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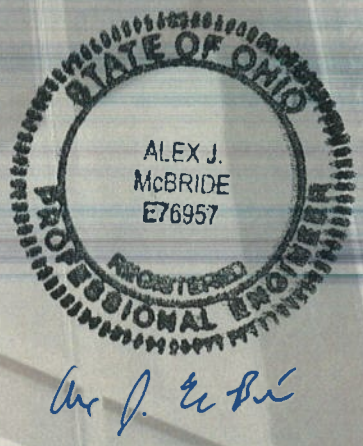


Stormwater Management Plan

Bridge Park West

City of Dublin, Ohio

March 30, 2015

Address: 5500 New Albany Rd.
Columbus, Ohio 43054
Phone: 614-775-4500
Fax: 614-775-4805
Toll Free: 1-888-775-EMHT

emht.com

Job number: 2012-1634

Engineers | Surveyors | Planners | Scientists

Project Summary:

Project Name:	Bridge Park West
Location:	City of Dublin, Ohio
Type:	Stormwater Management Plan
Reviewing Agency:	City of Dublin

Hydrologic Summary:

Rainfall Data: City of Dublin Stormwater Management Design Manual

1-yr	2.20”
2-yr	2.63”
5-yr	3.24”
10-yr	3.74”
25-yr	4.44”
50-yr	5.02”
100-yr	5.63”

Rainfall Distribution:	NRCS Type II 24 hour
Detention Policy:	City of Dublin
Water Quality:	City of Dublin, Ohio EPA
Hydrology Modeling Program:	HydroCAD 10.00

Design Summary:

Detention:	Not required due to project being located within the “River Cooridor & Historic District”
Water Quality:	Bio-retention Basin
Receiving Water Body:	Scioto River

Table of Contents

Appendices

1.0 INTRODUCTION

The following report provides a detailed analysis and design of the stormwater management plan for the Bridge Park West redevelopment project in the City of Dublin, Ohio. The proposed site is located north of North Street south of Indian Run, and east of N. High Street. The proposed project involves the redevelopment of an existing commercial lot and will disturb 2.40 acres of project area. Of the 2.40 acres of project area, 1.0 acres will be routed to a proposed bio-retention basin to meet post-construction water quality requirements. This project is not required to provide quantity control due to it being located within the "River Corridor & Historic District" as shown on Figure 2-1 within the City of Dublin Stormwater Management Design Manual. Runoff from the site discharges to the Scioto River which is located west and adjacent to the project area.

2.0 HYDROLOGIC ANALYSIS

Hydrologic parameters such as Runoff Curve Number (RCN) and Time of Concentration were determined using standard Natural Resources Conservation Service (NRCS) methodology. The 1-, 2-, 5-, 10-, 25-, 50-, and 100-year storm event discharge amounts were calculated using the NRCS TR-55 method. This analysis reflects the NRCS Type II distribution, 24-hr storm duration. Rainfall depths were obtained from the City of Dublin Stormwater Management Design Manual. The peak flow rates were computed using the HydroCAD 10.00 computer program.

3.0 EXISTING CONDITIONS ANALYSIS

The existing site condition, as shown in Exhibit 1 in Appendix C, is represented by the subarea labeled as Existing 01. Existing 01 is comprised of 2.40 acres of commercial development in Type "D" Soils (Ritchey silt loam) which corresponds to a Runoff Curve Number of 91. Existing 01 outlines the area that is considered the redevelopment area. The existing site characteristics are shown in Table 1.

Table 1
Existing Subarea Characteristics

Subarea Identifier	Tributary Area (acres)	Land Usage	% Impervious	Composite Runoff Curve Number
Existing 01	2.40	Commercial Development	60%	91

This project is not required to provide quantity control due to it being located in "River Cooridor & Historic District". Since there is no detention requirement no existing condition analysis with respect to peak flow rate calculations has been performed.

4.0 PROPOSED CONDITIONS ANALYSIS

Exhibit 2, provided within Appendix C, shows the proposed site condition. Runoff from Subarea 01 will be routed to the proposed bio-retention basin for water quality treatment. The proposed bio-retention basin will discharge to a proposed storm sewer east of the site before discharging into the Scioto River. The remaining project area, 1.40 acres, will be routed to the proposed storm sewer east of the site which will directly discharge into the Scioto River. The post-developed subarea characteristics are summarized in Table 2.

Table 2
Post-developed Subarea Characteristics

Subarea Identifier	Tributary Area (acres)	Land Usage	% Impervious	Composite Runoff Curve Number	Time of Concentration (min)
Subarea 01	1.00	Building, Bio-retention Basin	83%	95	5.0
Remaining Project Area	1.40	Building, Open Space	78%	94	5.0

Table 3
Proposed Bio-retention Basin Performance

Maximum W.S.E (feet)	Top of Bank, Maximum W.S.E. (feet)	Storage Volume Utilized (cu-ft)
776.92	777.50	2,705

5.0 OUTLET DESIGN

The outlet for the proposed bio-retention basin will be located on the east side of the basin. The outlet structure is described below.

Bio-retention Basin Outlet Structure

- Bottom of Stone layer– 772.50 feet
- Bottom of Basin (surface of Bio-retention media layer) – 775.50 feet
- Top of Basin – 777.50 feet
- 1st stage outlet – Infiltration through Bio-retention Media, top of surface elevation 775.50 feet
- 2nd stage outlet – Neenah R4871 Grate, invert at 776.50 feet
- Tailwater control: 12-inch outlet pipe with 1.0% slope, invert at 772.50 feet, controls 1st through 2nd stage outlets

6.0 POST-CONTRUCTION WATER QUALITY

The proposed project is classified as a redevelopment project per the EPA General Permit. Strategies to meet the requirements include treating at least 20% of the existing impervious area; reduce the impervious area by 20%, or a combination of the two. It is also required that 100% of the water quality volume for new impervious area be treated. The project will treat more than 20% of the required water quality volume from existing impervious/pervious areas and 100% of new impervious areas to meet water quality requirements. The project area associated with the redevelopment condition is 2.40 acres of which 1.45 acres is existing impervious area and 1.92 acres is proposed impervious area. The calculated water quality volume for the entire project area (2.40 acres) is 1,605 cubic feet. Redevelopment water quality calculations are provided within Appendix A.

Impervious areas within the development are tributary to the proposed bio-retention basin. To determine the amount of surface area that is required for the bio-retention basin, the water quality volume for the tributary area was calculated. Per the City of Dublin Stormwater Management Design Manual, the bio-retention basin areas required are provided below.

Table 4
Bio-retention Surface Area Requirements

Subarea Identifier	Tributary area (acres)	Calculated Water Quality Volume (ac-ft)	Required Bio-retention Surface Area (ft^2)	Provided Bio-retention Surface Area (ft^2)
Subarea 01	1.00	1,605	1,335	1,472

7.0 CONCLUSION

The proposed stormwater management plan for the Bridge Park West meets all requirements for both the City of Dublin and the Ohio EPA.

APPENDIX A:

Water Quality Calculations

Water Quality Volume Calculation Spreadsheet

Project Name: Bridge Park West

Limits of Distrubance = ***2.4 acres***
Total Tributary Area = ***2.4 acres***

Redevelopment Area =	1.93	acres	(1.45 acres of ex. Impervious area)
New Impervious Area=	0.47	acres	
	2.400	acres	

Per redevelopment requirements only 20% of water quality volume for the existing impervious area and open space will require treatment:

Existing Impervious Area and Open Space (Redevelopment Area)

Area =	1.93	acres
% imp =	0.76	
C =	0.55	
WQv =	0.067	ac-ft
or…	2913	ft^3
20% of WQv =	583	ft^3

Per redevelopment requirements,100% of water quality volume for new impervious area will require treatment:

New Impervious Area

Area =	0.47	acres
% imp =	0.95	
C =	0.80	
WQv =	0.023	ac-ft
or…	1022	ft^3
100% of WQv =	1022	ft^3

Total Required WQv = 1605 ft^3

WQ Calculation Summary

Required WQv = 1605 ft^3

Provided WQv = 1731 ft^3

Water quality volume calculated using the Ohio EPA formula CPA/12

The "C" coefficient was calculated using the ASCE method

C= 0.858i^3 - 0.778i^2 + 0.774i + 0.04

Ohio EPA formula

WQv = CPA/12

A = area (acres)
P = 0.75"
C = (see above)

Water Quality Volume Calculation Spreadsheet

Project Name: Bridge Park West

Subarea 01

Area =	1	acres
% imp =	0.83	
C =	0.64	
WQv =	**0.040**	**ac-ft**
	1730.61	

Water quality volume calculated using the Ohio EPA formula CPA/12

The "C" coefficient was calculated using the ASCE method

C= 0.858i^3 - 0.778i^2 + 0.774i + 0.04

Ohio EPA formula

WQv = CPA/12
A = area (acres)
P = 0.75"
C = (see previous page)

Surface Area Calculations

Bio Basin 01

Subarea 01

WQv =	0.040	ac-ft
d =	2.00	ft
K =	$1.2x10^{-5}$	ft/s
T =	24	hr
h =	0.50	ft
A =	0.031	acres
or		
A =	**1,335**	**ft^2**

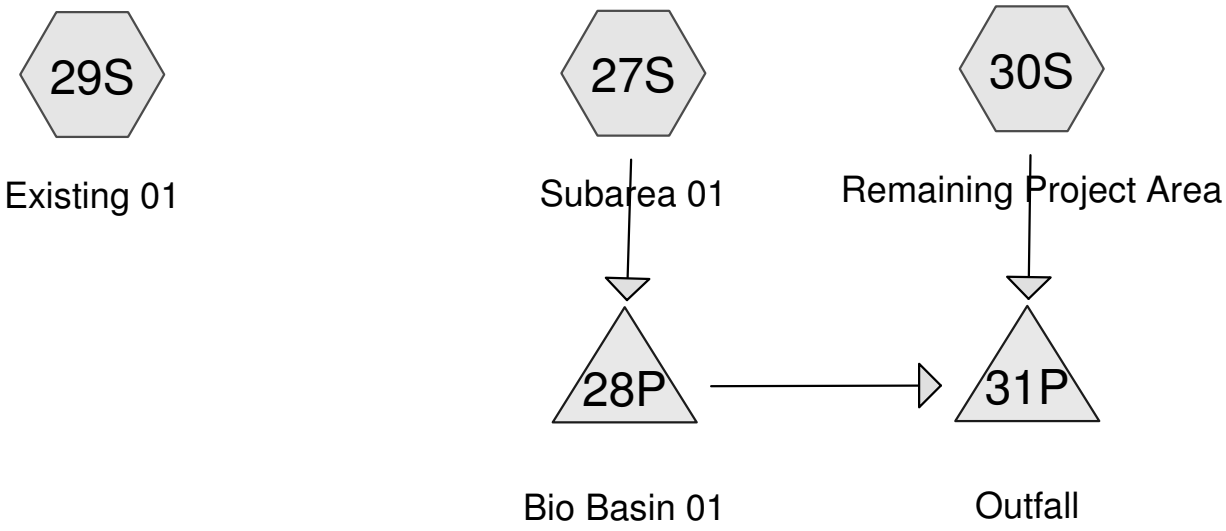
Area required =	1335	**ft^2**
Area provided =	1472	**ft^2**

$A=WQv*d_s/(3600*K*(h_s+d_s)*t_s)$

d_s = planting media depth = 2 ft
h_s = average depth water = 1/2 maximum depth = 0.90 feet/2 = 0.45 feet
K = planting media permeability=$1.2x10^{-5}$ ft/sec
t_s = drawdown time = 24 hours

APPENDIX B:

HydroCAD Output



Subcat Reach Pond Link

Routing Diagram for 2012-1634
Prepared by Symanetc, Printed 3/30/2015

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.430	80	>75% Grass cover, Good, HSG D (27S, 29S, 30S)
1.450	98	Paved parking, HSG D (29S)
1.920	98	impervious (27S, 30S)

Summary for Subcatchment 27S: Subarea 01

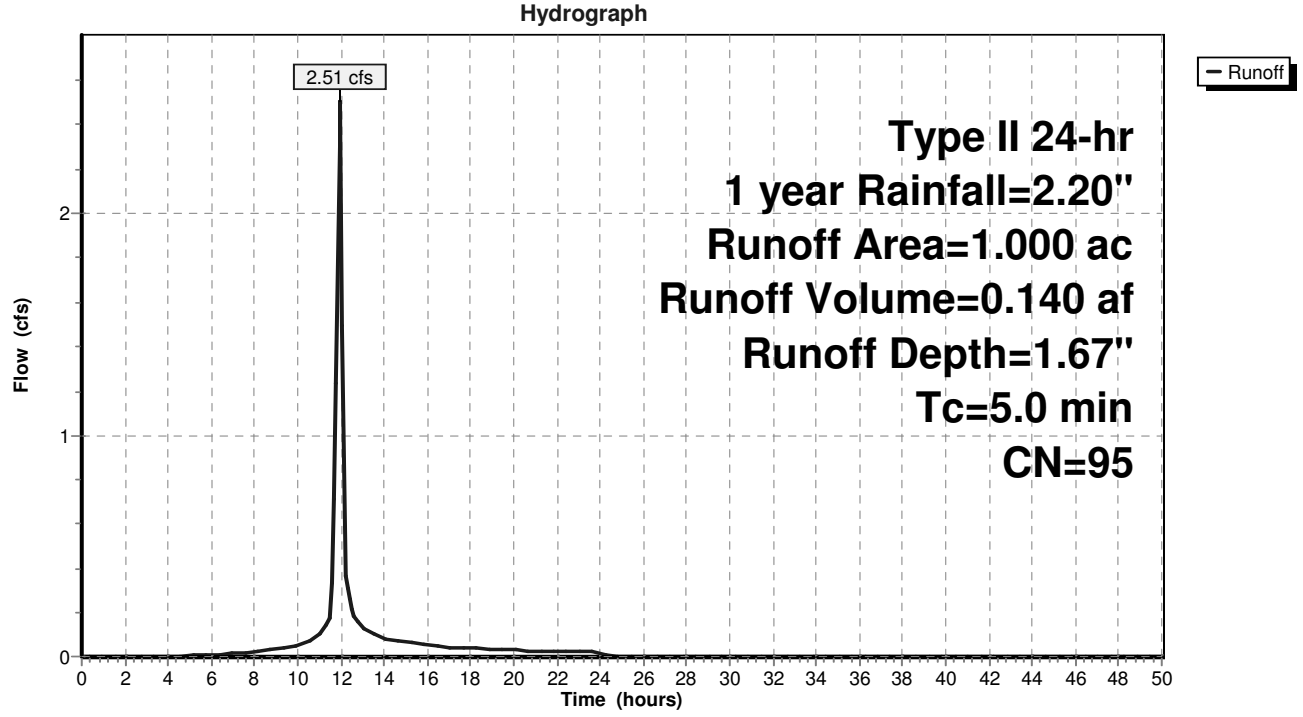
Runoff = 2.51 cfs @ 11.95 hrs, Volume= 0.140 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 1 year Rainfall=2.20"

	Area (ac)	CN	Description
*	0.830	98	impervious
	0.170	80	>75% Grass cover, Good, HSG D
	1.000	95	Weighted Average
	0.170		17.00% Pervious Area
	0.830		83.00% Impervious Area

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

Subcatchment 27S: Subarea 01



Summary for Subcatchment 29S: Existing 01

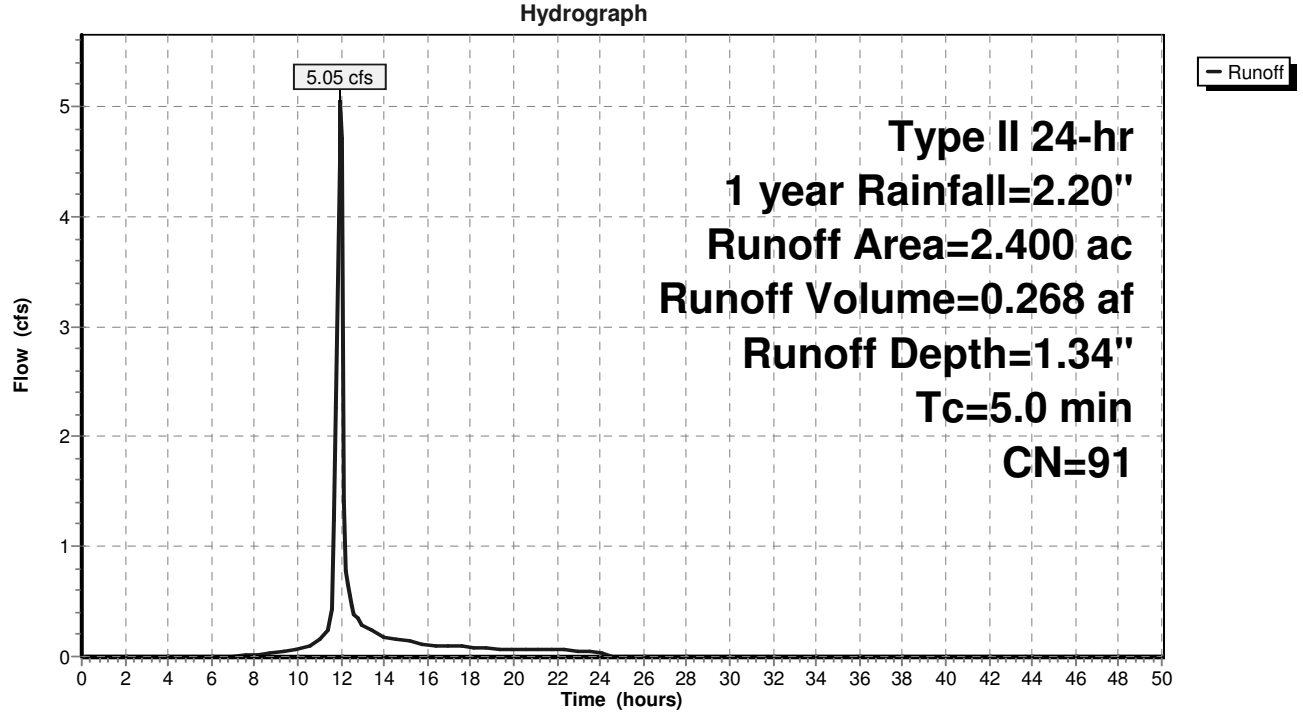
Runoff = 5.05 cfs @ 11.96 hrs, Volume= 0.268 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 1 year Rainfall=2.20"

Area (ac)	CN	Description
1.450	98	Paved parking, HSG D
0.950	80	>75% Grass cover, Good, HSG D
2.400	91	Weighted Average
0.950		39.58% Pervious Area
1.450		60.42% Impervious Area

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

Subcatchment 29S: Existing 01



Summary for Subcatchment 30S: Remaining Project Area

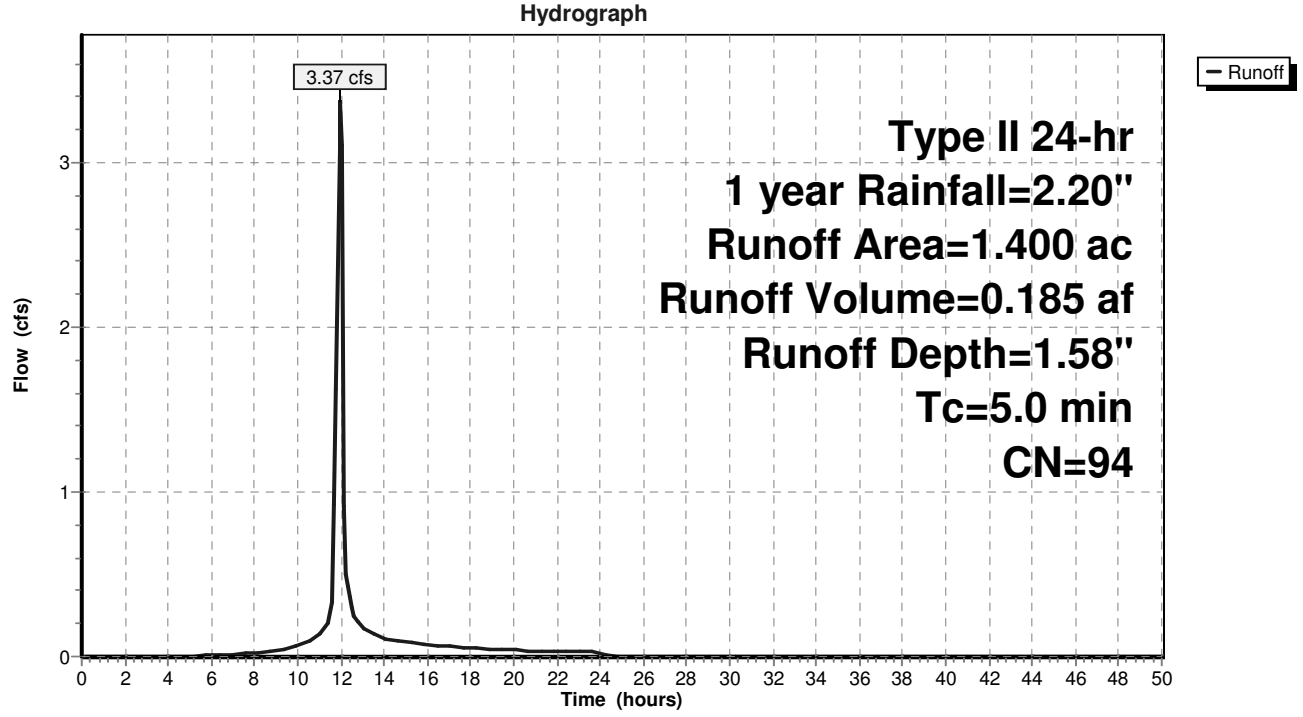
Runoff = 3.37 cfs @ 11.95 hrs, Volume= 0.185 af, Depth= 1.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 1 year Rainfall=2.20"

