STORMWATER MANAGEMENT REPORT

for the

Stone Rise

Located at

BLOCK 111; LOTS 4,10,11,12 & 13

In

TOWNSHIP OF MARLBORO
MONMOUTH COUNTY, NJ

Has been prepared for

SPG Marlboro, LLC

94 GREEN STREET
WOODBRIDGE, NJ 07095

on

December 18, 2020
Rev. April 30,2021

Eric R. Ballou, PE
NJPE 42827

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Licensed in NJ, PA, DE, NY, CT, MD, NC, DC, & CO

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APPENDICES

I. INTRODUCTION

The proposed project, known as Stone Rise, will consist of a residential complex of twenty-one (21) residential buildings, parking and a club house. The project is located within the Township of Marlboro, Monmouth County, New Jersey. The project consists of five (5) lots (4, 10, 11, 12 & 13) within Block 111, all of which are proposed to be merged into a single lot. The subject property is bounded on the north by existing residential homes along Texas Road and on the south, east and west by existing wooded areas. The 34-acre site is currently developed with a wrecking yard, former homestead, the remains of which are present on site, and surrounding woods.

The site slopes to the east draining into wetlands that ultimately drains into a stream along the eastern property line. A combination of infiltration/detention basins and a bio-retention basin will be utilized to meet required flow rate reductions, water quality and recharge.

It is the purpose of this report to demonstrate the following:

1) Required flow reductions for the post-development condition will be obtained through the use of two (2) surface infiltration/detention basins. Infiltration rate will be assumed to be zero for the purposes of calculating runoff rates.

2) The project will meet required water quality and recharge standards for storm water runoff through the use of two (2) surface infiltration / detention basins and a bio-retention basin.

Methods of determining stormwater runoff and peak discharge follow the procedures as outlined in "Urban Hydrology for Small Watersheds", Soil Conservation Service Technical Release No. 55, and NOAA 24-hour rainfall data for Monmouth County for each storm

event studied. Stormwater hydrographs were performed using HydoCAD Software Solutions' "HydroCAD" (ver. 10.00-24) computer program.

The following 24-hour storm events were studied using a NOAA Point Precipitation Frequency Estimate, 24-hr D Storm distribution. The rainfall intensities are based upon NOAA Point Precipitation Frequency estimates:

Storm Frequency (Years)	Rainfall (Inches)
2	3.4
10	5.2
25	6.4
100	9.8

II. PRE-DEVELOPMENT CONDITIONS

A summary of the previously discussed drainage areas for the pre-development condition follows below. Refer to the Appendix B for accompanying Hydrograph calculations and Appendix H for the Pre-Development Drainage Map.

PRE-DEVELOPMENT

Watershed A

Subarea A1 — Pervious Drainage Area that is tributary to the stream along the eastern property line.:
12.0 acres

Subarea A2 — Gravel / Concrete coverage Drainage Area that is tributary to the stream along the eastern property line:
5.1 acres

III. POST DEVELOPMENT CONDITIONS

A summary of the previously discussed drainage areas for the post-development condition follows below. Refer to the Appendix C for Hydrograph calculations Appendix I for the Post-Development Drainage Map.

POST-DEVELOPMENT

Watershed A

Subarea A1i: Impervious Drainage Area tributary to infiltration/detention Basin A:
6.5 acres

Subarea A1p: Pervious Drainage Area tributary to infiltration/detention Basin A:
3.2 acres

Subarea B1i: Impervious area tributary to Bio-Retention Basin B1:
1.6 acres

Subarea B1p: Pervious area tributary to Bio-Retention Basin B1:
0.6 acres

Subarea B2i: Impervious area tributary to the infiltration/ detention Basin B2:
1.3 acres

Subarea B2p: Pervious area tributary to infiltration/detention Basin B2:
1.9 acres

Subarea Ui: Impervious area directly tributary to adjacent wetlands and stream:
0.1 acres

Subarea Up: Pervious area directly tributary to adjacent wetlands and stream:
2.0 acres

IV. STORMWATER MANAGEMENT SUMMARY:

Pre- and Post-development computations for the resultant hydrographs, routing computations, and runoff volumes are appended, respectively, to this report. For each drainage area, the following summaries were generated:

Watershed A
Pre-development (17.1 ac)
Post-Development: (17.2 ac.)

Design Storm Frequency (Year)	Pre-Development Peak Flow (Total) (A) (cfs)	NJDEP Reduction Factor	Total Allowable Post Development Flow (cfs)	Post-Development Peak Flow (cfs)	Difference (cfs)
2	7.5	0.50	3.7	3.6	-0.1
10	15.5	0.75	11.6	7.8	-3.8
100	37.7	0.80	30.1	29.8	-0.3

The above calculations and proposed stormwater management design demonstrate that the post-development flows and from the developed site will be reduced as required in the 2, 10 and 100-year storm events.

V. WATER QUALITY DISCUSSION

NJDEP Stormwater Management rules require that major developments provide 80% TSS reduction for post development runoff. We are proposing to construct a surface infiltration/ detention basin A and a Bio-Retention Basin B1 to infiltrate the water quality storm event to meet the 80% TSS requirement. The calculations also show that infiltration and bio-retention basin completely evacuate within 12 hours. Please refer to Appendix D for Water Quality Calculations.

VI. GROUNDWATER RECHARGE DISCUSSION

Per these regulations, the project meets the definition for *Major Development,* and must therefore comply with Section 22-535.4.f.1.(b)(1)[b].

> *Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from preconstruction to post-construction for the 2-year storm is infiltrated.*

The table below demonstrates the total two-year design storm runoff volumes in both the pre and post development condition, as well as the total volume of runoff that is infiltrated via the use of the subsurface infiltration/detention basin and bio-retention basin.

PRE-DEVELOPMENT vs. POST DEVELOPMENT VOLUME COMPARISON CHART (2-YEAR DESIGN EVENT) WATERSHED A

Design Storm Frequency	(A) Predevelopment Runoff Volume (ac-ft)	(B) Post Development Runoff Volume (ac-ft)	Volume Required To Be Infiltrated (B – A) (ac-ft)	Volume Infiltrated Through Basin Bottom (ac-ft)
2-Year	0.58	2.51	1.93	2.37

As demonstrated above, the volume infiltrated exceeds the volume required by regulations. The calculations also show that infiltration and bio-retention basin completely evacuate within 26 hours for a 2-year storm event. Please refer to Appendix D for Water Recharge Calculations.

VII. EMERGENCY SPILLWAY CALCULATIONS

Portions of the embankments of the detention basins are considered Class IV dams according to NJDEP Dam Safety regulations. In accordance with requirements, the emergency spillways are designed to convey a rainfall 50% greater than a 24-hour, 100 year, NOAA Type D Storm, with the principal spillway clogged. The top of the dams have

been set to be over 1 foot above the emergency spillway flood elevation to meet Class IV dam requirements. Please refer to Appendix E for Emergency Spillway Calculations.

VIII. LOW IMPACT DEVELOPMENT DISCUSSION

The proposed low impact design has addressed the following non-structural stormwater management strategies.:

7:8-5.3(b)(2): The design has decreased the amount of impervious area well below the ordinance allowable limits and has limited the parking to the ordinance requirements.

7:8-5.3(b)(8): We have disconnected impervious area along the southwest parking area that allows the runoff over the vegetated embankments of the bio-retention basin.

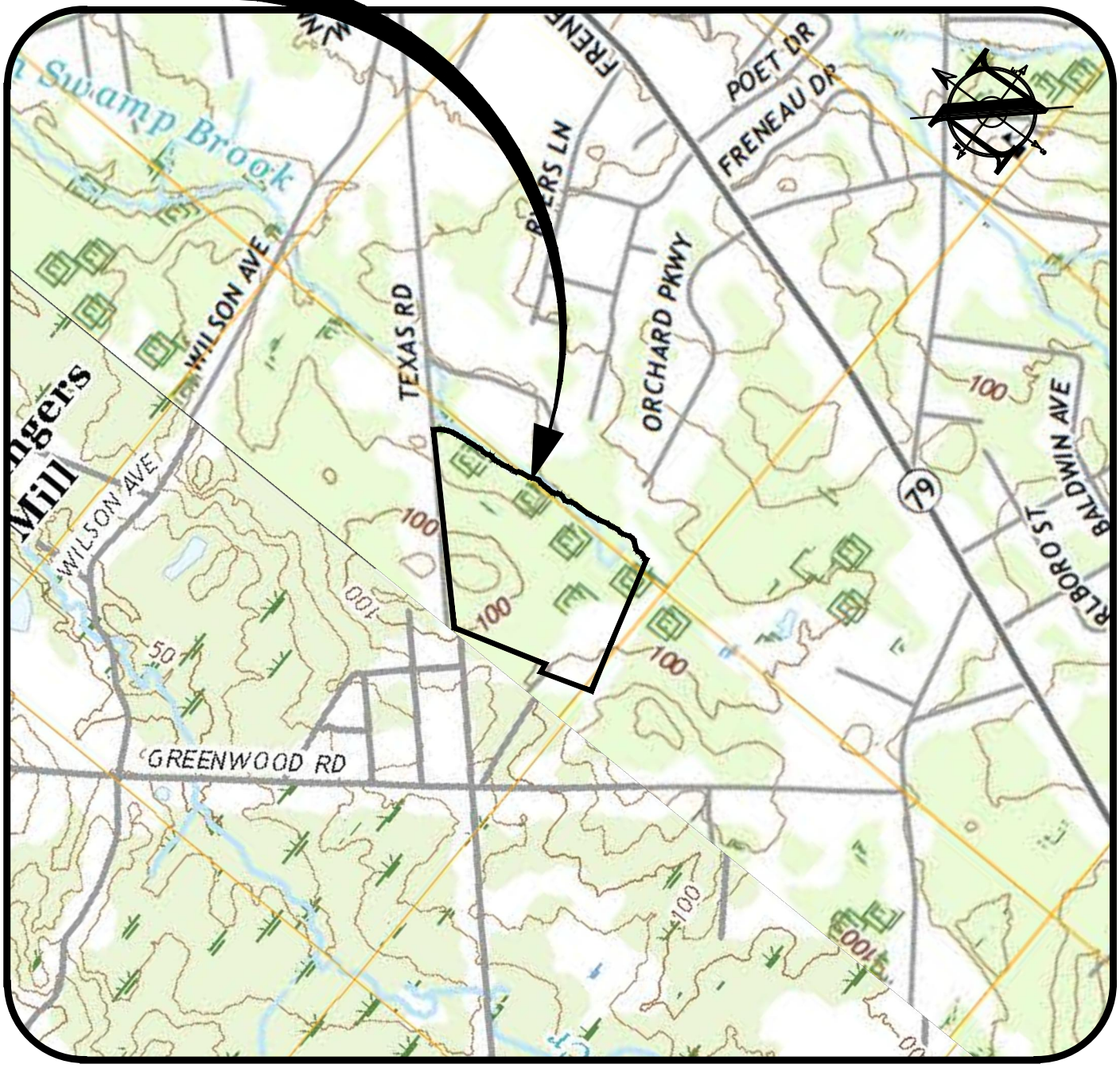
IX. CONCLUSION

In conclusion, the project overall will comply with the storm water management requirements of the New Jersey Department of Environmental Protection and the Township of Marlboro for storm water rate reductions, water quality and recharge.

A P P E N D I X A

Exhibits:

1. **USGS Map**
2. **Soils Map**
3. **FEMA Map**



PLAN

1,000 0 1,000

Scale 1"=1,000'

USGS MAP

InSite Engineering, LLC
CERTIFICATE OF AUTHORIZATION:
24GA28083200
1955 ROUTE 34, SUITE 1A
WALL, NJ 07719
732-531-7100 (Ph)
732-531-7344 (Fax)
InSite@InSiteEng.net www.InSiteEng.net

Site Location:
137 TEXAS ROAD
TOWNSHIP OF MARLBORO
MONMOUTH COUNTY, NJ

Reference:
UNITED STATES GEOLOGICAL SURVEY
QUADRANGLE
NEW JERSEY - MONMOUTH COUNTY
7.5 MINUTE SERIES

InSite Project No.
20-1417-01
Drawing No.
20-1417-01r0
Date
JULY 14, 2020

Revisions

KkgkB - KLEJ LOAMY SAND CLAYEY SUBSTRATUM 0-5% SLOPES	*HSG: A/D*
AtsA - ATSION SAND 0-2% SLOPES	*HSG: A/D*
EveB - EVESBORO SAND 0-5% SLOPES	*HSG: A*
EkaAr - ELKTON LOAM 0-2% SLOPES	*HSG: C/D*
HumAt - HUMAQUEPTS 0-3% SLOPES	*HSG: A/D*
EvEC - EVESBORO SAND 0-5% SLOPES	*HSG: A*

PLAN

300 0 300

Scale 1"=300'

SOILS MAP

InSite Engineering, LLC
CERTIFICATE OF AUTHORIZATION:
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1955 ROUTE 34, SUITE 1A
WALL, NJ 07719
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InSite@InSiteEng.net www.InSiteEng.net

Site Location:
137 TEXAS ROAD
TOWNSHIP OF MARLBORO
MONMOUTH COUNTY, NJ

Reference:
UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NATIONAL COOPERATIVE SOIL SURVEY
WEBSOILSURVEY.NRCS.USDA.GOV

InSite Project No.
20-1417-01
Drawing No.
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Date
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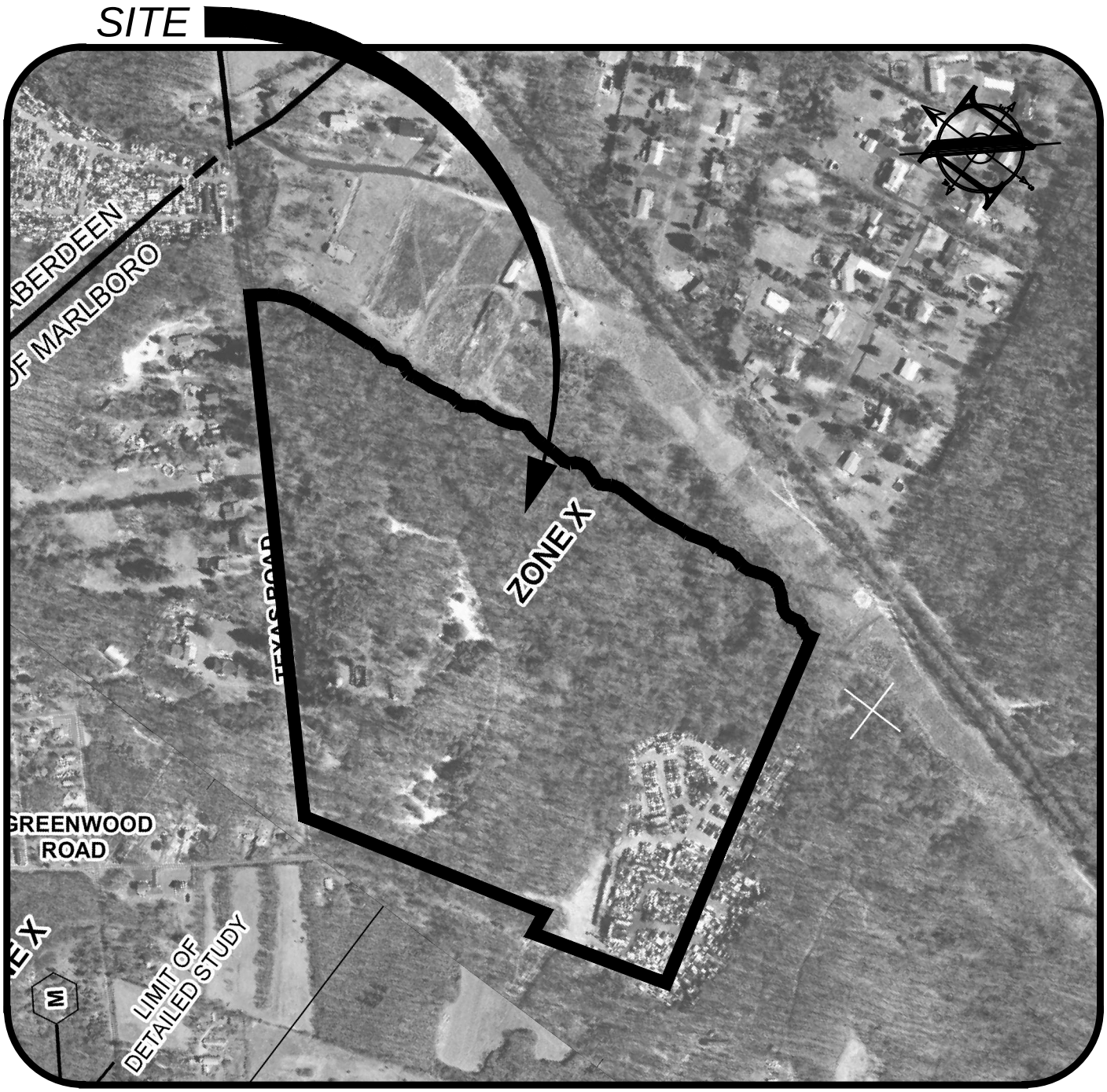

PLAN

300 0 300

Scale 1"=300'

FEMA FIRM MAP

InSite Engineering, LLC
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1955 ROUTE 34, SUITE 1A
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InSite@InSiteEng.net www.InSiteEng.net

Site Location:
137 TEXAS ROAD
TOWNSHIP OF MARLBORO
MONMOUTH COUNTY, NJ

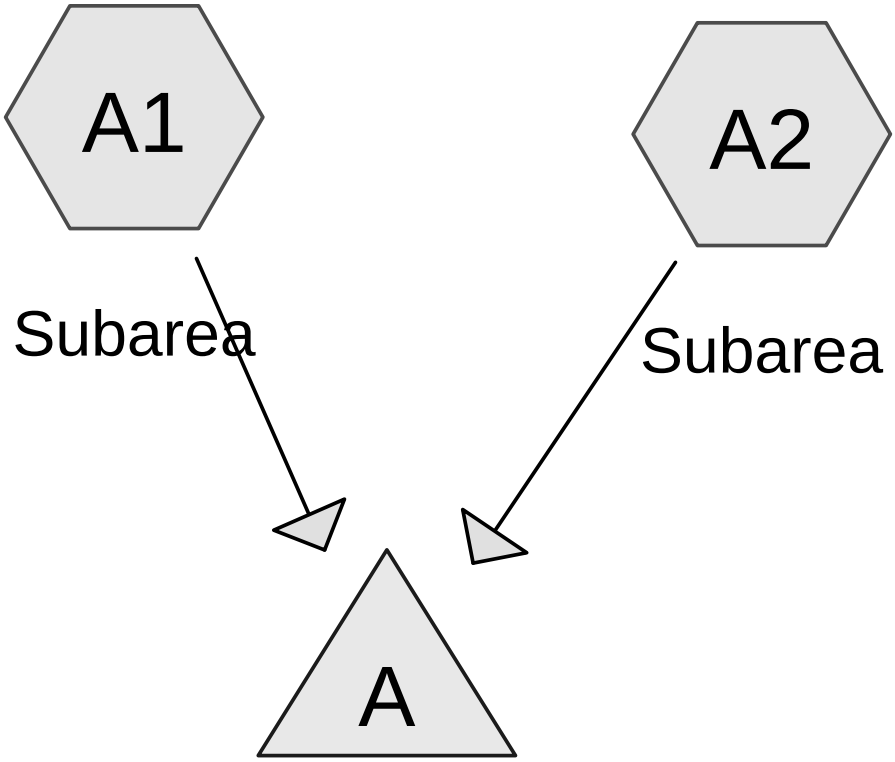
Reference:
NATIONAL FLOOD INSURANCE PROGRAM
FIRM PANEL 0038F
MAP NUMBER 34025C0038F
EFFECTIVE DATE SEPTEMBER 25, 2009
FEDERAL EMERGENCY MANAGEMENT AGENCY
MSC.FEMA.GOV

InSite Project No.
20-1417-01
Drawing No.
20-1417-01r0
Date
JULY 14, 2020

Revisions

A P P E N D I X B

Pre-Development Flow Calculations



Watershed A

Subcat Reach Pond Link

Routing Diagram for Pre-Development
Prepared by Insite Engineering, LLC, Printed 10/7/2020

Time span=0.00-48.00 hrs, dt=0.02 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1: Subarea Runoff Area=12.0 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=842' Tc=22.2 min CN=30 Runoff=0.0 cfs 0.00 af

Subcatchment A2: Subarea Runoff Area=5.1 ac 5.88% Impervious Runoff Depth=1.36"
Flow Length=655' Tc=8.0 min CN=77 Runoff=7.5 cfs 0.58 af

Pond A: Watershed A Inflow=7.5 cfs 0.58 af
Primary=7.5 cfs 0.58 af

Total Runoff Area = 17.1 ac Runoff Volume = 0.58 af Average Runoff Depth = 0.40"
98.25% Pervious = 16.8 ac 1.75% Impervious = 0.3 ac

Summary for Subcatchment A1: Subarea

Runoff = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
12.0	30	Woods, Good, HSG A
12.0		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.1300	0.18		**Sheet Flow, 130-117** Woods: Light underbrush n= 0.400 P2= 3.89"
13.0	742	0.0360	0.95		**Shallow Concentrated Flow, 117-90** Woodland Kv= 5.0 fps
22.2	842	Total			

Summary for Subcatchment A2: Subarea

Runoff = 7.5 cfs @ 12.16 hrs, Volume= 0.58 af, Depth= 1.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
* 4.8	76	Gravel, HSG A
* 0.2	98	Concrete, HSG A
* 0.1	98	Structures, HSG A
5.1	77	Weighted Average
4.8		94.12% Pervious Area
0.3		5.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	100	0.0370	0.50		**Sheet Flow, 111.8-108.1** Cultivated: Residue<=20% n= 0.060 P2= 3.89"
4.7	555	0.0390	1.97		**Shallow Concentrated Flow, 108.1-86.5** Nearly Bare & Untilled Kv= 10.0 fps
8.0	655	Total			

Summary for Pond A: Watershed A

Inflow Area = 17.1 ac, 1.75% Impervious, Inflow Depth = 0.40" for 2-Year event
Inflow = 7.5 cfs @ 12.16 hrs, Volume= 0.58 af
Primary = 7.5 cfs @ 12.16 hrs, Volume= 0.58 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Time span=0.00-48.00 hrs, dt=0.02 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1: Subarea Runoff Area=12.0 ac 0.00% Impervious Runoff Depth=0.01"
Flow Length=842' Tc=22.2 min CN=30 Runoff=0.0 cfs 0.01 af

Subcatchment A2: Subarea Runoff Area=5.1 ac 5.88% Impervious Runoff Depth=2.79"
Flow Length=655' Tc=8.0 min CN=77 Runoff=15.5 cfs 1.19 af

Pond A: Watershed A Inflow=15.5 cfs 1.20 af
Primary=15.5 cfs 1.20 af

Total Runoff Area = 17.1 ac Runoff Volume = 1.20 af Average Runoff Depth = 0.84"
98.25% Pervious = 16.8 ac 1.75% Impervious = 0.3 ac

Summary for Subcatchment A1: Subarea

Runoff = 0.0 cfs @ 24.00 hrs, Volume= 0.01 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 10-Year Rainfall=5.20"

Area (ac)	CN	Description
12.0	30	Woods, Good, HSG A
12.0		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.1300	0.18		**Sheet Flow, 130-117** Woods: Light underbrush n= 0.400 P2= 3.89"
13.0	742	0.0360	0.95		**Shallow Concentrated Flow, 117-90** Woodland Kv= 5.0 fps
22.2	842	Total			

Summary for Subcatchment A2: Subarea

Runoff = 15.5 cfs @ 12.15 hrs, Volume= 1.19 af, Depth= 2.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 10-Year Rainfall=5.20"

Area (ac)	CN	Description
* 4.8	76	Gravel, HSG A
* 0.2	98	Concrete, HSG A
* 0.1	98	Structures, HSG A
5.1	77	Weighted Average
4.8		94.12% Pervious Area
0.3		5.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	100	0.0370	0.50		**Sheet Flow, 111.8-108.1** Cultivated: Residue<=20% n= 0.060 P2= 3.89"
4.7	555	0.0390	1.97		**Shallow Concentrated Flow, 108.1-86.5** Nearly Bare & Untilled Kv= 10.0 fps
8.0	655	Total			

