.85 hrs Surf.Area= 5,239 sf Storage= 9,679 cf (1,894 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= 173.2 min (1,085.3 - 912.1)

Volume	Invert	Avail.Storage	Storage Description
#1	348.00'	45,057 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Type II 24-hr WQv Rainfall=1.40"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
348.00	9	0	0
350.00	303	312	312
352.00	878	1,181	1,493
353.50	1,488	1,775	3,268
354.00	2,270	940	4,207
355.00	4,886	3,578	7,785
356.00	5,831	5,359	13,144
356.85	6,685	5,319	18,463
358.00	7,933	8,405	26,868
359.00	9,080	8,507	35,375
360.00	10,285	9,683	45,057

Device	Routing	Invert	Outlet Devices
#1	Primary	353.00'	15.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 353.00' / 352.00' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	355.00'	3.0" Horiz. Permanent Pool C= 0.600 Limited to weir flow at low heads
#3	Device 1	356.85'	15.0" Horiz. Stand Pipe C= 0.600 Limited to weir flow at low heads
#4	Device 1	357.80'	4.0" x 1.0" Horiz. CB X 5.00 columns X 13 rows C= 0.600 in 30.0" x 30.0" Grate (29% open area) Limited to weir flow at low heads
#5	Primary	359.00'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.14 cfs @ 13.85 hrs HW=355.37' (Free Discharge)

- 1=Culvert (Passes 0.14 cfs of 7.81 cfs potential flow)
 2=Permanent Pool (Orifice Controls 0.14 cfs @ 2.94 fps)
 3=Stand Pipe (Controls 0.00 cfs)
 4=CB (Controls 0.00 cfs)
 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond SMA#2:

Inflow Area = 39,501 sf, 73.64% Impervious, Inflow Depth = 0.86" for WQv event
 Inflow = 1.20 cfs @ 12.00 hrs, Volume= 2,819 cf
 Outflow = 0.24 cfs @ 11.95 hrs, Volume= 2,819 cf, Atten= 80%, Lag= 0.0 min
 Primary = 0.24 cfs @ 11.95 hrs, Volume= 2,819 cf
 Routed to Link OFF 2 :

Routing by Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs
 Peak Elev= 349.42' @ 12.23 hrs Surf.Area= 2,050 sf Storage= 1,032 cf

Plug-Flow detention time= 75.4 min calculated for 2,818 cf (100% of inflow)
 Center-of-Mass det. time= 75.9 min (883.2 - 807.3)

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Volume	Invert	Avail.Storage	Storage Description
#1	347.75'	10,147 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
347.75	2,050	0.0	0	0
348.60	2,050	40.0	697	697
351.10	2,050	20.0	1,025	1,722
352.10	2,600	100.0	2,325	4,047
352.60	2,900	100.0	1,375	5,422
354.00	3,850	100.0	4,725	10,147

Device	Routing	Invert	Outlet Devices
#1	Primary	352.60'	10.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#2	Device 3	347.75'	5.000 in/hr Exfiltration over Surface area
#3	Device 5	347.75'	6.0" Round Culvert L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 347.75' / 347.75' S= 0.0000 ' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf
#4	Device 5	352.10'	4.0" x 1.0" Horiz. Orifice/Grate X 6.00 columns X 13 rows C= 0.600 in 30.0" x 30.0" Grate (35% open area) Limited to weir flow at low heads
#5	Primary	347.75'	12.0" Round Culvert L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 347.75' / 347.60' S= 0.0050 ' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.24 cfs @ 11.95 hrs HW=348.39' (Free Discharge)

1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
5=Culvert (Passes 0.24 cfs of 1.08 cfs potential flow)
3=Culvert (Passes 0.24 cfs of 0.33 cfs potential flow)
2=Exfiltration (Exfiltration Controls 0.24 cfs)
4=Orifice/Grate (Controls 0.00 cfs)

Summary for Link OFF 1:

Inflow Area = 25,478 sf, 0.00% Impervious, Inflow Depth = 0.17" for WQv event
Inflow = 0.08 cfs @ 12.14 hrs, Volume= 361 cf
Primary = 0.08 cfs @ 12.14 hrs, Volume= 361 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

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Summary for Link OFF 2:

Inflow Area = 327,848 sf, 27.84% Impervious, Inflow Depth = 0.36" for WQv event
Inflow = 0.67 cfs @ 12.49 hrs, Volume= 9,774 cf
Primary = 0.67 cfs @ 12.49 hrs, Volume= 9,774 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs

Summary for Link OFF 3:

Inflow Area = 25,046 sf, 33.83% Impervious, Inflow Depth = 0.43" for WQv event
Inflow = 0.29 cfs @ 12.09 hrs, Volume= 892 cf
Primary = 0.29 cfs @ 12.09 hrs, Volume= 892 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-200.00 hrs, dt= 0.05 hrs