	Area (ac)	CN	Description
*	1.090	98	impervious
	0.310	80	>75% Grass cover, Good, HSG D
	1.400	94	Weighted Average
	0.310		22.14% Pervious Area
	1.090		77.86% Impervious Area

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

Subcatchment 30S: Remaining Project Area



Summary for Pond 28P: Bio Basin 01

Inflow Area = 1.000 ac, 83.00% Impervious, Inflow Depth = 1.67" for 1 year event
Inflow = 2.51 cfs @ 11.95 hrs, Volume= 0.140 af
Outflow = 2.55 cfs @ 12.01 hrs, Volume= 0.099 af, Atten= 0%, Lag= 3.4 min
Primary = 2.55 cfs @ 12.01 hrs, Volume= 0.099 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Peak Elev= 776.69' @ 12.01 hrs Surf.Area= 2,199 sf Storage= 2,191 cf

Plug-Flow detention time= 159.2 min calculated for 0.099 af (71% of inflow)
Center-of-Mass det. time= 64.2 min (853.3 - 789.1)

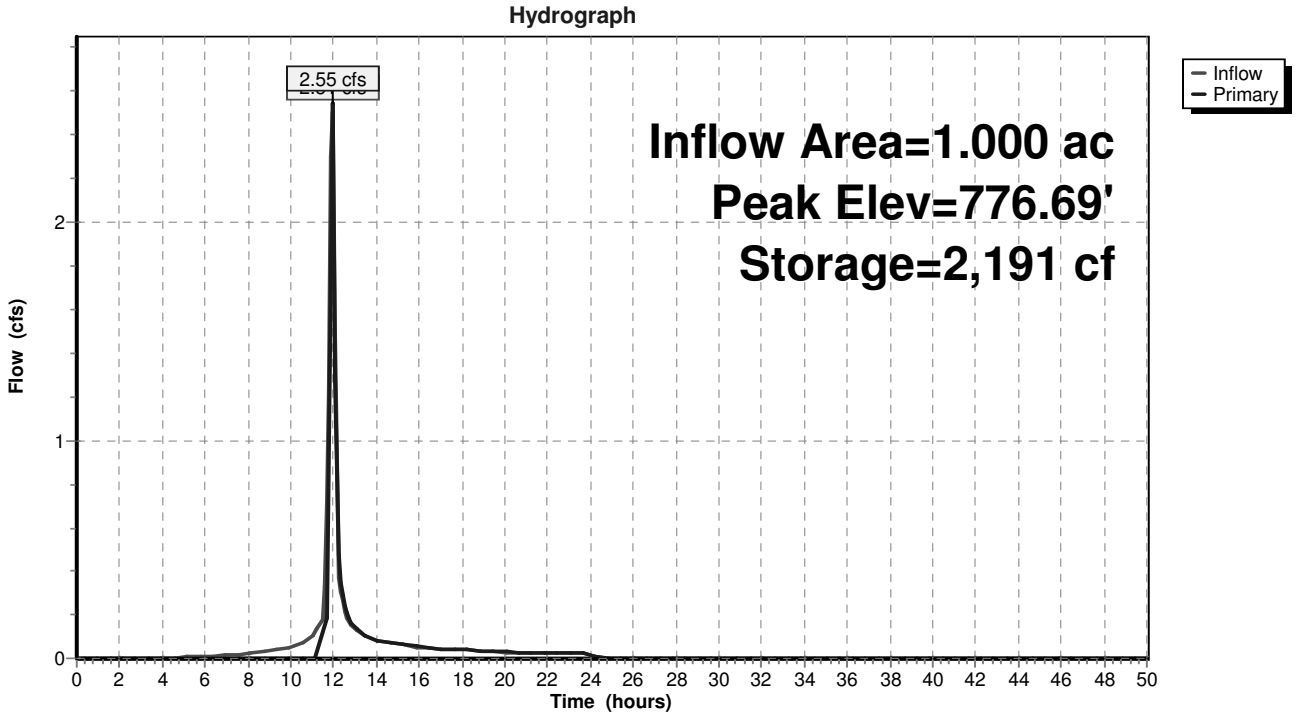
Volume	Invert	Avail.Storage	Storage Description
#1	775.50'	4,163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
775.50	1,472	0	0
777.50	2,691	4,163	4,163

Device	Routing	Invert	Outlet Devices
#1	Primary	772.50'	**12.0" Round Culvert** L= 100.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 772.50' / 771.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	776.50'	**2.0" x 24.0" Horiz. Orifice/Grate X 8.00** C= 0.600 in 27.5" x 27.5" Grate (51% open area) Limited to weir flow at low heads

Primary OutFlow Max=2.45 cfs @ 12.01 hrs HW=776.69' (Free Discharge)
↑**1=Culvert** (Passes 2.45 cfs of 5.99 cfs potential flow)
↑**2=Orifice/Grate** (Weir Controls 2.45 cfs @ 1.42 fps)

Pond 28P: Bio Basin 01

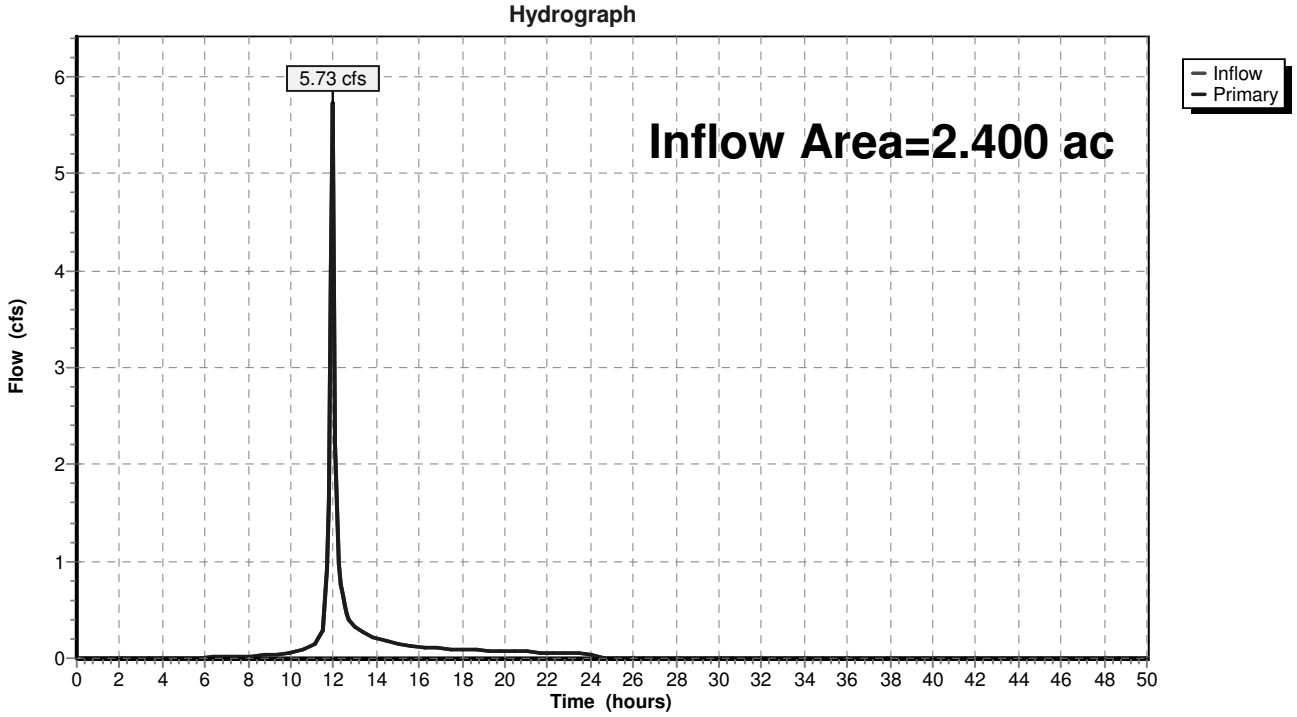


Summary for Pond 31P: Outfall

Inflow Area = 2.400 ac, 80.00% Impervious, Inflow Depth = 1.42" for 1 year event
Inflow = 5.73 cfs @ 11.98 hrs, Volume= 0.284 af
Primary = 5.73 cfs @ 11.98 hrs, Volume= 0.284 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs

Pond 31P: Outfall



Summary for Subcatchment 27S: Subarea 01

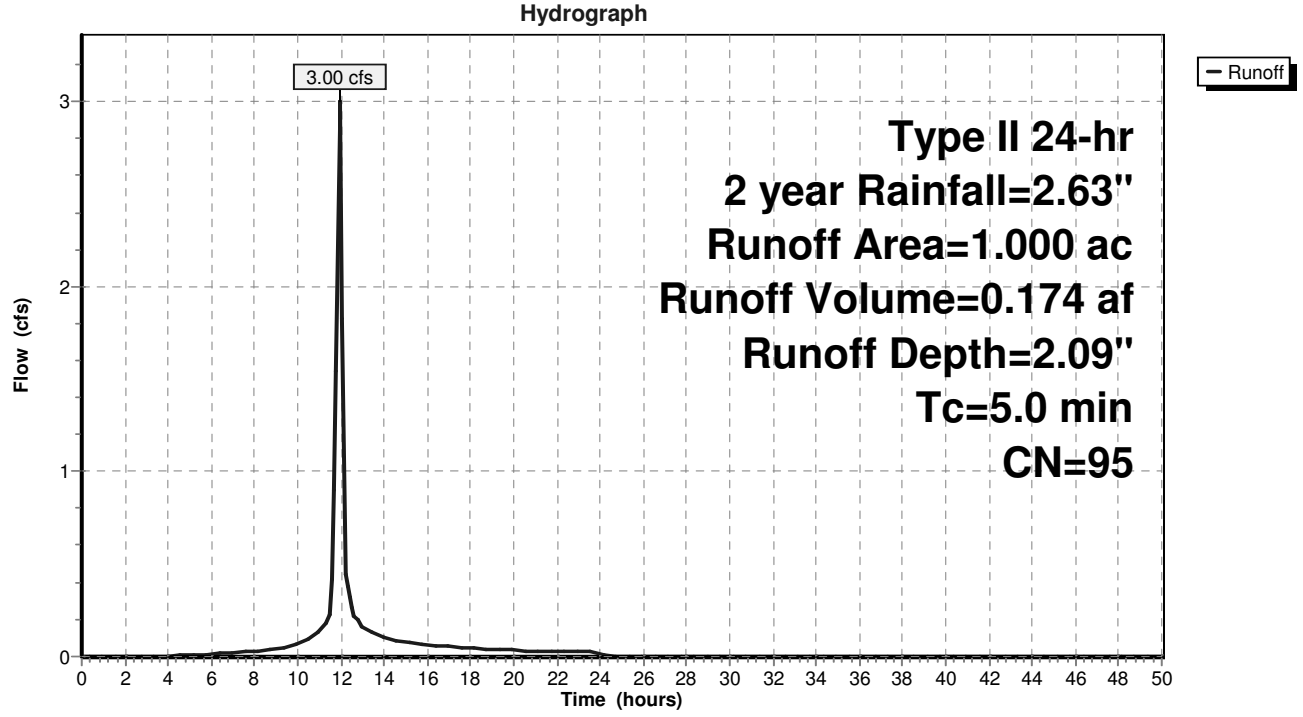
Runoff = 3.00 cfs @ 11.95 hrs, Volume= 0.174 af, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 2 year Rainfall=2.63"

	Area (ac)	CN	Description
*	0.830	98	impervious
	0.170	80	>75% Grass cover, Good, HSG D
	1.000	95	Weighted Average
	0.170		17.00% Pervious Area
	0.830		83.00% Impervious Area

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

Subcatchment 27S: Subarea 01



Summary for Subcatchment 29S: Existing 01

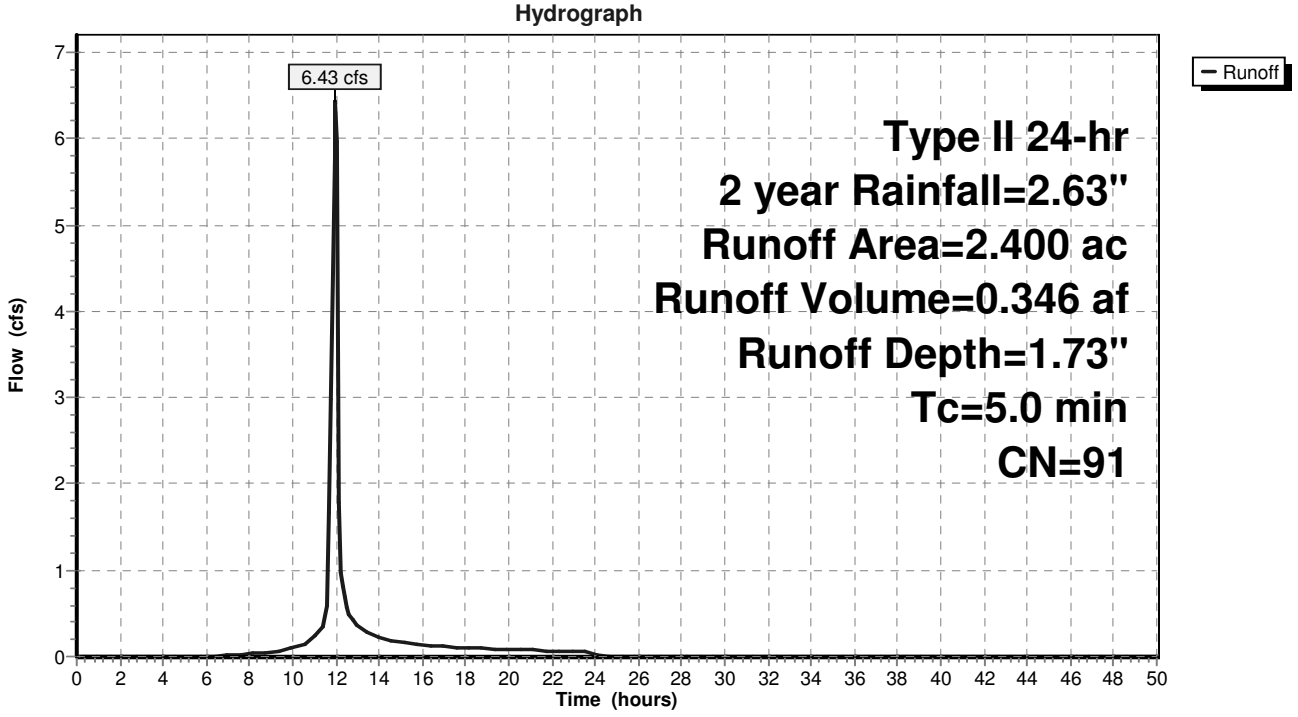
Runoff = 6.43 cfs @ 11.95 hrs, Volume= 0.346 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 2 year Rainfall=2.63"

Area (ac)	CN	Description
1.450	98	Paved parking, HSG D
0.950	80	>75% Grass cover, Good, HSG D
2.400	91	Weighted Average
0.950		39.58% Pervious Area
1.450		60.42% Impervious Area

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

Subcatchment 29S: Existing 01



Summary for Subcatchment 30S: Remaining Project Area

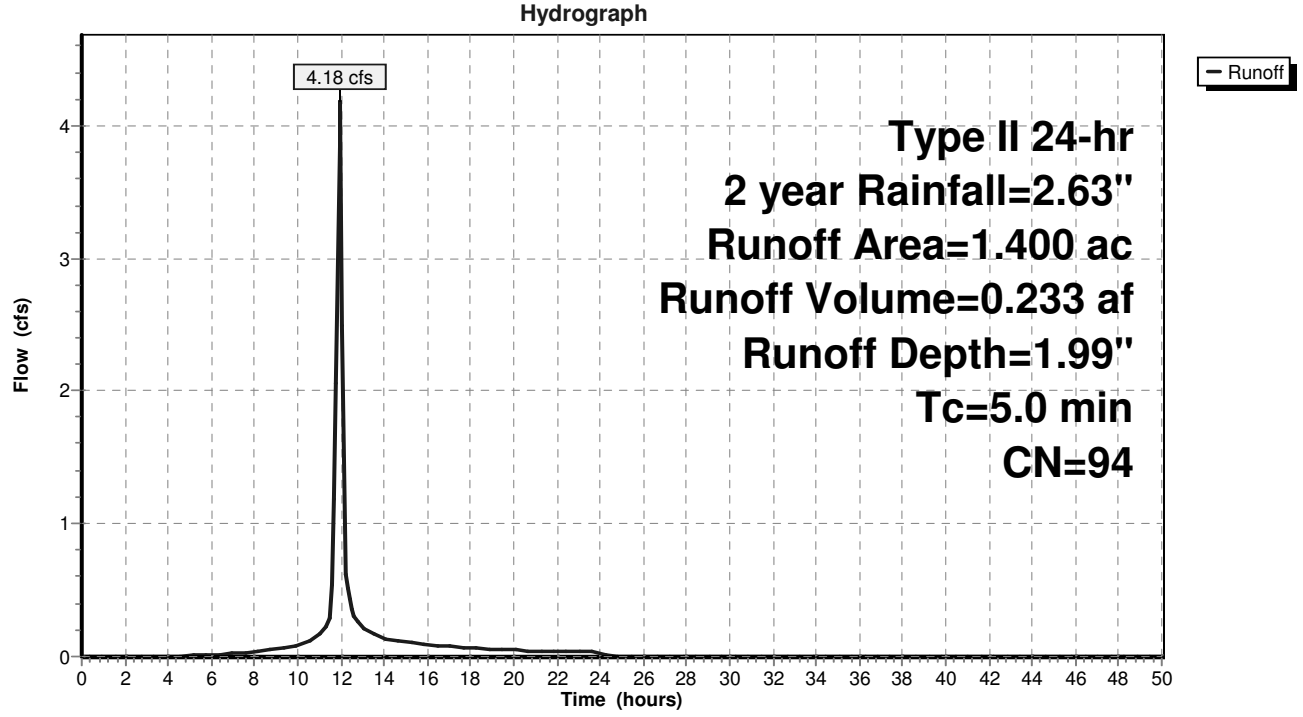
Runoff = 4.18 cfs @ 11.95 hrs, Volume= 0.233 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 2 year Rainfall=2.63"

	Area (ac)	CN	Description
*	1.090	98	impervious
	0.310	80	>75% Grass cover, Good, HSG D
	1.400	94	Weighted Average
	0.310		22.14% Pervious Area
	1.090		77.86% Impervious Area

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

Subcatchment 30S: Remaining Project Area



Summary for Pond 28P: Bio Basin 01

Inflow Area = 1.000 ac, 83.00% Impervious, Inflow Depth = 2.09" for 2 year event
Inflow = 3.00 cfs @ 11.95 hrs, Volume= 0.174 af
Outflow = 2.98 cfs @ 11.98 hrs, Volume= 0.133 af, Atten= 1%, Lag= 1.7 min
Primary = 2.98 cfs @ 11.98 hrs, Volume= 0.133 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Peak Elev= 776.72' @ 11.98 hrs Surf.Area= 2,213 sf Storage= 2,238 cf

Plug-Flow detention time= 141.7 min calculated for 0.133 af (77% of inflow)
Center-of-Mass det. time= 55.5 min (838.5 - 783.0)

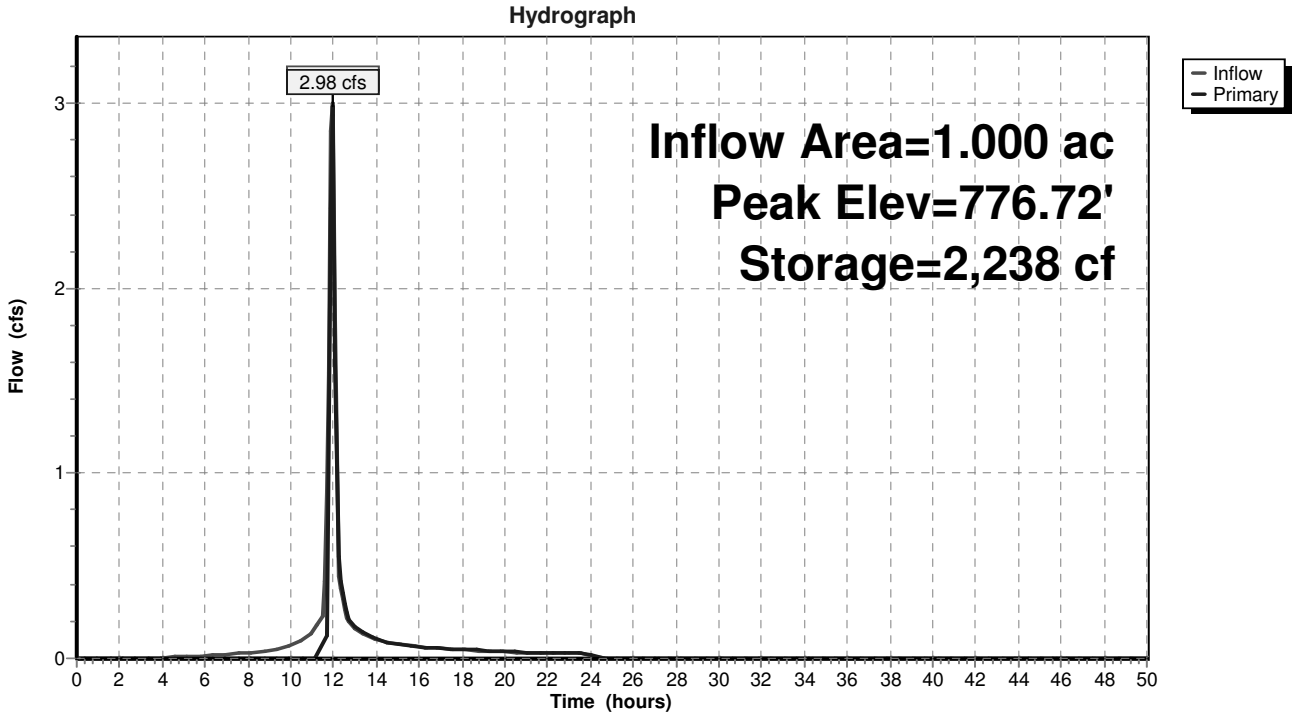
Volume	Invert	Avail.Storage	Storage Description
#1	775.50'	4,163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
775.50	1,472	0	0
777.50	2,691	4,163	4,163