Summary for Pond A: Watershed A

Inflow Area = 17.1 ac, 1.75% Impervious, Inflow Depth = 0.84" for 10-Year event
Inflow = 15.5 cfs @ 12.15 hrs, Volume= 1.20 af
Primary = 15.5 cfs @ 12.15 hrs, Volume= 1.20 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Time span=0.00-48.00 hrs, dt=0.02 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1: Subarea Runoff Area=12.0 ac 0.00% Impervious Runoff Depth=0.12"
Flow Length=842' Tc=22.2 min CN=30 Runoff=0.2 cfs 0.12 af

Subcatchment A2: Subarea Runoff Area=5.1 ac 5.88% Impervious Runoff Depth=3.83"
Flow Length=655' Tc=8.0 min CN=77 Runoff=21.1 cfs 1.63 af

Pond A: Watershed A Inflow=21.1 cfs 1.75 af
Primary=21.1 cfs 1.75 af

Total Runoff Area = 17.1 ac Runoff Volume = 1.75 af Average Runoff Depth = 1.23"
98.25% Pervious = 16.8 ac 1.75% Impervious = 0.3 ac

Summary for Subcatchment A1: Subarea

Runoff = 0.2 cfs @ 14.87 hrs, Volume= 0.12 af, Depth= 0.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 25-Year Rainfall=6.40"

Area (ac)	CN	Description
12.0	30	Woods, Good, HSG A
12.0		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.1300	0.18		**Sheet Flow, 130-117** Woods: Light underbrush n= 0.400 P2= 3.89"
13.0	742	0.0360	0.95		**Shallow Concentrated Flow, 117-90** Woodland Kv= 5.0 fps
22.2	842	Total			

Summary for Subcatchment A2: Subarea

Runoff = 21.1 cfs @ 12.15 hrs, Volume= 1.63 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 25-Year Rainfall=6.40"

	Area (ac)	CN	Description
*	4.8	76	Gravel, HSG A
*	0.2	98	Concrete, HSG A
*	0.1	98	Structures, HSG A
	5.1	77	Weighted Average
	4.8		94.12% Pervious Area
	0.3		5.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	100	0.0370	0.50		**Sheet Flow, 111.8-108.1** Cultivated: Residue<=20% n= 0.060 P2= 3.89"
4.7	555	0.0390	1.97		**Shallow Concentrated Flow, 108.1-86.5** Nearly Bare & Untilled Kv= 10.0 fps
8.0	655	Total			

Summary for Pond A: Watershed A

Inflow Area = 17.1 ac, 1.75% Impervious, Inflow Depth = 1.23" for 25-Year event
Inflow = 21.1 cfs @ 12.15 hrs, Volume= 1.75 af
Primary = 21.1 cfs @ 12.15 hrs, Volume= 1.75 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Time span=0.00-48.00 hrs, dt=0.02 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1: Subarea Runoff Area=12.0 ac 0.00% Impervious Runoff Depth=0.93"
Flow Length=842' Tc=22.2 min CN=30 Runoff=3.5 cfs 0.93 af

Subcatchment A2: Subarea Runoff Area=5.1 ac 5.88% Impervious Runoff Depth=6.95"
Flow Length=655' Tc=8.0 min CN=77 Runoff=37.4 cfs 2.95 af

Pond A: Watershed A Inflow=37.7 cfs 3.88 af
Primary=37.7 cfs 3.88 af

Total Runoff Area = 17.1 ac Runoff Volume = 3.88 af Average Runoff Depth = 2.72"
98.25% Pervious = 16.8 ac 1.75% Impervious = 0.3 ac

Summary for Subcatchment A1: Subarea

Runoff = 3.5 cfs @ 12.48 hrs, Volume= 0.93 af, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
12.0	30	Woods, Good, HSG A
12.0		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.1300	0.18		**Sheet Flow, 130-117** Woods: Light underbrush n= 0.400 P2= 3.89"
13.0	742	0.0360	0.95		**Shallow Concentrated Flow, 117-90** Woodland Kv= 5.0 fps
22.2	842	Total			

Summary for Subcatchment A2: Subarea

Runoff = 37.4 cfs @ 12.15 hrs, Volume= 2.95 af, Depth= 6.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

	Area (ac)	CN	Description
*	4.8	76	Gravel, HSG A
*	0.2	98	Concrete, HSG A
*	0.1	98	Structures, HSG A
	5.1	77	Weighted Average
	4.8		94.12% Pervious Area
	0.3		5.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	100	0.0370	0.50		**Sheet Flow, 111.8-108.1** Cultivated: Residue<=20% n= 0.060 P2= 3.89"
4.7	555	0.0390	1.97		**Shallow Concentrated Flow, 108.1-86.5** Nearly Bare & Untilled Kv= 10.0 fps
8.0	655	Total			

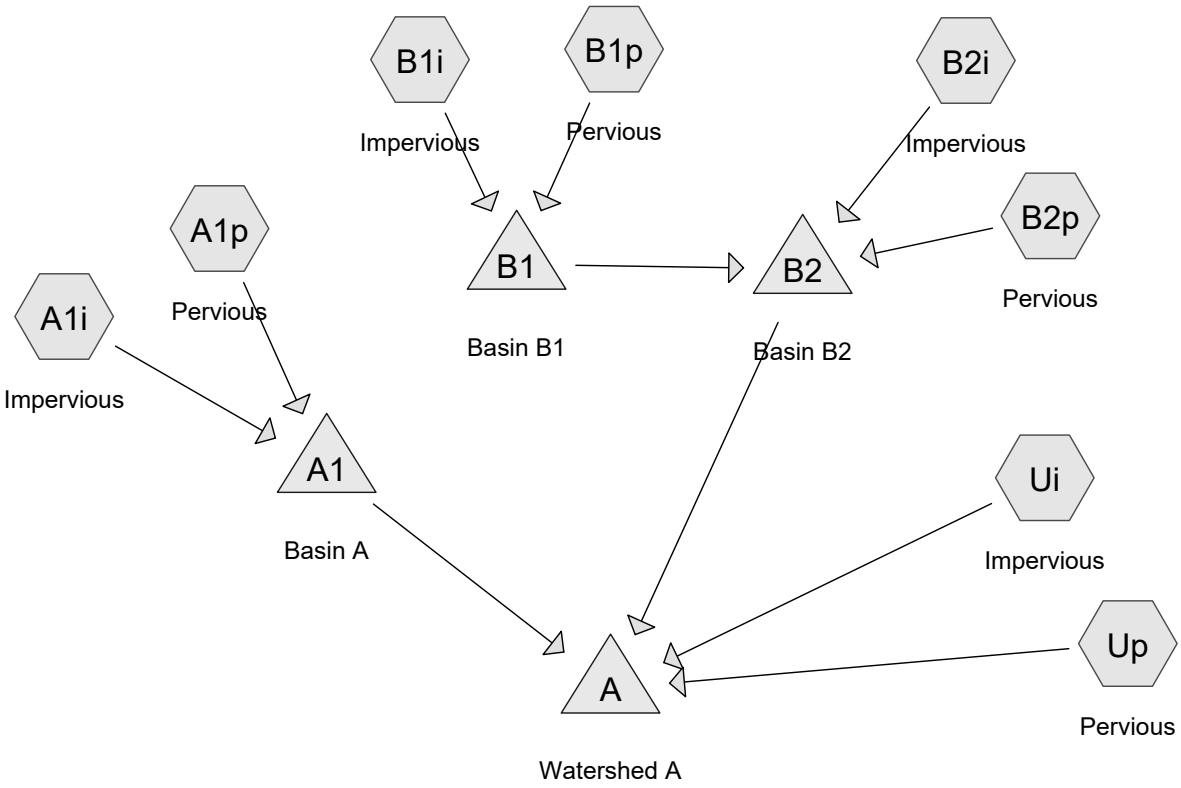
Summary for Pond A: Watershed A

Inflow Area = 17.1 ac, 1.75% Impervious, Inflow Depth = 2.72" for 100-Year event
Inflow = 37.7 cfs @ 12.15 hrs, Volume= 3.88 af
Primary = 37.7 cfs @ 12.15 hrs, Volume= 3.88 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

A P P E N D I X C

Post-Development Flow Calculations



Subcat Reach Pond Link

Routing Diagram for Post Development
Prepared by Insite Engineering, LLC, Printed 4/29/2021

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1i: Impervious Runoff Area=6.5 ac 100.00% Impervious Runoff Depth=3.17"
Tc=10.0 min CN=98 Runoff=18.2 cfs 1.72 af

Subcatchment A1p: Pervious Runoff Area=3.2 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=100' Slope=0.0320 '/' Tc=10.7 min CN=39 Runoff=0.0 cfs 0.00 af

Subcatchment B1i: Impervious Runoff Area=1.6 ac 100.00% Impervious Runoff Depth=3.17"
Tc=10.0 min CN=98 Runoff=4.5 cfs 0.42 af

Subcatchment B1p: Pervious Runoff Area=0.6 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=126' Tc=10.0 min CN=39 Runoff=0.0 cfs 0.00 af

Subcatchment B2i: Impervious Runoff Area=1.3 ac 100.00% Impervious Runoff Depth=3.17"
Tc=10.0 min CN=98 Runoff=3.6 cfs 0.34 af

Subcatchment B2p: Pervious Runoff Area=1.9 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=125' Tc=17.3 min CN=38 Runoff=0.0 cfs 0.00 af

Subcatchment Ui: Impervious Runoff Area=0.1 ac 100.00% Impervious Runoff Depth=3.17"
Tc=10.0 min CN=98 Runoff=0.3 cfs 0.03 af

Subcatchment Up: Pervious Runoff Area=2.0 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=275' Tc=11.4 min CN=39 Runoff=0.0 cfs 0.00 af

Pond A: Watershed A Inflow=3.6 cfs 2.01 af
Primary=3.6 cfs 2.01 af

Pond A1: Basin A Peak Elev=87.22' Storage=42,861 cf Inflow=18.2 cfs 1.72 af
Outflow=2.5 cfs 1.42 af

Pond B1: Basin B1 Peak Elev=97.52' Storage=5,195 cf Inflow=4.5 cfs 0.42 af
Outflow=4.4 cfs 0.32 af

Pond B2: Basin B2 Peak Elev=89.96' Storage=15,337 cf Inflow=7.9 cfs 0.66 af
Outflow=1.0 cfs 0.57 af

Total Runoff Area = 17.2 ac Runoff Volume = 2.51 af Average Runoff Depth = 1.75"
44.77% Pervious = 7.7 ac 55.23% Impervious = 9.5 ac

Summary for Subcatchment A1i: Impervious

Runoff = 18.2 cfs @ 12.17 hrs, Volume= 1.72 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
3.8	98	Paved parking, HSG A
2.7	98	Roofs, HSG A
6.5	98	Weighted Average
6.5		100.00% Impervious Area

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

Hydrograph for Subcatchment A1i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.01	0.1
3.00	0.13	0.03	0.2
4.00	0.18	0.06	0.2
5.00	0.23	0.09	0.3
6.00	0.29	0.14	0.3
7.00	0.36	0.19	0.4
8.00	0.44	0.27	0.5
9.00	0.54	0.35	0.6
10.00	0.67	0.48	0.9
11.00	0.88	0.68	1.7
12.00	1.63	1.41	**8.7**
13.00	2.52	2.29	**2.3**
14.00	2.73	2.50	1.1
15.00	2.86	2.63	0.8
16.00	2.96	2.73	0.6
17.00	3.04	2.81	0.5
18.00	3.11	2.88	0.4
19.00	3.17	2.94	0.4
20.00	3.22	2.99	0.3
21.00	3.27	3.04	0.3
22.00	3.32	3.09	0.3
23.00	3.36	3.13	0.3
24.00	**3.40**	**3.17**	0.2
25.00	3.40	3.17	0.0
26.00	3.40	3.17	0.0
27.00	3.40	3.17	0.0
28.00	3.40	3.17	0.0
29.00	3.40	3.17	0.0
30.00	3.40	3.17	0.0
31.00	3.40	3.17	0.0
32.00	3.40	3.17	0.0
33.00	3.40	3.17	0.0
34.00	3.40	3.17	0.0
35.00	3.40	3.17	0.0
36.00	3.40	3.17	0.0
37.00	3.40	3.17	0.0
38.00	3.40	3.17	0.0
39.00	3.40	3.17	0.0
40.00	3.40	3.17	0.0
41.00	3.40	3.17	0.0
42.00	3.40	3.17	0.0
43.00	3.40	3.17	0.0
44.00	3.40	3.17	0.0
45.00	3.40	3.17	0.0
46.00	3.40	3.17	0.0
47.00	3.40	3.17	0.0
48.00	3.40	3.17	0.0
49.00	3.40	3.17	0.0
50.00	3.40	3.17	0.0
51.00	3.40	3.17	0.0
52.00	3.40	3.17	0.0
53.00	3.40	3.17	0.0
54.00	3.40	3.17	0.0
55.00	3.40	3.17	0.0
56.00	3.40	3.17	0.0
57.00	3.40	3.17	0.0
58.00	3.40	3.17	0.0
59.00	3.40	3.17	0.0
60.00	3.40	3.17	0.0
61.00	3.40	3.17	0.0
62.00	3.40	3.17	0.0
63.00	3.40	3.17	0.0
64.00	3.40	3.17	0.0
65.00	3.40	3.17	0.0
66.00	3.40	3.17	0.0
67.00	3.40	3.17	0.0
68.00	3.40	3.17	0.0
69.00	3.40	3.17	0.0
70.00	3.40	3.17	0.0
71.00	3.40	3.17	0.0
72.00	3.40	3.17	0.0

Summary for Subcatchment A1p: Pervious

Runoff = 0.0 cfs @ 24.01 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
3.2	39	>75% Grass cover, Good, HSG A
3.2		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0320	0.16		**Sheet Flow, 105.3 - 102.1** Grass: Dense n= 0.240 P2= 3.89"

Hydrograph for Subcatchment A1p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.00	0.0
3.00	0.13	0.00	0.0
4.00	0.18	0.00	0.0
5.00	0.23	0.00	0.0
6.00	0.29	0.00	0.0
7.00	0.36	0.00	0.0
8.00	0.44	0.00	0.0
9.00	0.54	0.00	0.0
10.00	0.67	0.00	0.0
11.00	0.88	0.00	0.0
12.00	1.63	0.00	0.0
13.00	2.52	0.00	0.0
14.00	2.73	0.00	0.0
15.00	2.86	0.00	0.0
16.00	2.96	0.00	0.0
17.00	3.04	0.00	0.0
18.00	3.11	0.00	0.0
19.00	3.17	0.00	0.0
20.00	3.22	0.00	0.0
21.00	3.27	0.00	0.0
22.00	3.32	0.00	0.0
23.00	3.36	0.00	0.0
24.00	**3.40**	**0.00**	**0.0**
25.00	3.40	0.00	**0.0**
26.00	3.40	0.00	0.0
27.00	3.40	0.00	0.0
28.00	3.40	0.00	0.0
29.00	3.40	0.00	0.0
30.00	3.40	0.00	0.0
31.00	3.40	0.00	0.0
32.00	3.40	0.00	0.0
33.00	3.40	0.00	0.0
34.00	3.40	0.00	0.0
35.00	3.40	0.00	0.0
36.00	3.40	0.00	0.0
37.00	3.40	0.00	0.0
38.00	3.40	0.00	0.0
39.00	3.40	0.00	0.0
40.00	3.40	0.00	0.0
41.00	3.40	0.00	0.0
42.00	3.40	0.00	0.0
43.00	3.40	0.00	0.0
44.00	3.40	0.00	0.0
45.00	3.40	0.00	0.0
46.00	3.40	0.00	0.0
47.00	3.40	0.00	0.0
48.00	3.40	0.00	0.0
49.00	3.40	0.00	0.0
50.00	3.40	0.00	0.0
51.00	3.40	0.00	0.0
52.00	3.40	0.00	0.0
53.00	3.40	0.00	0.0
54.00	3.40	0.00	0.0
55.00	3.40	0.00	0.0
56.00	3.40	0.00	0.0
57.00	3.40	0.00	0.0
58.00	3.40	0.00	0.0
59.00	3.40	0.00	0.0
60.00	3.40	0.00	0.0
61.00	3.40	0.00	0.0
62.00	3.40	0.00	0.0
63.00	3.40	0.00	0.0
64.00	3.40	0.00	0.0
65.00	3.40	0.00	0.0
66.00	3.40	0.00	0.0
67.00	3.40	0.00	0.0
68.00	3.40	0.00	0.0
69.00	3.40	0.00	0.0
70.00	3.40	0.00	0.0
71.00	3.40	0.00	0.0
72.00	3.40	0.00	0.0

Summary for Subcatchment B1i: Impervious

Runoff = 4.5 cfs @ 12.17 hrs, Volume= 0.42 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.6	98	Paved parking, HSG A
1.6		100.00% Impervious Area

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

Hydrograph for Subcatchment B1i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.01	0.0
3.00	0.13	0.03	0.0
4.00	0.18	0.06	0.1
5.00	0.23	0.09	0.1
6.00	0.29	0.14	0.1
7.00	0.36	0.19	0.1
8.00	0.44	0.27	0.1
9.00	0.54	0.35	0.2
10.00	0.67	0.48	0.2
11.00	0.88	0.68	0.4
12.00	1.63	1.41	**2.1**
13.00	2.52	2.29	**0.6**
14.00	2.73	2.50	0.3
15.00	2.86	2.63	0.2
16.00	2.96	2.73	0.1
17.00	3.04	2.81	0.1
18.00	3.11	2.88	0.1
19.00	3.17	2.94	0.1
20.00	3.22	2.99	0.1
21.00	3.27	3.04	0.1
22.00	3.32	3.09	0.1
23.00	3.36	3.13	0.1
24.00	**3.40**	**3.17**	0.1
25.00	3.40	3.17	0.0
26.00	3.40	3.17	0.0
27.00	3.40	3.17	0.0
28.00	3.40	3.17	0.0
29.00	3.40	3.17	0.0
30.00	3.40	3.17	0.0
31.00	3.40	3.17	0.0
32.00	3.40	3.17	0.0
33.00	3.40	3.17	0.0
34.00	3.40	3.17	0.0
35.00	3.40	3.17	0.0
36.00	3.40	3.17	0.0
37.00	3.40	3.17	0.0
38.00	3.40	3.17	0.0
39.00	3.40	3.17	0.0
40.00	3.40	3.17	0.0
41.00	3.40	3.17	0.0
42.00	3.40	3.17	0.0
43.00	3.40	3.17	0.0
44.00	3.40	3.17	0.0
45.00	3.40	3.17	0.0
46.00	3.40	3.17	0.0
47.00	3.40	3.17	0.0
48.00	3.40	3.17	0.0
49.00	3.40	3.17	0.0
50.00	3.40	3.17	0.0
51.00	3.40	3.17	0.0
52.00	3.40	3.17	0.0
53.00	3.40	3.17	0.0
54.00	3.40	3.17	0.0
55.00	3.40	3.17	0.0
56.00	3.40	3.17	0.0
57.00	3.40	3.17	0.0
58.00	3.40	3.17	0.0
59.00	3.40	3.17	0.0
60.00	3.40	3.17	0.0
61.00	3.40	3.17	0.0
62.00	3.40	3.17	0.0
63.00	3.40	3.17	0.0
64.00	3.40	3.17	0.0
65.00	3.40	3.17	0.0
66.00	3.40	3.17	0.0
67.00	3.40	3.17	0.0
68.00	3.40	3.17	0.0
69.00	3.40	3.17	0.0
70.00	3.40	3.17	0.0
71.00	3.40	3.17	0.0
72.00	3.40	3.17	0.0

Summary for Subcatchment B1p: Pervious

Runoff = 0.0 cfs @ 24.01 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.6	39	>75% Grass cover, Good, HSG A
0.6		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	36	0.1140	0.14		**Sheet Flow, 114 -109.9** Woods: Light underbrush n= 0.400 P2= 3.89"
4.4	67	0.1330	0.25		**Sheet Flow, 109.9 - 101.0** Grass: Dense n= 0.240 P2= 3.89"
0.1	23	0.0430	4.21		**Shallow Concentrated Flow, 101.0 - 100.3** Paved Kv= 20.3 fps
8.8	126	Total, Increased to minimum Tc = 10.0 min			

Hydrograph for Subcatchment B1p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.00	0.0
3.00	0.13	0.00	0.0
4.00	0.18	0.00	0.0
5.00	0.23	0.00	0.0
6.00	0.29	0.00	0.0
7.00	0.36	0.00	0.0
8.00	0.44	0.00	0.0
9.00	0.54	0.00	0.0
10.00	0.67	0.00	0.0
11.00	0.88	0.00	0.0
12.00	1.63	0.00	0.0
13.00	2.52	0.00	0.0
14.00	2.73	0.00	0.0
15.00	2.86	0.00	0.0
16.00	2.96	0.00	0.0
17.00	3.04	0.00	0.0
18.00	3.11	0.00	0.0
19.00	3.17	0.00	0.0
20.00	3.22	0.00	0.0
21.00	3.27	0.00	0.0
22.00	3.32	0.00	0.0
23.00	3.36	0.00	0.0
24.00	**3.40**	**0.00**	**0.0**
25.00	3.40	0.00	**0.0**
26.00	3.40	0.00	0.0
27.00	3.40	0.00	0.0
28.00	3.40	0.00	0.0
29.00	3.40	0.00	0.0
30.00	3.40	0.00	0.0
31.00	3.40	0.00	0.0
32.00	3.40	0.00	0.0
33.00	3.40	0.00	0.0
34.00	3.40	0.00	0.0
35.00	3.40	0.00	0.0
36.00	3.40	0.00	0.0
37.00	3.40	0.00	0.0
38.00	3.40	0.00	0.0
39.00	3.40	0.00	0.0
40.00	3.40	0.00	0.0
41.00	3.40	0.00	0.0
42.00	3.40	0.00	0.0
43.00	3.40	0.00	0.0
44.00	3.40	0.00	0.0
45.00	3.40	0.00	0.0
46.00	3.40	0.00	0.0
47.00	3.40	0.00	0.0
48.00	3.40	0.00	0.0
49.00	3.40	0.00	0.0
50.00	3.40	0.00	0.0
51.00	3.40	0.00	0.0
52.00	3.40	0.00	0.0
53.00	3.40	0.00	0.0
54.00	3.40	0.00	0.0
55.00	3.40	0.00	0.0
56.00	3.40	0.00	0.0
57.00	3.40	0.00	0.0
58.00	3.40	0.00	0.0
59.00	3.40	0.00	0.0
60.00	3.40	0.00	0.0
61.00	3.40	0.00	0.0
62.00	3.40	0.00	0.0
63.00	3.40	0.00	0.0
64.00	3.40	0.00	0.0
65.00	3.40	0.00	0.0
66.00	3.40	0.00	0.0
67.00	3.40	0.00	0.0
68.00	3.40	0.00	0.0
69.00	3.40	0.00	0.0
70.00	3.40	0.00	0.0
71.00	3.40	0.00	0.0
72.00	3.40	0.00	0.0

Summary for Subcatchment B2i: Impervious

Runoff = 3.6 cfs @ 12.17 hrs, Volume= 0.34 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.3	98	Paved parking, HSG A
1.3		100.00% Impervious Area