Device	Routing	Invert	Outlet Devices
#1	Primary	772.50'	**12.0" Round Culvert** L= 100.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 772.50' / 771.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	776.50'	**2.0" x 24.0" Horiz. Orifice/Grate X 8.00** C= 0.600 in 27.5" x 27.5" Grate (51% open area) Limited to weir flow at low heads

Primary OutFlow Max=2.81 cfs @ 11.98 hrs HW=776.71' (Free Discharge)
↑—**1=Culvert** (Passes 2.81 cfs of 6.00 cfs potential flow)
↑—**2=Orifice/Grate** (Weir Controls 2.81 cfs @ 1.49 fps)

Pond 28P: Bio Basin 01

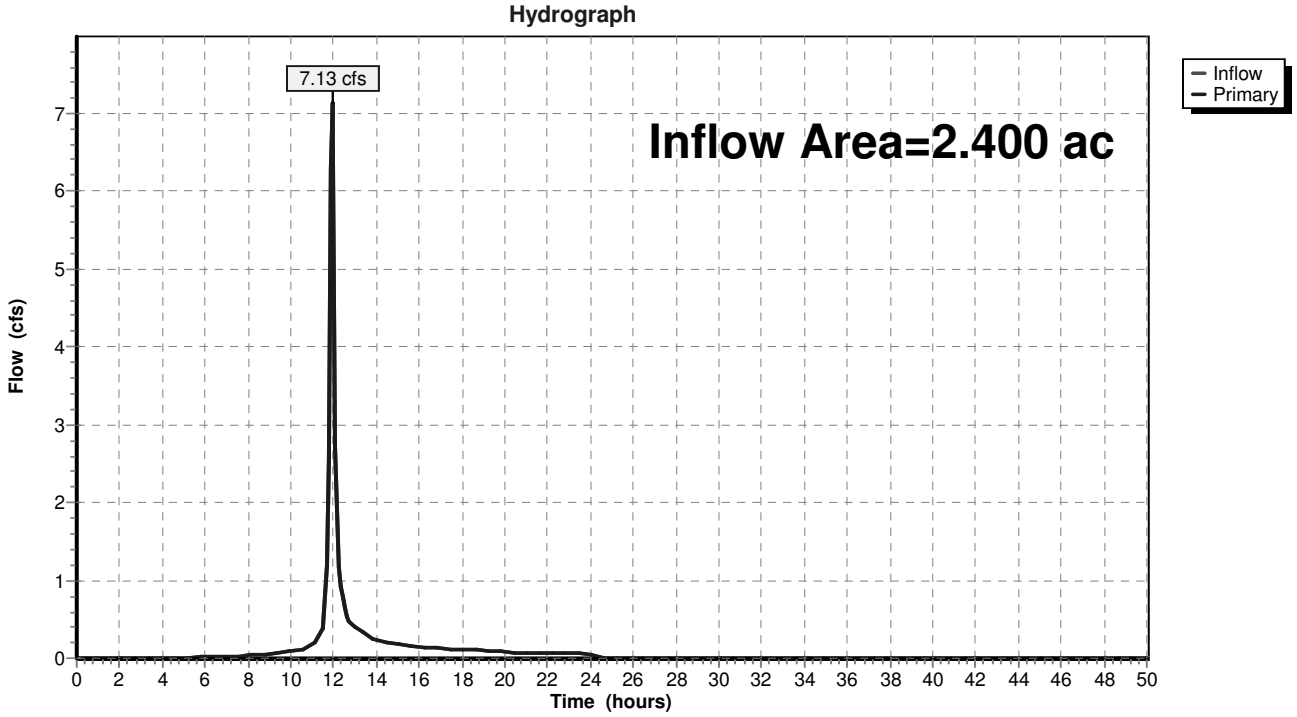


Summary for Pond 31P: Outfall

Inflow Area = 2.400 ac, 80.00% Impervious, Inflow Depth = 1.83" for 2 year event
Inflow = 7.13 cfs @ 11.96 hrs, Volume= 0.366 af
Primary = 7.13 cfs @ 11.96 hrs, Volume= 0.366 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs

Pond 31P: Outfall



Summary for Subcatchment 27S: Subarea 01

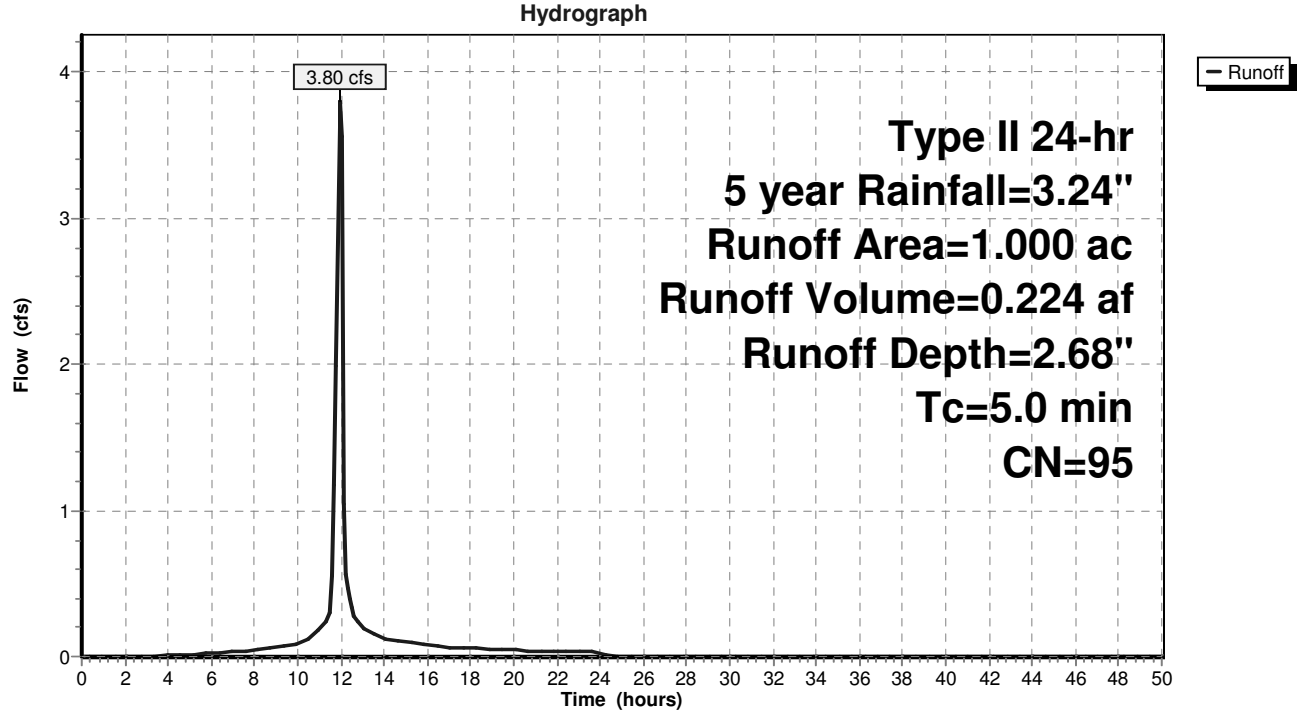
Runoff = 3.80 cfs @ 11.95 hrs, Volume= 0.224 af, Depth= 2.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 5 year Rainfall=3.24"

	Area (ac)	CN	Description
*	0.830	98	impervious
	0.170	80	>75% Grass cover, Good, HSG D
	1.000	95	Weighted Average
	0.170		17.00% Pervious Area
	0.830		83.00% Impervious Area

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

Subcatchment 27S: Subarea 01



Summary for Subcatchment 29S: Existing 01

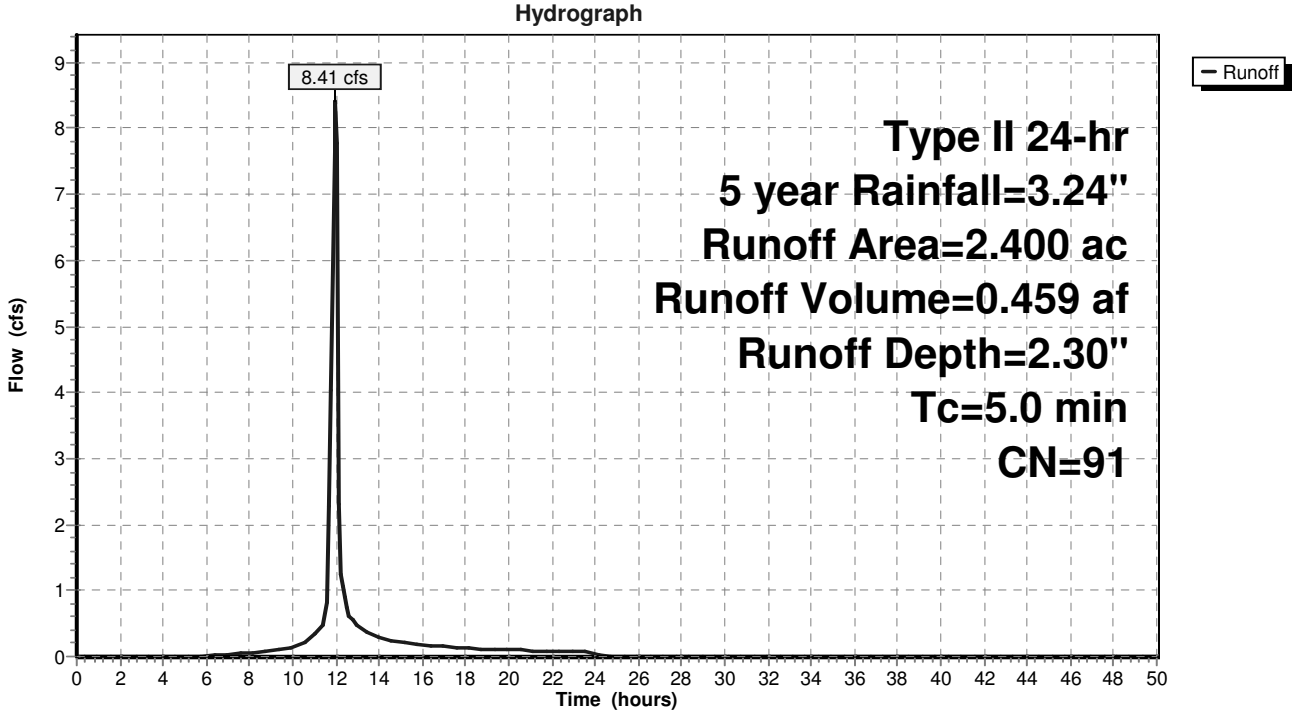
Runoff = 8.41 cfs @ 11.95 hrs, Volume= 0.459 af, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 5 year Rainfall=3.24"

Area (ac)	CN	Description
1.450	98	Paved parking, HSG D
0.950	80	>75% Grass cover, Good, HSG D
2.400	91	Weighted Average
0.950		39.58% Pervious Area
1.450		60.42% Impervious Area

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

Subcatchment 29S: Existing 01



Summary for Subcatchment 30S: Remaining Project Area

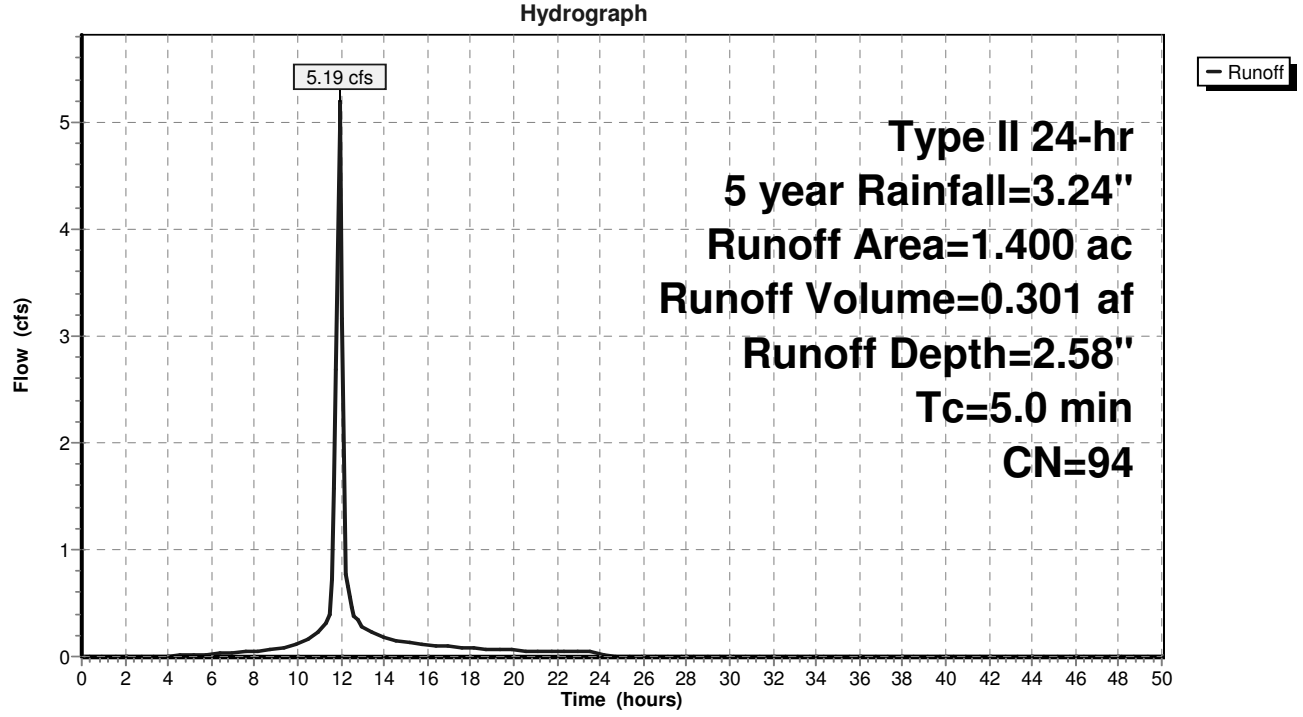
Runoff = 5.19 cfs @ 11.95 hrs, Volume= 0.301 af, Depth= 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 5 year Rainfall=3.24"

	Area (ac)	CN	Description
*	1.090	98	impervious
	0.310	80	>75% Grass cover, Good, HSG D
	1.400	94	Weighted Average
	0.310		22.14% Pervious Area
	1.090		77.86% Impervious Area

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

Subcatchment 30S: Remaining Project Area



Summary for Pond 28P: Bio Basin 01

Inflow Area = 1.000 ac, 83.00% Impervious, Inflow Depth = 2.68" for 5 year event
Inflow = 3.80 cfs @ 11.95 hrs, Volume= 0.224 af
Outflow = 3.80 cfs @ 11.98 hrs, Volume= 0.183 af, Atten= 0%, Lag= 1.9 min
Primary = 3.80 cfs @ 11.98 hrs, Volume= 0.183 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Peak Elev= 776.75' @ 11.98 hrs Surf.Area= 2,236 sf Storage= 2,322 cf

Plug-Flow detention time= 124.4 min calculated for 0.183 af (82% of inflow)
Center-of-Mass det. time= 49.7 min (826.0 - 776.3)

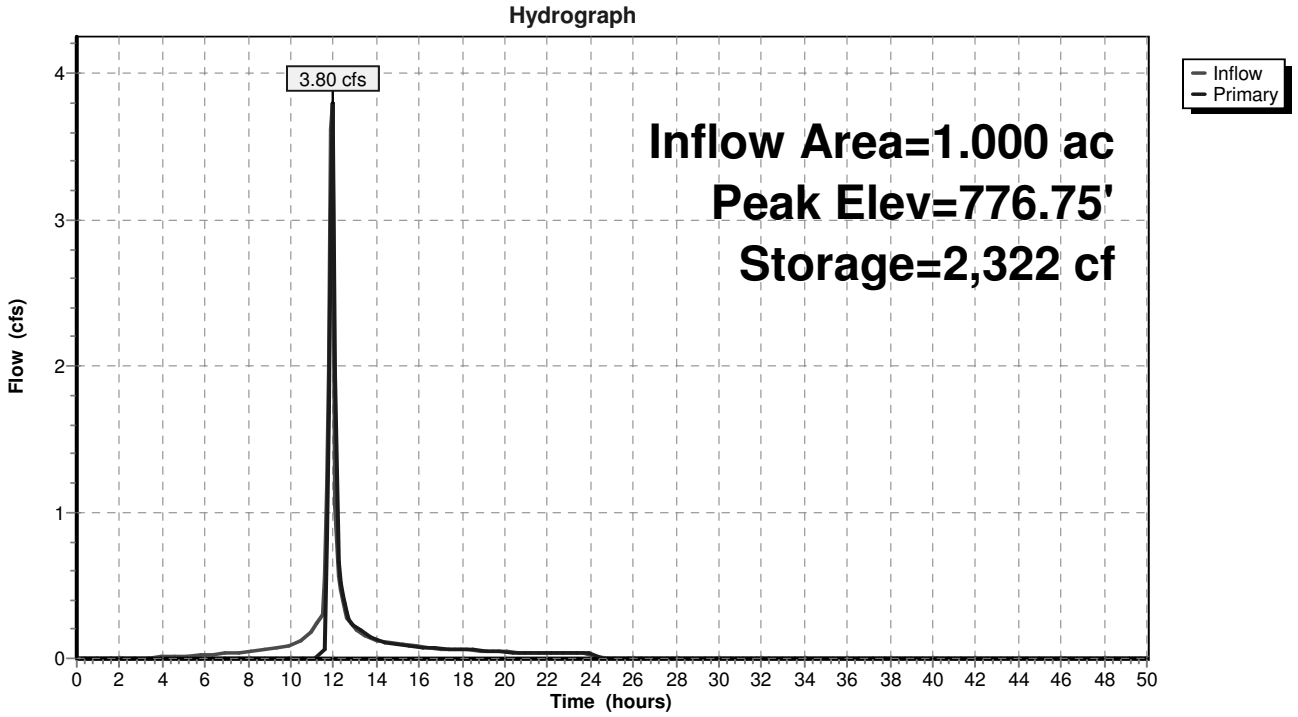
Volume	Invert	Avail.Storage	Storage Description
#1	775.50'	4,163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
775.50	1,472	0	0
777.50	2,691	4,163	4,163

Device	Routing	Invert	Outlet Devices
#1	Primary	772.50'	**12.0" Round Culvert** L= 100.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 772.50' / 771.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	776.50'	**2.0" x 24.0" Horiz. Orifice/Grate X 8.00** C= 0.600 in 27.5" x 27.5" Grate (51% open area) Limited to weir flow at low heads

Primary OutFlow Max=3.58 cfs @ 11.98 hrs HW=776.74' (Free Discharge)
↑**1=Culvert** (Passes 3.58 cfs of 6.03 cfs potential flow)
↑**2=Orifice/Grate** (Weir Controls 3.58 cfs @ 1.61 fps)

Pond 28P: Bio Basin 01

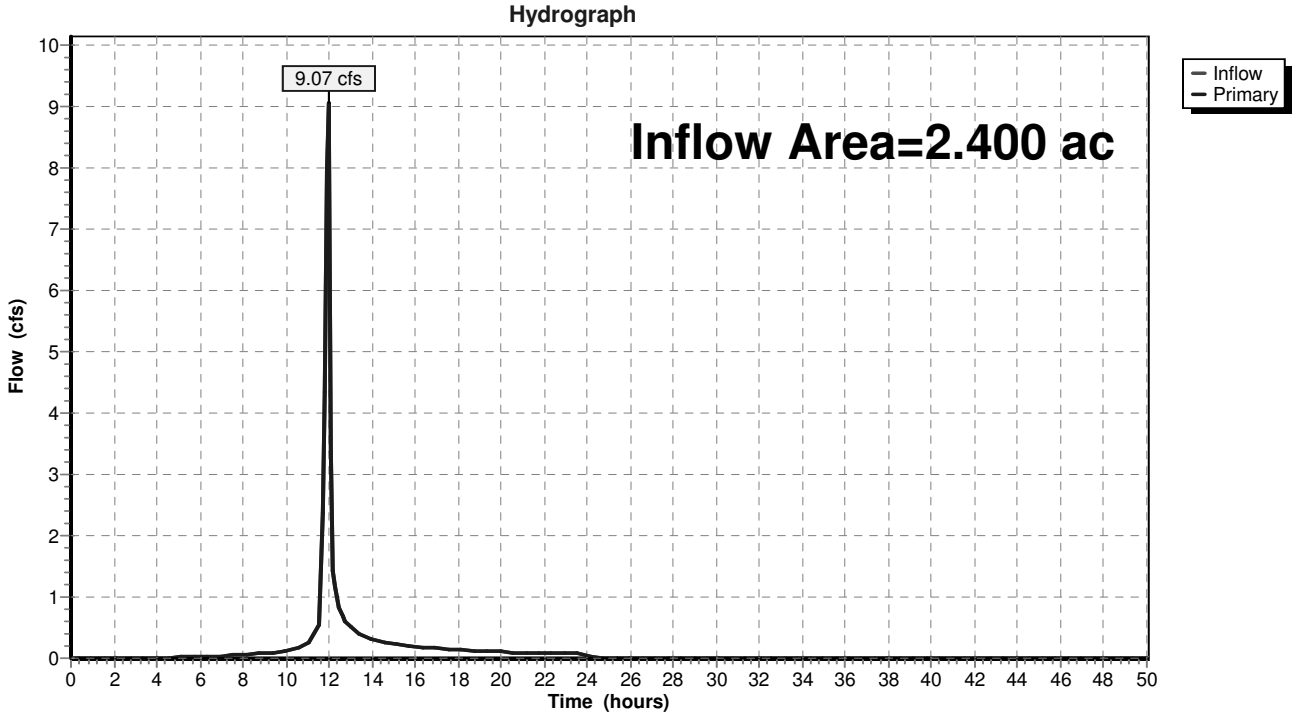


Summary for Pond 31P: Outfall

Inflow Area = 2.400 ac, 80.00% Impervious, Inflow Depth = 2.42" for 5 year event
Inflow = 9.07 cfs @ 11.96 hrs, Volume= 0.484 af
Primary = 9.07 cfs @ 11.96 hrs, Volume= 0.484 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs

Pond 31P: Outfall



Summary for Subcatchment 27S: Subarea 01

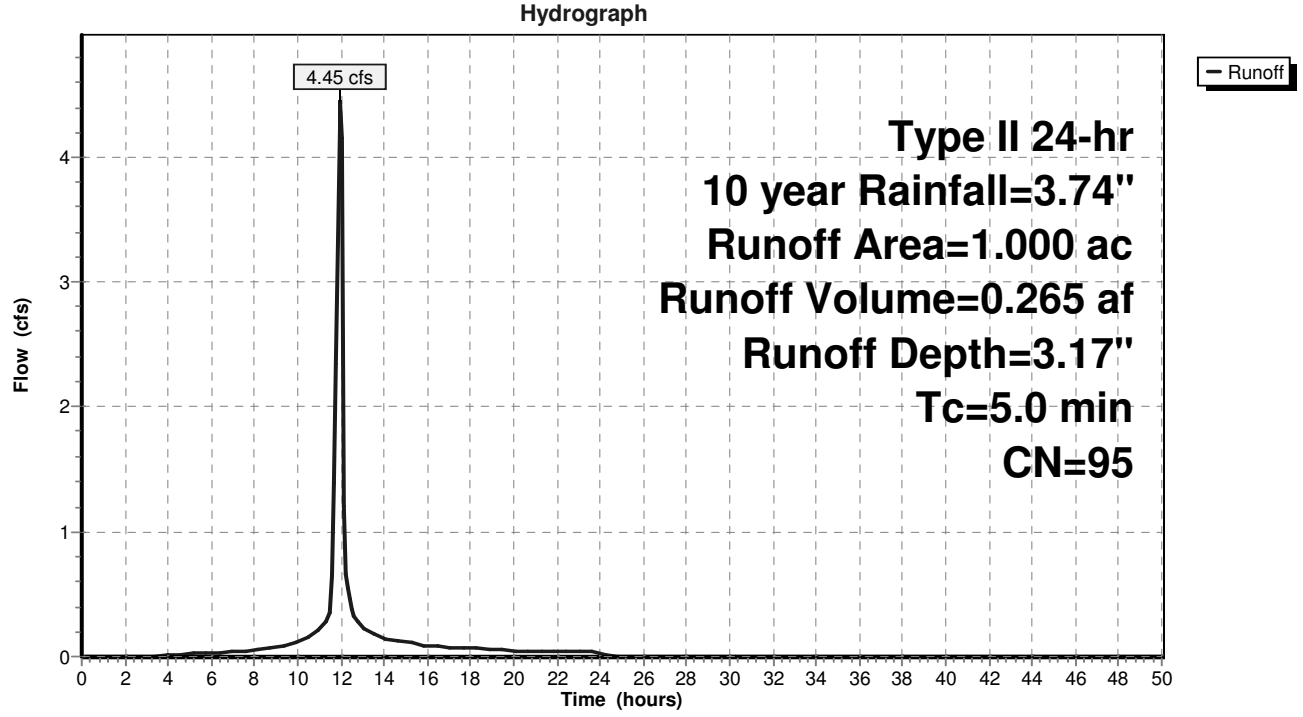
Runoff = 4.45 cfs @ 11.95 hrs, Volume= 0.265 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 10 year Rainfall=3.74"

	Area (ac)	CN	Description
*	0.830	98	impervious
	0.170	80	>75% Grass cover, Good, HSG D
	1.000	95	Weighted Average
	0.170		17.00% Pervious Area
	0.830		83.00% Impervious Area

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

Subcatchment 27S: Subarea 01



Summary for Subcatchment 29S: Existing 01

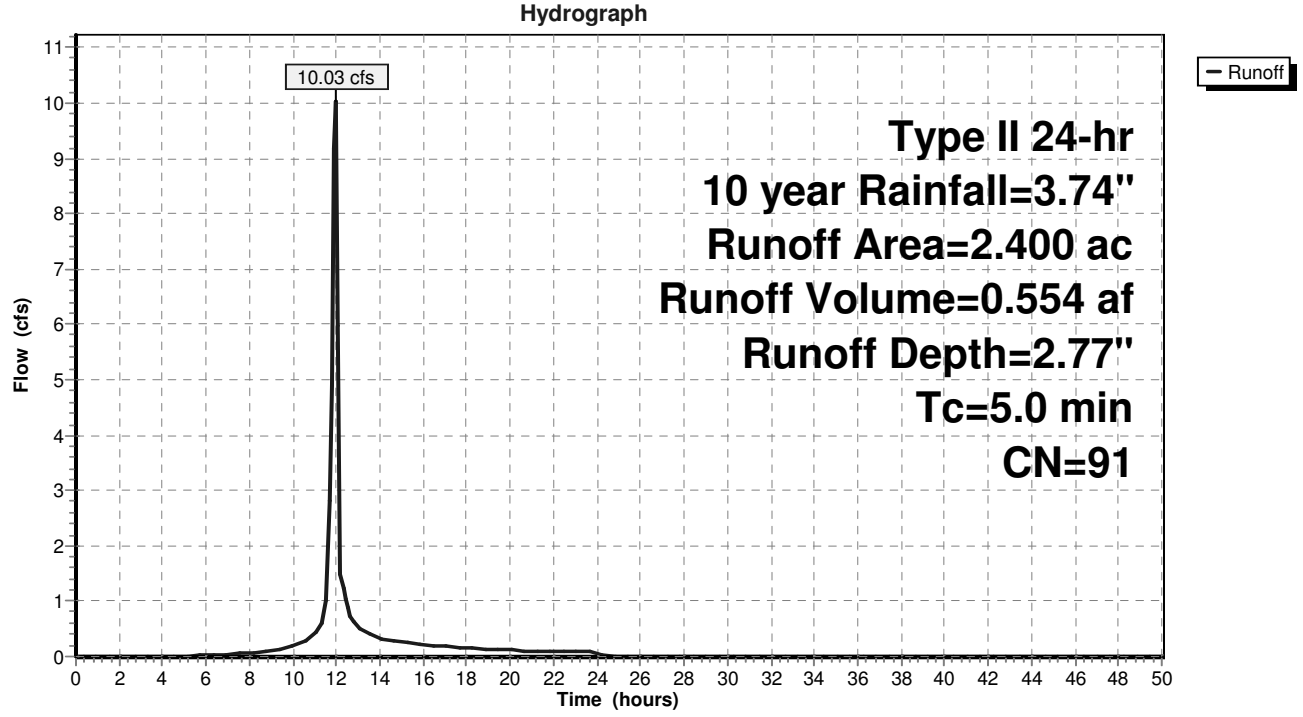
Runoff = 10.03 cfs @ 11.95 hrs, Volume= 0.554 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 10 year Rainfall=3.74"

Area (ac)	CN	Description
1.450	98	Paved parking, HSG D
0.950	80	>75% Grass cover, Good, HSG D
2.400	91	Weighted Average
0.950		39.58% Pervious Area
1.450		60.42% Impervious Area

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

Subcatchment 29S: Existing 01



Summary for Subcatchment 30S: Remaining Project Area

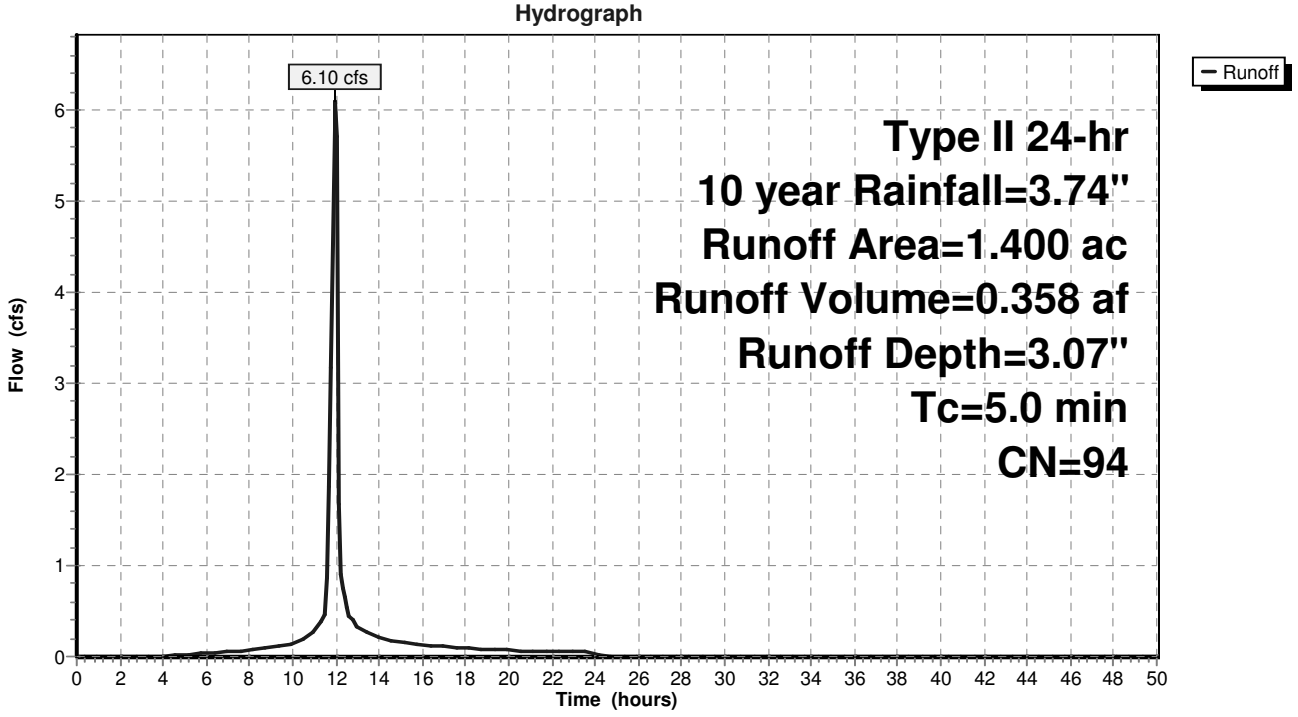
Runoff = 6.10 cfs @ 11.95 hrs, Volume= 0.358 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 10 year Rainfall=3.74"

	Area (ac)	CN	Description
*	1.090	98	impervious
	0.310	80	>75% Grass cover, Good, HSG D
	1.400	94	Weighted Average
	0.310		22.14% Pervious Area
	1.090		77.86% Impervious Area

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

Subcatchment 30S: Remaining Project Area



Summary for Pond 28P: Bio Basin 01

Inflow Area = 1.000 ac, 83.00% Impervious, Inflow Depth = 3.17" for 10 year event
Inflow = 4.45 cfs @ 11.95 hrs, Volume= 0.265 af
Outflow = 4.45 cfs @ 11.98 hrs, Volume= 0.224 af, Atten= 0%, Lag= 1.8 min
Primary = 4.45 cfs @ 11.98 hrs, Volume= 0.224 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Peak Elev= 776.78' @ 11.97 hrs Surf.Area= 2,253 sf Storage= 2,386 cf

Plug-Flow detention time= 115.7 min calculated for 0.224 af (85% of inflow)
Center-of-Mass det. time= 47.1 min (819.0 - 771.9)

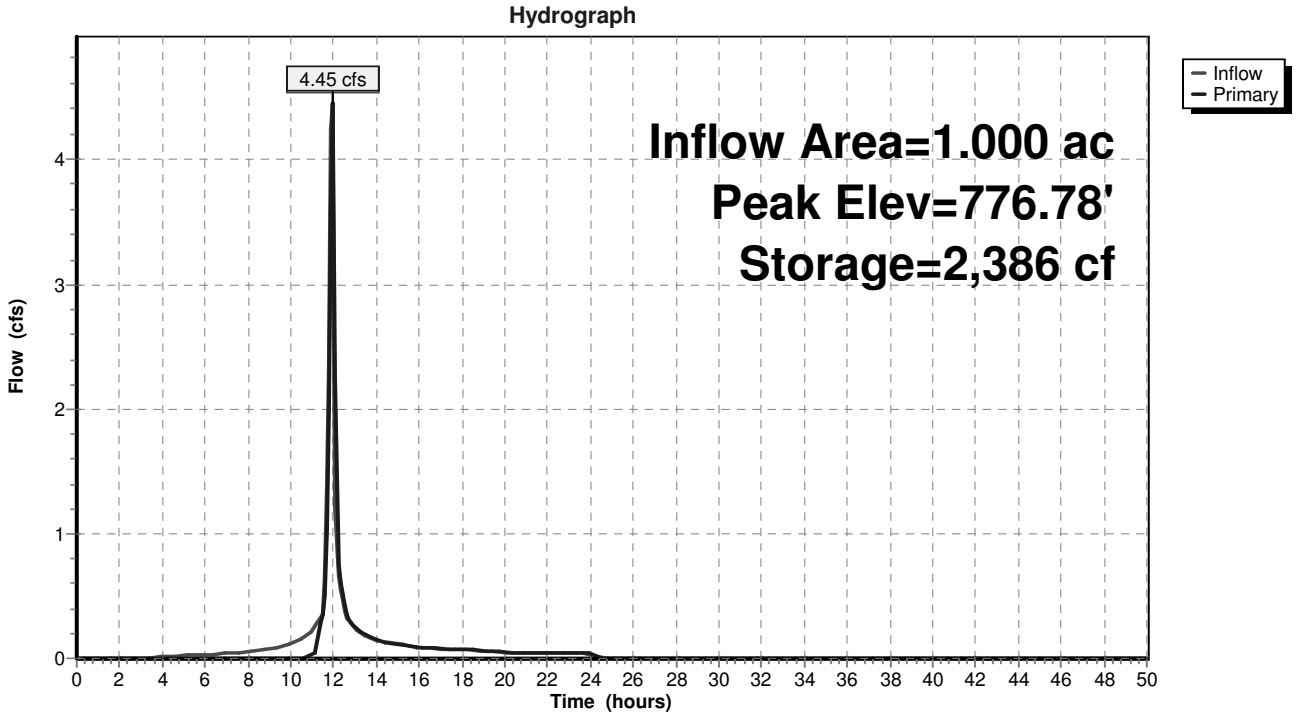
Volume	Invert	Avail.Storage	Storage Description
#1	775.50'	4,163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
775.50	1,472	0	0
777.50	2,691	4,163	4,163

Device	Routing	Invert	Outlet Devices
#1	Primary	772.50'	**12.0" Round Culvert** L= 100.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 772.50' / 771.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	776.50'	**2.0" x 24.0" Horiz. Orifice/Grate X 8.00** C= 0.600 in 27.5" x 27.5" Grate (51% open area) Limited to weir flow at low heads

Primary OutFlow Max=4.19 cfs @ 11.98 hrs HW=776.77' (Free Discharge)
↑**1=Culvert** (Passes 4.19 cfs of 6.05 cfs potential flow)
↑**2=Orifice/Grate** (Weir Controls 4.19 cfs @ 1.70 fps)

Pond 28P: Bio Basin 01

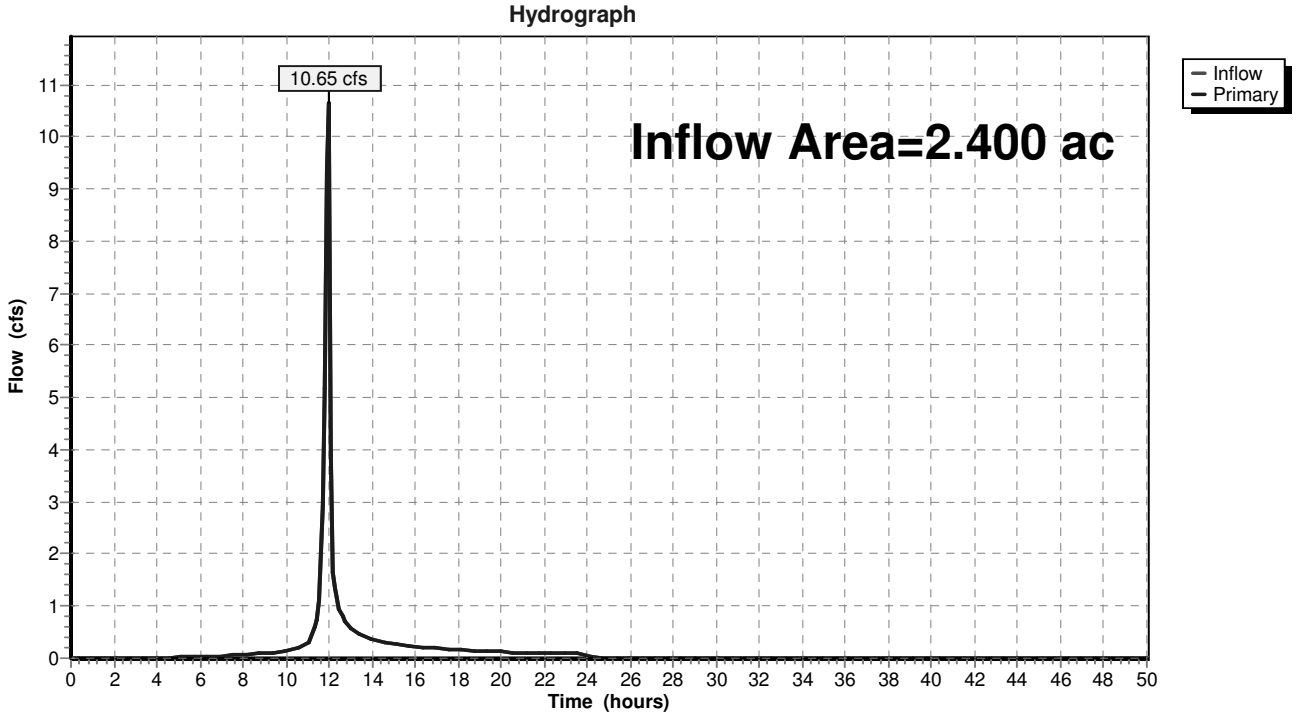


Summary for Pond 31P: Outfall

Inflow Area = 2.400 ac, 80.00% Impervious, Inflow Depth = 2.91" for 10 year event
Inflow = 10.65 cfs @ 11.96 hrs, Volume= 0.582 af
Primary = 10.65 cfs @ 11.96 hrs, Volume= 0.582 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs

Pond 31P: Outfall



Summary for Subcatchment 27S: Subarea 01

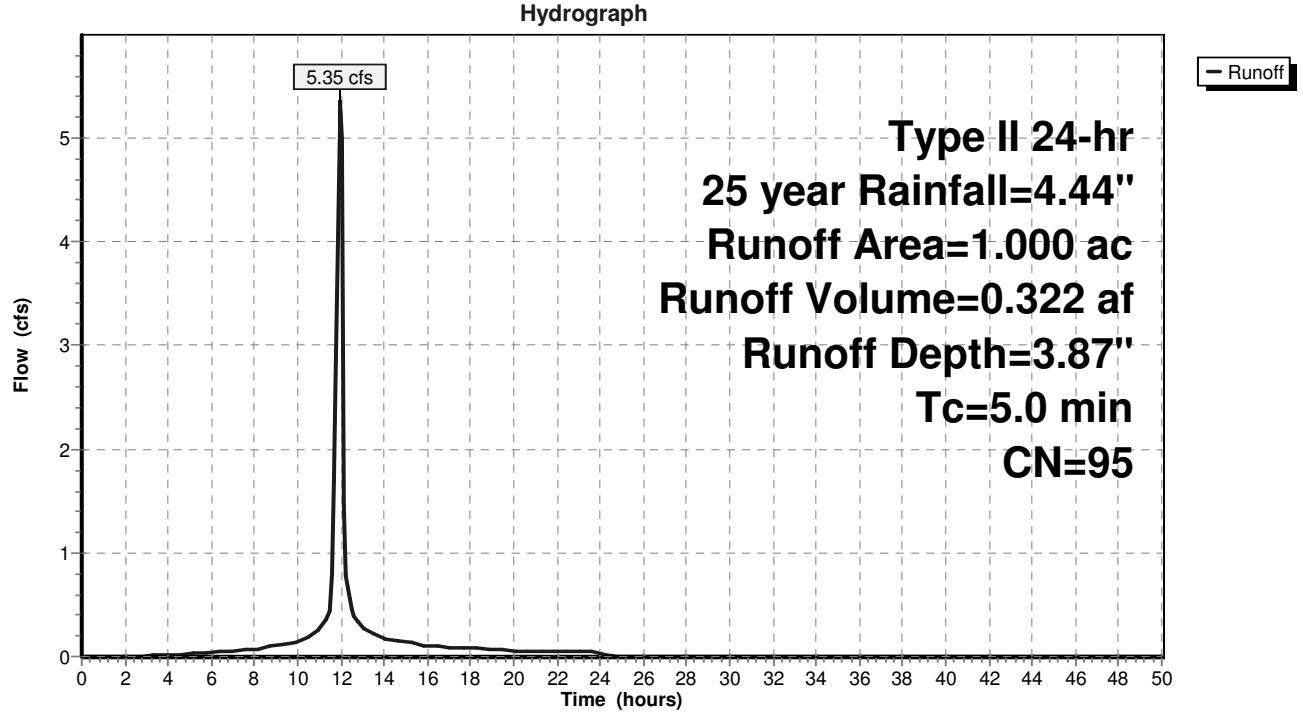
Runoff = 5.35 cfs @ 11.95 hrs, Volume= 0.322 af, Depth= 3.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 25 year Rainfall=4.44"