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

Hydrograph for Subcatchment B2i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.01	0.0
3.00	0.13	0.03	0.0
4.00	0.18	0.06	0.0
5.00	0.23	0.09	0.1
6.00	0.29	0.14	0.1
7.00	0.36	0.19	0.1
8.00	0.44	0.27	0.1
9.00	0.54	0.35	0.1
10.00	0.67	0.48	0.2
11.00	0.88	0.68	0.3
12.00	1.63	1.41	**1.7**
13.00	2.52	2.29	**0.5**
14.00	2.73	2.50	0.2
15.00	2.86	2.63	0.2
16.00	2.96	2.73	0.1
17.00	3.04	2.81	0.1
18.00	3.11	2.88	0.1
19.00	3.17	2.94	0.1
20.00	3.22	2.99	0.1
21.00	3.27	3.04	0.1
22.00	3.32	3.09	0.1
23.00	3.36	3.13	0.1
24.00	**3.40**	**3.17**	0.0
25.00	3.40	3.17	0.0
26.00	3.40	3.17	0.0
27.00	3.40	3.17	0.0
28.00	3.40	3.17	0.0
29.00	3.40	3.17	0.0
30.00	3.40	3.17	0.0
31.00	3.40	3.17	0.0
32.00	3.40	3.17	0.0
33.00	3.40	3.17	0.0
34.00	3.40	3.17	0.0
35.00	3.40	3.17	0.0
36.00	3.40	3.17	0.0
37.00	3.40	3.17	0.0
38.00	3.40	3.17	0.0
39.00	3.40	3.17	0.0
40.00	3.40	3.17	0.0
41.00	3.40	3.17	0.0
42.00	3.40	3.17	0.0
43.00	3.40	3.17	0.0
44.00	3.40	3.17	0.0
45.00	3.40	3.17	0.0
46.00	3.40	3.17	0.0
47.00	3.40	3.17	0.0
48.00	3.40	3.17	0.0
49.00	3.40	3.17	0.0
50.00	3.40	3.17	0.0
51.00	3.40	3.17	0.0
52.00	3.40	3.17	0.0
53.00	3.40	3.17	0.0
54.00	3.40	3.17	0.0
55.00	3.40	3.17	0.0
56.00	3.40	3.17	0.0
57.00	3.40	3.17	0.0
58.00	3.40	3.17	0.0
59.00	3.40	3.17	0.0
60.00	3.40	3.17	0.0
61.00	3.40	3.17	0.0
62.00	3.40	3.17	0.0
63.00	3.40	3.17	0.0
64.00	3.40	3.17	0.0
65.00	3.40	3.17	0.0
66.00	3.40	3.17	0.0
67.00	3.40	3.17	0.0
68.00	3.40	3.17	0.0
69.00	3.40	3.17	0.0
70.00	3.40	3.17	0.0
71.00	3.40	3.17	0.0
72.00	3.40	3.17	0.0

Summary for Subcatchment B2p: Pervious

Runoff = 0.0 cfs @ 24.04 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.6	39	>75% Grass cover, Good, HSG A
0.3	30	Woods, Good, HSG A
1.9	38	Weighted Average
1.9		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0100	0.10		**Sheet Flow, 102.5 - 101.5** Grass: Dense n= 0.240 P2= 3.89"
0.2	25	0.0160	2.04		**Shallow Concentrated Flow, 101.5 - 101.1** Unpaved Kv= 16.1 fps
17.3	125	Total			

Hydrograph for Subcatchment B2p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.00	0.0
3.00	0.13	0.00	0.0
4.00	0.18	0.00	0.0
5.00	0.23	0.00	0.0
6.00	0.29	0.00	0.0
7.00	0.36	0.00	0.0
8.00	0.44	0.00	0.0
9.00	0.54	0.00	0.0
10.00	0.67	0.00	0.0
11.00	0.88	0.00	0.0
12.00	1.63	0.00	0.0
13.00	2.52	0.00	0.0
14.00	2.73	0.00	0.0
15.00	2.86	0.00	0.0
16.00	2.96	0.00	0.0
17.00	3.04	0.00	0.0
18.00	3.11	0.00	0.0
19.00	3.17	0.00	0.0
20.00	3.22	0.00	0.0
21.00	3.27	0.00	0.0
22.00	3.32	0.00	0.0
23.00	3.36	0.00	0.0
24.00	**3.40**	**0.00**	**0.0**
25.00	3.40	0.00	**0.0**
26.00	3.40	0.00	0.0
27.00	3.40	0.00	0.0
28.00	3.40	0.00	0.0
29.00	3.40	0.00	0.0
30.00	3.40	0.00	0.0
31.00	3.40	0.00	0.0
32.00	3.40	0.00	0.0
33.00	3.40	0.00	0.0
34.00	3.40	0.00	0.0
35.00	3.40	0.00	0.0
36.00	3.40	0.00	0.0
37.00	3.40	0.00	0.0
38.00	3.40	0.00	0.0
39.00	3.40	0.00	0.0
40.00	3.40	0.00	0.0
41.00	3.40	0.00	0.0
42.00	3.40	0.00	0.0
43.00	3.40	0.00	0.0
44.00	3.40	0.00	0.0
45.00	3.40	0.00	0.0
46.00	3.40	0.00	0.0
47.00	3.40	0.00	0.0
48.00	3.40	0.00	0.0
49.00	3.40	0.00	0.0
50.00	3.40	0.00	0.0
51.00	3.40	0.00	0.0
52.00	3.40	0.00	0.0
53.00	3.40	0.00	0.0
54.00	3.40	0.00	0.0
55.00	3.40	0.00	0.0
56.00	3.40	0.00	0.0
57.00	3.40	0.00	0.0
58.00	3.40	0.00	0.0
59.00	3.40	0.00	0.0
60.00	3.40	0.00	0.0
61.00	3.40	0.00	0.0
62.00	3.40	0.00	0.0
63.00	3.40	0.00	0.0
64.00	3.40	0.00	0.0
65.00	3.40	0.00	0.0
66.00	3.40	0.00	0.0
67.00	3.40	0.00	0.0
68.00	3.40	0.00	0.0
69.00	3.40	0.00	0.0
70.00	3.40	0.00	0.0
71.00	3.40	0.00	0.0
72.00	3.40	0.00	0.0

Summary for Subcatchment Ui: Impervious

Runoff = 0.3 cfs @ 12.17 hrs, Volume= 0.03 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.1	98	Paved parking, HSG A
0.1		100.00% Impervious Area

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

Hydrograph for Subcatchment Ui: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.01	0.0
3.00	0.13	0.03	0.0
4.00	0.18	0.06	0.0
5.00	0.23	0.09	0.0
6.00	0.29	0.14	0.0
7.00	0.36	0.19	0.0
8.00	0.44	0.27	0.0
9.00	0.54	0.35	0.0
10.00	0.67	0.48	0.0
11.00	0.88	0.68	0.0
12.00	1.63	1.41	**0.1**
13.00	2.52	2.29	**0.0**
14.00	2.73	2.50	0.0
15.00	2.86	2.63	0.0
16.00	2.96	2.73	0.0
17.00	3.04	2.81	0.0
18.00	3.11	2.88	0.0
19.00	3.17	2.94	0.0
20.00	3.22	2.99	0.0
21.00	3.27	3.04	0.0
22.00	3.32	3.09	0.0
23.00	3.36	3.13	0.0
24.00	**3.40**	**3.17**	0.0
25.00	3.40	3.17	0.0
26.00	3.40	3.17	0.0
27.00	3.40	3.17	0.0
28.00	3.40	3.17	0.0
29.00	3.40	3.17	0.0
30.00	3.40	3.17	0.0
31.00	3.40	3.17	0.0
32.00	3.40	3.17	0.0
33.00	3.40	3.17	0.0
34.00	3.40	3.17	0.0
35.00	3.40	3.17	0.0
36.00	3.40	3.17	0.0
37.00	3.40	3.17	0.0
38.00	3.40	3.17	0.0
39.00	3.40	3.17	0.0
40.00	3.40	3.17	0.0
41.00	3.40	3.17	0.0
42.00	3.40	3.17	0.0
43.00	3.40	3.17	0.0
44.00	3.40	3.17	0.0
45.00	3.40	3.17	0.0
46.00	3.40	3.17	0.0
47.00	3.40	3.17	0.0
48.00	3.40	3.17	0.0
49.00	3.40	3.17	0.0
50.00	3.40	3.17	0.0
51.00	3.40	3.17	0.0
52.00	3.40	3.17	0.0
53.00	3.40	3.17	0.0
54.00	3.40	3.17	0.0
55.00	3.40	3.17	0.0
56.00	3.40	3.17	0.0
57.00	3.40	3.17	0.0
58.00	3.40	3.17	0.0
59.00	3.40	3.17	0.0
60.00	3.40	3.17	0.0
61.00	3.40	3.17	0.0
62.00	3.40	3.17	0.0
63.00	3.40	3.17	0.0
64.00	3.40	3.17	0.0
65.00	3.40	3.17	0.0
66.00	3.40	3.17	0.0
67.00	3.40	3.17	0.0
68.00	3.40	3.17	0.0
69.00	3.40	3.17	0.0
70.00	3.40	3.17	0.0
71.00	3.40	3.17	0.0
72.00	3.40	3.17	0.0

Summary for Subcatchment Up: Pervious

Runoff = 0.0 cfs @ 24.01 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.9	39	>75% Grass cover, Good, HSG A
0.1	30	Woods, Good, HSG A
2.0	39	Weighted Average
2.0		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0380	0.17		**Sheet Flow, 94.0 - 90.2** Grass: Dense n= 0.240 P2= 3.89"
1.4	175	0.0180	2.16		**Shallow Concentrated Flow, 90.2 - 87.0** Unpaved Kv= 16.1 fps
11.4	275	Total			

Hydrograph for Subcatchment Up: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.00	0.0
3.00	0.13	0.00	0.0
4.00	0.18	0.00	0.0
5.00	0.23	0.00	0.0
6.00	0.29	0.00	0.0
7.00	0.36	0.00	0.0
8.00	0.44	0.00	0.0
9.00	0.54	0.00	0.0
10.00	0.67	0.00	0.0
11.00	0.88	0.00	0.0
12.00	1.63	0.00	0.0
13.00	2.52	0.00	0.0
14.00	2.73	0.00	0.0
15.00	2.86	0.00	0.0
16.00	2.96	0.00	0.0
17.00	3.04	0.00	0.0
18.00	3.11	0.00	0.0
19.00	3.17	0.00	0.0
20.00	3.22	0.00	0.0
21.00	3.27	0.00	0.0
22.00	3.32	0.00	0.0
23.00	3.36	0.00	0.0
24.00	**3.40**	**0.00**	**0.0**
25.00	3.40	0.00	**0.0**
26.00	3.40	0.00	0.0
27.00	3.40	0.00	0.0
28.00	3.40	0.00	0.0
29.00	3.40	0.00	0.0
30.00	3.40	0.00	0.0
31.00	3.40	0.00	0.0
32.00	3.40	0.00	0.0
33.00	3.40	0.00	0.0
34.00	3.40	0.00	0.0
35.00	3.40	0.00	0.0
36.00	3.40	0.00	0.0
37.00	3.40	0.00	0.0
38.00	3.40	0.00	0.0
39.00	3.40	0.00	0.0
40.00	3.40	0.00	0.0
41.00	3.40	0.00	0.0
42.00	3.40	0.00	0.0
43.00	3.40	0.00	0.0
44.00	3.40	0.00	0.0
45.00	3.40	0.00	0.0
46.00	3.40	0.00	0.0
47.00	3.40	0.00	0.0
48.00	3.40	0.00	0.0
49.00	3.40	0.00	0.0
50.00	3.40	0.00	0.0
51.00	3.40	0.00	0.0
52.00	3.40	0.00	0.0
53.00	3.40	0.00	0.0
54.00	3.40	0.00	0.0
55.00	3.40	0.00	0.0
56.00	3.40	0.00	0.0
57.00	3.40	0.00	0.0
58.00	3.40	0.00	0.0
59.00	3.40	0.00	0.0
60.00	3.40	0.00	0.0
61.00	3.40	0.00	0.0
62.00	3.40	0.00	0.0
63.00	3.40	0.00	0.0
64.00	3.40	0.00	0.0
65.00	3.40	0.00	0.0
66.00	3.40	0.00	0.0
67.00	3.40	0.00	0.0
68.00	3.40	0.00	0.0
69.00	3.40	0.00	0.0
70.00	3.40	0.00	0.0
71.00	3.40	0.00	0.0
72.00	3.40	0.00	0.0

Summary for Pond A: Watershed A

Inflow Area = 17.2 ac, 55.23% Impervious, Inflow Depth > 1.41" for 2-Year event
Inflow = 3.6 cfs @ 12.91 hrs, Volume= 2.01 af
Primary = 3.6 cfs @ 12.91 hrs, Volume= 2.01 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Hydrograph for Pond A: Watershed A

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.0		0.0
1.00	0.0		0.0
2.00	0.0		0.0
3.00	0.0		0.0
4.00	0.0		0.0
5.00	0.0		0.0
6.00	0.0		0.0
7.00	0.0		0.0
8.00	0.0		0.0
9.00	0.0		0.0
10.00	0.0		0.0
11.00	0.1		0.1
12.00	**1.8**		**1.8**
13.00	**3.6**		**3.6**
14.00	3.2		3.2
15.00	2.8		2.8
16.00	2.5		2.5
17.00	2.1		2.1
18.00	1.7		1.7
19.00	1.4		1.4
20.00	1.0		1.0
21.00	0.8		0.8
22.00	0.7		0.7
23.00	0.6		0.6
24.00	0.5		0.5
25.00	0.3		0.3
26.00	0.2		0.2
27.00	0.2		0.2
28.00	0.1		0.1
29.00	0.1		0.1
30.00	0.1		0.1
31.00	0.1		0.1
32.00	0.0		0.0
33.00	0.0		0.0
34.00	0.0		0.0
35.00	0.0		0.0
36.00	0.0		0.0
37.00	0.0		0.0
38.00	0.0		0.0
39.00	0.0		0.0
40.00	0.0		0.0
41.00	0.0		0.0
42.00	0.0		0.0
43.00	0.0		0.0
44.00	0.0		0.0
45.00	0.0		0.0
46.00	0.0		0.0
47.00	0.0		0.0
48.00	0.0		0.0
49.00	0.0		0.0
50.00	0.0		0.0
51.00	0.0		0.0
52.00	0.0		0.0
53.00	0.0		0.0
54.00	0.0		0.0
55.00	0.0		0.0
56.00	0.0		0.0
57.00	0.0		0.0
58.00	0.0		0.0
59.00	0.0		0.0
60.00	0.0		0.0
61.00	0.0		0.0
62.00	0.0		0.0
63.00	0.0		0.0
64.00	0.0		0.0
65.00	0.0		0.0
66.00	0.0		0.0
67.00	0.0		0.0
68.00	0.0		0.0
69.00	0.0		0.0
70.00	0.0		0.0
71.00	0.0		0.0
72.00	0.0		0.0

Summary for Pond A1: Basin A

Inflow Area = 9.7 ac, 67.01% Impervious, Inflow Depth = 2.12" for 2-Year event
Inflow = 18.2 cfs @ 12.17 hrs, Volume= 1.72 af
Outflow = 2.5 cfs @ 12.92 hrs, Volume= 1.42 af, Atten= 86%, Lag= 45.3 min
Primary = 2.5 cfs @ 12.92 hrs, Volume= 1.42 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 87.22' @ 12.92 hrs Surf.Area= 13,819.2 sf Storage= 42,861 cf

Plug-Flow detention time= 335.0 min calculated for 1.42 af (83% of inflow)
Center-of-Mass det. time= 257.4 min (1,018.5 - 761.1)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	120,699 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	12,490.0	0	0
85.00	13,185.0	12,838	12,838
86.00	13,475.0	13,330	26,168
87.00	13,765.0	13,620	39,788
88.00	14,010.0	13,888	53,675
89.00	14,235.0	14,123	67,798
90.00	14,455.0	14,345	82,143
91.00	14,635.0	14,545	96,688
92.00	16,675.0	15,655	112,343
92.50	16,750.0	8,356	120,699

Device	Routing	Invert	Outlet Devices
#1	Primary	83.90'	**24.0" Round 24" Pipe** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 83.90' / 83.52' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	85.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	87.00'	**0.6' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.5 cfs @ 12.92 hrs HW=87.22' (Free Discharge)
└**1=24" Pipe** (Passes 2.5 cfs of 23.0 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 2.3 cfs @ 6.62 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 0.2 cfs @ 1.32 fps)

Hydrograph for Pond A1: Basin A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.0	0	84.00	0.0
2.00	0.1	115	84.01	0.0
4.00	0.2	1,187	84.09	0.0
6.00	0.3	3,066	84.24	0.0
8.00	0.5	5,971	84.47	0.0
10.00	0.9	10,765	84.84	0.0
12.00	**8.7**	**24,885**	**85.90**	**1.3**
14.00	**1.1**	**39,927**	**87.01**	**2.2**
16.00	0.6	31,525	86.39	1.7
18.00	0.4	24,489	85.87	1.2
20.00	0.3	20,028	85.54	0.8
22.00	0.3	18,117	85.40	0.5
24.00	0.3	17,247	85.33	0.3
26.00	0.0	15,680	85.21	0.2
28.00	0.0	14,865	85.15	0.1
30.00	0.0	14,390	85.12	0.1
32.00	0.0	14,101	85.09	0.0
34.00	0.0	13,880	85.08	0.0
36.00	0.0	13,707	85.07	0.0
38.00	0.0	13,570	85.05	0.0
40.00	0.0	13,462	85.05	0.0
42.00	0.0	13,377	85.04	0.0
44.00	0.0	13,310	85.04	0.0
46.00	0.0	13,257	85.03	0.0
48.00	0.0	13,215	85.03	0.0
50.00	0.0	13,182	85.03	0.0
52.00	0.0	13,156	85.02	0.0
54.00	0.0	13,136	85.02	0.0
56.00	0.0	13,120	85.02	0.0
58.00	0.0	13,107	85.02	0.0
60.00	0.0	13,096	85.02	0.0
62.00	0.0	13,086	85.02	0.0
64.00	0.0	13,077	85.02	0.0
66.00	0.0	13,067	85.02	0.0
68.00	0.0	13,058	85.02	0.0
70.00	0.0	13,050	85.02	0.0
72.00	0.0	13,042	85.02	0.0

Summary for Pond B1: Basin B1

Inflow Area = 2.2 ac, 72.73% Impervious, Inflow Depth = 2.30" for 2-Year event
Inflow = 4.5 cfs @ 12.17 hrs, Volume= 0.42 af
Outflow = 4.4 cfs @ 12.19 hrs, Volume= 0.32 af, Atten= 3%, Lag= 1.3 min
Primary = 4.4 cfs @ 12.19 hrs, Volume= 0.32 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 97.52' @ 12.19 hrs Surf.Area= 4,819.8 sf Storage= 5,195 cf

Plug-Flow detention time= 177.2 min calculated for 0.32 af (75% of inflow)
Center-of-Mass det. time= 82.3 min (843.3 - 761.0)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	25,898 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	1,955.0	0	0
97.00	3,925.0	2,940	2,940
98.00	5,660.0	4,793	7,733
99.00	7,585.0	6,623	14,355
100.00	15,500.0	11,543	25,898

Device	Routing	Invert	Outlet Devices
#1	Primary	94.50'	**18.0" Round 18" Pipe** L= 49.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 94.50' / 93.52' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Device 1	97.40'	**1.0" x 5.0" Horiz. Orifice/Grate X 8.00 columns** X 14 rows C= 0.600 in 96.0" x 106.0" Grate (6% open area) Limited to weir flow at low heads

Primary OutFlow Max=4.3 cfs @ 12.19 hrs HW=97.52' (Free Discharge)
↑—**1=18" Pipe** (Passes 4.3 cfs of 12.8 cfs potential flow)
↑—**2=Orifice/Grate** (Weir Controls 4.3 cfs @ 1.11 fps)

Hydrograph for Pond B1: Basin B1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.0	0	96.00	0.0
2.00	0.0	28	96.01	0.0
4.00	0.1	292	96.14	0.0
6.00	0.1	755	96.33	0.0
8.00	0.1	1,470	96.58	0.0
10.00	0.2	2,650	96.92	0.0
12.00	**2.1**	**4,951**	**97.46**	**1.9**
14.00	**0.3**	**4,708**	**97.41**	**0.3**
16.00	0.1	4,681	97.41	0.2
18.00	0.1	4,670	97.40	0.1
20.00	0.1	4,667	97.40	0.1
22.00	0.1	4,664	97.40	0.1
24.00	0.1	4,662	97.40	0.1
26.00	0.0	4,649	97.40	0.0
28.00	0.0	4,649	97.40	0.0
30.00	0.0	4,649	97.40	0.0
32.00	0.0	4,649	97.40	0.0
34.00	0.0	4,649	97.40	0.0
36.00	0.0	4,649	97.40	0.0
38.00	0.0	4,649	97.40	0.0
40.00	0.0	4,649	97.40	0.0
42.00	0.0	4,649	97.40	0.0
44.00	0.0	4,649	97.40	0.0
46.00	0.0	4,649	97.40	0.0
48.00	0.0	4,649	97.40	0.0
50.00	0.0	4,649	97.40	0.0
52.00	0.0	4,649	97.40	0.0
54.00	0.0	4,649	97.40	0.0
56.00	0.0	4,649	97.40	0.0
58.00	0.0	4,649	97.40	0.0
60.00	0.0	4,649	97.40	0.0
62.00	0.0	4,649	97.40	0.0
64.00	0.0	4,649	97.40	0.0
66.00	0.0	4,649	97.40	0.0
68.00	0.0	4,649	97.40	0.0
70.00	0.0	4,649	97.40	0.0
72.00	0.0	4,649	97.40	0.0

Summary for Pond B2: Basin B2

Inflow Area = 5.4 ac, 53.70% Impervious, Inflow Depth = 1.46" for 2-Year event
Inflow = 7.9 cfs @ 12.18 hrs, Volume= 0.66 af
Outflow = 1.0 cfs @ 13.03 hrs, Volume= 0.57 af, Atten= 87%, Lag= 50.7 min
Primary = 1.0 cfs @ 13.03 hrs, Volume= 0.57 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 89.96' @ 13.03 hrs Surf.Area= 8,218.3 sf Storage= 15,337 cf

Plug-Flow detention time= 282.5 min calculated for 0.57 af (86% of inflow)
Center-of-Mass det. time= 218.0 min (1,018.5 - 800.4)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	66,151 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
88.00	7,435.0	0	0
89.00	7,845.0	7,640	7,640
90.00	8,235.0	8,040	15,680
91.00	8,600.0	8,418	24,098
92.00	8,950.0	8,775	32,873
93.00	9,280.0	9,115	41,988
94.00	8,670.0	8,975	50,963
95.00	9,990.0	9,330	60,293
95.50	13,445.0	5,859	66,151

Device	Routing	Invert	Outlet Devices
#1	Primary	82.90'	**18.0" Round 18" Pipe** L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 82.90' / 82.30' S= 0.0182 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Device 1	88.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	91.00'	**0.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.0 cfs @ 13.03 hrs HW=89.96' (Free Discharge)
└**1=18" Pipe** (Passes 1.0 cfs of 21.4 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 1.0 cfs @ 5.29 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Hydrograph for Pond B2: Basin B2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.0	0	88.00	0.0
2.00	0.0	23	88.00	0.0
4.00	0.0	237	88.03	0.0
6.00	0.1	613	88.08	0.0
8.00	0.1	1,194	88.16	0.0
10.00	0.2	2,153	88.28	0.0
12.00	**3.6**	**6,894**	**88.90**	**0.4**
14.00	**0.5**	**14,216**	**89.82**	**1.0**
16.00	0.3	10,579	89.37	0.7
18.00	0.2	7,791	89.02	0.5
20.00	0.2	6,332	88.83	0.3
22.00	0.1	5,805	88.76	0.2
24.00	0.1	5,546	88.73	0.1
26.00	0.0	4,919	88.64	0.1
28.00	0.0	4,593	88.60	0.0
30.00	0.0	4,407	88.58	0.0
32.00	0.0	4,277	88.56	0.0
34.00	0.0	4,186	88.55	0.0
36.00	0.0	4,122	88.54	0.0
38.00	0.0	4,077	88.53	0.0
40.00	0.0	4,045	88.53	0.0
42.00	0.0	4,023	88.53	0.0
44.00	0.0	4,007	88.52	0.0
46.00	0.0	3,994	88.52	0.0
48.00	0.0	3,981	88.52	0.0
50.00	0.0	3,970	88.52	0.0
52.00	0.0	3,959	88.52	0.0
54.00	0.0	3,949	88.52	0.0
56.00	0.0	3,940	88.52	0.0
58.00	0.0	3,931	88.51	0.0
60.00	0.0	3,923	88.51	0.0
62.00	0.0	3,916	88.51	0.0
64.00	0.0	3,909	88.51	0.0
66.00	0.0	3,903	88.51	0.0
68.00	0.0	3,897	88.51	0.0
70.00	0.0	3,891	88.51	0.0
72.00	0.0	3,886	88.51	0.0

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1i: Impervious Runoff Area=6.5 ac 100.00% Impervious Runoff Depth=4.96"
Tc=10.0 min CN=98 Runoff=28.1 cfs 2.69 af