	Area (ac)	CN	Description
*	0.830	98	impervious
	0.170	80	>75% Grass cover, Good, HSG D
	1.000	95	Weighted Average
	0.170		17.00% Pervious Area
	0.830		83.00% Impervious Area

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

Subcatchment 27S: Subarea 01



Summary for Subcatchment 29S: Existing 01

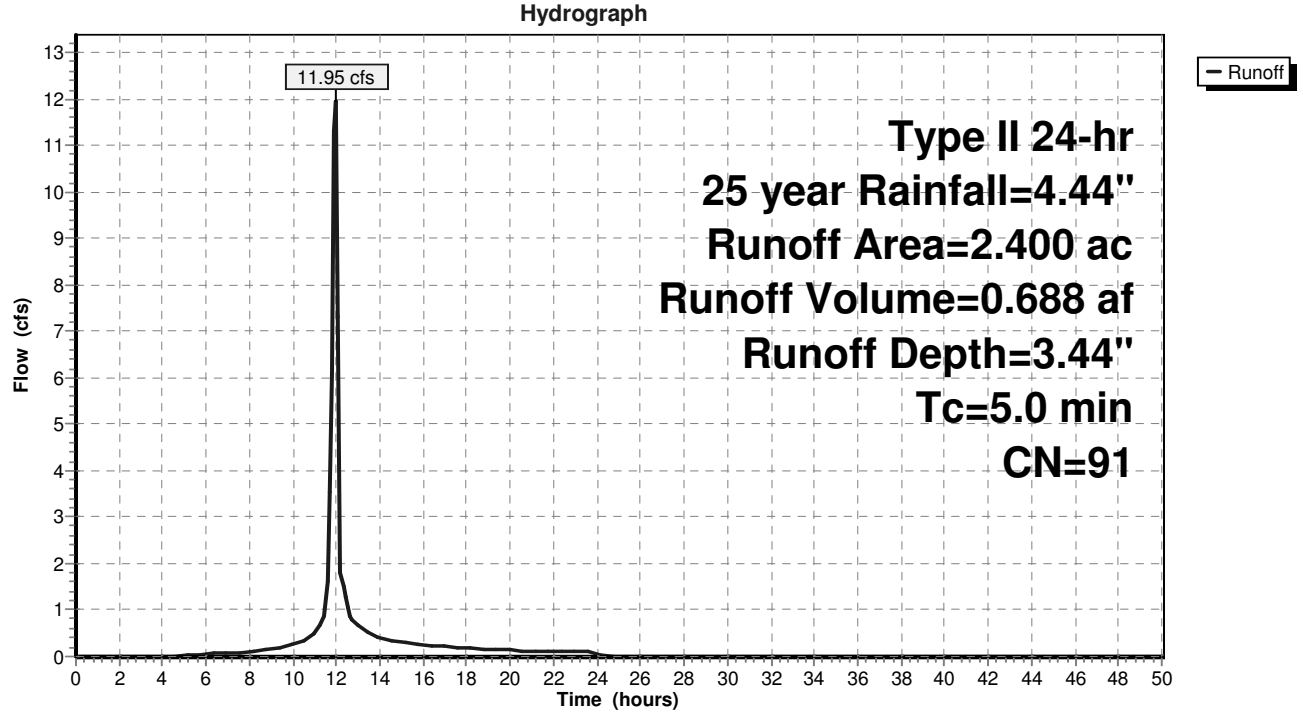
Runoff = 11.95 cfs @ 11.95 hrs, Volume= 0.688 af, Depth= 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 25 year Rainfall=4.44"

Area (ac)	CN	Description
1.450	98	Paved parking, HSG D
0.950	80	>75% Grass cover, Good, HSG D
2.400	91	Weighted Average
0.950		39.58% Pervious Area
1.450		60.42% Impervious Area

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

Subcatchment 29S: Existing 01



Summary for Subcatchment 30S: Remaining Project Area

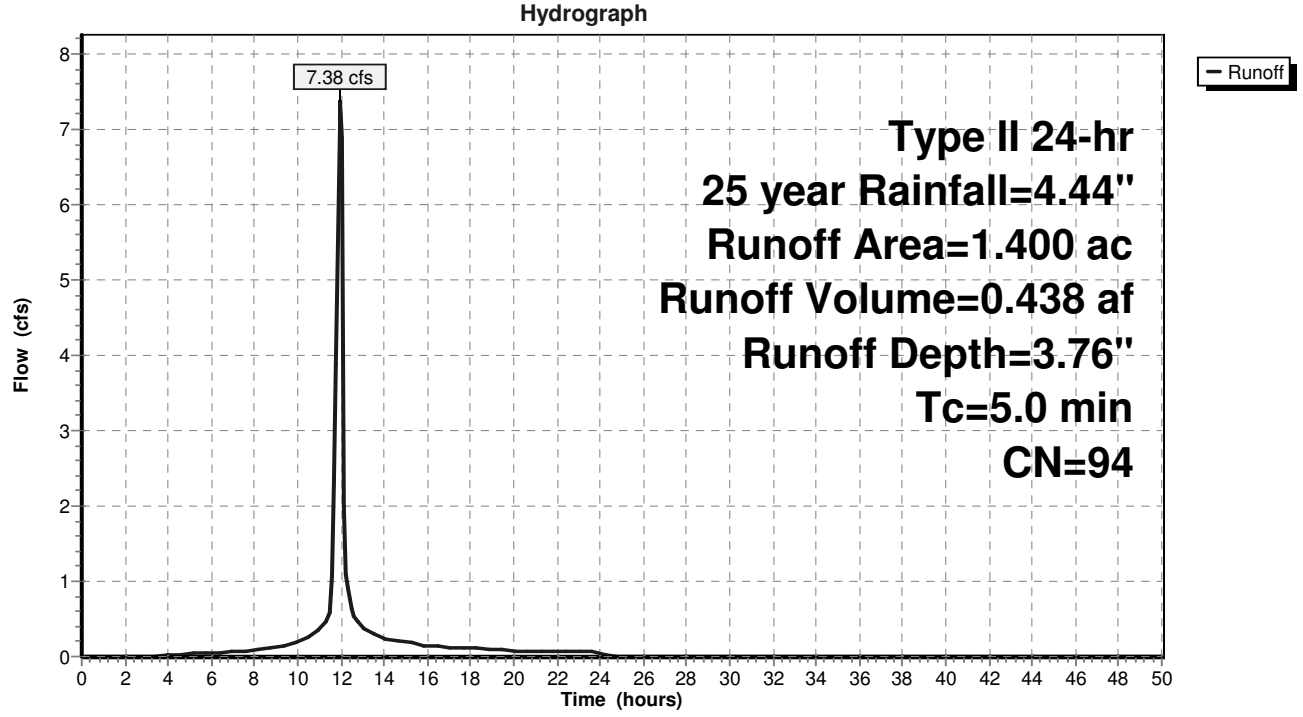
Runoff = 7.38 cfs @ 11.95 hrs, Volume= 0.438 af, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 25 year Rainfall=4.44"

	Area (ac)	CN	Description
*	1.090	98	impervious
	0.310	80	>75% Grass cover, Good, HSG D
	1.400	94	Weighted Average
	0.310		22.14% Pervious Area
	1.090		77.86% Impervious Area

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

Subcatchment 30S: Remaining Project Area



Summary for Pond 28P: Bio Basin 01

Inflow Area = 1.000 ac, 83.00% Impervious, Inflow Depth = 3.87" for 25 year event
Inflow = 5.35 cfs @ 11.95 hrs, Volume= 0.322 af
Outflow = 5.37 cfs @ 11.97 hrs, Volume= 0.281 af, Atten= 0%, Lag= 1.8 min
Primary = 5.37 cfs @ 11.97 hrs, Volume= 0.281 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Peak Elev= 776.82' @ 11.97 hrs Surf.Area= 2,276 sf Storage= 2,471 cf

Plug-Flow detention time= 103.9 min calculated for 0.281 af (87% of inflow)
Center-of-Mass det. time= 44.1 min (811.1 - 766.9)

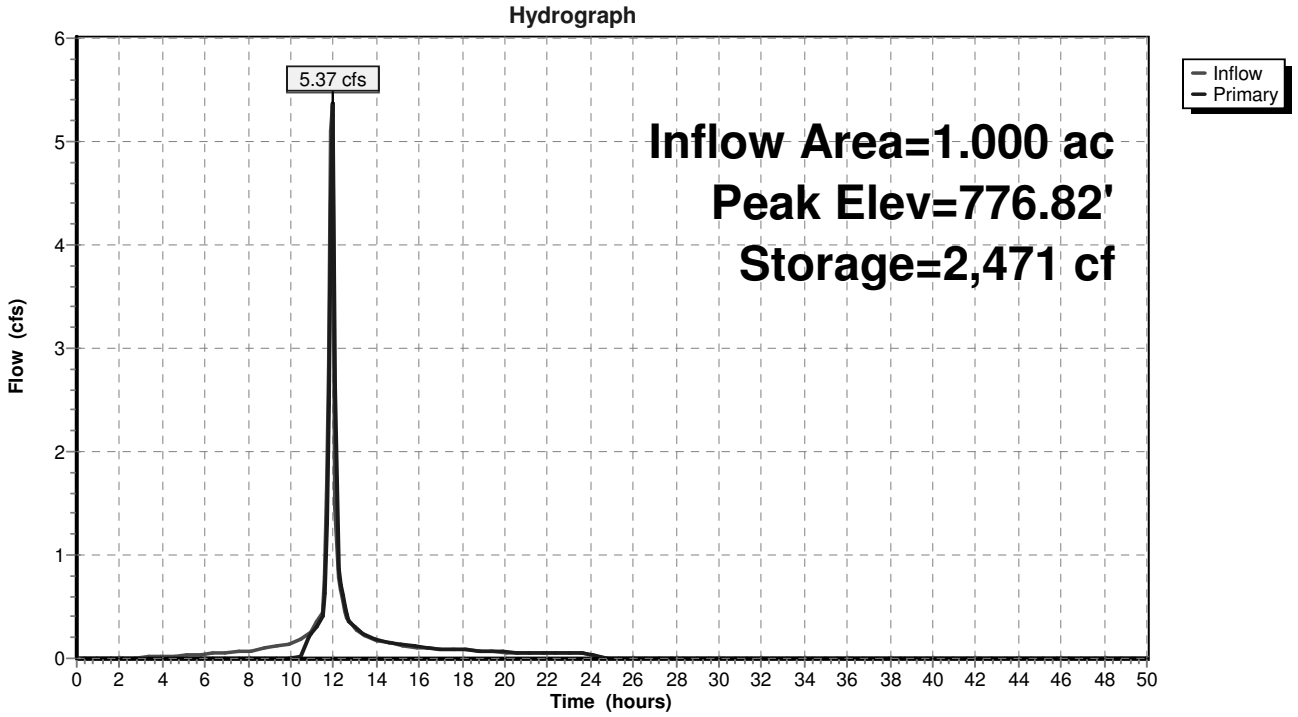
Volume	Invert	Avail.Storage	Storage Description
#1	775.50'	4,163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
775.50	1,472	0	0
777.50	2,691	4,163	4,163

Device	Routing	Invert	Outlet Devices
#1	Primary	772.50'	**12.0" Round Culvert** L= 100.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 772.50' / 771.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	776.50'	**2.0" x 24.0" Horiz. Orifice/Grate X 8.00** C= 0.600 in 27.5" x 27.5" Grate (51% open area) Limited to weir flow at low heads

Primary OutFlow Max=5.04 cfs @ 11.97 hrs HW=776.80' (Free Discharge)
↑**1=Culvert** (Passes 5.04 cfs of 6.07 cfs potential flow)
↑**2=Orifice/Grate** (Weir Controls 5.04 cfs @ 1.80 fps)

Pond 28P: Bio Basin 01

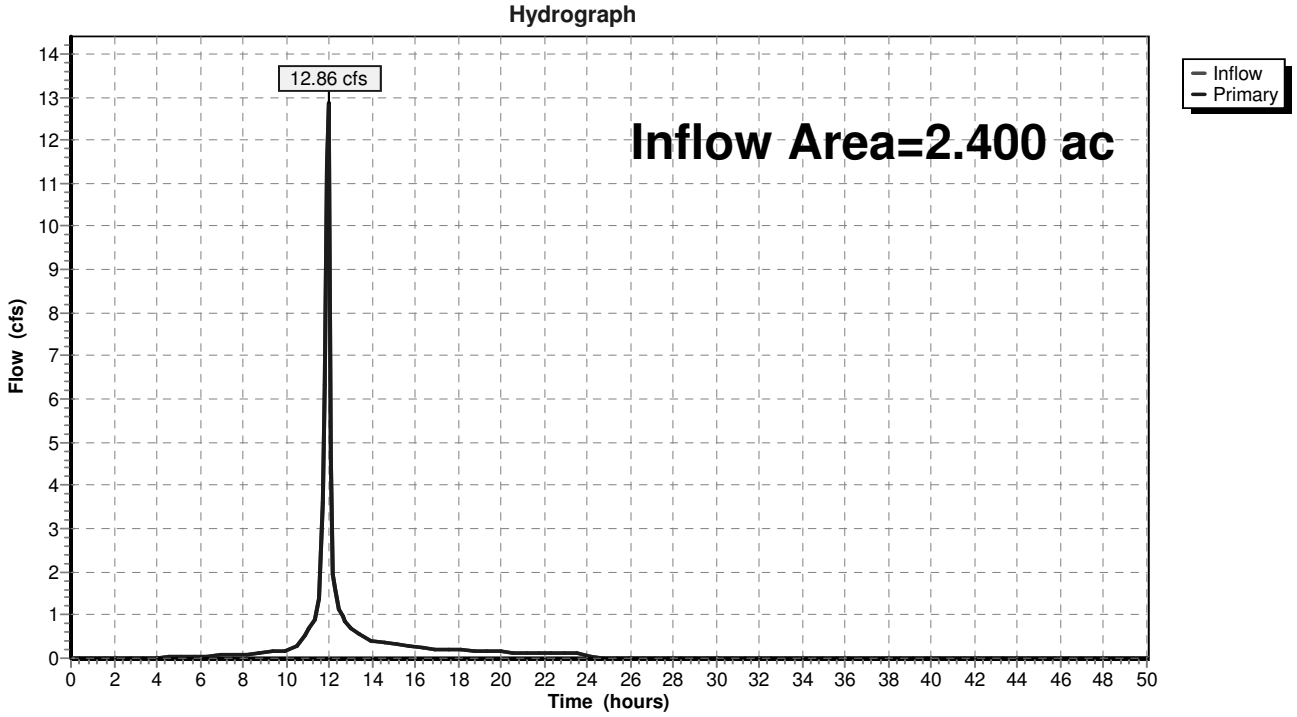


Summary for Pond 31P: Outfall

Inflow Area = 2.400 ac, 80.00% Impervious, Inflow Depth = 3.60" for 25 year event
Inflow = 12.86 cfs @ 11.96 hrs, Volume= 0.720 af
Primary = 12.86 cfs @ 11.96 hrs, Volume= 0.720 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs

Pond 31P: Outfall



Summary for Subcatchment 27S: Subarea 01

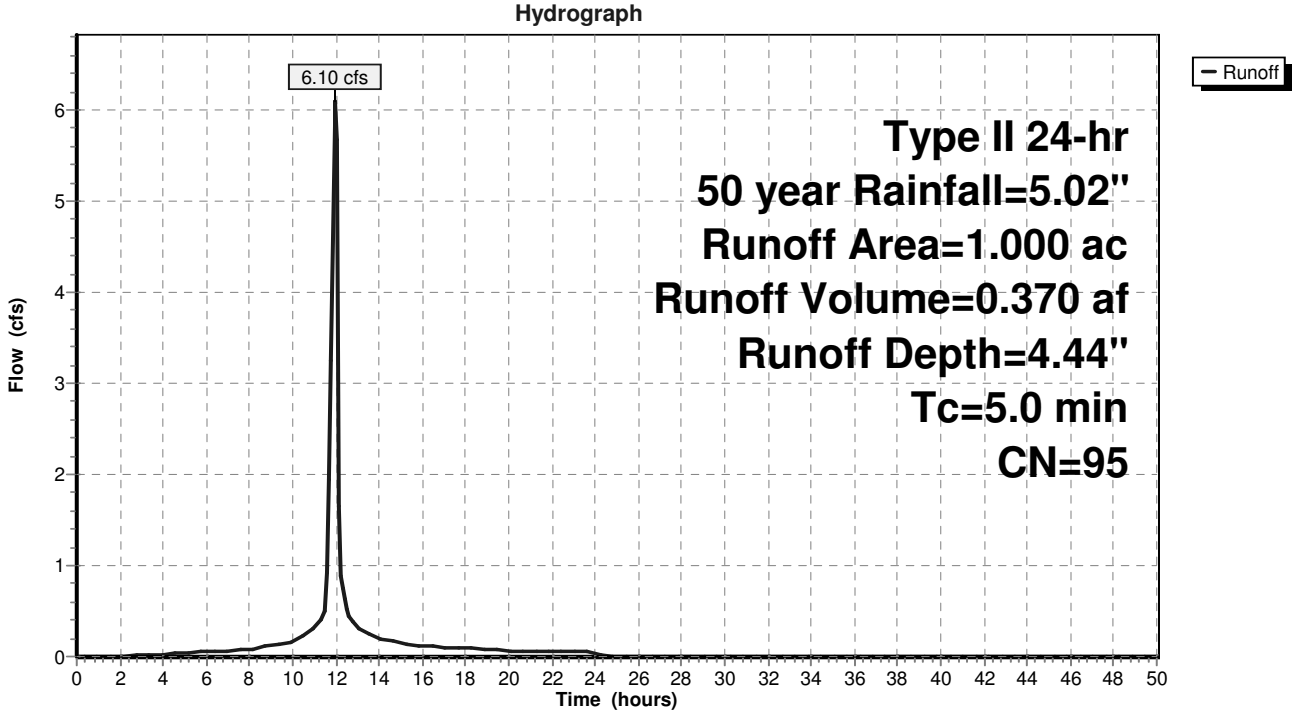
Runoff = 6.10 cfs @ 11.94 hrs, Volume= 0.370 af, Depth= 4.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 50 year Rainfall=5.02"

	Area (ac)	CN	Description
*	0.830	98	impervious
	0.170	80	>75% Grass cover, Good, HSG D
	1.000	95	Weighted Average
	0.170		17.00% Pervious Area
	0.830		83.00% Impervious Area

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

Subcatchment 27S: Subarea 01



Summary for Subcatchment 29S: Existing 01

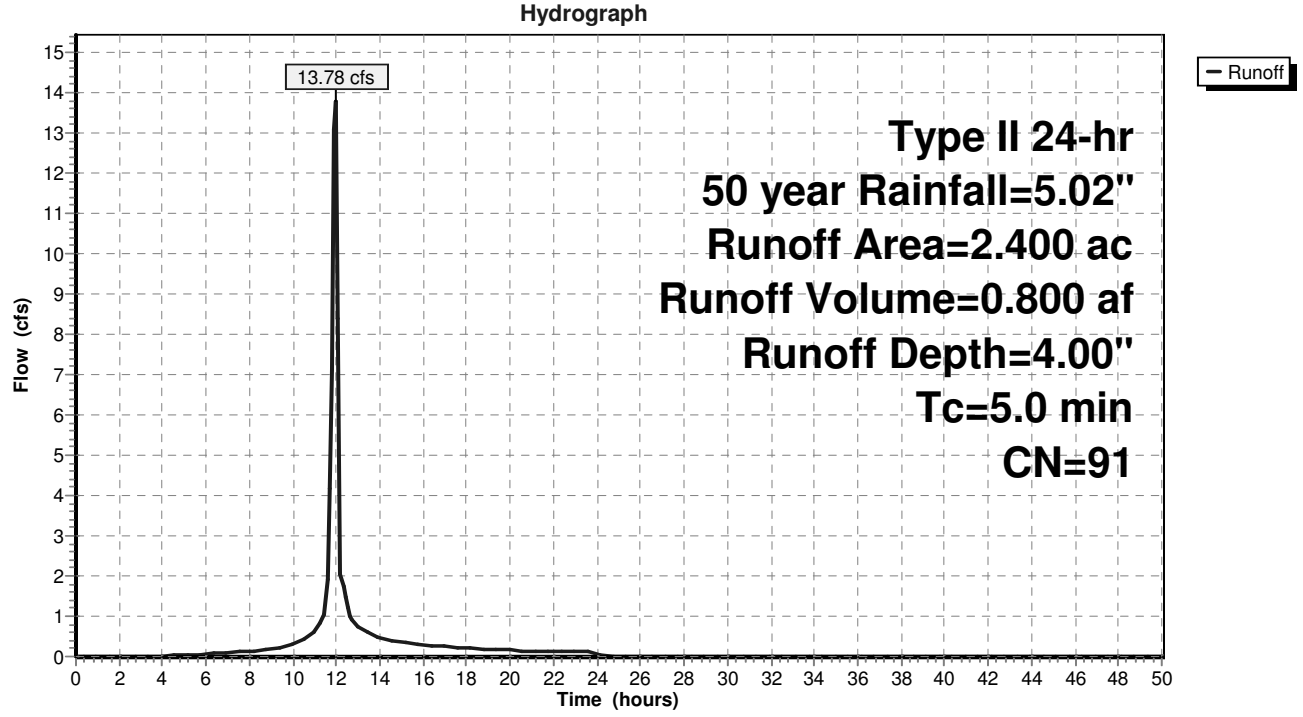
Runoff = 13.78 cfs @ 11.95 hrs, Volume= 0.800 af, Depth= 4.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 50 year Rainfall=5.02"

Area (ac)	CN	Description
1.450	98	Paved parking, HSG D
0.950	80	>75% Grass cover, Good, HSG D
2.400	91	Weighted Average
0.950		39.58% Pervious Area
1.450		60.42% Impervious Area

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

Subcatchment 29S: Existing 01



Summary for Subcatchment 30S: Remaining Project Area

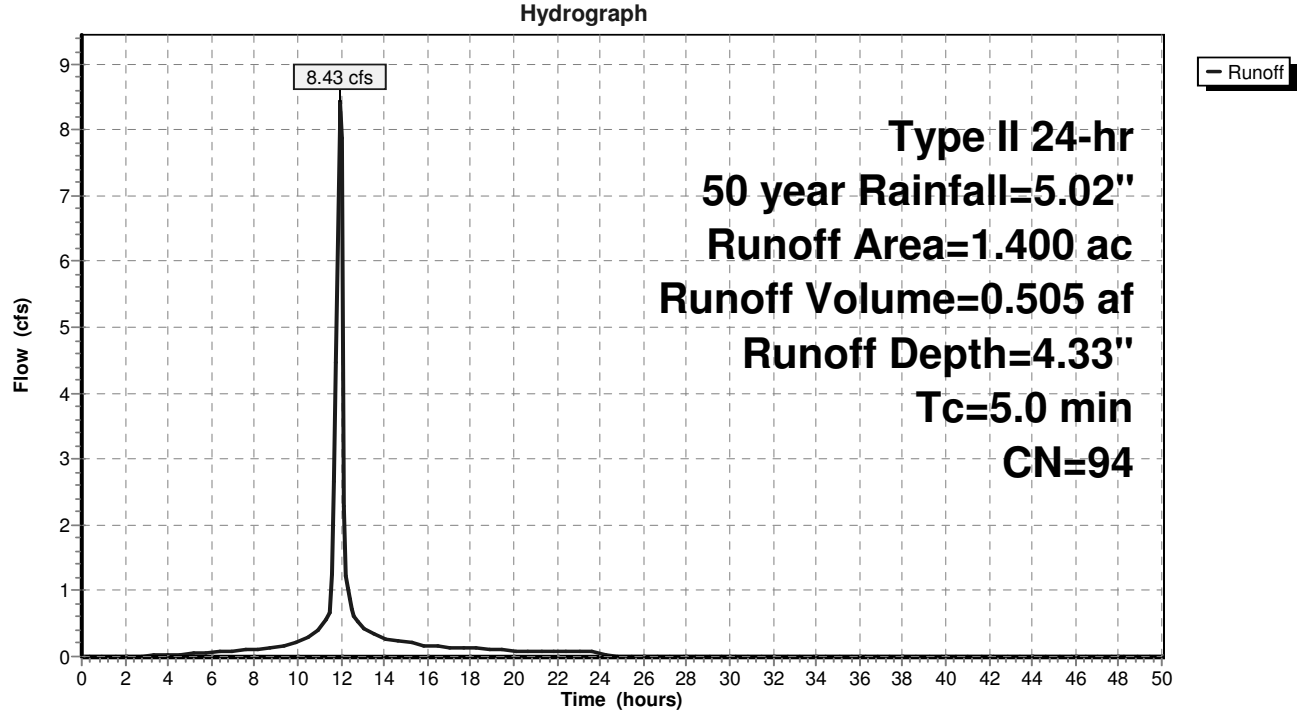
Runoff = 8.43 cfs @ 11.95 hrs, Volume= 0.505 af, Depth= 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 50 year Rainfall=5.02"

	Area (ac)	CN	Description
*	1.090	98	impervious
	0.310	80	>75% Grass cover, Good, HSG D
	1.400	94	Weighted Average
	0.310		22.14% Pervious Area
	1.090		77.86% Impervious Area

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

Subcatchment 30S: Remaining Project Area



Summary for Pond 28P: Bio Basin 01

Inflow Area = 1.000 ac, 83.00% Impervious, Inflow Depth = 4.44" for 50 year event
Inflow = 6.10 cfs @ 11.94 hrs, Volume= 0.370 af
Outflow = 6.11 cfs @ 11.97 hrs, Volume= 0.329 af, Atten= 0%, Lag= 1.8 min
Primary = 6.11 cfs @ 11.97 hrs, Volume= 0.329 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Peak Elev= 776.85' @ 11.97 hrs Surf.Area= 2,295 sf Storage= 2,542 cf

Plug-Flow detention time= 97.3 min calculated for 0.329 af (89% of inflow)
Center-of-Mass det. time= 42.1 min (805.6 - 763.6)

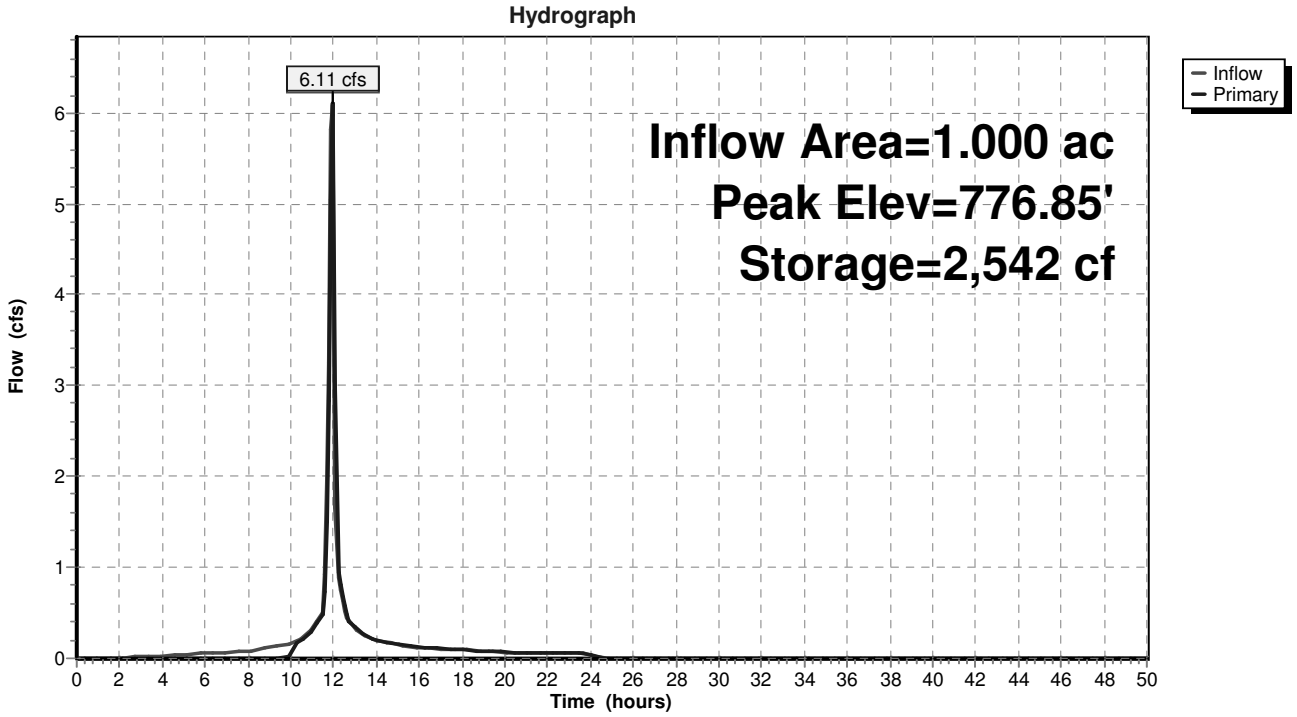
Volume	Invert	Avail.Storage	Storage Description
#1	775.50'	4,163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
775.50	1,472	0	0
777.50	2,691	4,163	4,163

Device	Routing	Invert	Outlet Devices
#1	Primary	772.50'	**12.0" Round Culvert** L= 100.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 772.50' / 771.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	776.50'	**2.0" x 24.0" Horiz. Orifice/Grate X 8.00** C= 0.600 in 27.5" x 27.5" Grate (51% open area) Limited to weir flow at low heads

Primary OutFlow Max=5.77 cfs @ 11.97 hrs HW=776.83' (Free Discharge)
↑—**1=Culvert** (Passes 5.77 cfs of 6.09 cfs potential flow)
↑—**2=Orifice/Grate** (Weir Controls 5.77 cfs @ 1.89 fps)

Pond 28P: Bio Basin 01

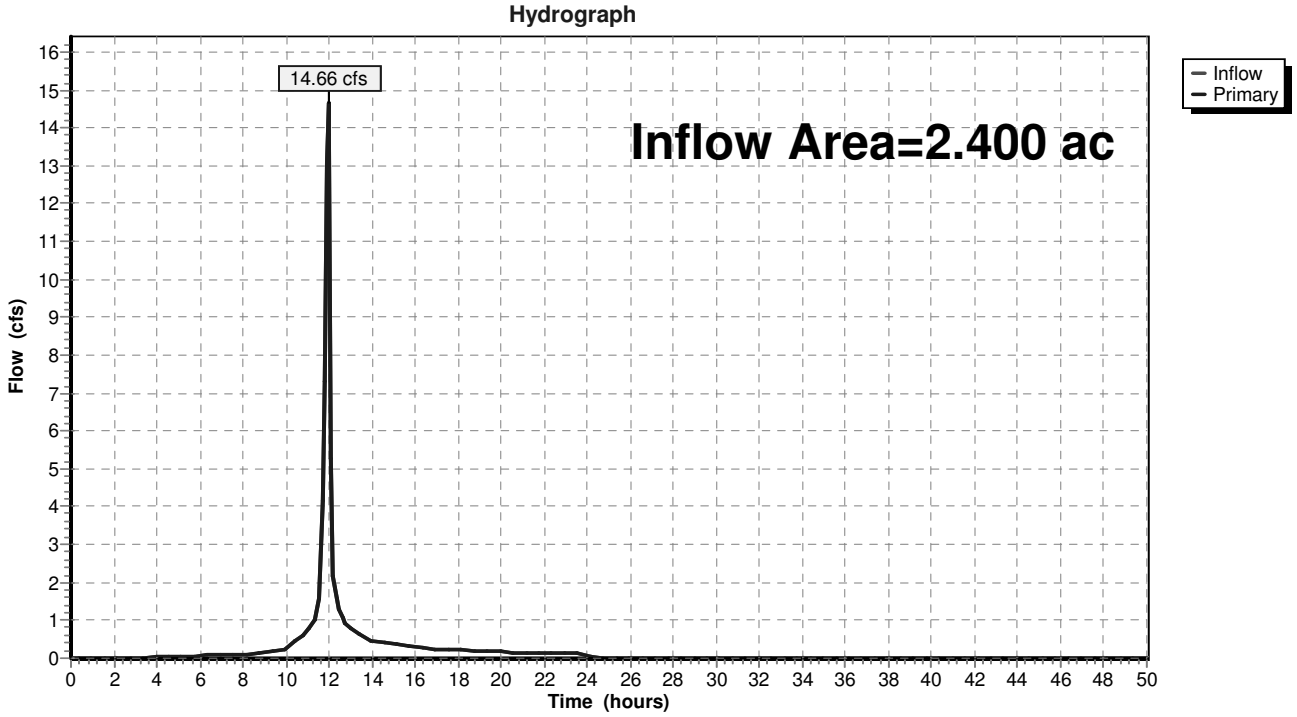


Summary for Pond 31P: Outfall

Inflow Area = 2.400 ac, 80.00% Impervious, Inflow Depth = 4.17" for 50 year event
Inflow = 14.66 cfs @ 11.96 hrs, Volume= 0.834 af
Primary = 14.66 cfs @ 11.96 hrs, Volume= 0.834 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs

Pond 31P: Outfall



Summary for Subcatchment 27S: Subarea 01

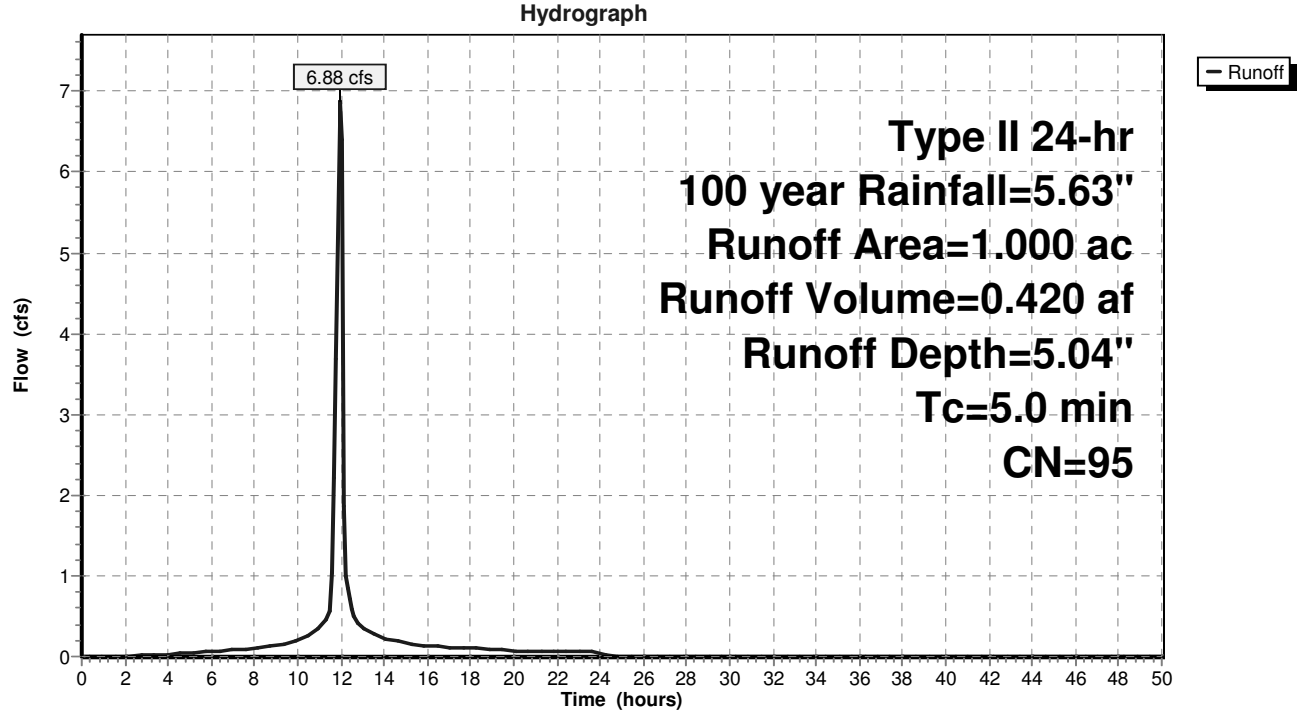
Runoff = 6.88 cfs @ 11.94 hrs, Volume= 0.420 af, Depth= 5.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 100 year Rainfall=5.63"

	Area (ac)	CN	Description
*	0.830	98	impervious
	0.170	80	>75% Grass cover, Good, HSG D
	1.000	95	Weighted Average
	0.170		17.00% Pervious Area
	0.830		83.00% Impervious Area

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

Subcatchment 27S: Subarea 01



Summary for Subcatchment 29S: Existing 01

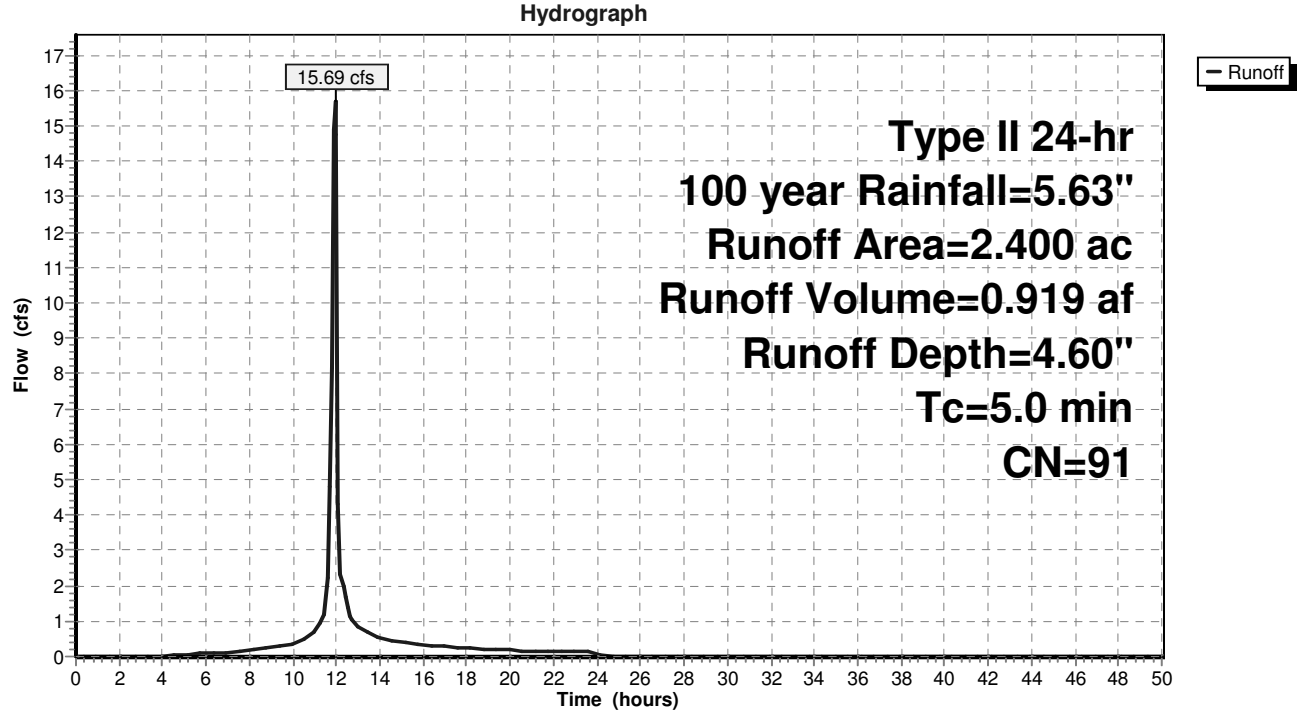
Runoff = 15.69 cfs @ 11.95 hrs, Volume= 0.919 af, Depth= 4.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 100 year Rainfall=5.63"

Area (ac)	CN	Description
1.450	98	Paved parking, HSG D
0.950	80	>75% Grass cover, Good, HSG D
2.400	91	Weighted Average
0.950		39.58% Pervious Area
1.450		60.42% Impervious Area

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

Subcatchment 29S: Existing 01



Summary for Subcatchment 30S: Remaining Project Area

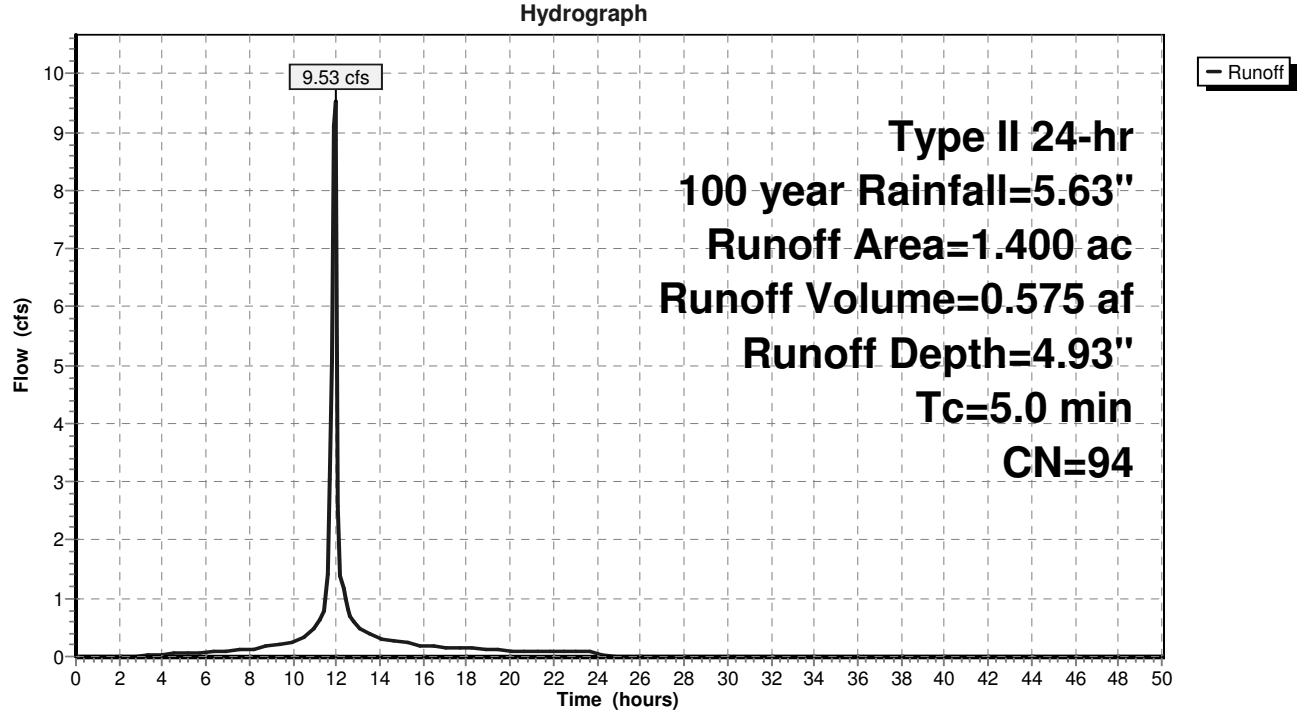
Runoff = 9.53 cfs @ 11.94 hrs, Volume= 0.575 af, Depth= 4.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Type II 24-hr 100 year Rainfall=5.63"