Subcatchment A1p: Pervious Runoff Area=3.2 ac 0.00% Impervious Runoff Depth=0.24"
Flow Length=100' Slope=0.0320 '/' Tc=10.7 min CN=39 Runoff=0.1 cfs 0.06 af

Subcatchment B1i: Impervious Runoff Area=1.6 ac 100.00% Impervious Runoff Depth=4.96"
Tc=10.0 min CN=98 Runoff=6.9 cfs 0.66 af

Subcatchment B1p: Pervious Runoff Area=0.6 ac 0.00% Impervious Runoff Depth=0.24"
Flow Length=126' Tc=10.0 min CN=39 Runoff=0.0 cfs 0.01 af

Subcatchment B2i: Impervious Runoff Area=1.3 ac 100.00% Impervious Runoff Depth=4.96"
Tc=10.0 min CN=98 Runoff=5.6 cfs 0.54 af

Subcatchment B2p: Pervious Runoff Area=1.9 ac 0.00% Impervious Runoff Depth=0.21"
Flow Length=125' Tc=17.3 min CN=38 Runoff=0.1 cfs 0.03 af

Subcatchment Ui: Impervious Runoff Area=0.1 ac 100.00% Impervious Runoff Depth=4.96"
Tc=10.0 min CN=98 Runoff=0.4 cfs 0.04 af

Subcatchment Up: Pervious Runoff Area=2.0 ac 0.00% Impervious Runoff Depth=0.24"
Flow Length=275' Tc=11.4 min CN=39 Runoff=0.1 cfs 0.04 af

Pond A: Watershed A Inflow=7.8 cfs 3.58 af
Primary=7.8 cfs 3.58 af

Pond A1: Basin A Peak Elev=88.38' Storage=59,057 cf Inflow=28.1 cfs 2.75 af
Outflow=6.2 cfs 2.45 af

Pond B1: Basin B1 Peak Elev=97.56' Storage=5,386 cf Inflow=6.9 cfs 0.67 af
Outflow=6.7 cfs 0.57 af

Pond B2: Basin B2 Peak Elev=91.16' Storage=25,480 cf Inflow=12.3 cfs 1.14 af
Outflow=1.6 cfs 1.05 af

Total Runoff Area = 17.2 ac Runoff Volume = 4.08 af Average Runoff Depth = 2.85"
44.77% Pervious = 7.7 ac 55.23% Impervious = 9.5 ac

Summary for Subcatchment A1i: Impervious

Runoff = 28.1 cfs @ 12.17 hrs, Volume= 2.69 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.20"

Area (ac)	CN	Description
3.8	98	Paved parking, HSG A
2.7	98	Roofs, HSG A
6.5	98	Weighted Average
6.5		100.00% Impervious Area

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

Hydrograph for Subcatchment A1i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.06	0.00	0.0
2.00	0.12	0.02	0.2
3.00	0.20	0.07	0.3
4.00	0.27	0.12	0.4
5.00	0.36	0.19	0.5
6.00	0.44	0.27	0.5
7.00	0.55	0.36	0.7
8.00	0.67	0.48	0.8
9.00	0.82	0.62	1.0
10.00	1.03	0.82	1.5
11.00	1.35	1.13	2.6
12.00	2.49	2.26	**13.5**
13.00	3.85	3.61	**3.5**
14.00	4.17	3.93	1.7
15.00	4.38	4.14	1.2
16.00	4.53	4.29	0.9
17.00	4.65	4.42	0.8
18.00	4.76	4.52	0.6
19.00	4.84	4.61	0.6
20.00	4.93	4.69	0.5
21.00	5.00	4.77	0.5
22.00	5.08	4.84	0.5
23.00	5.14	4.90	0.4
24.00	**5.20**	**4.96**	0.4
25.00	5.20	4.96	0.0
26.00	5.20	4.96	0.0
27.00	5.20	4.96	0.0
28.00	5.20	4.96	0.0
29.00	5.20	4.96	0.0
30.00	5.20	4.96	0.0
31.00	5.20	4.96	0.0
32.00	5.20	4.96	0.0
33.00	5.20	4.96	0.0
34.00	5.20	4.96	0.0
35.00	5.20	4.96	0.0
36.00	5.20	4.96	0.0
37.00	5.20	4.96	0.0
38.00	5.20	4.96	0.0
39.00	5.20	4.96	0.0
40.00	5.20	4.96	0.0
41.00	5.20	4.96	0.0
42.00	5.20	4.96	0.0
43.00	5.20	4.96	0.0
44.00	5.20	4.96	0.0
45.00	5.20	4.96	0.0
46.00	5.20	4.96	0.0
47.00	5.20	4.96	0.0
48.00	5.20	4.96	0.0
49.00	5.20	4.96	0.0
50.00	5.20	4.96	0.0
51.00	5.20	4.96	0.0
52.00	5.20	4.96	0.0
53.00	5.20	4.96	0.0
54.00	5.20	4.96	0.0
55.00	5.20	4.96	0.0
56.00	5.20	4.96	0.0
57.00	5.20	4.96	0.0
58.00	5.20	4.96	0.0
59.00	5.20	4.96	0.0
60.00	5.20	4.96	0.0
61.00	5.20	4.96	0.0
62.00	5.20	4.96	0.0
63.00	5.20	4.96	0.0
64.00	5.20	4.96	0.0
65.00	5.20	4.96	0.0
66.00	5.20	4.96	0.0
67.00	5.20	4.96	0.0
68.00	5.20	4.96	0.0
69.00	5.20	4.96	0.0
70.00	5.20	4.96	0.0
71.00	5.20	4.96	0.0
72.00	5.20	4.96	0.0

Summary for Subcatchment A1p: Pervious

Runoff = 0.1 cfs @ 12.95 hrs, Volume= 0.06 af, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.20"

Area (ac)	CN	Description
3.2	39	>75% Grass cover, Good, HSG A
3.2		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0320	0.16		**Sheet Flow, 105.3 - 102.1** Grass: Dense n= 0.240 P2= 3.89"

Hydrograph for Subcatchment A1p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.06	0.00	0.0
2.00	0.12	0.00	0.0
3.00	0.20	0.00	0.0
4.00	0.27	0.00	0.0
5.00	0.36	0.00	0.0
6.00	0.44	0.00	0.0
7.00	0.55	0.00	0.0
8.00	0.67	0.00	0.0
9.00	0.82	0.00	0.0
10.00	1.03	0.00	0.0
11.00	1.35	0.00	0.0
12.00	2.49	0.00	**0.0**
13.00	3.85	0.03	**0.1**
14.00	4.17	0.06	0.1
15.00	4.38	0.09	0.1
16.00	4.53	0.11	0.1
17.00	4.65	0.14	0.1
18.00	4.76	0.15	0.1
19.00	4.84	0.17	0.1
20.00	4.93	0.19	0.1
21.00	5.00	0.20	0.0
22.00	5.08	0.22	0.0
23.00	5.14	0.23	0.0
24.00	**5.20**	**0.24**	0.0
25.00	5.20	0.24	0.0
26.00	5.20	0.24	0.0
27.00	5.20	0.24	0.0
28.00	5.20	0.24	0.0
29.00	5.20	0.24	0.0
30.00	5.20	0.24	0.0
31.00	5.20	0.24	0.0
32.00	5.20	0.24	0.0
33.00	5.20	0.24	0.0
34.00	5.20	0.24	0.0
35.00	5.20	0.24	0.0
36.00	5.20	0.24	0.0
37.00	5.20	0.24	0.0
38.00	5.20	0.24	0.0
39.00	5.20	0.24	0.0
40.00	5.20	0.24	0.0
41.00	5.20	0.24	0.0
42.00	5.20	0.24	0.0
43.00	5.20	0.24	0.0
44.00	5.20	0.24	0.0
45.00	5.20	0.24	0.0
46.00	5.20	0.24	0.0
47.00	5.20	0.24	0.0
48.00	5.20	0.24	0.0
49.00	5.20	0.24	0.0
50.00	5.20	0.24	0.0
51.00	5.20	0.24	0.0
52.00	5.20	0.24	0.0
53.00	5.20	0.24	0.0
54.00	5.20	0.24	0.0
55.00	5.20	0.24	0.0
56.00	5.20	0.24	0.0
57.00	5.20	0.24	0.0
58.00	5.20	0.24	0.0
59.00	5.20	0.24	0.0
60.00	5.20	0.24	0.0
61.00	5.20	0.24	0.0
62.00	5.20	0.24	0.0
63.00	5.20	0.24	0.0
64.00	5.20	0.24	0.0
65.00	5.20	0.24	0.0
66.00	5.20	0.24	0.0
67.00	5.20	0.24	0.0
68.00	5.20	0.24	0.0
69.00	5.20	0.24	0.0
70.00	5.20	0.24	0.0
71.00	5.20	0.24	0.0
72.00	5.20	0.24	0.0

Summary for Subcatchment B1i: Impervious

Runoff = 6.9 cfs @ 12.17 hrs, Volume= 0.66 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.20"

Area (ac)	CN	Description
1.6	98	Paved parking, HSG A
1.6		100.00% Impervious Area

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

Hydrograph for Subcatchment B1i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.06	0.00	0.0
2.00	0.12	0.02	0.0
3.00	0.20	0.07	0.1
4.00	0.27	0.12	0.1
5.00	0.36	0.19	0.1
6.00	0.44	0.27	0.1
7.00	0.55	0.36	0.2
8.00	0.67	0.48	0.2
9.00	0.82	0.62	0.2
10.00	1.03	0.82	0.4
11.00	1.35	1.13	0.6
12.00	2.49	2.26	**3.3**
13.00	3.85	3.61	**0.9**
14.00	4.17	3.93	0.4
15.00	4.38	4.14	0.3
16.00	4.53	4.29	0.2
17.00	4.65	4.42	0.2
18.00	4.76	4.52	0.2
19.00	4.84	4.61	0.1
20.00	4.93	4.69	0.1
21.00	5.00	4.77	0.1
22.00	5.08	4.84	0.1
23.00	5.14	4.90	0.1
24.00	**5.20**	**4.96**	0.1
25.00	5.20	4.96	0.0
26.00	5.20	4.96	0.0
27.00	5.20	4.96	0.0
28.00	5.20	4.96	0.0
29.00	5.20	4.96	0.0
30.00	5.20	4.96	0.0
31.00	5.20	4.96	0.0
32.00	5.20	4.96	0.0
33.00	5.20	4.96	0.0
34.00	5.20	4.96	0.0
35.00	5.20	4.96	0.0
36.00	5.20	4.96	0.0
37.00	5.20	4.96	0.0
38.00	5.20	4.96	0.0
39.00	5.20	4.96	0.0
40.00	5.20	4.96	0.0
41.00	5.20	4.96	0.0
42.00	5.20	4.96	0.0
43.00	5.20	4.96	0.0
44.00	5.20	4.96	0.0
45.00	5.20	4.96	0.0
46.00	5.20	4.96	0.0
47.00	5.20	4.96	0.0
48.00	5.20	4.96	0.0
49.00	5.20	4.96	0.0
50.00	5.20	4.96	0.0
51.00	5.20	4.96	0.0
52.00	5.20	4.96	0.0
53.00	5.20	4.96	0.0
54.00	5.20	4.96	0.0
55.00	5.20	4.96	0.0
56.00	5.20	4.96	0.0
57.00	5.20	4.96	0.0
58.00	5.20	4.96	0.0
59.00	5.20	4.96	0.0
60.00	5.20	4.96	0.0
61.00	5.20	4.96	0.0
62.00	5.20	4.96	0.0
63.00	5.20	4.96	0.0
64.00	5.20	4.96	0.0
65.00	5.20	4.96	0.0
66.00	5.20	4.96	0.0
67.00	5.20	4.96	0.0
68.00	5.20	4.96	0.0
69.00	5.20	4.96	0.0
70.00	5.20	4.96	0.0
71.00	5.20	4.96	0.0
72.00	5.20	4.96	0.0

Summary for Subcatchment B1p: Pervious

Runoff = 0.0 cfs @ 12.92 hrs, Volume= 0.01 af, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.20"

Area (ac)	CN	Description
0.6	39	>75% Grass cover, Good, HSG A
0.6		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	36	0.1140	0.14		**Sheet Flow, 114 -109.9** Woods: Light underbrush n= 0.400 P2= 3.89"
4.4	67	0.1330	0.25		**Sheet Flow, 109.9 - 101.0** Grass: Dense n= 0.240 P2= 3.89"
0.1	23	0.0430	4.21		**Shallow Concentrated Flow, 101.0 - 100.3** Paved Kv= 20.3 fps
8.8	126	Total, Increased to minimum Tc = 10.0 min			

Hydrograph for Subcatchment B1p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.06	0.00	0.0
2.00	0.12	0.00	0.0
3.00	0.20	0.00	0.0
4.00	0.27	0.00	0.0
5.00	0.36	0.00	0.0
6.00	0.44	0.00	0.0
7.00	0.55	0.00	0.0
8.00	0.67	0.00	0.0
9.00	0.82	0.00	0.0
10.00	1.03	0.00	0.0
11.00	1.35	0.00	0.0
12.00	2.49	0.00	**0.0**
13.00	3.85	0.03	**0.0**
14.00	4.17	0.06	0.0
15.00	4.38	0.09	0.0
16.00	4.53	0.11	0.0
17.00	4.65	0.14	0.0
18.00	4.76	0.15	0.0
19.00	4.84	0.17	0.0
20.00	4.93	0.19	0.0
21.00	5.00	0.20	0.0
22.00	5.08	0.22	0.0
23.00	5.14	0.23	0.0
24.00	**5.20**	**0.24**	0.0
25.00	5.20	0.24	0.0
26.00	5.20	0.24	0.0
27.00	5.20	0.24	0.0
28.00	5.20	0.24	0.0
29.00	5.20	0.24	0.0
30.00	5.20	0.24	0.0
31.00	5.20	0.24	0.0
32.00	5.20	0.24	0.0
33.00	5.20	0.24	0.0
34.00	5.20	0.24	0.0
35.00	5.20	0.24	0.0
36.00	5.20	0.24	0.0
37.00	5.20	0.24	0.0
38.00	5.20	0.24	0.0
39.00	5.20	0.24	0.0
40.00	5.20	0.24	0.0
41.00	5.20	0.24	0.0
42.00	5.20	0.24	0.0
43.00	5.20	0.24	0.0
44.00	5.20	0.24	0.0
45.00	5.20	0.24	0.0
46.00	5.20	0.24	0.0
47.00	5.20	0.24	0.0
48.00	5.20	0.24	0.0
49.00	5.20	0.24	0.0
50.00	5.20	0.24	0.0
51.00	5.20	0.24	0.0
52.00	5.20	0.24	0.0
53.00	5.20	0.24	0.0
54.00	5.20	0.24	0.0
55.00	5.20	0.24	0.0
56.00	5.20	0.24	0.0
57.00	5.20	0.24	0.0
58.00	5.20	0.24	0.0
59.00	5.20	0.24	0.0
60.00	5.20	0.24	0.0
61.00	5.20	0.24	0.0
62.00	5.20	0.24	0.0
63.00	5.20	0.24	0.0
64.00	5.20	0.24	0.0
65.00	5.20	0.24	0.0
66.00	5.20	0.24	0.0
67.00	5.20	0.24	0.0
68.00	5.20	0.24	0.0
69.00	5.20	0.24	0.0
70.00	5.20	0.24	0.0
71.00	5.20	0.24	0.0
72.00	5.20	0.24	0.0

Summary for Subcatchment B2i: Impervious

Runoff = 5.6 cfs @ 12.17 hrs, Volume= 0.54 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.20"

Area (ac)	CN	Description
1.3	98	Paved parking, HSG A
1.3		100.00% Impervious Area

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

Hydrograph for Subcatchment B2i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.06	0.00	0.0
2.00	0.12	0.02	0.0
3.00	0.20	0.07	0.1
4.00	0.27	0.12	0.1
5.00	0.36	0.19	0.1
6.00	0.44	0.27	0.1
7.00	0.55	0.36	0.1
8.00	0.67	0.48	0.2
9.00	0.82	0.62	0.2
10.00	1.03	0.82	0.3
11.00	1.35	1.13	0.5
12.00	2.49	2.26	**2.7**
13.00	3.85	3.61	**0.7**
14.00	4.17	3.93	0.3
15.00	4.38	4.14	0.2
16.00	4.53	4.29	0.2
17.00	4.65	4.42	0.2
18.00	4.76	4.52	0.1
19.00	4.84	4.61	0.1
20.00	4.93	4.69	0.1
21.00	5.00	4.77	0.1
22.00	5.08	4.84	0.1
23.00	5.14	4.90	0.1
24.00	**5.20**	**4.96**	0.1
25.00	5.20	4.96	0.0
26.00	5.20	4.96	0.0
27.00	5.20	4.96	0.0
28.00	5.20	4.96	0.0
29.00	5.20	4.96	0.0
30.00	5.20	4.96	0.0
31.00	5.20	4.96	0.0
32.00	5.20	4.96	0.0
33.00	5.20	4.96	0.0
34.00	5.20	4.96	0.0
35.00	5.20	4.96	0.0
36.00	5.20	4.96	0.0
37.00	5.20	4.96	0.0
38.00	5.20	4.96	0.0
39.00	5.20	4.96	0.0
40.00	5.20	4.96	0.0
41.00	5.20	4.96	0.0
42.00	5.20	4.96	0.0
43.00	5.20	4.96	0.0
44.00	5.20	4.96	0.0
45.00	5.20	4.96	0.0
46.00	5.20	4.96	0.0
47.00	5.20	4.96	0.0
48.00	5.20	4.96	0.0
49.00	5.20	4.96	0.0
50.00	5.20	4.96	0.0
51.00	5.20	4.96	0.0
52.00	5.20	4.96	0.0
53.00	5.20	4.96	0.0
54.00	5.20	4.96	0.0
55.00	5.20	4.96	0.0
56.00	5.20	4.96	0.0
57.00	5.20	4.96	0.0
58.00	5.20	4.96	0.0
59.00	5.20	4.96	0.0
60.00	5.20	4.96	0.0
61.00	5.20	4.96	0.0
62.00	5.20	4.96	0.0
63.00	5.20	4.96	0.0
64.00	5.20	4.96	0.0
65.00	5.20	4.96	0.0
66.00	5.20	4.96	0.0
67.00	5.20	4.96	0.0
68.00	5.20	4.96	0.0
69.00	5.20	4.96	0.0
70.00	5.20	4.96	0.0
71.00	5.20	4.96	0.0
72.00	5.20	4.96	0.0

Summary for Subcatchment B2p: Pervious

Runoff = 0.1 cfs @ 13.13 hrs, Volume= 0.03 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.20"

Area (ac)	CN	Description
1.6	39	>75% Grass cover, Good, HSG A
0.3	30	Woods, Good, HSG A
1.9	38	Weighted Average
1.9		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0100	0.10		**Sheet Flow, 102.5 - 101.5** Grass: Dense n= 0.240 P2= 3.89"
0.2	25	0.0160	2.04		**Shallow Concentrated Flow, 101.5 - 101.1** Unpaved Kv= 16.1 fps
17.3	125	Total			

Hydrograph for Subcatchment B2p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.06	0.00	0.0
2.00	0.12	0.00	0.0
3.00	0.20	0.00	0.0
4.00	0.27	0.00	0.0
5.00	0.36	0.00	0.0
6.00	0.44	0.00	0.0
7.00	0.55	0.00	0.0
8.00	0.67	0.00	0.0
9.00	0.82	0.00	0.0
10.00	1.03	0.00	0.0
11.00	1.35	0.00	0.0
12.00	2.49	0.00	0.0
13.00	3.85	0.02	**0.1**
14.00	4.17	0.05	**0.0**
15.00	4.38	0.07	0.0
16.00	4.53	0.09	0.0
17.00	4.65	0.11	0.0
18.00	4.76	0.13	0.0
19.00	4.84	0.14	0.0
20.00	4.93	0.15	0.0
21.00	5.00	0.17	0.0
22.00	5.08	0.18	0.0
23.00	5.14	0.19	0.0
24.00	**5.20**	**0.21**	0.0
25.00	5.20	0.21	0.0
26.00	5.20	0.21	0.0
27.00	5.20	0.21	0.0
28.00	5.20	0.21	0.0
29.00	5.20	0.21	0.0
30.00	5.20	0.21	0.0
31.00	5.20	0.21	0.0
32.00	5.20	0.21	0.0
33.00	5.20	0.21	0.0
34.00	5.20	0.21	0.0
35.00	5.20	0.21	0.0
36.00	5.20	0.21	0.0
37.00	5.20	0.21	0.0
38.00	5.20	0.21	0.0
39.00	5.20	0.21	0.0
40.00	5.20	0.21	0.0
41.00	5.20	0.21	0.0
42.00	5.20	0.21	0.0
43.00	5.20	0.21	0.0
44.00	5.20	0.21	0.0
45.00	5.20	0.21	0.0
46.00	5.20	0.21	0.0
47.00	5.20	0.21	0.0
48.00	5.20	0.21	0.0
49.00	5.20	0.21	0.0
50.00	5.20	0.21	0.0
51.00	5.20	0.21	0.0
52.00	5.20	0.21	0.0
53.00	5.20	0.21	0.0
54.00	5.20	0.21	0.0
55.00	5.20	0.21	0.0
56.00	5.20	0.21	0.0
57.00	5.20	0.21	0.0
58.00	5.20	0.21	0.0
59.00	5.20	0.21	0.0
60.00	5.20	0.21	0.0
61.00	5.20	0.21	0.0
62.00	5.20	0.21	0.0
63.00	5.20	0.21	0.0
64.00	5.20	0.21	0.0
65.00	5.20	0.21	0.0
66.00	5.20	0.21	0.0
67.00	5.20	0.21	0.0
68.00	5.20	0.21	0.0
69.00	5.20	0.21	0.0
70.00	5.20	0.21	0.0
71.00	5.20	0.21	0.0
72.00	5.20	0.21	0.0

Summary for Subcatchment Ui: Impervious

Runoff = 0.4 cfs @ 12.17 hrs, Volume= 0.04 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.20"

Area (ac)	CN	Description
0.1	98	Paved parking, HSG A
0.1		100.00% Impervious Area

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

Hydrograph for Subcatchment Ui: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.06	0.00	0.0
2.00	0.12	0.02	0.0
3.00	0.20	0.07	0.0
4.00	0.27	0.12	0.0
5.00	0.36	0.19	0.0
6.00	0.44	0.27	0.0
7.00	0.55	0.36	0.0
8.00	0.67	0.48	0.0
9.00	0.82	0.62	0.0
10.00	1.03	0.82	0.0
11.00	1.35	1.13	0.0
12.00	2.49	2.26	**0.2**
13.00	3.85	3.61	**0.1**
14.00	4.17	3.93	0.0
15.00	4.38	4.14	0.0
16.00	4.53	4.29	0.0
17.00	4.65	4.42	0.0
18.00	4.76	4.52	0.0
19.00	4.84	4.61	0.0
20.00	4.93	4.69	0.0
21.00	5.00	4.77	0.0
22.00	5.08	4.84	0.0
23.00	5.14	4.90	0.0
24.00	**5.20**	**4.96**	0.0
25.00	5.20	4.96	0.0
26.00	5.20	4.96	0.0
27.00	5.20	4.96	0.0
28.00	5.20	4.96	0.0
29.00	5.20	4.96	0.0
30.00	5.20	4.96	0.0
31.00	5.20	4.96	0.0
32.00	5.20	4.96	0.0
33.00	5.20	4.96	0.0
34.00	5.20	4.96	0.0
35.00	5.20	4.96	0.0
36.00	5.20	4.96	0.0
37.00	5.20	4.96	0.0
38.00	5.20	4.96	0.0
39.00	5.20	4.96	0.0
40.00	5.20	4.96	0.0
41.00	5.20	4.96	0.0
42.00	5.20	4.96	0.0
43.00	5.20	4.96	0.0
44.00	5.20	4.96	0.0
45.00	5.20	4.96	0.0
46.00	5.20	4.96	0.0
47.00	5.20	4.96	0.0
48.00	5.20	4.96	0.0
49.00	5.20	4.96	0.0
50.00	5.20	4.96	0.0
51.00	5.20	4.96	0.0
52.00	5.20	4.96	0.0
53.00	5.20	4.96	0.0
54.00	5.20	4.96	0.0
55.00	5.20	4.96	0.0
56.00	5.20	4.96	0.0
57.00	5.20	4.96	0.0
58.00	5.20	4.96	0.0
59.00	5.20	4.96	0.0
60.00	5.20	4.96	0.0
61.00	5.20	4.96	0.0
62.00	5.20	4.96	0.0
63.00	5.20	4.96	0.0
64.00	5.20	4.96	0.0
65.00	5.20	4.96	0.0
66.00	5.20	4.96	0.0
67.00	5.20	4.96	0.0
68.00	5.20	4.96	0.0
69.00	5.20	4.96	0.0
70.00	5.20	4.96	0.0
71.00	5.20	4.96	0.0
72.00	5.20	4.96	0.0