	Area (ac)	CN	Description
*	1.090	98	impervious
	0.310	80	>75% Grass cover, Good, HSG D
	1.400	94	Weighted Average
	0.310		22.14% Pervious Area
	1.090		77.86% Impervious Area

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

Subcatchment 30S: Remaining Project Area



Summary for Pond 28P: Bio Basin 01

Inflow Area = 1.000 ac, 83.00% Impervious, Inflow Depth = 5.04" for 100 year event
Inflow = 6.88 cfs @ 11.94 hrs, Volume= 0.420 af
Outflow = 6.29 cfs @ 11.97 hrs, Volume= 0.380 af, Atten= 9%, Lag= 1.4 min
Primary = 6.29 cfs @ 11.97 hrs, Volume= 0.380 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Peak Elev= 776.92' @ 11.99 hrs Surf.Area= 2,337 sf Storage= 2,705 cf

Plug-Flow detention time= 89.8 min calculated for 0.379 af (90% of inflow)
Center-of-Mass det. time= 40.1 min (800.7 - 760.6)

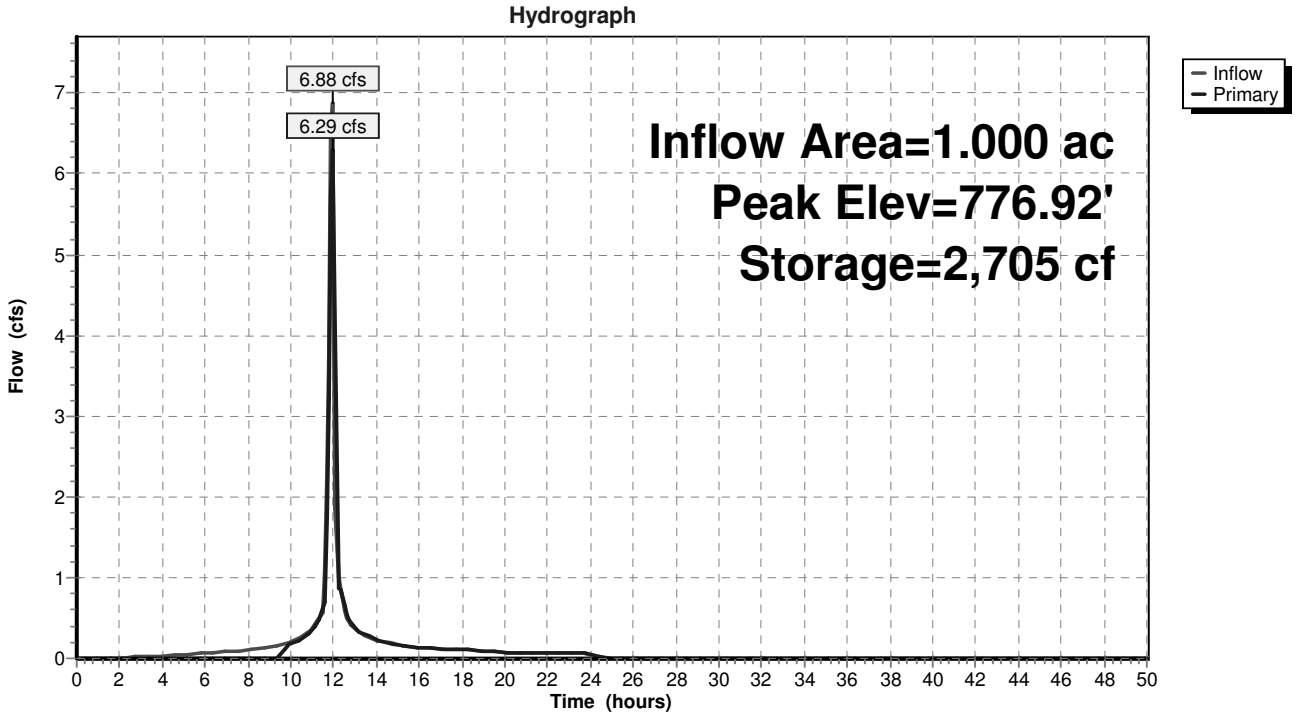
Volume	Invert	Avail.Storage	Storage Description
#1	775.50'	4,163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
775.50	1,472	0	0
777.50	2,691	4,163	4,163

Device	Routing	Invert	Outlet Devices
#1	Primary	772.50'	**12.0" Round Culvert** L= 100.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 772.50' / 771.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	776.50'	**2.0" x 24.0" Horiz. Orifice/Grate X 8.00** C= 0.600 in 27.5" x 27.5" Grate (51% open area) Limited to weir flow at low heads

Primary OutFlow Max=6.13 cfs @ 11.97 hrs HW=776.89' (Free Discharge)
↑**1=Culvert** (Barrel Controls 6.13 cfs @ 7.81 fps)
↑**2=Orifice/Grate** (Passes 6.13 cfs of 7.28 cfs potential flow)

Pond 28P: Bio Basin 01

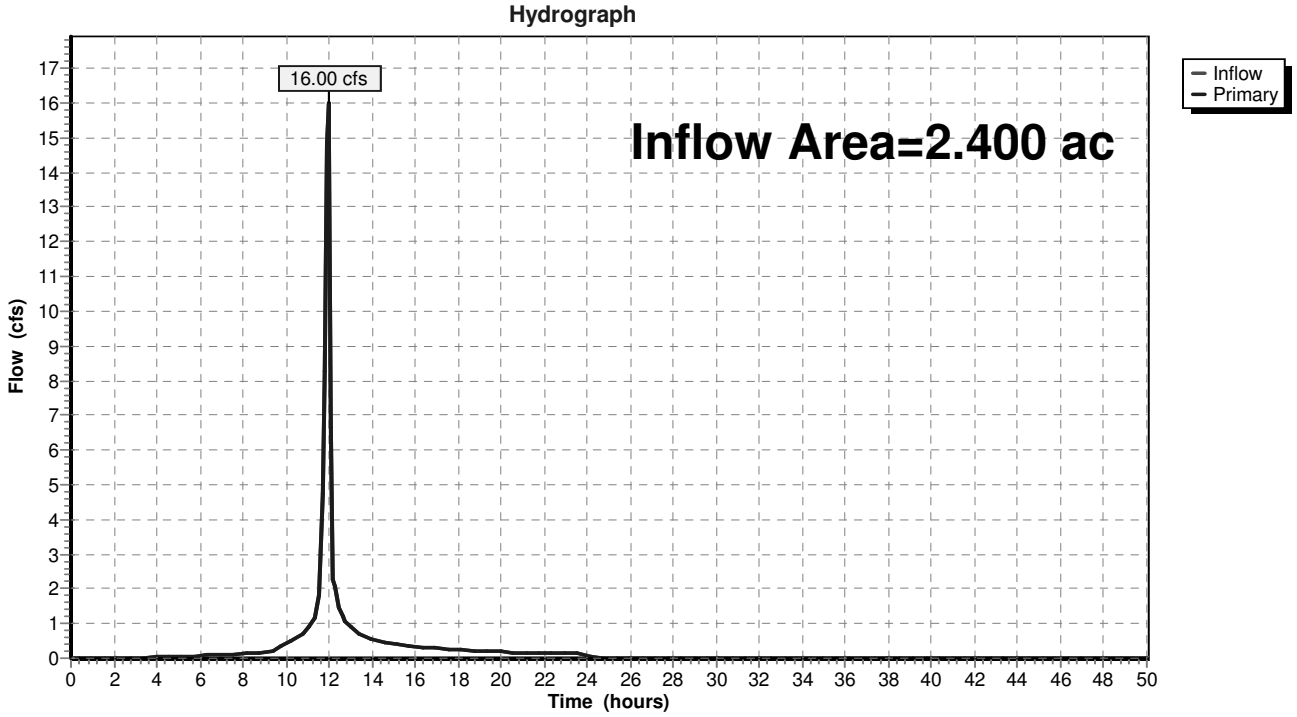


Summary for Pond 31P: Outfall

Inflow Area = 2.400 ac, 80.00% Impervious, Inflow Depth = 4.77" for 100 year event
Inflow = 16.00 cfs @ 11.95 hrs, Volume= 0.955 af
Primary = 16.00 cfs @ 11.95 hrs, Volume= 0.955 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs

Pond 31P: Outfall



Summary for Subcatchment 27S: Subarea 01

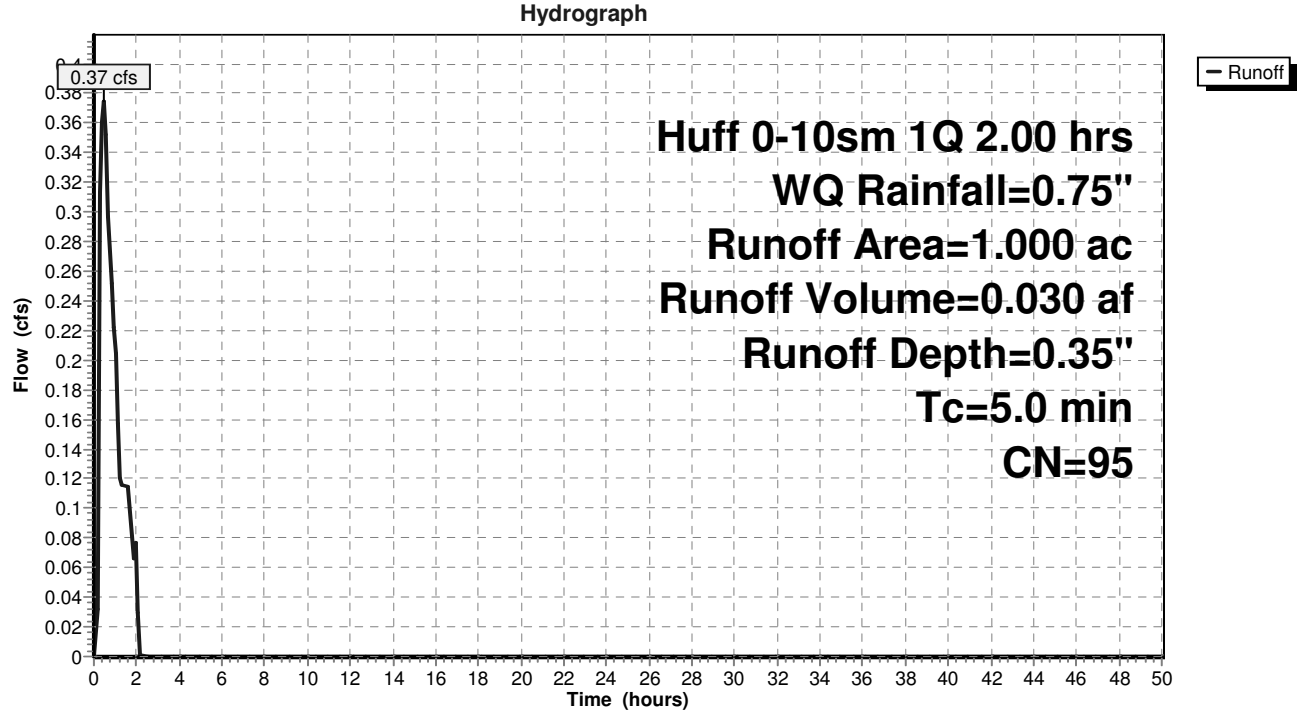
Runoff = 0.37 cfs @ 0.49 hrs, Volume= 0.030 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Huff 0-10sm 1Q 2.00 hrs WQ Rainfall=0.75"

	Area (ac)	CN	Description
*	0.830	98	impervious
	0.170	80	>75% Grass cover, Good, HSG D
	1.000	95	Weighted Average
	0.170		17.00% Pervious Area
	0.830		83.00% Impervious Area

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

Subcatchment 27S: Subarea 01



Summary for Subcatchment 29S: Existing 01

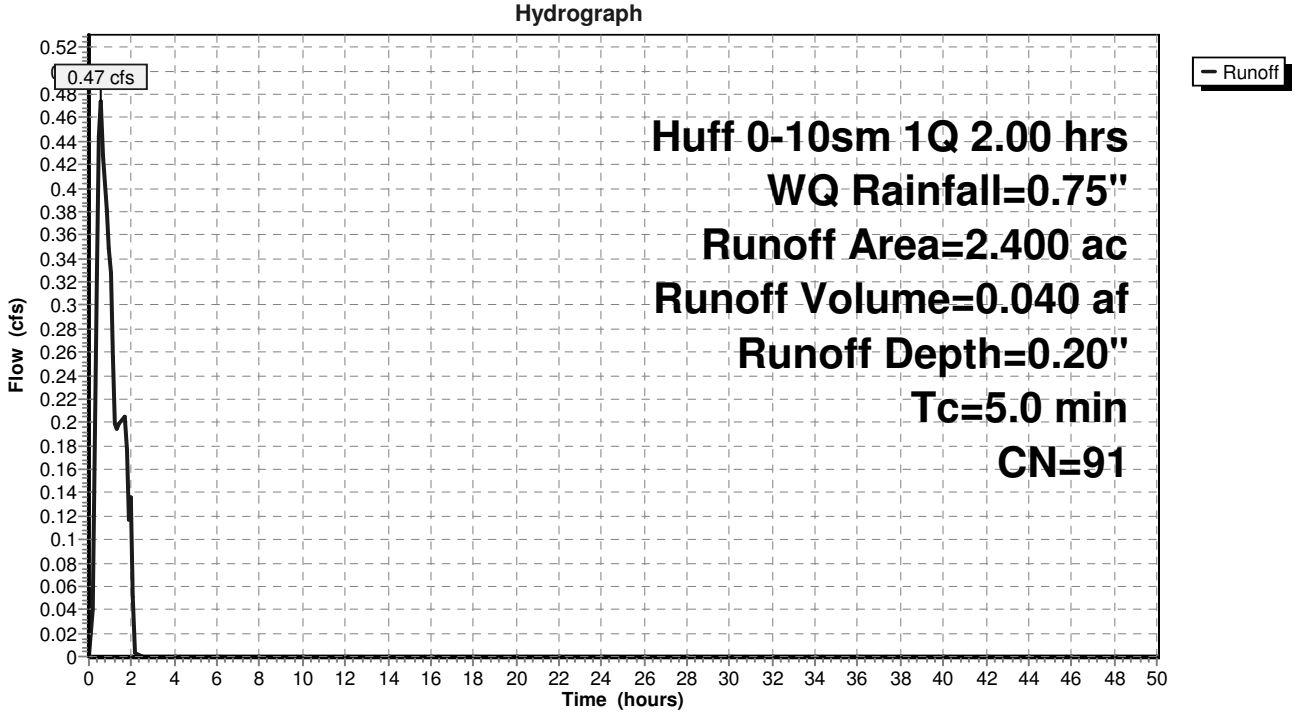
Runoff = 0.47 cfs @ 0.59 hrs, Volume= 0.040 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Huff 0-10sm 1Q 2.00 hrs WQ Rainfall=0.75"

Area (ac)	CN	Description
1.450	98	Paved parking, HSG D
0.950	80	>75% Grass cover, Good, HSG D
2.400	91	Weighted Average
0.950		39.58% Pervious Area
1.450		60.42% Impervious Area

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

Subcatchment 29S: Existing 01



Summary for Subcatchment 30S: Remaining Project Area

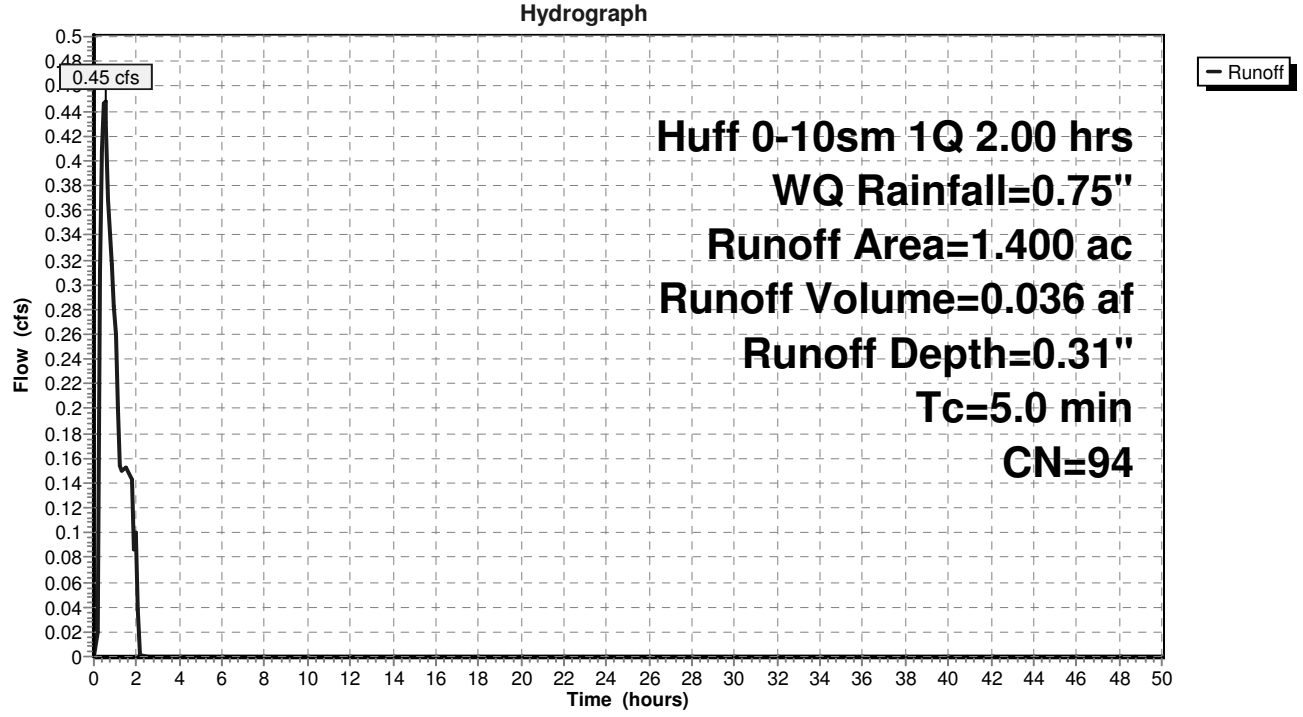
Runoff = 0.45 cfs @ 0.52 hrs, Volume= 0.036 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Huff 0-10sm 1Q 2.00 hrs WQ Rainfall=0.75"

	Area (ac)	CN	Description
*	1.090	98	impervious
	0.310	80	>75% Grass cover, Good, HSG D
	1.400	94	Weighted Average
	0.310		22.14% Pervious Area
	1.090		77.86% Impervious Area

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

Subcatchment 30S: Remaining Project Area



Summary for Pond 28P: Bio Basin 01

Inflow Area = 1.000 ac, 83.00% Impervious, Inflow Depth = 0.35" for WQ event
Inflow = 0.37 cfs @ 0.49 hrs, Volume= 0.030 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs
Peak Elev= 776.26' @ 2.40 hrs Surf.Area= 1,933 sf Storage= 1,289 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

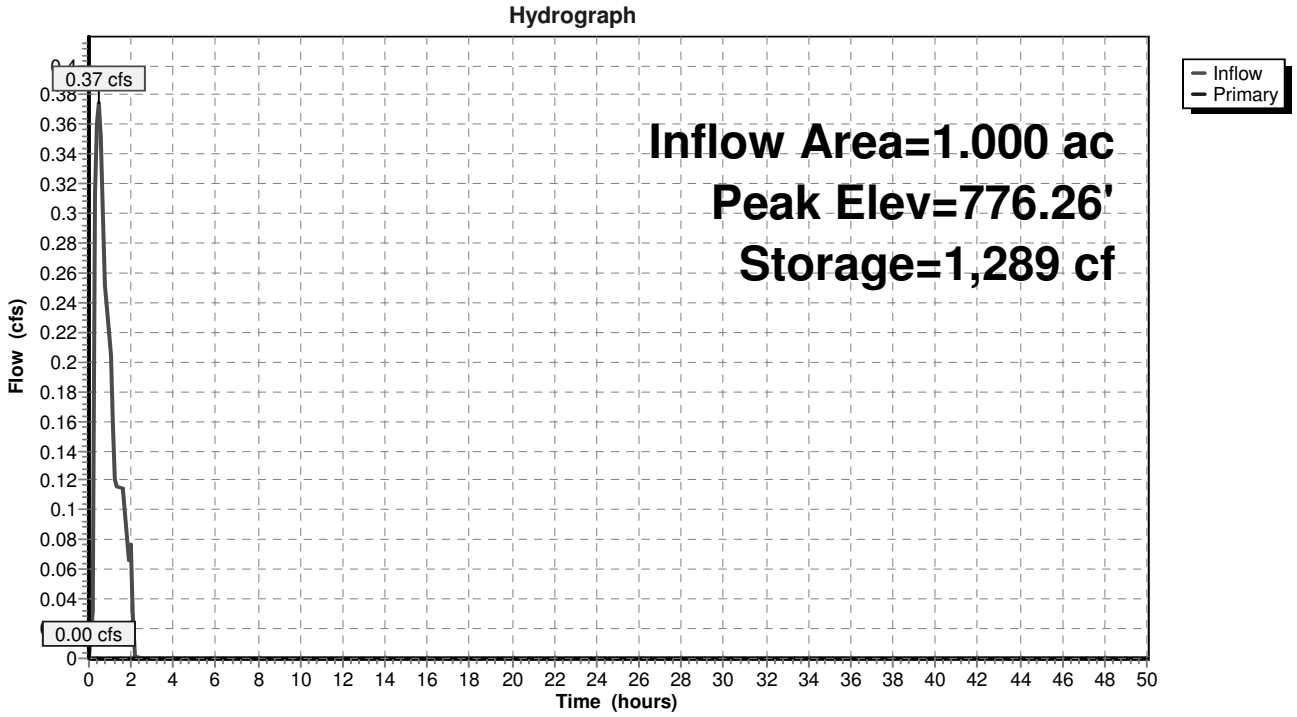
Volume	Invert	Avail.Storage	Storage Description
#1	775.50'	4,163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
775.50	1,472	0	0
777.50	2,691	4,163	4,163