Summary for Subcatchment Up: Pervious

Runoff = 0.1 cfs @ 12.96 hrs, Volume= 0.04 af, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.20"

Area (ac)	CN	Description
1.9	39	>75% Grass cover, Good, HSG A
0.1	30	Woods, Good, HSG A
2.0	39	Weighted Average
2.0		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0380	0.17		**Sheet Flow, 94.0 - 90.2** Grass: Dense n= 0.240 P2= 3.89"
1.4	175	0.0180	2.16		**Shallow Concentrated Flow, 90.2 - 87.0** Unpaved Kv= 16.1 fps
11.4	275	Total			

Hydrograph for Subcatchment Up: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.06	0.00	0.0
2.00	0.12	0.00	0.0
3.00	0.20	0.00	0.0
4.00	0.27	0.00	0.0
5.00	0.36	0.00	0.0
6.00	0.44	0.00	0.0
7.00	0.55	0.00	0.0
8.00	0.67	0.00	0.0
9.00	0.82	0.00	0.0
10.00	1.03	0.00	0.0
11.00	1.35	0.00	0.0
12.00	2.49	0.00	**0.0**
13.00	3.85	0.03	**0.1**
14.00	4.17	0.06	0.1
15.00	4.38	0.09	0.1
16.00	4.53	0.11	0.0
17.00	4.65	0.14	0.0
18.00	4.76	0.15	0.0
19.00	4.84	0.17	0.0
20.00	4.93	0.19	0.0
21.00	5.00	0.20	0.0
22.00	5.08	0.22	0.0
23.00	5.14	0.23	0.0
24.00	**5.20**	**0.24**	0.0
25.00	5.20	0.24	0.0
26.00	5.20	0.24	0.0
27.00	5.20	0.24	0.0
28.00	5.20	0.24	0.0
29.00	5.20	0.24	0.0
30.00	5.20	0.24	0.0
31.00	5.20	0.24	0.0
32.00	5.20	0.24	0.0
33.00	5.20	0.24	0.0
34.00	5.20	0.24	0.0
35.00	5.20	0.24	0.0
36.00	5.20	0.24	0.0
37.00	5.20	0.24	0.0
38.00	5.20	0.24	0.0
39.00	5.20	0.24	0.0
40.00	5.20	0.24	0.0
41.00	5.20	0.24	0.0
42.00	5.20	0.24	0.0
43.00	5.20	0.24	0.0
44.00	5.20	0.24	0.0
45.00	5.20	0.24	0.0
46.00	5.20	0.24	0.0
47.00	5.20	0.24	0.0
48.00	5.20	0.24	0.0
49.00	5.20	0.24	0.0
50.00	5.20	0.24	0.0
51.00	5.20	0.24	0.0
52.00	5.20	0.24	0.0
53.00	5.20	0.24	0.0
54.00	5.20	0.24	0.0
55.00	5.20	0.24	0.0
56.00	5.20	0.24	0.0
57.00	5.20	0.24	0.0
58.00	5.20	0.24	0.0
59.00	5.20	0.24	0.0
60.00	5.20	0.24	0.0
61.00	5.20	0.24	0.0
62.00	5.20	0.24	0.0
63.00	5.20	0.24	0.0
64.00	5.20	0.24	0.0
65.00	5.20	0.24	0.0
66.00	5.20	0.24	0.0
67.00	5.20	0.24	0.0
68.00	5.20	0.24	0.0
69.00	5.20	0.24	0.0
70.00	5.20	0.24	0.0
71.00	5.20	0.24	0.0
72.00	5.20	0.24	0.0

Summary for Pond A: Watershed A

Inflow Area = 17.2 ac, 55.23% Impervious, Inflow Depth > 2.50" for 10-Year event
Inflow = 7.8 cfs @ 12.61 hrs, Volume= 3.58 af
Primary = 7.8 cfs @ 12.61 hrs, Volume= 3.58 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Hydrograph for Pond A: Watershed A

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.0		0.0
1.00	0.0		0.0
2.00	0.0		0.0
3.00	0.0		0.0
4.00	0.0		0.0
5.00	0.0		0.0
6.00	0.0		0.0
7.00	0.0		0.0
8.00	0.0		0.0
9.00	0.0		0.0
10.00	0.4		0.4
11.00	1.3		1.3
12.00	**3.0**		**3.0**
13.00	**7.3**		**7.3**
14.00	5.2		5.2
15.00	4.0		4.0
16.00	3.4		3.4
17.00	3.1		3.1
18.00	2.7		2.7
19.00	2.4		2.4
20.00	2.0		2.0
21.00	1.7		1.7
22.00	1.4		1.4
23.00	1.1		1.1
24.00	0.9		0.9
25.00	0.6		0.6
26.00	0.3		0.3
27.00	0.2		0.2
28.00	0.2		0.2
29.00	0.1		0.1
30.00	0.1		0.1
31.00	0.1		0.1
32.00	0.1		0.1
33.00	0.1		0.1
34.00	0.0		0.0
35.00	0.0		0.0
36.00	0.0		0.0
37.00	0.0		0.0
38.00	0.0		0.0
39.00	0.0		0.0
40.00	0.0		0.0
41.00	0.0		0.0
42.00	0.0		0.0
43.00	0.0		0.0
44.00	0.0		0.0
45.00	0.0		0.0
46.00	0.0		0.0
47.00	0.0		0.0
48.00	0.0		0.0
49.00	0.0		0.0
50.00	0.0		0.0
51.00	0.0		0.0
52.00	0.0		0.0
53.00	0.0		0.0
54.00	0.0		0.0
55.00	0.0		0.0
56.00	0.0		0.0
57.00	0.0		0.0
58.00	0.0		0.0
59.00	0.0		0.0
60.00	0.0		0.0
61.00	0.0		0.0
62.00	0.0		0.0
63.00	0.0		0.0
64.00	0.0		0.0
65.00	0.0		0.0
66.00	0.0		0.0
67.00	0.0		0.0
68.00	0.0		0.0
69.00	0.0		0.0
70.00	0.0		0.0
71.00	0.0		0.0
72.00	0.0		0.0

Summary for Pond A1: Basin A

Inflow Area = 9.7 ac, 67.01% Impervious, Inflow Depth = 3.41" for 10-Year event
Inflow = 28.1 cfs @ 12.17 hrs, Volume= 2.75 af
Outflow = 6.2 cfs @ 12.60 hrs, Volume= 2.45 af, Atten= 78%, Lag= 25.8 min
Primary = 6.2 cfs @ 12.60 hrs, Volume= 2.45 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 88.38' @ 12.60 hrs Surf.Area= 14,095.8 sf Storage= 59,057 cf

Plug-Flow detention time= 279.1 min calculated for 2.45 af (89% of inflow)
Center-of-Mass det. time= 221.1 min (979.9 - 758.7)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	120,699 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	12,490.0	0	0
85.00	13,185.0	12,838	12,838
86.00	13,475.0	13,330	26,168
87.00	13,765.0	13,620	39,788
88.00	14,010.0	13,888	53,675
89.00	14,235.0	14,123	67,798
90.00	14,455.0	14,345	82,143
91.00	14,635.0	14,545	96,688
92.00	16,675.0	15,655	112,343
92.50	16,750.0	8,356	120,699

Device	Routing	Invert	Outlet Devices
#1	Primary	83.90'	**24.0" Round 24" Pipe** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 83.90' / 83.52' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	85.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	87.00'	**0.6' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=6.2 cfs @ 12.60 hrs HW=88.38' (Free Discharge)
└**1=24" Pipe** (Passes 6.2 cfs of 28.2 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 2.9 cfs @ 8.41 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 3.2 cfs @ 3.90 fps)

Hydrograph for Pond A1: Basin A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.0	0	84.00	0.0
2.00	0.2	461	84.04	0.0
4.00	0.4	2,688	84.21	0.0
6.00	0.5	6,022	84.47	0.0
8.00	0.8	10,849	84.85	0.0
10.00	1.5	17,807	85.37	0.4
12.00	**13.5**	**35,485**	**86.68**	**2.0**
14.00	**1.8**	**49,350**	**87.69**	**3.7**
16.00	1.0	39,280	86.96	2.1
18.00	0.7	31,393	86.38	1.7
20.00	0.6	25,055	85.92	1.3
22.00	0.5	21,113	85.62	0.9
24.00	0.4	19,063	85.47	0.6
26.00	0.0	16,439	85.27	0.2
28.00	0.0	15,252	85.18	0.1
30.00	0.0	14,619	85.13	0.1
32.00	0.0	14,245	85.11	0.0
34.00	0.0	13,994	85.09	0.0
36.00	0.0	13,797	85.07	0.0
38.00	0.0	13,641	85.06	0.0
40.00	0.0	13,518	85.05	0.0
42.00	0.0	13,421	85.04	0.0
44.00	0.0	13,344	85.04	0.0
46.00	0.0	13,284	85.03	0.0
48.00	0.0	13,237	85.03	0.0
50.00	0.0	13,199	85.03	0.0
52.00	0.0	13,170	85.02	0.0
54.00	0.0	13,146	85.02	0.0
56.00	0.0	13,128	85.02	0.0
58.00	0.0	13,114	85.02	0.0
60.00	0.0	13,102	85.02	0.0
62.00	0.0	13,092	85.02	0.0
64.00	0.0	13,082	85.02	0.0
66.00	0.0	13,072	85.02	0.0
68.00	0.0	13,063	85.02	0.0
70.00	0.0	13,054	85.02	0.0
72.00	0.0	13,046	85.02	0.0

Summary for Pond B1: Basin B1

Inflow Area = 2.2 ac, 72.73% Impervious, Inflow Depth = 3.68" for 10-Year event
Inflow = 6.9 cfs @ 12.17 hrs, Volume= 0.67 af
Outflow = 6.7 cfs @ 12.19 hrs, Volume= 0.57 af, Atten= 2%, Lag= 1.2 min
Primary = 6.7 cfs @ 12.19 hrs, Volume= 0.57 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 97.56' @ 12.19 hrs Surf.Area= 4,888.2 sf Storage= 5,386 cf

Plug-Flow detention time= 141.5 min calculated for 0.57 af (84% of inflow)
Center-of-Mass det. time= 66.5 min (823.7 - 757.2)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	25,898 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	1,955.0	0	0
97.00	3,925.0	2,940	2,940
98.00	5,660.0	4,793	7,733
99.00	7,585.0	6,623	14,355
100.00	15,500.0	11,543	25,898

Device	Routing	Invert	Outlet Devices
#1	Primary	94.50'	**18.0" Round 18" Pipe** L= 49.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 94.50' / 93.52' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Device 1	97.40'	**1.0" x 5.0" Horiz. Orifice/Grate X 8.00 columns** X 14 rows C= 0.600 in 96.0" x 106.0" Grate (6% open area) Limited to weir flow at low heads

Primary OutFlow Max=6.7 cfs @ 12.19 hrs HW=97.56' (Free Discharge)
↑**1=18" Pipe** (Passes 6.7 cfs of 12.9 cfs potential flow)
↑**2=Orifice/Grate** (Weir Controls 6.7 cfs @ 1.29 fps)

Hydrograph for Pond B1: Basin B1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.0	0	96.00	0.0
2.00	0.0	113	96.06	0.0
4.00	0.1	662	96.29	0.0
6.00	0.1	1,482	96.59	0.0
8.00	0.2	2,671	96.93	0.0
10.00	0.4	4,560	97.38	0.0
12.00	**3.3**	**5,066**	**97.49**	**3.0**
14.00	**0.4**	**4,743**	**97.42**	**0.4**
16.00	0.2	4,700	97.41	0.2
18.00	0.2	4,684	97.41	0.2
20.00	0.1	4,678	97.41	0.1
22.00	0.1	4,674	97.41	0.1
24.00	0.1	4,670	97.40	0.1
26.00	0.0	4,649	97.40	0.0
28.00	0.0	4,649	97.40	0.0
30.00	0.0	4,649	97.40	0.0
32.00	0.0	4,649	97.40	0.0
34.00	0.0	4,649	97.40	0.0
36.00	0.0	4,649	97.40	0.0
38.00	0.0	4,649	97.40	0.0
40.00	0.0	4,649	97.40	0.0
42.00	0.0	4,649	97.40	0.0
44.00	0.0	4,649	97.40	0.0
46.00	0.0	4,649	97.40	0.0
48.00	0.0	4,649	97.40	0.0
50.00	0.0	4,649	97.40	0.0
52.00	0.0	4,649	97.40	0.0
54.00	0.0	4,649	97.40	0.0
56.00	0.0	4,649	97.40	0.0
58.00	0.0	4,649	97.40	0.0
60.00	0.0	4,649	97.40	0.0
62.00	0.0	4,649	97.40	0.0
64.00	0.0	4,649	97.40	0.0
66.00	0.0	4,649	97.40	0.0
68.00	0.0	4,649	97.40	0.0
70.00	0.0	4,649	97.40	0.0
72.00	0.0	4,649	97.40	0.0

Summary for Pond B2: Basin B2

Inflow Area = 5.4 ac, 53.70% Impervious, Inflow Depth = 2.53" for 10-Year event
Inflow = 12.3 cfs @ 12.18 hrs, Volume= 1.14 af
Outflow = 1.6 cfs @ 13.10 hrs, Volume= 1.05 af, Atten= 87%, Lag= 55.1 min
Primary = 1.6 cfs @ 13.10 hrs, Volume= 1.05 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 91.16' @ 13.10 hrs Surf.Area= 8,655.2 sf Storage= 25,480 cf

Plug-Flow detention time= 273.1 min calculated for 1.05 af (92% of inflow)
Center-of-Mass det. time= 230.0 min (1,026.3 - 796.3)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	66,151 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
88.00	7,435.0	0	0
89.00	7,845.0	7,640	7,640
90.00	8,235.0	8,040	15,680
91.00	8,600.0	8,418	24,098
92.00	8,950.0	8,775	32,873
93.00	9,280.0	9,115	41,988
94.00	8,670.0	8,975	50,963
95.00	9,990.0	9,330	60,293
95.50	13,445.0	5,859	66,151

Device	Routing	Invert	Outlet Devices
#1	Primary	82.90'	**18.0" Round 18" Pipe** L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 82.90' / 82.30' S= 0.0182 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Device 1	88.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	91.00'	**0.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.6 cfs @ 13.10 hrs HW=91.16' (Free Discharge)
└**1=18" Pipe** (Passes 1.6 cfs of 23.3 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 1.5 cfs @ 7.47 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 0.1 cfs @ 1.11 fps)

Hydrograph for Pond B2: Basin B2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.0	0	88.00	0.0
2.00	0.0	92	88.01	0.0
4.00	0.1	538	88.07	0.0
6.00	0.1	1,204	88.16	0.0
8.00	0.2	2,170	88.28	0.0
10.00	0.3	3,705	88.48	0.0
12.00	**5.6**	**12,263**	**89.57**	**0.9**
14.00	**0.8**	**24,197**	**91.01**	**1.4**
16.00	0.5	19,043	90.40	1.2
18.00	0.3	14,023	89.79	1.0
20.00	0.3	10,118	89.31	0.7
22.00	0.2	7,707	89.01	0.5
24.00	0.2	6,514	88.85	0.3
26.00	0.0	5,294	88.69	0.1
28.00	0.0	4,774	88.62	0.0
30.00	0.0	4,518	88.59	0.0
32.00	0.0	4,355	88.57	0.0
34.00	0.0	4,241	88.56	0.0
36.00	0.0	4,160	88.54	0.0
38.00	0.0	4,104	88.54	0.0
40.00	0.0	4,064	88.53	0.0
42.00	0.0	4,036	88.53	0.0
44.00	0.0	4,017	88.53	0.0
46.00	0.0	4,002	88.52	0.0
48.00	0.0	3,989	88.52	0.0
50.00	0.0	3,977	88.52	0.0
52.00	0.0	3,966	88.52	0.0
54.00	0.0	3,955	88.52	0.0
56.00	0.0	3,946	88.52	0.0
58.00	0.0	3,937	88.52	0.0
60.00	0.0	3,928	88.51	0.0
62.00	0.0	3,921	88.51	0.0
64.00	0.0	3,913	88.51	0.0
66.00	0.0	3,907	88.51	0.0
68.00	0.0	3,900	88.51	0.0
70.00	0.0	3,895	88.51	0.0
72.00	0.0	3,889	88.51	0.0

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1i: Impervious Runoff Area=6.5 ac 100.00% Impervious Runoff Depth=6.16"
Tc=10.0 min CN=98 Runoff=34.6 cfs 3.34 af

Subcatchment A1p: Pervious Runoff Area=3.2 ac 0.00% Impervious Runoff Depth=0.57"
Flow Length=100' Slope=0.0320 '/' Tc=10.7 min CN=39 Runoff=0.7 cfs 0.15 af

Subcatchment B1i: Impervious Runoff Area=1.6 ac 100.00% Impervious Runoff Depth=6.16"
Tc=10.0 min CN=98 Runoff=8.5 cfs 0.82 af

Subcatchment B1p: Pervious Runoff Area=0.6 ac 0.00% Impervious Runoff Depth=0.57"
Flow Length=126' Tc=10.0 min CN=39 Runoff=0.1 cfs 0.03 af

Subcatchment B2i: Impervious Runoff Area=1.3 ac 100.00% Impervious Runoff Depth=6.16"
Tc=10.0 min CN=98 Runoff=6.9 cfs 0.67 af

Subcatchment B2p: Pervious Runoff Area=1.9 ac 0.00% Impervious Runoff Depth=0.51"
Flow Length=125' Tc=17.3 min CN=38 Runoff=0.3 cfs 0.08 af

Subcatchment Ui: Impervious Runoff Area=0.1 ac 100.00% Impervious Runoff Depth=6.16"
Tc=10.0 min CN=98 Runoff=0.5 cfs 0.05 af

Subcatchment Up: Pervious Runoff Area=2.0 ac 0.00% Impervious Runoff Depth=0.57"
Flow Length=275' Tc=11.4 min CN=39 Runoff=0.4 cfs 0.09 af

Pond A: Watershed A Inflow=12.3 cfs 4.74 af
Primary=12.3 cfs 4.74 af

Pond A1: Basin A Peak Elev=89.09' Storage=69,073 cf Inflow=35.0 cfs 3.49 af
Outflow=9.3 cfs 3.19 af

Pond B1: Basin B1 Peak Elev=97.59' Storage=5,577 cf Inflow=8.6 cfs 0.85 af
Outflow=8.2 cfs 0.74 af

Pond B2: Basin B2 Peak Elev=91.76' Storage=30,771 cf Inflow=15.0 cfs 1.49 af
Outflow=2.7 cfs 1.40 af

Total Runoff Area = 17.2 ac Runoff Volume = 5.23 af Average Runoff Depth = 3.65"
44.77% Pervious = 7.7 ac 55.23% Impervious = 9.5 ac

Summary for Subcatchment A1i: Impervious

Runoff = 34.6 cfs @ 12.17 hrs, Volume= 3.34 af, Depth= 6.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.40"

Area (ac)	CN	Description
3.8	98	Paved parking, HSG A
2.7	98	Roofs, HSG A
6.5	98	Weighted Average
6.5		100.00% Impervious Area

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

Hydrograph for Subcatchment A1i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.07	0.00	0.1
2.00	0.15	0.04	0.3
3.00	0.24	0.10	0.4
4.00	0.34	0.17	0.5
5.00	0.44	0.26	0.6
6.00	0.55	0.36	0.7
7.00	0.67	0.48	0.8
8.00	0.83	0.63	1.0
9.00	1.02	0.81	1.2
10.00	1.27	1.05	1.8
11.00	1.66	1.44	3.2
12.00	3.07	2.83	**16.6**
13.00	4.74	4.50	**4.4**
14.00	5.13	4.89	2.1
15.00	5.38	5.15	1.4
16.00	5.57	5.33	1.1
17.00	5.73	5.49	1.0
18.00	5.85	5.62	0.8
19.00	5.96	5.72	0.7
20.00	6.06	5.83	0.6
21.00	6.16	5.92	0.6
22.00	6.25	6.01	0.6
23.00	6.33	6.09	0.5
24.00	**6.40**	**6.16**	0.5
25.00	6.40	6.16	0.0
26.00	6.40	6.16	0.0
27.00	6.40	6.16	0.0
28.00	6.40	6.16	0.0
29.00	6.40	6.16	0.0
30.00	6.40	6.16	0.0
31.00	6.40	6.16	0.0
32.00	6.40	6.16	0.0
33.00	6.40	6.16	0.0
34.00	6.40	6.16	0.0
35.00	6.40	6.16	0.0
36.00	6.40	6.16	0.0
37.00	6.40	6.16	0.0
38.00	6.40	6.16	0.0
39.00	6.40	6.16	0.0
40.00	6.40	6.16	0.0
41.00	6.40	6.16	0.0
42.00	6.40	6.16	0.0
43.00	6.40	6.16	0.0
44.00	6.40	6.16	0.0
45.00	6.40	6.16	0.0
46.00	6.40	6.16	0.0
47.00	6.40	6.16	0.0
48.00	6.40	6.16	0.0
49.00	6.40	6.16	0.0
50.00	6.40	6.16	0.0
51.00	6.40	6.16	0.0
52.00	6.40	6.16	0.0
53.00	6.40	6.16	0.0
54.00	6.40	6.16	0.0
55.00	6.40	6.16	0.0
56.00	6.40	6.16	0.0
57.00	6.40	6.16	0.0
58.00	6.40	6.16	0.0
59.00	6.40	6.16	0.0
60.00	6.40	6.16	0.0
61.00	6.40	6.16	0.0
62.00	6.40	6.16	0.0
63.00	6.40	6.16	0.0
64.00	6.40	6.16	0.0
65.00	6.40	6.16	0.0
66.00	6.40	6.16	0.0
67.00	6.40	6.16	0.0
68.00	6.40	6.16	0.0
69.00	6.40	6.16	0.0
70.00	6.40	6.16	0.0
71.00	6.40	6.16	0.0
72.00	6.40	6.16	0.0

Summary for Subcatchment A1p: Pervious

Runoff = 0.7 cfs @ 12.27 hrs, Volume= 0.15 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.40"

Area (ac)	CN	Description
3.2	39	>75% Grass cover, Good, HSG A
3.2		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0320	0.16		**Sheet Flow, 105.3 - 102.1** Grass: Dense n= 0.240 P2= 3.89"

Hydrograph for Subcatchment A1p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.07	0.00	0.0
2.00	0.15	0.00	0.0
3.00	0.24	0.00	0.0
4.00	0.34	0.00	0.0
5.00	0.44	0.00	0.0
6.00	0.55	0.00	0.0
7.00	0.67	0.00	0.0
8.00	0.83	0.00	0.0
9.00	1.02	0.00	0.0
10.00	1.27	0.00	0.0
11.00	1.66	0.00	0.0
12.00	3.07	0.00	**0.0**
13.00	4.74	0.15	**0.4**
14.00	5.13	0.23	0.2
15.00	5.38	0.28	0.2
16.00	5.57	0.33	0.1
17.00	5.73	0.37	0.1
18.00	5.85	0.40	0.1
19.00	5.96	0.43	0.1
20.00	6.06	0.46	0.1
21.00	6.16	0.49	0.1
22.00	6.25	0.52	0.1
23.00	6.33	0.54	0.1
24.00	**6.40**	**0.57**	0.1
25.00	6.40	0.57	0.0
26.00	6.40	0.57	0.0
27.00	6.40	0.57	0.0
28.00	6.40	0.57	0.0
29.00	6.40	0.57	0.0
30.00	6.40	0.57	0.0
31.00	6.40	0.57	0.0
32.00	6.40	0.57	0.0
33.00	6.40	0.57	0.0
34.00	6.40	0.57	0.0
35.00	6.40	0.57	0.0
36.00	6.40	0.57	0.0
37.00	6.40	0.57	0.0
38.00	6.40	0.57	0.0
39.00	6.40	0.57	0.0
40.00	6.40	0.57	0.0
41.00	6.40	0.57	0.0
42.00	6.40	0.57	0.0
43.00	6.40	0.57	0.0
44.00	6.40	0.57	0.0
45.00	6.40	0.57	0.0
46.00	6.40	0.57	0.0
47.00	6.40	0.57	0.0
48.00	6.40	0.57	0.0
49.00	6.40	0.57	0.0
50.00	6.40	0.57	0.0
51.00	6.40	0.57	0.0
52.00	6.40	0.57	0.0
53.00	6.40	0.57	0.0
54.00	6.40	0.57	0.0
55.00	6.40	0.57	0.0
56.00	6.40	0.57	0.0
57.00	6.40	0.57	0.0
58.00	6.40	0.57	0.0
59.00	6.40	0.57	0.0
60.00	6.40	0.57	0.0
61.00	6.40	0.57	0.0
62.00	6.40	0.57	0.0
63.00	6.40	0.57	0.0
64.00	6.40	0.57	0.0
65.00	6.40	0.57	0.0
66.00	6.40	0.57	0.0
67.00	6.40	0.57	0.0
68.00	6.40	0.57	0.0
69.00	6.40	0.57	0.0
70.00	6.40	0.57	0.0
71.00	6.40	0.57	0.0
72.00	6.40	0.57	0.0

Summary for Subcatchment B1i: Impervious

Runoff = 8.5 cfs @ 12.17 hrs, Volume= 0.82 af, Depth= 6.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.40"

Area (ac)	CN	Description
1.6	98	Paved parking, HSG A
1.6		100.00% Impervious Area

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

Hydrograph for Subcatchment B1i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.07	0.00	0.0
2.00	0.15	0.04	0.1
3.00	0.24	0.10	0.1
4.00	0.34	0.17	0.1
5.00	0.44	0.26	0.1
6.00	0.55	0.36	0.2
7.00	0.67	0.48	0.2
8.00	0.83	0.63	0.3
9.00	1.02	0.81	0.3
10.00	1.27	1.05	0.5
11.00	1.66	1.44	0.8
12.00	3.07	2.83	**4.1**
13.00	4.74	4.50	**1.1**
14.00	5.13	4.89	0.5
15.00	5.38	5.15	0.4
16.00	5.57	5.33	0.3
17.00	5.73	5.49	0.2
18.00	5.85	5.62	0.2
19.00	5.96	5.72	0.2
20.00	6.06	5.83	0.2
21.00	6.16	5.92	0.1
22.00	6.25	6.01	0.1
23.00	6.33	6.09	0.1
24.00	**6.40**	**6.16**	0.1
25.00	6.40	6.16	0.0
26.00	6.40	6.16	0.0
27.00	6.40	6.16	0.0
28.00	6.40	6.16	0.0
29.00	6.40	6.16	0.0
30.00	6.40	6.16	0.0
31.00	6.40	6.16	0.0
32.00	6.40	6.16	0.0
33.00	6.40	6.16	0.0
34.00	6.40	6.16	0.0
35.00	6.40	6.16	0.0
36.00	6.40	6.16	0.0
37.00	6.40	6.16	0.0
38.00	6.40	6.16	0.0
39.00	6.40	6.16	0.0
40.00	6.40	6.16	0.0
41.00	6.40	6.16	0.0
42.00	6.40	6.16	0.0
43.00	6.40	6.16	0.0
44.00	6.40	6.16	0.0
45.00	6.40	6.16	0.0
46.00	6.40	6.16	0.0
47.00	6.40	6.16	0.0
48.00	6.40	6.16	0.0
49.00	6.40	6.16	0.0
50.00	6.40	6.16	0.0
51.00	6.40	6.16	0.0
52.00	6.40	6.16	0.0
53.00	6.40	6.16	0.0
54.00	6.40	6.16	0.0
55.00	6.40	6.16	0.0
56.00	6.40	6.16	0.0
57.00	6.40	6.16	0.0
58.00	6.40	6.16	0.0
59.00	6.40	6.16	0.0
60.00	6.40	6.16	0.0
61.00	6.40	6.16	0.0
62.00	6.40	6.16	0.0
63.00	6.40	6.16	0.0
64.00	6.40	6.16	0.0
65.00	6.40	6.16	0.0
66.00	6.40	6.16	0.0
67.00	6.40	6.16	0.0
68.00	6.40	6.16	0.0
69.00	6.40	6.16	0.0
70.00	6.40	6.16	0.0
71.00	6.40	6.16	0.0
72.00	6.40	6.16	0.0

Summary for Subcatchment B1p: Pervious

Runoff = 0.1 cfs @ 12.26 hrs, Volume= 0.03 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.40"

Area (ac)	CN	Description
0.6	39	>75% Grass cover, Good, HSG A
0.6		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	36	0.1140	0.14		**Sheet Flow, 114 -109.9** Woods: Light underbrush n= 0.400 P2= 3.89"
4.4	67	0.1330	0.25		**Sheet Flow, 109.9 - 101.0** Grass: Dense n= 0.240 P2= 3.89"
0.1	23	0.0430	4.21		**Shallow Concentrated Flow, 101.0 - 100.3** Paved Kv= 20.3 fps
8.8	126	Total, Increased to minimum Tc = 10.0 min			

Hydrograph for Subcatchment B1p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.07	0.00	0.0
2.00	0.15	0.00	0.0
3.00	0.24	0.00	0.0
4.00	0.34	0.00	0.0
5.00	0.44	0.00	0.0
6.00	0.55	0.00	0.0
7.00	0.67	0.00	0.0
8.00	0.83	0.00	0.0
9.00	1.02	0.00	0.0
10.00	1.27	0.00	0.0
11.00	1.66	0.00	0.0
12.00	3.07	0.00	**0.0**
13.00	4.74	0.15	**0.1**
14.00	5.13	0.23	0.0
15.00	5.38	0.28	0.0
16.00	5.57	0.33	0.0
17.00	5.73	0.37	0.0
18.00	5.85	0.40	0.0
19.00	5.96	0.43	0.0
20.00	6.06	0.46	0.0
21.00	6.16	0.49	0.0
22.00	6.25	0.52	0.0
23.00	6.33	0.54	0.0
24.00	**6.40**	**0.57**	0.0
25.00	6.40	0.57	0.0
26.00	6.40	0.57	0.0
27.00	6.40	0.57	0.0
28.00	6.40	0.57	0.0
29.00	6.40	0.57	0.0
30.00	6.40	0.57	0.0
31.00	6.40	0.57	0.0
32.00	6.40	0.57	0.0
33.00	6.40	0.57	0.0
34.00	6.40	0.57	0.0
35.00	6.40	0.57	0.0
36.00	6.40	0.57	0.0
37.00	6.40	0.57	0.0
38.00	6.40	0.57	0.0
39.00	6.40	0.57	0.0
40.00	6.40	0.57	0.0
41.00	6.40	0.57	0.0
42.00	6.40	0.57	0.0
43.00	6.40	0.57	0.0
44.00	6.40	0.57	0.0
45.00	6.40	0.57	0.0
46.00	6.40	0.57	0.0
47.00	6.40	0.57	0.0
48.00	6.40	0.57	0.0
49.00	6.40	0.57	0.0
50.00	6.40	0.57	0.0
51.00	6.40	0.57	0.0
52.00	6.40	0.57	0.0
53.00	6.40	0.57	0.0
54.00	6.40	0.57	0.0
55.00	6.40	0.57	0.0
56.00	6.40	0.57	0.0
57.00	6.40	0.57	0.0
58.00	6.40	0.57	0.0
59.00	6.40	0.57	0.0
60.00	6.40	0.57	0.0
61.00	6.40	0.57	0.0
62.00	6.40	0.57	0.0
63.00	6.40	0.57	0.0
64.00	6.40	0.57	0.0
65.00	6.40	0.57	0.0
66.00	6.40	0.57	0.0
67.00	6.40	0.57	0.0
68.00	6.40	0.57	0.0
69.00	6.40	0.57	0.0
70.00	6.40	0.57	0.0
71.00	6.40	0.57	0.0
72.00	6.40	0.57	0.0

Summary for Subcatchment B2i: Impervious

Runoff = 6.9 cfs @ 12.17 hrs, Volume= 0.67 af, Depth= 6.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.40"

Area (ac)	CN	Description
1.3	98	Paved parking, HSG A
1.3		100.00% Impervious Area

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

Hydrograph for Subcatchment B2i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.07	0.00	0.0
2.00	0.15	0.04	0.1
3.00	0.24	0.10	0.1
4.00	0.34	0.17	0.1
5.00	0.44	0.26	0.1
6.00	0.55	0.36	0.1
7.00	0.67	0.48	0.2
8.00	0.83	0.63	0.2
9.00	1.02	0.81	0.2
10.00	1.27	1.05	0.4
11.00	1.66	1.44	0.6
12.00	3.07	2.83	**3.3**
13.00	4.74	4.50	**0.9**
14.00	5.13	4.89	0.4
15.00	5.38	5.15	0.3
16.00	5.57	5.33	0.2
17.00	5.73	5.49	0.2
18.00	5.85	5.62	0.2
19.00	5.96	5.72	0.1
20.00	6.06	5.83	0.1
21.00	6.16	5.92	0.1
22.00	6.25	6.01	0.1
23.00	6.33	6.09	0.1
24.00	**6.40**	**6.16**	0.1
25.00	6.40	6.16	0.0
26.00	6.40	6.16	0.0
27.00	6.40	6.16	0.0
28.00	6.40	6.16	0.0
29.00	6.40	6.16	0.0
30.00	6.40	6.16	0.0
31.00	6.40	6.16	0.0
32.00	6.40	6.16	0.0
33.00	6.40	6.16	0.0
34.00	6.40	6.16	0.0
35.00	6.40	6.16	0.0
36.00	6.40	6.16	0.0
37.00	6.40	6.16	0.0
38.00	6.40	6.16	0.0
39.00	6.40	6.16	0.0
40.00	6.40	6.16	0.0
41.00	6.40	6.16	0.0
42.00	6.40	6.16	0.0
43.00	6.40	6.16	0.0
44.00	6.40	6.16	0.0
45.00	6.40	6.16	0.0
46.00	6.40	6.16	0.0
47.00	6.40	6.16	0.0
48.00	6.40	6.16	0.0
49.00	6.40	6.16	0.0
50.00	6.40	6.16	0.0
51.00	6.40	6.16	0.0
52.00	6.40	6.16	0.0
53.00	6.40	6.16	0.0
54.00	6.40	6.16	0.0
55.00	6.40	6.16	0.0
56.00	6.40	6.16	0.0
57.00	6.40	6.16	0.0
58.00	6.40	6.16	0.0
59.00	6.40	6.16	0.0
60.00	6.40	6.16	0.0
61.00	6.40	6.16	0.0
62.00	6.40	6.16	0.0
63.00	6.40	6.16	0.0
64.00	6.40	6.16	0.0
65.00	6.40	6.16	0.0
66.00	6.40	6.16	0.0
67.00	6.40	6.16	0.0
68.00	6.40	6.16	0.0
69.00	6.40	6.16	0.0
70.00	6.40	6.16	0.0
71.00	6.40	6.16	0.0
72.00	6.40	6.16	0.0

Summary for Subcatchment B2p: Pervious

Runoff = 0.3 cfs @ 12.47 hrs, Volume= 0.08 af, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.40"

Area (ac)	CN	Description
1.6	39	>75% Grass cover, Good, HSG A
0.3	30	Woods, Good, HSG A
1.9	38	Weighted Average
1.9		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0100	0.10		**Sheet Flow, 102.5 - 101.5** Grass: Dense n= 0.240 P2= 3.89"
0.2	25	0.0160	2.04		**Shallow Concentrated Flow, 101.5 - 101.1** Unpaved Kv= 16.1 fps
17.3	125	Total			

Hydrograph for Subcatchment B2p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.07	0.00	0.0
2.00	0.15	0.00	0.0
3.00	0.24	0.00	0.0
4.00	0.34	0.00	0.0
5.00	0.44	0.00	0.0
6.00	0.55	0.00	0.0
7.00	0.67	0.00	0.0
8.00	0.83	0.00	0.0
9.00	1.02	0.00	0.0
10.00	1.27	0.00	0.0
11.00	1.66	0.00	0.0
12.00	3.07	0.00	**0.0**
13.00	4.74	0.12	**0.2**
14.00	5.13	0.19	0.1
15.00	5.38	0.24	0.1
16.00	5.57	0.29	0.1
17.00	5.73	0.32	0.1
18.00	5.85	0.35	0.1
19.00	5.96	0.38	0.1
20.00	6.06	0.41	0.1
21.00	6.16	0.44	0.0
22.00	6.25	0.46	0.0
23.00	6.33	0.48	0.0
24.00	**6.40**	**0.51**	0.0
25.00	6.40	0.51	0.0
26.00	6.40	0.51	0.0
27.00	6.40	0.51	0.0
28.00	6.40	0.51	0.0
29.00	6.40	0.51	0.0
30.00	6.40	0.51	0.0
31.00	6.40	0.51	0.0
32.00	6.40	0.51	0.0
33.00	6.40	0.51	0.0
34.00	6.40	0.51	0.0
35.00	6.40	0.51	0.0
36.00	6.40	0.51	0.0
37.00	6.40	0.51	0.0
38.00	6.40	0.51	0.0
39.00	6.40	0.51	0.0
40.00	6.40	0.51	0.0
41.00	6.40	0.51	0.0
42.00	6.40	0.51	0.0
43.00	6.40	0.51	0.0
44.00	6.40	0.51	0.0
45.00	6.40	0.51	0.0
46.00	6.40	0.51	0.0
47.00	6.40	0.51	0.0
48.00	6.40	0.51	0.0
49.00	6.40	0.51	0.0
50.00	6.40	0.51	0.0
51.00	6.40	0.51	0.0
52.00	6.40	0.51	0.0
53.00	6.40	0.51	0.0
54.00	6.40	0.51	0.0
55.00	6.40	0.51	0.0
56.00	6.40	0.51	0.0
57.00	6.40	0.51	0.0
58.00	6.40	0.51	0.0
59.00	6.40	0.51	0.0
60.00	6.40	0.51	0.0
61.00	6.40	0.51	0.0
62.00	6.40	0.51	0.0
63.00	6.40	0.51	0.0
64.00	6.40	0.51	0.0
65.00	6.40	0.51	0.0
66.00	6.40	0.51	0.0
67.00	6.40	0.51	0.0
68.00	6.40	0.51	0.0
69.00	6.40	0.51	0.0
70.00	6.40	0.51	0.0
71.00	6.40	0.51	0.0
72.00	6.40	0.51	0.0

Summary for Subcatchment Ui: Impervious

Runoff = 0.5 cfs @ 12.17 hrs, Volume= 0.05 af, Depth= 6.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.40"

Area (ac)	CN	Description
0.1	98	Paved parking, HSG A
0.1		100.00% Impervious Area

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

Hydrograph for Subcatchment Ui: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.07	0.00	0.0
2.00	0.15	0.04	0.0
3.00	0.24	0.10	0.0
4.00	0.34	0.17	0.0
5.00	0.44	0.26	0.0
6.00	0.55	0.36	0.0
7.00	0.67	0.48	0.0
8.00	0.83	0.63	0.0
9.00	1.02	0.81	0.0
10.00	1.27	1.05	0.0
11.00	1.66	1.44	0.0
12.00	3.07	2.83	**0.3**
13.00	4.74	4.50	**0.1**
14.00	5.13	4.89	0.0
15.00	5.38	5.15	0.0
16.00	5.57	5.33	0.0
17.00	5.73	5.49	0.0
18.00	5.85	5.62	0.0
19.00	5.96	5.72	0.0
20.00	6.06	5.83	0.0
21.00	6.16	5.92	0.0
22.00	6.25	6.01	0.0
23.00	6.33	6.09	0.0
24.00	**6.40**	**6.16**	0.0
25.00	6.40	6.16	0.0
26.00	6.40	6.16	0.0
27.00	6.40	6.16	0.0
28.00	6.40	6.16	0.0
29.00	6.40	6.16	0.0
30.00	6.40	6.16	0.0
31.00	6.40	6.16	0.0
32.00	6.40	6.16	0.0
33.00	6.40	6.16	0.0
34.00	6.40	6.16	0.0
35.00	6.40	6.16	0.0
36.00	6.40	6.16	0.0
37.00	6.40	6.16	0.0
38.00	6.40	6.16	0.0
39.00	6.40	6.16	0.0
40.00	6.40	6.16	0.0
41.00	6.40	6.16	0.0
42.00	6.40	6.16	0.0
43.00	6.40	6.16	0.0
44.00	6.40	6.16	0.0
45.00	6.40	6.16	0.0
46.00	6.40	6.16	0.0
47.00	6.40	6.16	0.0
48.00	6.40	6.16	0.0
49.00	6.40	6.16	0.0
50.00	6.40	6.16	0.0
51.00	6.40	6.16	0.0
52.00	6.40	6.16	0.0
53.00	6.40	6.16	0.0
54.00	6.40	6.16	0.0
55.00	6.40	6.16	0.0
56.00	6.40	6.16	0.0
57.00	6.40	6.16	0.0
58.00	6.40	6.16	0.0
59.00	6.40	6.16	0.0
60.00	6.40	6.16	0.0
61.00	6.40	6.16	0.0
62.00	6.40	6.16	0.0
63.00	6.40	6.16	0.0
64.00	6.40	6.16	0.0
65.00	6.40	6.16	0.0
66.00	6.40	6.16	0.0
67.00	6.40	6.16	0.0
68.00	6.40	6.16	0.0
69.00	6.40	6.16	0.0
70.00	6.40	6.16	0.0
71.00	6.40	6.16	0.0
72.00	6.40	6.16	0.0

Summary for Subcatchment Up: Pervious

Runoff = 0.4 cfs @ 12.28 hrs, Volume= 0.09 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 25-Year Rainfall=6.40"

Area (ac)	CN	Description
1.9	39	>75% Grass cover, Good, HSG A
0.1	30	Woods, Good, HSG A
2.0	39	Weighted Average
2.0		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0380	0.17		**Sheet Flow, 94.0 - 90.2** Grass: Dense n= 0.240 P2= 3.89"
1.4	175	0.0180	2.16		**Shallow Concentrated Flow, 90.2 - 87.0** Unpaved Kv= 16.1 fps
11.4	275	Total			

Hydrograph for Subcatchment Up: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.07	0.00	0.0
2.00	0.15	0.00	0.0
3.00	0.24	0.00	0.0
4.00	0.34	0.00	0.0
5.00	0.44	0.00	0.0
6.00	0.55	0.00	0.0
7.00	0.67	0.00	0.0
8.00	0.83	0.00	0.0
9.00	1.02	0.00	0.0
10.00	1.27	0.00	0.0
11.00	1.66	0.00	0.0
12.00	3.07	0.00	**0.0**
13.00	4.74	0.15	**0.2**
14.00	5.13	0.23	0.1
15.00	5.38	0.28	0.1
16.00	5.57	0.33	0.1
17.00	5.73	0.37	0.1
18.00	5.85	0.40	0.1
19.00	5.96	0.43	0.1
20.00	6.06	0.46	0.1
21.00	6.16	0.49	0.1
22.00	6.25	0.52	0.1
23.00	6.33	0.54	0.0
24.00	**6.40**	**0.57**	0.0
25.00	6.40	0.57	0.0
26.00	6.40	0.57	0.0
27.00	6.40	0.57	0.0
28.00	6.40	0.57	0.0
29.00	6.40	0.57	0.0
30.00	6.40	0.57	0.0
31.00	6.40	0.57	0.0
32.00	6.40	0.57	0.0
33.00	6.40	0.57	0.0
34.00	6.40	0.57	0.0
35.00	6.40	0.57	0.0
36.00	6.40	0.57	0.0
37.00	6.40	0.57	0.0
38.00	6.40	0.57	0.0
39.00	6.40	0.57	0.0
40.00	6.40	0.57	0.0
41.00	6.40	0.57	0.0
42.00	6.40	0.57	0.0
43.00	6.40	0.57	0.0
44.00	6.40	0.57	0.0
45.00	6.40	0.57	0.0
46.00	6.40	0.57	0.0
47.00	6.40	0.57	0.0
48.00	6.40	0.57	0.0
49.00	6.40	0.57	0.0
50.00	6.40	0.57	0.0
51.00	6.40	0.57	0.0
52.00	6.40	0.57	0.0
53.00	6.40	0.57	0.0
54.00	6.40	0.57	0.0
55.00	6.40	0.57	0.0
56.00	6.40	0.57	0.0
57.00	6.40	0.57	0.0
58.00	6.40	0.57	0.0
59.00	6.40	0.57	0.0
60.00	6.40	0.57	0.0
61.00	6.40	0.57	0.0
62.00	6.40	0.57	0.0
63.00	6.40	0.57	0.0
64.00	6.40	0.57	0.0
65.00	6.40	0.57	0.0
66.00	6.40	0.57	0.0
67.00	6.40	0.57	0.0
68.00	6.40	0.57	0.0
69.00	6.40	0.57	0.0
70.00	6.40	0.57	0.0
71.00	6.40	0.57	0.0
72.00	6.40	0.57	0.0

Summary for Pond A: Watershed A

Inflow Area = 17.2 ac, 55.23% Impervious, Inflow Depth > 3.30" for 25-Year event
Inflow = 12.3 cfs @ 12.58 hrs, Volume= 4.74 af
Primary = 12.3 cfs @ 12.58 hrs, Volume= 4.74 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Hydrograph for Pond A: Watershed A

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.0		0.0
1.00	0.0		0.0
2.00	0.0		0.0
3.00	0.0		0.0
4.00	0.0		0.0
5.00	0.0		0.0
6.00	0.0		0.0
7.00	0.0		0.0
8.00	0.1		0.1
9.00	0.4		0.4
10.00	1.1		1.1
11.00	1.9		1.9
12.00	**3.7**		**3.7**
13.00	**10.9**		**10.9**
14.00	6.9		6.9
15.00	4.8		4.8
16.00	3.9		3.9
17.00	3.4		3.4
18.00	3.1		3.1
19.00	2.8		2.8
20.00	2.5		2.5
21.00	2.2		2.2
22.00	1.9		1.9
23.00	1.6		1.6
24.00	1.4		1.4
25.00	0.8		0.8
26.00	0.5		0.5
27.00	0.3		0.3
28.00	0.2		0.2
29.00	0.1		0.1
30.00	0.1		0.1
31.00	0.1		0.1
32.00	0.1		0.1
33.00	0.1		0.1
34.00	0.0		0.0
35.00	0.0		0.0
36.00	0.0		0.0
37.00	0.0		0.0
38.00	0.0		0.0
39.00	0.0		0.0
40.00	0.0		0.0
41.00	0.0		0.0
42.00	0.0		0.0
43.00	0.0		0.0
44.00	0.0		0.0
45.00	0.0		0.0
46.00	0.0		0.0
47.00	0.0		0.0
48.00	0.0		0.0
49.00	0.0		0.0
50.00	0.0		0.0
51.00	0.0		0.0
52.00	0.0		0.0
53.00	0.0		0.0
54.00	0.0		0.0
55.00	0.0		0.0
56.00	0.0		0.0
57.00	0.0		0.0
58.00	0.0		0.0
59.00	0.0		0.0
60.00	0.0		0.0
61.00	0.0		0.0
62.00	0.0		0.0
63.00	0.0		0.0
64.00	0.0		0.0
65.00	0.0		0.0
66.00	0.0		0.0
67.00	0.0		0.0
68.00	0.0		0.0
69.00	0.0		0.0
70.00	0.0		0.0
71.00	0.0		0.0
72.00	0.0		0.0

Summary for Pond A1: Basin A

Inflow Area = 9.7 ac, 67.01% Impervious, Inflow Depth = 4.32" for 25-Year event
Inflow = 35.0 cfs @ 12.17 hrs, Volume= 3.49 af
Outflow = 9.3 cfs @ 12.51 hrs, Volume= 3.19 af, Atten= 74%, Lag= 20.5 min
Primary = 9.3 cfs @ 12.51 hrs, Volume= 3.19 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 89.09' @ 12.51 hrs Surf.Area= 14,254.6 sf Storage= 69,073 cf