Device	Routing	Invert	Outlet Devices
#1	Primary	772.50'	**12.0" Round Culvert** L= 100.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 772.50' / 771.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	776.50'	**2.0" x 24.0" Horiz. Orifice/Grate X 8.00** C= 0.600 in 27.5" x 27.5" Grate (51% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=775.50' (Free Discharge)
↑—**1=Culvert** (Passes 0.00 cfs of 5.07 cfs potential flow)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 28P: Bio Basin 01

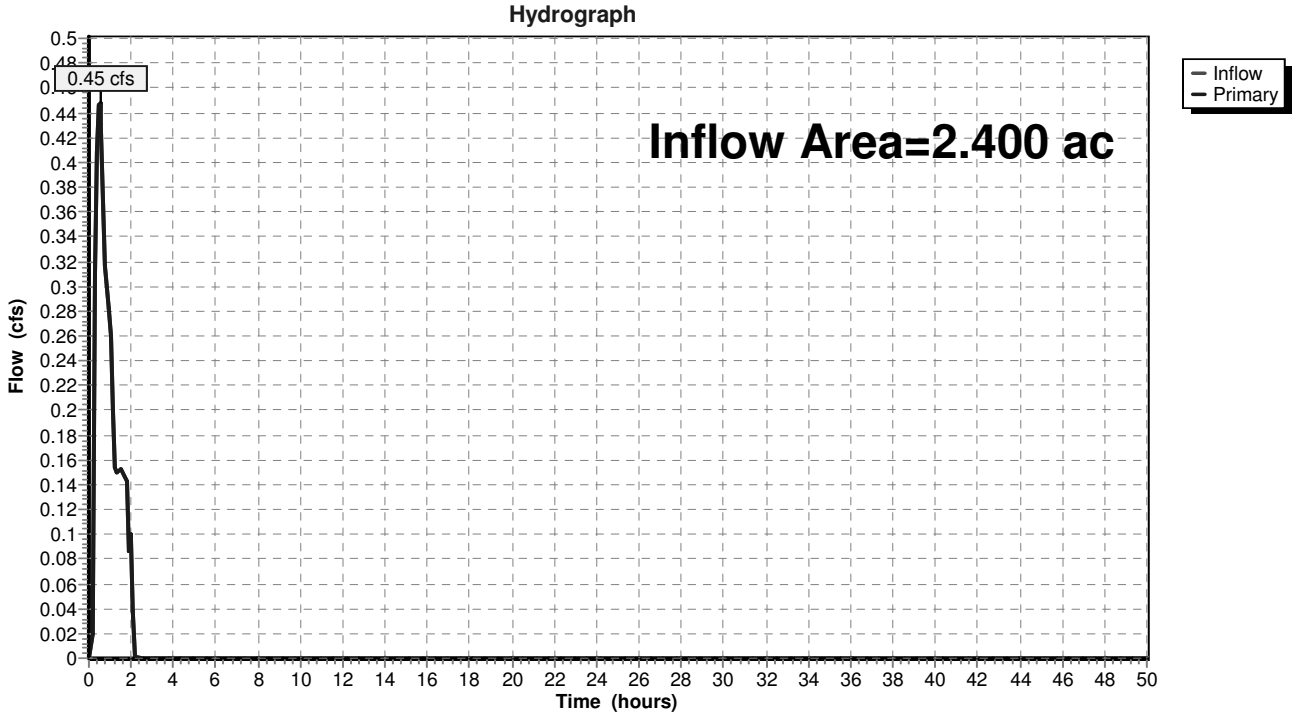


Summary for Pond 31P: Outfall

Inflow Area = 2.400 ac, 80.00% Impervious, Inflow Depth = 0.18" for WQ event
Inflow = 0.45 cfs @ 0.52 hrs, Volume= 0.036 af
Primary = 0.45 cfs @ 0.52 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min

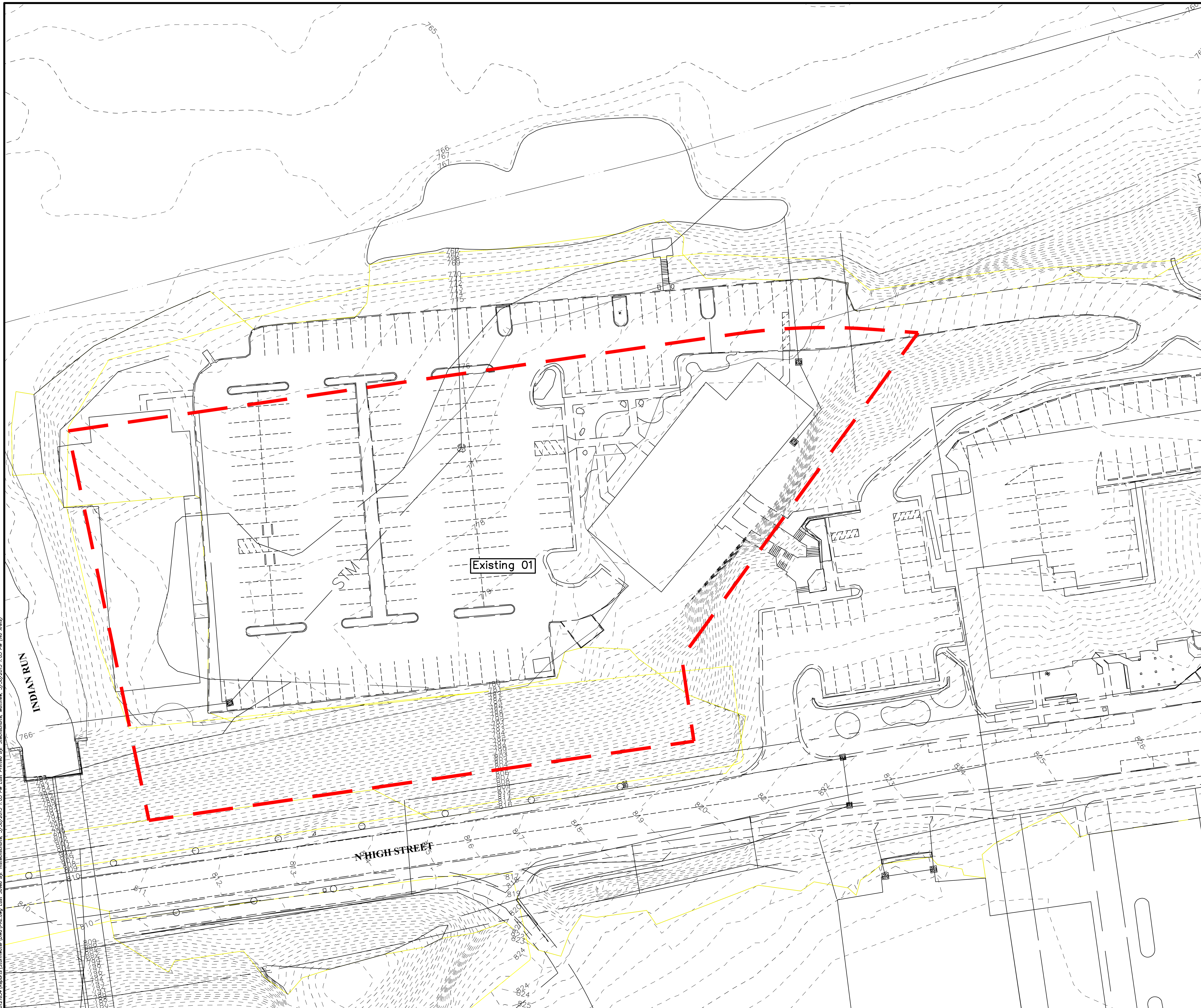
Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.10 hrs

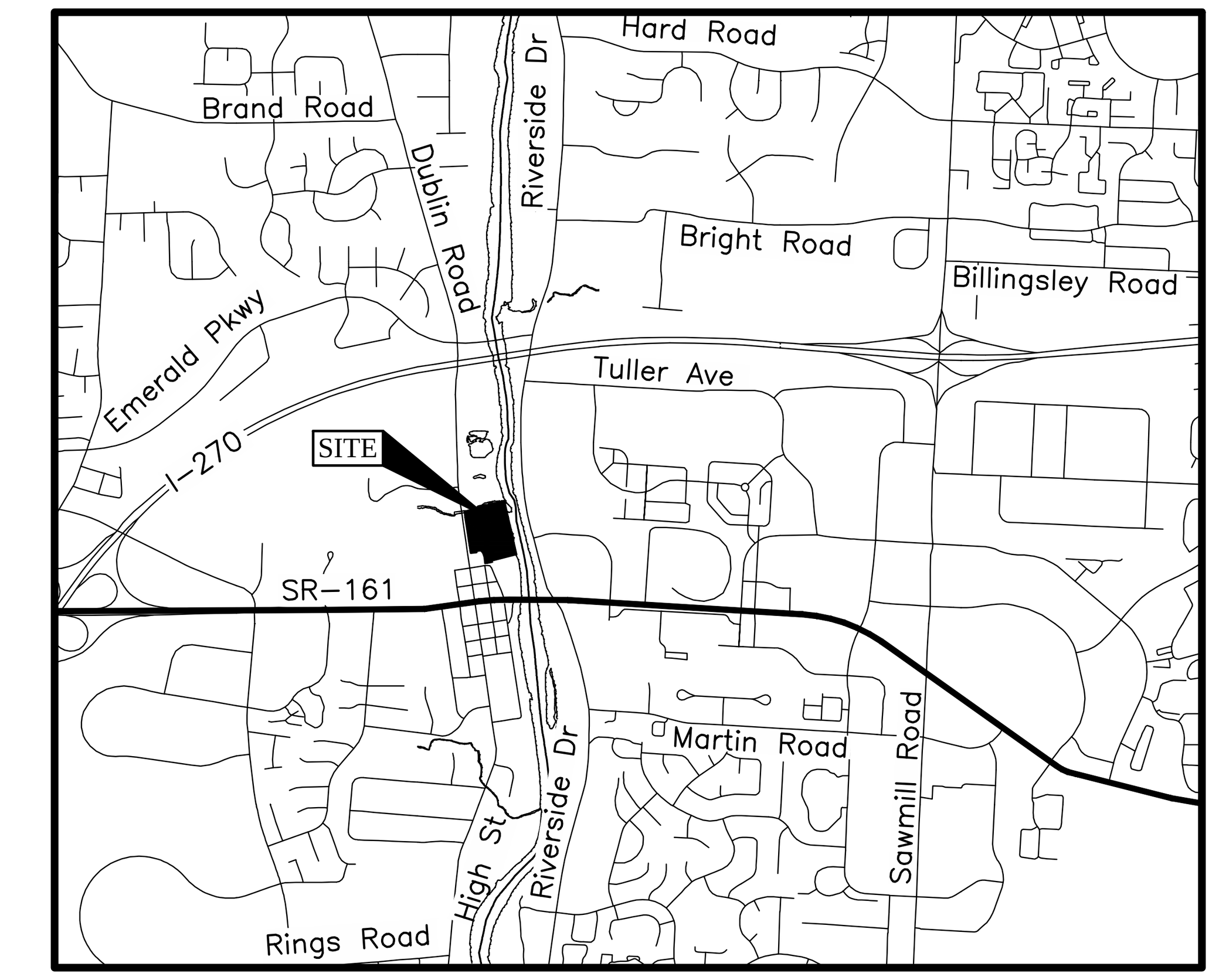
Pond 31P: Outfall



APPENDIX C:

Exhibits





LOCATION MAP

Not to Scale

GRAPHIC SCALE

0 15 30 60

1 inch = 30 feet

Existing 01
Considered Redevelopment Area
Area= 2.40 acres
RCN= 91
TC= 0.167 hrs

Legend

Limits of Disturbance

Soil Classification

RhB – Ritchey Silt Loam Type "D" Soils

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
STORMWATER MANAGEMENT PLAN
FOR
BRIDGE PARK WEST
EXISTING CONDITIONS STORMWATER WORK MAP

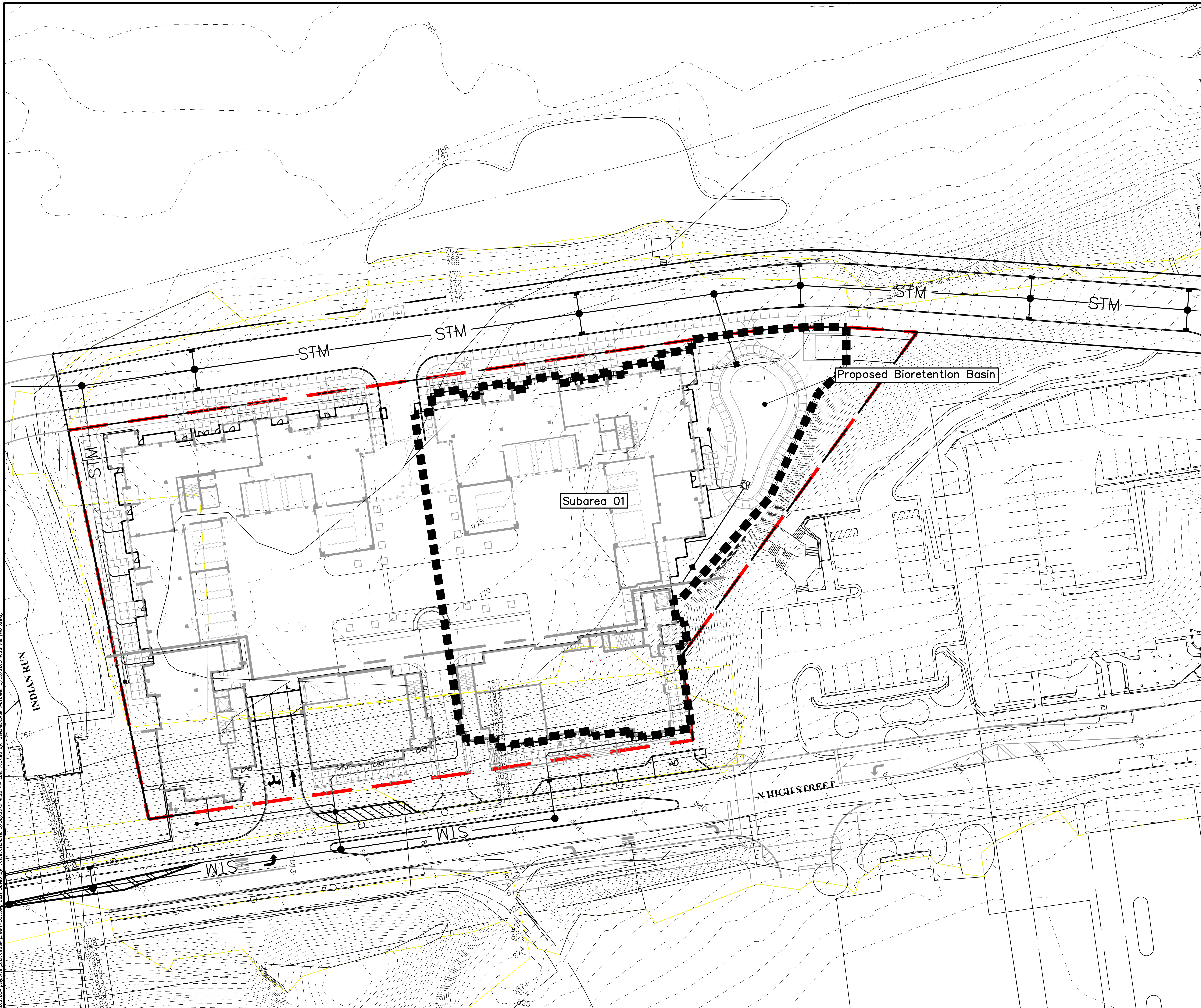
Date MARCH, 2015

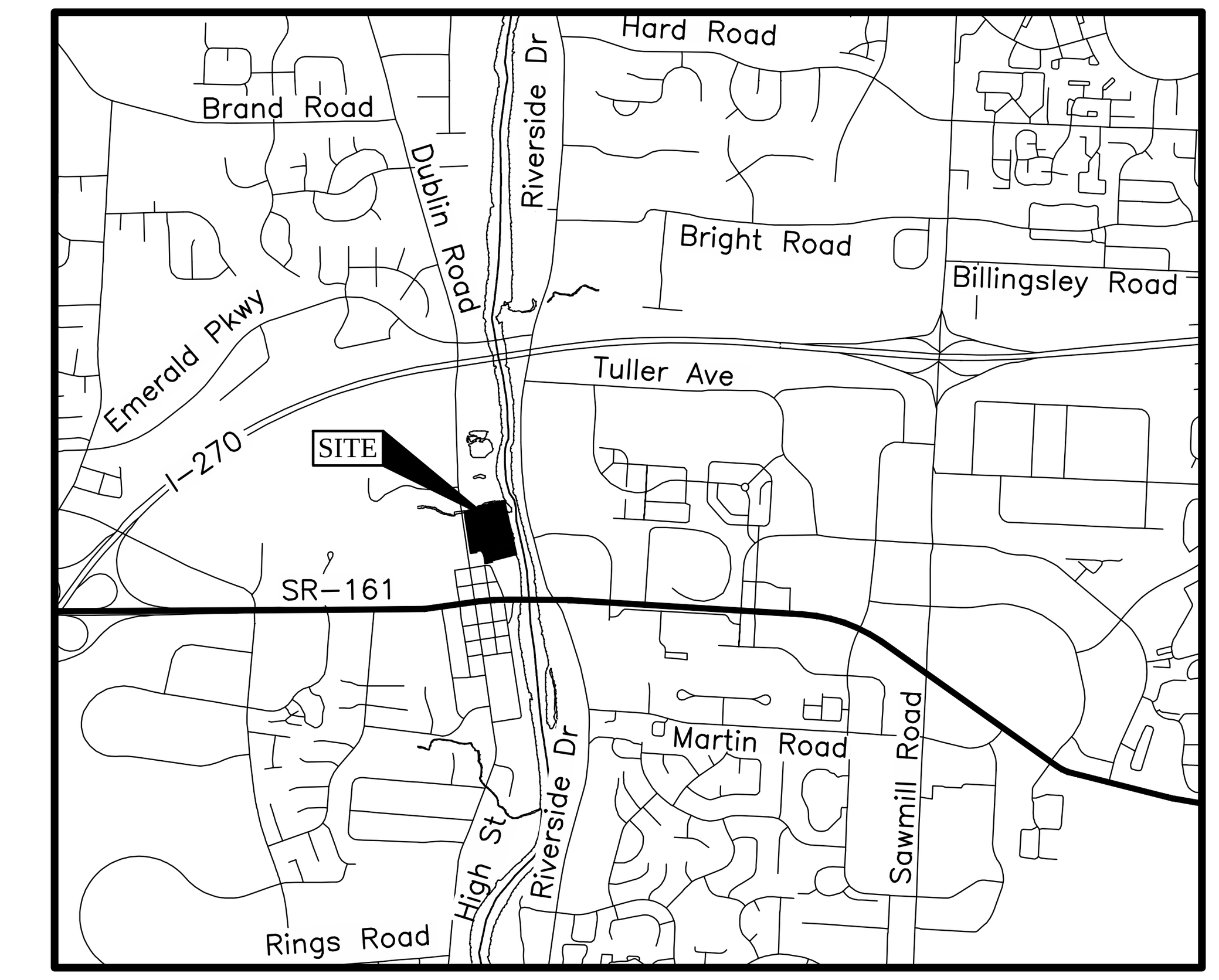
Scale 1" = 30'

Job No. 2012-1634

Sheet **EXHIBIT 1**

EMH&T
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 Fax: 614.775.4800





LOCATION MAP
Not to Scale

GRAPHIC SCALE
0 15 30 60
1 inch = 30 feet

Subarea 01
Discharges to Proposed Bioretention Basin
Area= 1.00 acres
RCN= 95
TC= 0.167 hrs

Remaining Project Area
Directly discharges to Scioto River
Area= 1.40 acres
RCN= 94
TC= 0.167 hrs

Proposed Bioretention Basin
Bottom of Basin = 775.50 ft.
Top of Basin = 777.50 ft.

Legend

- Limits of Disturbance
- Tributary Boundary to Bioretention Basin

Soil Classification

RhB – Ritchey Silt Loam Type "D" Soils

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
STORMWATER MANAGEMENT PLAN
FOR
BRIDGE PARK WEST
PROPOSED CONDITIONS STORMWATER WORK MAP

Date MARCH, 2015
Scale 1" = 30'
Job No. 2012-1634
Sheet **EXHIBIT 2**

EMH&T