Plug-Flow detention time= 250.1 min calculated for 3.19 af (91% of inflow)
Center-of-Mass det. time= 201.6 min (960.1 - 758.5)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	120,699 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	12,490.0	0	0
85.00	13,185.0	12,838	12,838
86.00	13,475.0	13,330	26,168
87.00	13,765.0	13,620	39,788
88.00	14,010.0	13,888	53,675
89.00	14,235.0	14,123	67,798
90.00	14,455.0	14,345	82,143
91.00	14,635.0	14,545	96,688
92.00	16,675.0	15,655	112,343
92.50	16,750.0	8,356	120,699

Device	Routing	Invert	Outlet Devices
#1	Primary	83.90'	**24.0" Round 24" Pipe** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 83.90' / 83.52' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	85.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	87.00'	**0.6' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=9.3 cfs @ 12.51 hrs HW=89.09' (Free Discharge)
└**1=24" Pipe** (Passes 9.3 cfs of 31.0 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 3.3 cfs @ 9.33 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 6.0 cfs @ 4.80 fps)

Hydrograph for Pond A1: Basin A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.0	0	84.00	0.0
2.00	0.3	777	84.06	0.0
4.00	0.5	3,819	84.30	0.0
6.00	0.7	8,125	84.63	0.0
8.00	1.0	14,200	85.10	0.0
10.00	1.8	20,829	85.60	0.9
12.00	**16.6**	**42,071**	**87.16**	**2.4**
14.00	**2.3**	**53,920**	**88.02**	**4.8**
16.00	1.3	42,188	87.17	2.4
18.00	0.9	34,739	86.63	1.9
20.00	0.7	28,147	86.15	1.5
22.00	0.6	23,552	85.80	1.2
24.00	0.5	20,629	85.58	0.8
26.00	0.0	17,020	85.31	0.3
28.00	0.0	15,518	85.20	0.1
30.00	0.0	14,774	85.15	0.1
32.00	0.0	14,337	85.11	0.0
34.00	0.0	14,063	85.09	0.0
36.00	0.0	13,851	85.08	0.0
38.00	0.0	13,683	85.06	0.0
40.00	0.0	13,551	85.05	0.0
42.00	0.0	13,447	85.05	0.0
44.00	0.0	13,365	85.04	0.0
46.00	0.0	13,301	85.03	0.0
48.00	0.0	13,250	85.03	0.0
50.00	0.0	13,209	85.03	0.0
52.00	0.0	13,178	85.03	0.0
54.00	0.0	13,153	85.02	0.0
56.00	0.0	13,133	85.02	0.0
58.00	0.0	13,117	85.02	0.0
60.00	0.0	13,105	85.02	0.0
62.00	0.0	13,095	85.02	0.0
64.00	0.0	13,085	85.02	0.0
66.00	0.0	13,075	85.02	0.0
68.00	0.0	13,066	85.02	0.0
70.00	0.0	13,057	85.02	0.0
72.00	0.0	13,049	85.02	0.0

Summary for Pond B1: Basin B1

Inflow Area = 2.2 ac, 72.73% Impervious, Inflow Depth = 4.64" for 25-Year event
Inflow = 8.6 cfs @ 12.17 hrs, Volume= 0.85 af
Outflow = 8.2 cfs @ 12.20 hrs, Volume= 0.74 af, Atten= 5%, Lag= 1.8 min
Primary = 8.2 cfs @ 12.20 hrs, Volume= 0.74 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 97.59' @ 12.20 hrs Surf.Area= 4,955.4 sf Storage= 5,577 cf

Plug-Flow detention time= 123.4 min calculated for 0.74 af (87% of inflow)
Center-of-Mass det. time= 58.8 min (815.1 - 756.3)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	25,898 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	1,955.0	0	0
97.00	3,925.0	2,940	2,940
98.00	5,660.0	4,793	7,733
99.00	7,585.0	6,623	14,355
100.00	15,500.0	11,543	25,898

Device	Routing	Invert	Outlet Devices
#1	Primary	94.50'	**18.0" Round 18" Pipe** L= 49.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 94.50' / 93.52' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Device 1	97.40'	**1.0" x 5.0" Horiz. Orifice/Grate X 8.00 columns** X 14 rows C= 0.600 in 96.0" x 106.0" Grate (6% open area) Limited to weir flow at low heads

Primary OutFlow Max=8.2 cfs @ 12.20 hrs HW=97.59' (Free Discharge)
↑**1=18" Pipe** (Passes 8.2 cfs of 13.0 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 8.2 cfs @ 2.12 fps)

Hydrograph for Pond B1: Basin B1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.0	0	96.00	0.0
2.00	0.1	191	96.09	0.0
4.00	0.1	940	96.40	0.0
6.00	0.2	2,000	96.74	0.0
8.00	0.3	3,501	97.14	0.0
10.00	0.5	4,743	97.42	0.4
12.00	**4.1**	**5,131**	**97.50**	**3.7**
14.00	**0.6**	**4,768**	**97.43**	**0.6**
16.00	0.3	4,715	97.41	0.3
18.00	0.2	4,694	97.41	0.2
20.00	0.2	4,686	97.41	0.2
22.00	0.2	4,681	97.41	0.2
24.00	0.1	4,676	97.41	0.1
26.00	0.0	4,649	97.40	0.0
28.00	0.0	4,649	97.40	0.0
30.00	0.0	4,649	97.40	0.0
32.00	0.0	4,649	97.40	0.0
34.00	0.0	4,649	97.40	0.0
36.00	0.0	4,649	97.40	0.0
38.00	0.0	4,649	97.40	0.0
40.00	0.0	4,649	97.40	0.0
42.00	0.0	4,649	97.40	0.0
44.00	0.0	4,649	97.40	0.0
46.00	0.0	4,649	97.40	0.0
48.00	0.0	4,649	97.40	0.0
50.00	0.0	4,649	97.40	0.0
52.00	0.0	4,649	97.40	0.0
54.00	0.0	4,649	97.40	0.0
56.00	0.0	4,649	97.40	0.0
58.00	0.0	4,649	97.40	0.0
60.00	0.0	4,649	97.40	0.0
62.00	0.0	4,649	97.40	0.0
64.00	0.0	4,649	97.40	0.0
66.00	0.0	4,649	97.40	0.0
68.00	0.0	4,649	97.40	0.0
70.00	0.0	4,649	97.40	0.0
72.00	0.0	4,649	97.40	0.0

Summary for Pond B2: Basin B2

Inflow Area = 5.4 ac, 53.70% Impervious, Inflow Depth = 3.31" for 25-Year event
Inflow = 15.0 cfs @ 12.18 hrs, Volume= 1.49 af
Outflow = 2.7 cfs @ 12.80 hrs, Volume= 1.40 af, Atten= 82%, Lag= 36.9 min
Primary = 2.7 cfs @ 12.80 hrs, Volume= 1.40 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 91.76' @ 12.80 hrs Surf.Area= 8,866.2 sf Storage= 30,771 cf

Plug-Flow detention time= 252.0 min calculated for 1.40 af (94% of inflow)
Center-of-Mass det. time= 217.7 min (1,012.4 - 794.7)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	66,151 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
88.00	7,435.0	0	0
89.00	7,845.0	7,640	7,640
90.00	8,235.0	8,040	15,680
91.00	8,600.0	8,418	24,098
92.00	8,950.0	8,775	32,873
93.00	9,280.0	9,115	41,988
94.00	8,670.0	8,975	50,963
95.00	9,990.0	9,330	60,293
95.50	13,445.0	5,859	66,151

Device	Routing	Invert	Outlet Devices
#1	Primary	82.90'	**18.0" Round 18" Pipe** L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 82.90' / 82.30' S= 0.0182 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Device 1	88.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	91.00'	**0.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.7 cfs @ 12.80 hrs HW=91.76' (Free Discharge)
- **1=18" Pipe** (Passes 2.7 cfs of 24.2 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 1.6 cfs @ 8.35 fps)
  - **3=Broad-Crested Rectangular Weir** (Weir Controls 1.1 cfs @ 2.84 fps)

Hydrograph for Pond B2: Basin B2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.0	0	88.00	0.0
2.00	0.1	155	88.02	0.0
4.00	0.1	764	88.10	0.0
6.00	0.1	1,625	88.21	0.0
8.00	0.2	2,844	88.37	0.0
10.00	0.8	5,703	88.75	0.2
12.00	**7.0**	**15,327**	**89.96**	**1.0**
14.00	**1.1**	**27,784**	**91.42**	**1.9**
16.00	0.6	22,393	90.80	1.4
18.00	0.4	17,199	90.18	1.1
20.00	0.4	12,707	89.63	0.9
22.00	0.3	9,567	89.24	0.7
24.00	0.3	7,591	88.99	0.5
26.00	0.0	5,649	88.74	0.2
28.00	0.0	4,929	88.65	0.1
30.00	0.0	4,597	88.60	0.0
32.00	0.0	4,411	88.58	0.0
34.00	0.0	4,280	88.56	0.0
36.00	0.0	4,188	88.55	0.0
38.00	0.0	4,123	88.54	0.0
40.00	0.0	4,078	88.53	0.0
42.00	0.0	4,046	88.53	0.0
44.00	0.0	4,024	88.53	0.0
46.00	0.0	4,008	88.52	0.0
48.00	0.0	3,994	88.52	0.0
50.00	0.0	3,982	88.52	0.0
52.00	0.0	3,970	88.52	0.0
54.00	0.0	3,959	88.52	0.0
56.00	0.0	3,949	88.52	0.0
58.00	0.0	3,940	88.52	0.0
60.00	0.0	3,931	88.51	0.0
62.00	0.0	3,923	88.51	0.0
64.00	0.0	3,916	88.51	0.0
66.00	0.0	3,909	88.51	0.0
68.00	0.0	3,903	88.51	0.0
70.00	0.0	3,897	88.51	0.0
72.00	0.0	3,891	88.51	0.0

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1i: Impervious Runoff Area=6.5 ac 100.00% Impervious Runoff Depth=9.56"
Tc=10.0 min CN=98 Runoff=53.1 cfs 5.18 af

Subcatchment A1p: Pervious Runoff Area=3.2 ac 0.00% Impervious Runoff Depth=1.99"
Flow Length=100' Slope=0.0320 '/' Tc=10.7 min CN=39 Runoff=5.3 cfs 0.53 af

Subcatchment B1i: Impervious Runoff Area=1.6 ac 100.00% Impervious Runoff Depth=9.56"
Tc=10.0 min CN=98 Runoff=13.1 cfs 1.27 af

Subcatchment B1p: Pervious Runoff Area=0.6 ac 0.00% Impervious Runoff Depth=1.99"
Flow Length=126' Tc=10.0 min CN=39 Runoff=1.0 cfs 0.10 af

Subcatchment B2i: Impervious Runoff Area=1.3 ac 100.00% Impervious Runoff Depth=9.56"
Tc=10.0 min CN=98 Runoff=10.6 cfs 1.04 af

Subcatchment B2p: Pervious Runoff Area=1.9 ac 0.00% Impervious Runoff Depth=1.87"
Flow Length=125' Tc=17.3 min CN=38 Runoff=2.3 cfs 0.30 af

Subcatchment Ui: Impervious Runoff Area=0.1 ac 100.00% Impervious Runoff Depth=9.56"
Tc=10.0 min CN=98 Runoff=0.8 cfs 0.08 af

Subcatchment Up: Pervious Runoff Area=2.0 ac 0.00% Impervious Runoff Depth=1.99"
Flow Length=275' Tc=11.4 min CN=39 Runoff=3.2 cfs 0.33 af

Pond A: Watershed A Inflow=29.8 cfs 8.33 af
Primary=29.8 cfs 8.33 af

Pond A1: Basin A Peak Elev=91.02' Storage=97,023 cf Inflow=58.2 cfs 5.71 af
Outflow=20.1 cfs 5.41 af

Pond B1: Basin B1 Peak Elev=97.82' Storage=6,737 cf Inflow=14.1 cfs 1.37 af
Outflow=12.1 cfs 1.27 af

Pond B2: Basin B2 Peak Elev=93.34' Storage=45,030 cf Inflow=23.9 cfs 2.60 af
Outflow=8.0 cfs 2.51 af

Total Runoff Area = 17.2 ac Runoff Volume = 8.83 af Average Runoff Depth = 6.16"
44.77% Pervious = 7.7 ac 55.23% Impervious = 9.5 ac

Summary for Subcatchment A1i: Impervious

Runoff = 53.1 cfs @ 12.17 hrs, Volume= 5.18 af, Depth= 9.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
3.8	98	Paved parking, HSG A
2.7	98	Roofs, HSG A
6.5	98	Weighted Average
6.5		100.00% Impervious Area

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

Hydrograph for Subcatchment A1i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.02	0.3
2.00	0.24	0.09	0.6
3.00	0.37	0.20	0.8
4.00	0.51	0.33	0.9
5.00	0.67	0.48	1.0
6.00	0.84	0.63	1.1
7.00	1.03	0.82	1.3
8.00	1.27	1.06	1.6
9.00	1.55	1.33	1.9
10.00	1.94	1.72	2.9
11.00	2.55	2.32	4.9
12.00	4.70	4.46	**25.5**
13.00	7.25	7.01	**6.7**
14.00	7.86	7.62	3.2
15.00	8.25	8.01	2.2
16.00	8.53	8.29	1.8
17.00	8.77	8.53	1.5
18.00	8.96	8.72	1.2
19.00	9.13	8.89	1.1
20.00	9.29	9.05	1.0
21.00	9.43	9.19	0.9
22.00	9.56	9.32	0.9
23.00	9.69	9.45	0.8
24.00	**9.80**	**9.56**	0.7
25.00	9.80	9.56	0.0
26.00	9.80	9.56	0.0
27.00	9.80	9.56	0.0
28.00	9.80	9.56	0.0
29.00	9.80	9.56	0.0
30.00	9.80	9.56	0.0
31.00	9.80	9.56	0.0
32.00	9.80	9.56	0.0
33.00	9.80	9.56	0.0
34.00	9.80	9.56	0.0
35.00	9.80	9.56	0.0
36.00	9.80	9.56	0.0
37.00	9.80	9.56	0.0
38.00	9.80	9.56	0.0
39.00	9.80	9.56	0.0
40.00	9.80	9.56	0.0
41.00	9.80	9.56	0.0
42.00	9.80	9.56	0.0
43.00	9.80	9.56	0.0
44.00	9.80	9.56	0.0
45.00	9.80	9.56	0.0
46.00	9.80	9.56	0.0
47.00	9.80	9.56	0.0
48.00	9.80	9.56	0.0
49.00	9.80	9.56	0.0
50.00	9.80	9.56	0.0
51.00	9.80	9.56	0.0
52.00	9.80	9.56	0.0
53.00	9.80	9.56	0.0
54.00	9.80	9.56	0.0
55.00	9.80	9.56	0.0
56.00	9.80	9.56	0.0
57.00	9.80	9.56	0.0
58.00	9.80	9.56	0.0
59.00	9.80	9.56	0.0
60.00	9.80	9.56	0.0
61.00	9.80	9.56	0.0
62.00	9.80	9.56	0.0
63.00	9.80	9.56	0.0
64.00	9.80	9.56	0.0
65.00	9.80	9.56	0.0
66.00	9.80	9.56	0.0
67.00	9.80	9.56	0.0
68.00	9.80	9.56	0.0
69.00	9.80	9.56	0.0
70.00	9.80	9.56	0.0
71.00	9.80	9.56	0.0
72.00	9.80	9.56	0.0

Summary for Subcatchment A1p: Pervious

Runoff = 5.3 cfs @ 12.20 hrs, Volume= 0.53 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
3.2	39	>75% Grass cover, Good, HSG A
3.2		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0320	0.16		**Sheet Flow, 105.3 - 102.1** Grass: Dense n= 0.240 P2= 3.89"

Hydrograph for Subcatchment A1p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.00	0.0
2.00	0.24	0.00	0.0
3.00	0.37	0.00	0.0
4.00	0.51	0.00	0.0
5.00	0.67	0.00	0.0
6.00	0.84	0.00	0.0
7.00	1.03	0.00	0.0
8.00	1.27	0.00	0.0
9.00	1.55	0.00	0.0
10.00	1.94	0.00	0.0
11.00	2.55	0.00	0.0
12.00	4.70	0.14	**1.2**
13.00	7.25	0.86	**1.2**
14.00	7.86	1.10	0.6
15.00	8.25	1.26	0.5
16.00	8.53	1.39	0.4
17.00	8.77	1.49	0.3
18.00	8.96	1.59	0.3
19.00	9.13	1.66	0.3
20.00	9.29	1.74	0.2
21.00	9.43	1.81	0.2
22.00	9.56	1.88	0.2
23.00	9.69	1.94	0.2
24.00	**9.80**	**1.99**	0.2
25.00	9.80	1.99	0.0
26.00	9.80	1.99	0.0
27.00	9.80	1.99	0.0
28.00	9.80	1.99	0.0
29.00	9.80	1.99	0.0
30.00	9.80	1.99	0.0
31.00	9.80	1.99	0.0
32.00	9.80	1.99	0.0
33.00	9.80	1.99	0.0
34.00	9.80	1.99	0.0
35.00	9.80	1.99	0.0
36.00	9.80	1.99	0.0
37.00	9.80	1.99	0.0
38.00	9.80	1.99	0.0
39.00	9.80	1.99	0.0
40.00	9.80	1.99	0.0
41.00	9.80	1.99	0.0
42.00	9.80	1.99	0.0
43.00	9.80	1.99	0.0
44.00	9.80	1.99	0.0
45.00	9.80	1.99	0.0
46.00	9.80	1.99	0.0
47.00	9.80	1.99	0.0
48.00	9.80	1.99	0.0
49.00	9.80	1.99	0.0
50.00	9.80	1.99	0.0
51.00	9.80	1.99	0.0
52.00	9.80	1.99	0.0
53.00	9.80	1.99	0.0
54.00	9.80	1.99	0.0
55.00	9.80	1.99	0.0
56.00	9.80	1.99	0.0
57.00	9.80	1.99	0.0
58.00	9.80	1.99	0.0
59.00	9.80	1.99	0.0
60.00	9.80	1.99	0.0
61.00	9.80	1.99	0.0
62.00	9.80	1.99	0.0
63.00	9.80	1.99	0.0
64.00	9.80	1.99	0.0
65.00	9.80	1.99	0.0
66.00	9.80	1.99	0.0
67.00	9.80	1.99	0.0
68.00	9.80	1.99	0.0
69.00	9.80	1.99	0.0
70.00	9.80	1.99	0.0
71.00	9.80	1.99	0.0
72.00	9.80	1.99	0.0

Summary for Subcatchment B1i: Impervious

Runoff = 13.1 cfs @ 12.17 hrs, Volume= 1.27 af, Depth= 9.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
1.6	98	Paved parking, HSG A
1.6		100.00% Impervious Area

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

Hydrograph for Subcatchment B1i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.02	0.1
2.00	0.24	0.09	0.1
3.00	0.37	0.20	0.2
4.00	0.51	0.33	0.2
5.00	0.67	0.48	0.2
6.00	0.84	0.63	0.3
7.00	1.03	0.82	0.3
8.00	1.27	1.06	0.4
9.00	1.55	1.33	0.5
10.00	1.94	1.72	0.7
11.00	2.55	2.32	1.2
12.00	4.70	4.46	**6.3**
13.00	7.25	7.01	**1.6**
14.00	7.86	7.62	0.8
15.00	8.25	8.01	0.5
16.00	8.53	8.29	0.4
17.00	8.77	8.53	0.4
18.00	8.96	8.72	0.3
19.00	9.13	8.89	0.3
20.00	9.29	9.05	0.2
21.00	9.43	9.19	0.2
22.00	9.56	9.32	0.2
23.00	9.69	9.45	0.2
24.00	**9.80**	**9.56**	0.2
25.00	9.80	9.56	0.0
26.00	9.80	9.56	0.0
27.00	9.80	9.56	0.0
28.00	9.80	9.56	0.0
29.00	9.80	9.56	0.0
30.00	9.80	9.56	0.0
31.00	9.80	9.56	0.0
32.00	9.80	9.56	0.0
33.00	9.80	9.56	0.0
34.00	9.80	9.56	0.0
35.00	9.80	9.56	0.0
36.00	9.80	9.56	0.0
37.00	9.80	9.56	0.0
38.00	9.80	9.56	0.0
39.00	9.80	9.56	0.0
40.00	9.80	9.56	0.0
41.00	9.80	9.56	0.0
42.00	9.80	9.56	0.0
43.00	9.80	9.56	0.0
44.00	9.80	9.56	0.0
45.00	9.80	9.56	0.0
46.00	9.80	9.56	0.0
47.00	9.80	9.56	0.0
48.00	9.80	9.56	0.0
49.00	9.80	9.56	0.0
50.00	9.80	9.56	0.0
51.00	9.80	9.56	0.0
52.00	9.80	9.56	0.0
53.00	9.80	9.56	0.0
54.00	9.80	9.56	0.0
55.00	9.80	9.56	0.0
56.00	9.80	9.56	0.0
57.00	9.80	9.56	0.0
58.00	9.80	9.56	0.0
59.00	9.80	9.56	0.0
60.00	9.80	9.56	0.0
61.00	9.80	9.56	0.0
62.00	9.80	9.56	0.0
63.00	9.80	9.56	0.0
64.00	9.80	9.56	0.0
65.00	9.80	9.56	0.0
66.00	9.80	9.56	0.0
67.00	9.80	9.56	0.0
68.00	9.80	9.56	0.0
69.00	9.80	9.56	0.0
70.00	9.80	9.56	0.0
71.00	9.80	9.56	0.0
72.00	9.80	9.56	0.0

Summary for Subcatchment B1p: Pervious

Runoff = 1.0 cfs @ 12.19 hrs, Volume= 0.10 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
0.6	39	>75% Grass cover, Good, HSG A
0.6		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	36	0.1140	0.14		**Sheet Flow, 114 -109.9** Woods: Light underbrush n= 0.400 P2= 3.89"
4.4	67	0.1330	0.25		**Sheet Flow, 109.9 - 101.0** Grass: Dense n= 0.240 P2= 3.89"
0.1	23	0.0430	4.21		**Shallow Concentrated Flow, 101.0 - 100.3** Paved Kv= 20.3 fps
8.8	126	Total, Increased to minimum Tc = 10.0 min			

Hydrograph for Subcatchment B1p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.00	0.0
2.00	0.24	0.00	0.0
3.00	0.37	0.00	0.0
4.00	0.51	0.00	0.0
5.00	0.67	0.00	0.0
6.00	0.84	0.00	0.0
7.00	1.03	0.00	0.0
8.00	1.27	0.00	0.0
9.00	1.55	0.00	0.0
10.00	1.94	0.00	0.0
11.00	2.55	0.00	0.0
12.00	4.70	0.14	**0.2**
13.00	7.25	0.86	**0.2**
14.00	7.86	1.10	0.1
15.00	8.25	1.26	0.1
16.00	8.53	1.39	0.1
17.00	8.77	1.49	0.1
18.00	8.96	1.59	0.1
19.00	9.13	1.66	0.0
20.00	9.29	1.74	0.0
21.00	9.43	1.81	0.0
22.00	9.56	1.88	0.0
23.00	9.69	1.94	0.0
24.00	**9.80**	**1.99**	0.0
25.00	9.80	1.99	0.0
26.00	9.80	1.99	0.0
27.00	9.80	1.99	0.0
28.00	9.80	1.99	0.0
29.00	9.80	1.99	0.0
30.00	9.80	1.99	0.0
31.00	9.80	1.99	0.0
32.00	9.80	1.99	0.0
33.00	9.80	1.99	0.0
34.00	9.80	1.99	0.0
35.00	9.80	1.99	0.0
36.00	9.80	1.99	0.0
37.00	9.80	1.99	0.0
38.00	9.80	1.99	0.0
39.00	9.80	1.99	0.0
40.00	9.80	1.99	0.0
41.00	9.80	1.99	0.0
42.00	9.80	1.99	0.0
43.00	9.80	1.99	0.0
44.00	9.80	1.99	0.0
45.00	9.80	1.99	0.0
46.00	9.80	1.99	0.0
47.00	9.80	1.99	0.0
48.00	9.80	1.99	0.0
49.00	9.80	1.99	0.0
50.00	9.80	1.99	0.0
51.00	9.80	1.99	0.0
52.00	9.80	1.99	0.0
53.00	9.80	1.99	0.0
54.00	9.80	1.99	0.0
55.00	9.80	1.99	0.0
56.00	9.80	1.99	0.0
57.00	9.80	1.99	0.0
58.00	9.80	1.99	0.0
59.00	9.80	1.99	0.0
60.00	9.80	1.99	0.0
61.00	9.80	1.99	0.0
62.00	9.80	1.99	0.0
63.00	9.80	1.99	0.0
64.00	9.80	1.99	0.0
65.00	9.80	1.99	0.0
66.00	9.80	1.99	0.0
67.00	9.80	1.99	0.0
68.00	9.80	1.99	0.0
69.00	9.80	1.99	0.0
70.00	9.80	1.99	0.0
71.00	9.80	1.99	0.0
72.00	9.80	1.99	0.0

Summary for Subcatchment B2i: Impervious

Runoff = 10.6 cfs @ 12.17 hrs, Volume= 1.04 af, Depth= 9.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
1.3	98	Paved parking, HSG A
1.3		100.00% Impervious Area

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

Hydrograph for Subcatchment B2i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.02	0.1
2.00	0.24	0.09	0.1
3.00	0.37	0.20	0.2
4.00	0.51	0.33	0.2
5.00	0.67	0.48	0.2
6.00	0.84	0.63	0.2
7.00	1.03	0.82	0.3
8.00	1.27	1.06	0.3
9.00	1.55	1.33	0.4
10.00	1.94	1.72	0.6
11.00	2.55	2.32	1.0
12.00	4.70	4.46	**5.1**
13.00	7.25	7.01	**1.3**
14.00	7.86	7.62	0.6
15.00	8.25	8.01	0.4
16.00	8.53	8.29	0.4
17.00	8.77	8.53	0.3
18.00	8.96	8.72	0.2
19.00	9.13	8.89	0.2
20.00	9.29	9.05	0.2
21.00	9.43	9.19	0.2
22.00	9.56	9.32	0.2
23.00	9.69	9.45	0.2
24.00	**9.80**	**9.56**	0.1
25.00	9.80	9.56	0.0
26.00	9.80	9.56	0.0
27.00	9.80	9.56	0.0
28.00	9.80	9.56	0.0
29.00	9.80	9.56	0.0
30.00	9.80	9.56	0.0
31.00	9.80	9.56	0.0
32.00	9.80	9.56	0.0
33.00	9.80	9.56	0.0
34.00	9.80	9.56	0.0
35.00	9.80	9.56	0.0
36.00	9.80	9.56	0.0
37.00	9.80	9.56	0.0
38.00	9.80	9.56	0.0
39.00	9.80	9.56	0.0
40.00	9.80	9.56	0.0
41.00	9.80	9.56	0.0
42.00	9.80	9.56	0.0
43.00	9.80	9.56	0.0
44.00	9.80	9.56	0.0
45.00	9.80	9.56	0.0
46.00	9.80	9.56	0.0
47.00	9.80	9.56	0.0
48.00	9.80	9.56	0.0
49.00	9.80	9.56	0.0
50.00	9.80	9.56	0.0
51.00	9.80	9.56	0.0
52.00	9.80	9.56	0.0
53.00	9.80	9.56	0.0
54.00	9.80	9.56	0.0
55.00	9.80	9.56	0.0
56.00	9.80	9.56	0.0
57.00	9.80	9.56	0.0
58.00	9.80	9.56	0.0
59.00	9.80	9.56	0.0
60.00	9.80	9.56	0.0
61.00	9.80	9.56	0.0
62.00	9.80	9.56	0.0
63.00	9.80	9.56	0.0
64.00	9.80	9.56	0.0
65.00	9.80	9.56	0.0
66.00	9.80	9.56	0.0
67.00	9.80	9.56	0.0
68.00	9.80	9.56	0.0
69.00	9.80	9.56	0.0
70.00	9.80	9.56	0.0
71.00	9.80	9.56	0.0
72.00	9.80	9.56	0.0

Summary for Subcatchment B2p: Pervious

Runoff = 2.3 cfs @ 12.29 hrs, Volume= 0.30 af, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
1.6	39	>75% Grass cover, Good, HSG A
0.3	30	Woods, Good, HSG A
1.9	38	Weighted Average
1.9		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0100	0.10		**Sheet Flow, 102.5 - 101.5** Grass: Dense n= 0.240 P2= 3.89"
0.2	25	0.0160	2.04		**Shallow Concentrated Flow, 101.5 - 101.1** Unpaved Kv= 16.1 fps
17.3	125	Total			

Hydrograph for Subcatchment B2p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.00	0.0
2.00	0.24	0.00	0.0
3.00	0.37	0.00	0.0
4.00	0.51	0.00	0.0
5.00	0.67	0.00	0.0
6.00	0.84	0.00	0.0
7.00	1.03	0.00	0.0
8.00	1.27	0.00	0.0
9.00	1.55	0.00	0.0
10.00	1.94	0.00	0.0
11.00	2.55	0.00	0.0
12.00	4.70	0.12	**0.3**
13.00	7.25	0.78	**0.7**
14.00	7.86	1.01	0.4
15.00	8.25	1.17	0.3
16.00	8.53	1.28	0.2
17.00	8.77	1.39	0.2
18.00	8.96	1.48	0.2
19.00	9.13	1.55	0.1
20.00	9.29	1.62	0.1
21.00	9.43	1.69	0.1
22.00	9.56	1.76	0.1
23.00	9.69	1.82	0.1
24.00	**9.80**	**1.87**	0.1
25.00	9.80	1.87	0.0
26.00	9.80	1.87	0.0
27.00	9.80	1.87	0.0
28.00	9.80	1.87	0.0
29.00	9.80	1.87	0.0
30.00	9.80	1.87	0.0
31.00	9.80	1.87	0.0
32.00	9.80	1.87	0.0
33.00	9.80	1.87	0.0
34.00	9.80	1.87	0.0
35.00	9.80	1.87	0.0
36.00	9.80	1.87	0.0
37.00	9.80	1.87	0.0
38.00	9.80	1.87	0.0
39.00	9.80	1.87	0.0
40.00	9.80	1.87	0.0
41.00	9.80	1.87	0.0
42.00	9.80	1.87	0.0
43.00	9.80	1.87	0.0
44.00	9.80	1.87	0.0
45.00	9.80	1.87	0.0
46.00	9.80	1.87	0.0
47.00	9.80	1.87	0.0
48.00	9.80	1.87	0.0
49.00	9.80	1.87	0.0
50.00	9.80	1.87	0.0
51.00	9.80	1.87	0.0
52.00	9.80	1.87	0.0
53.00	9.80	1.87	0.0
54.00	9.80	1.87	0.0
55.00	9.80	1.87	0.0
56.00	9.80	1.87	0.0
57.00	9.80	1.87	0.0
58.00	9.80	1.87	0.0
59.00	9.80	1.87	0.0
60.00	9.80	1.87	0.0
61.00	9.80	1.87	0.0
62.00	9.80	1.87	0.0
63.00	9.80	1.87	0.0
64.00	9.80	1.87	0.0
65.00	9.80	1.87	0.0
66.00	9.80	1.87	0.0
67.00	9.80	1.87	0.0
68.00	9.80	1.87	0.0
69.00	9.80	1.87	0.0
70.00	9.80	1.87	0.0
71.00	9.80	1.87	0.0
72.00	9.80	1.87	0.0

Summary for Subcatchment Ui: Impervious

Runoff = 0.8 cfs @ 12.17 hrs, Volume= 0.08 af, Depth= 9.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
0.1	98	Paved parking, HSG A
0.1		100.00% Impervious Area

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

Hydrograph for Subcatchment Ui: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.02	0.0
2.00	0.24	0.09	0.0
3.00	0.37	0.20	0.0
4.00	0.51	0.33	0.0
5.00	0.67	0.48	0.0
6.00	0.84	0.63	0.0
7.00	1.03	0.82	0.0
8.00	1.27	1.06	0.0
9.00	1.55	1.33	0.0
10.00	1.94	1.72	0.0
11.00	2.55	2.32	0.1
12.00	4.70	4.46	**0.4**
13.00	7.25	7.01	**0.1**
14.00	7.86	7.62	0.0
15.00	8.25	8.01	0.0
16.00	8.53	8.29	0.0
17.00	8.77	8.53	0.0
18.00	8.96	8.72	0.0
19.00	9.13	8.89	0.0
20.00	9.29	9.05	0.0
21.00	9.43	9.19	0.0
22.00	9.56	9.32	0.0
23.00	9.69	9.45	0.0
24.00	**9.80**	**9.56**	0.0
25.00	9.80	9.56	0.0
26.00	9.80	9.56	0.0
27.00	9.80	9.56	0.0
28.00	9.80	9.56	0.0
29.00	9.80	9.56	0.0
30.00	9.80	9.56	0.0
31.00	9.80	9.56	0.0
32.00	9.80	9.56	0.0
33.00	9.80	9.56	0.0
34.00	9.80	9.56	0.0
35.00	9.80	9.56	0.0
36.00	9.80	9.56	0.0
37.00	9.80	9.56	0.0
38.00	9.80	9.56	0.0
39.00	9.80	9.56	0.0
40.00	9.80	9.56	0.0
41.00	9.80	9.56	0.0
42.00	9.80	9.56	0.0
43.00	9.80	9.56	0.0
44.00	9.80	9.56	0.0
45.00	9.80	9.56	0.0
46.00	9.80	9.56	0.0
47.00	9.80	9.56	0.0
48.00	9.80	9.56	0.0
49.00	9.80	9.56	0.0
50.00	9.80	9.56	0.0
51.00	9.80	9.56	0.0
52.00	9.80	9.56	0.0
53.00	9.80	9.56	0.0
54.00	9.80	9.56	0.0
55.00	9.80	9.56	0.0
56.00	9.80	9.56	0.0
57.00	9.80	9.56	0.0
58.00	9.80	9.56	0.0
59.00	9.80	9.56	0.0
60.00	9.80	9.56	0.0
61.00	9.80	9.56	0.0
62.00	9.80	9.56	0.0
63.00	9.80	9.56	0.0
64.00	9.80	9.56	0.0
65.00	9.80	9.56	0.0
66.00	9.80	9.56	0.0
67.00	9.80	9.56	0.0
68.00	9.80	9.56	0.0
69.00	9.80	9.56	0.0
70.00	9.80	9.56	0.0
71.00	9.80	9.56	0.0
72.00	9.80	9.56	0.0

Summary for Subcatchment Up: Pervious

Runoff = 3.2 cfs @ 12.21 hrs, Volume= 0.33 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
1.9	39	>75% Grass cover, Good, HSG A
0.1	30	Woods, Good, HSG A
2.0	39	Weighted Average
2.0		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0380	0.17		**Sheet Flow, 94.0 - 90.2** Grass: Dense n= 0.240 P2= 3.89"
1.4	175	0.0180	2.16		**Shallow Concentrated Flow, 90.2 - 87.0** Unpaved Kv= 16.1 fps
11.4	275	Total			

Hydrograph for Subcatchment Up: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.00	0.0
2.00	0.24	0.00	0.0
3.00	0.37	0.00	0.0
4.00	0.51	0.00	0.0
5.00	0.67	0.00	0.0
6.00	0.84	0.00	0.0
7.00	1.03	0.00	0.0
8.00	1.27	0.00	0.0
9.00	1.55	0.00	0.0
10.00	1.94	0.00	0.0
11.00	2.55	0.00	0.0
12.00	4.70	0.14	**0.7**
13.00	7.25	0.86	**0.8**
14.00	7.86	1.10	0.4
15.00	8.25	1.26	0.3
16.00	8.53	1.39	0.2
17.00	8.77	1.49	0.2
18.00	8.96	1.59	0.2
19.00	9.13	1.66	0.2
20.00	9.29	1.74	0.1
21.00	9.43	1.81	0.1
22.00	9.56	1.88	0.1
23.00	9.69	1.94	0.1
24.00	**9.80**	**1.99**	0.1
25.00	9.80	1.99	0.0
26.00	9.80	1.99	0.0
27.00	9.80	1.99	0.0
28.00	9.80	1.99	0.0
29.00	9.80	1.99	0.0
30.00	9.80	1.99	0.0
31.00	9.80	1.99	0.0
32.00	9.80	1.99	0.0
33.00	9.80	1.99	0.0
34.00	9.80	1.99	0.0
35.00	9.80	1.99	0.0
36.00	9.80	1.99	0.0
37.00	9.80	1.99	0.0
38.00	9.80	1.99	0.0
39.00	9.80	1.99	0.0
40.00	9.80	1.99	0.0
41.00	9.80	1.99	0.0
42.00	9.80	1.99	0.0
43.00	9.80	1.99	0.0
44.00	9.80	1.99	0.0
45.00	9.80	1.99	0.0
46.00	9.80	1.99	0.0
47.00	9.80	1.99	0.0
48.00	9.80	1.99	0.0
49.00	9.80	1.99	0.0
50.00	9.80	1.99	0.0
51.00	9.80	1.99	0.0
52.00	9.80	1.99	0.0
53.00	9.80	1.99	0.0
54.00	9.80	1.99	0.0
55.00	9.80	1.99	0.0
56.00	9.80	1.99	0.0
57.00	9.80	1.99	0.0
58.00	9.80	1.99	0.0
59.00	9.80	1.99	0.0
60.00	9.80	1.99	0.0
61.00	9.80	1.99	0.0
62.00	9.80	1.99	0.0
63.00	9.80	1.99	0.0
64.00	9.80	1.99	0.0
65.00	9.80	1.99	0.0
66.00	9.80	1.99	0.0
67.00	9.80	1.99	0.0
68.00	9.80	1.99	0.0
69.00	9.80	1.99	0.0
70.00	9.80	1.99	0.0
71.00	9.80	1.99	0.0
72.00	9.80	1.99	0.0

Summary for Pond A: Watershed A

Inflow Area = 17.2 ac, 55.23% Impervious, Inflow Depth = 5.81" for 100-Year event
Inflow = 29.8 cfs @ 12.42 hrs, Volume= 8.33 af
Primary = 29.8 cfs @ 12.42 hrs, Volume= 8.33 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Hydrograph for Pond A: Watershed A

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.0		0.0
1.00	0.0		0.0
2.00	0.0		0.0
3.00	0.0		0.0
4.00	0.0		0.0
5.00	0.0		0.0
6.00	0.1		0.1
7.00	0.4		0.4
8.00	1.1		1.1
9.00	1.6		1.6
10.00	2.1		2.1
11.00	2.8		2.8
12.00	**8.8**		**8.8**
13.00	**22.3**		**22.3**
14.00	11.8		11.8
15.00	7.5		7.5
16.00	5.3		5.3
17.00	4.4		4.4
18.00	3.8		3.8
19.00	3.5		3.5
20.00	3.3		3.3
21.00	3.1		3.1
22.00	2.8		2.8
23.00	2.6		2.6
24.00	2.3		2.3
25.00	1.7		1.7
26.00	1.1		1.1
27.00	0.6		0.6
28.00	0.4		0.4
29.00	0.2		0.2
30.00	0.2		0.2
31.00	0.1		0.1
32.00	0.1		0.1
33.00	0.1		0.1
34.00	0.1		0.1
35.00	0.1		0.1
36.00	0.0		0.0
37.00	0.0		0.0
38.00	0.0		0.0
39.00	0.0		0.0
40.00	0.0		0.0
41.00	0.0		0.0
42.00	0.0		0.0
43.00	0.0		0.0
44.00	0.0		0.0
45.00	0.0		0.0
46.00	0.0		0.0
47.00	0.0		0.0
48.00	0.0		0.0
49.00	0.0		0.0
50.00	0.0		0.0
51.00	0.0		0.0
52.00	0.0		0.0
53.00	0.0		0.0
54.00	0.0		0.0
55.00	0.0		0.0
56.00	0.0		0.0
57.00	0.0		0.0
58.00	0.0		0.0
59.00	0.0		0.0
60.00	0.0		0.0
61.00	0.0		0.0
62.00	0.0		0.0
63.00	0.0		0.0
64.00	0.0		0.0
65.00	0.0		0.0
66.00	0.0		0.0
67.00	0.0		0.0
68.00	0.0		0.0
69.00	0.0		0.0
70.00	0.0		0.0
71.00	0.0		0.0
72.00	0.0		0.0

Summary for Pond A1: Basin A

Inflow Area = 9.7 ac, 67.01% Impervious, Inflow Depth = 7.06" for 100-Year event
Inflow = 58.2 cfs @ 12.17 hrs, Volume= 5.71 af
Outflow = 20.1 cfs @ 12.42 hrs, Volume= 5.41 af, Atten= 65%, Lag= 14.9 min
Primary = 20.1 cfs @ 12.42 hrs, Volume= 5.41 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 91.02' @ 12.42 hrs Surf.Area= 14,678.8 sf Storage= 97,023 cf

Plug-Flow detention time= 197.8 min calculated for 5.41 af (95% of inflow)
Center-of-Mass det. time= 165.7 min (924.5 - 758.8)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	120,699 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	12,490.0	0	0
85.00	13,185.0	12,838	12,838
86.00	13,475.0	13,330	26,168
87.00	13,765.0	13,620	39,788
88.00	14,010.0	13,888	53,675
89.00	14,235.0	14,123	67,798
90.00	14,455.0	14,345	82,143
91.00	14,635.0	14,545	96,688
92.00	16,675.0	15,655	112,343
92.50	16,750.0	8,356	120,699

Device	Routing	Invert	Outlet Devices
#1	Primary	83.90'	**24.0" Round 24" Pipe** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 83.90' / 83.52' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	85.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	87.00'	**0.6' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=20.1 cfs @ 12.42 hrs HW=91.02' (Free Discharge)
- **1=24" Pipe** (Passes 20.1 cfs of 37.4 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 4.0 cfs @ 11.48 fps)
  - **3=Broad-Crested Rectangular Weir** (Weir Controls 16.1 cfs @ 6.66 fps)

Hydrograph for Pond A1: Basin A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.0	0	84.00	0.0
2.00	0.6	1,903	84.15	0.0
4.00	0.9	7,310	84.57	0.0
6.00	1.1	14,322	85.11	0.0
8.00	1.6	20,835	85.60	0.9
10.00	2.9	27,402	86.09	1.5
12.00	**26.7**	**59,515**	**88.41**	**6.3**
14.00	**3.8**	**64,428**	**88.76**	**7.8**
16.00	2.1	48,034	87.59	3.4
18.00	1.5	41,259	87.11	2.3
20.00	1.2	35,615	86.69	2.0
22.00	1.1	30,763	86.34	1.7
24.00	0.9	26,652	86.04	1.4
26.00	0.0	19,500	85.50	0.7
28.00	0.0	16,507	85.28	0.2
30.00	0.0	15,285	85.18	0.1
32.00	0.0	14,639	85.14	0.1
34.00	0.0	14,257	85.11	0.0
36.00	0.0	14,003	85.09	0.0
38.00	0.0	13,804	85.07	0.0
40.00	0.0	13,646	85.06	0.0
42.00	0.0	13,522	85.05	0.0
44.00	0.0	13,424	85.04	0.0
46.00	0.0	13,347	85.04	0.0
48.00	0.0	13,286	85.03	0.0
50.00	0.0	13,238	85.03	0.0
52.00	0.0	13,201	85.03	0.0
54.00	0.0	13,171	85.02	0.0
56.00	0.0	13,147	85.02	0.0
58.00	0.0	13,129	85.02	0.0
60.00	0.0	13,114	85.02	0.0
62.00	0.0	13,103	85.02	0.0
64.00	0.0	13,092	85.02	0.0
66.00	0.0	13,082	85.02	0.0
68.00	0.0	13,073	85.02	0.0
70.00	0.0	13,064	85.02	0.0
72.00	0.0	13,055	85.02	0.0

Summary for Pond B1: Basin B1

Inflow Area = 2.2 ac, 72.73% Impervious, Inflow Depth = 7.50" for 100-Year event
Inflow = 14.1 cfs @ 12.17 hrs, Volume= 1.37 af
Outflow = 12.1 cfs @ 12.22 hrs, Volume= 1.27 af, Atten= 14%, Lag= 3.2 min
Primary = 12.1 cfs @ 12.22 hrs, Volume= 1.27 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 97.82' @ 12.22 hrs Surf.Area= 5,346.2 sf Storage= 6,737 cf

Plug-Flow detention time= 88.7 min calculated for 1.27 af (92% of inflow)
Center-of-Mass det. time= 43.9 min (799.2 - 755.3)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	25,898 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	1,955.0	0	0
97.00	3,925.0	2,940	2,940
98.00	5,660.0	4,793	7,733
99.00	7,585.0	6,623	14,355
100.00	15,500.0	11,543	25,898

Device	Routing	Invert	Outlet Devices
#1	Primary	94.50'	**18.0" Round 18" Pipe** L= 49.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 94.50' / 93.52' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Device 1	97.40'	**1.0" x 5.0" Horiz. Orifice/Grate X 8.00 columns** X 14 rows C= 0.600 in 96.0" x 106.0" Grate (6% open area) Limited to weir flow at low heads

Primary OutFlow Max=12.1 cfs @ 12.22 hrs HW=97.82' (Free Discharge)
↑**1=18" Pipe** (Passes 12.1 cfs of 13.6 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 12.1 cfs @ 3.12 fps)

Hydrograph for Pond B1: Basin B1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.0	0	96.00	0.0
2.00	0.1	468	96.22	0.0
4.00	0.2	1,799	96.68	0.0
6.00	0.3	3,532	97.15	0.0
8.00	0.4	4,733	97.42	0.4
10.00	0.7	4,795	97.43	0.7
12.00	**6.5**	**5,319**	**97.54**	**5.9**
14.00	**0.9**	**4,839**	**97.44**	**0.9**
16.00	0.5	4,756	97.42	0.5
18.00	0.3	4,722	97.42	0.3
20.00	0.3	4,710	97.41	0.3
22.00	0.2	4,702	97.41	0.3
24.00	0.2	4,693	97.41	0.2
26.00	0.0	4,649	97.40	0.0
28.00	0.0	4,649	97.40	0.0
30.00	0.0	4,649	97.40	0.0
32.00	0.0	4,649	97.40	0.0
34.00	0.0	4,649	97.40	0.0
36.00	0.0	4,649	97.40	0.0
38.00	0.0	4,649	97.40	0.0
40.00	0.0	4,649	97.40	0.0
42.00	0.0	4,649	97.40	0.0
44.00	0.0	4,649	97.40	0.0
46.00	0.0	4,649	97.40	0.0
48.00	0.0	4,649	97.40	0.0
50.00	0.0	4,649	97.40	0.0
52.00	0.0	4,649	97.40	0.0
54.00	0.0	4,649	97.40	0.0
56.00	0.0	4,649	97.40	0.0
58.00	0.0	4,649	97.40	0.0
60.00	0.0	4,649	97.40	0.0
62.00	0.0	4,649	97.40	0.0
64.00	0.0	4,649	97.40	0.0
66.00	0.0	4,649	97.40	0.0
68.00	0.0	4,649	97.40	0.0
70.00	0.0	4,649	97.40	0.0
72.00	0.0	4,649	97.40	0.0

Summary for Pond B2: Basin B2

Inflow Area = 5.4 ac, 53.70% Impervious, Inflow Depth = 5.78" for 100-Year event
Inflow = 23.9 cfs @ 12.19 hrs, Volume= 2.60 af
Outflow = 8.0 cfs @ 12.52 hrs, Volume= 2.51 af, Atten= 67%, Lag= 19.7 min
Primary = 8.0 cfs @ 12.52 hrs, Volume= 2.51 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 93.34' @ 12.52 hrs Surf.Area= 9,073.2 sf Storage= 45,030 cf

Plug-Flow detention time= 198.6 min calculated for 2.51 af (97% of inflow)
Center-of-Mass det. time= 177.8 min (968.6 - 790.8)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	66,151 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
88.00	7,435.0	0	0
89.00	7,845.0	7,640	7,640
90.00	8,235.0	8,040	15,680
91.00	8,600.0	8,418	24,098
92.00	8,950.0	8,775	32,873
93.00	9,280.0	9,115	41,988
94.00	8,670.0	8,975	50,963
95.00	9,990.0	9,330	60,293
95.50	13,445.0	5,859	66,151

Device	Routing	Invert	Outlet Devices
#1	Primary	82.90'	**18.0" Round 18" Pipe** L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 82.90' / 82.30' S= 0.0182 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Device 1	88.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	91.00'	**0.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

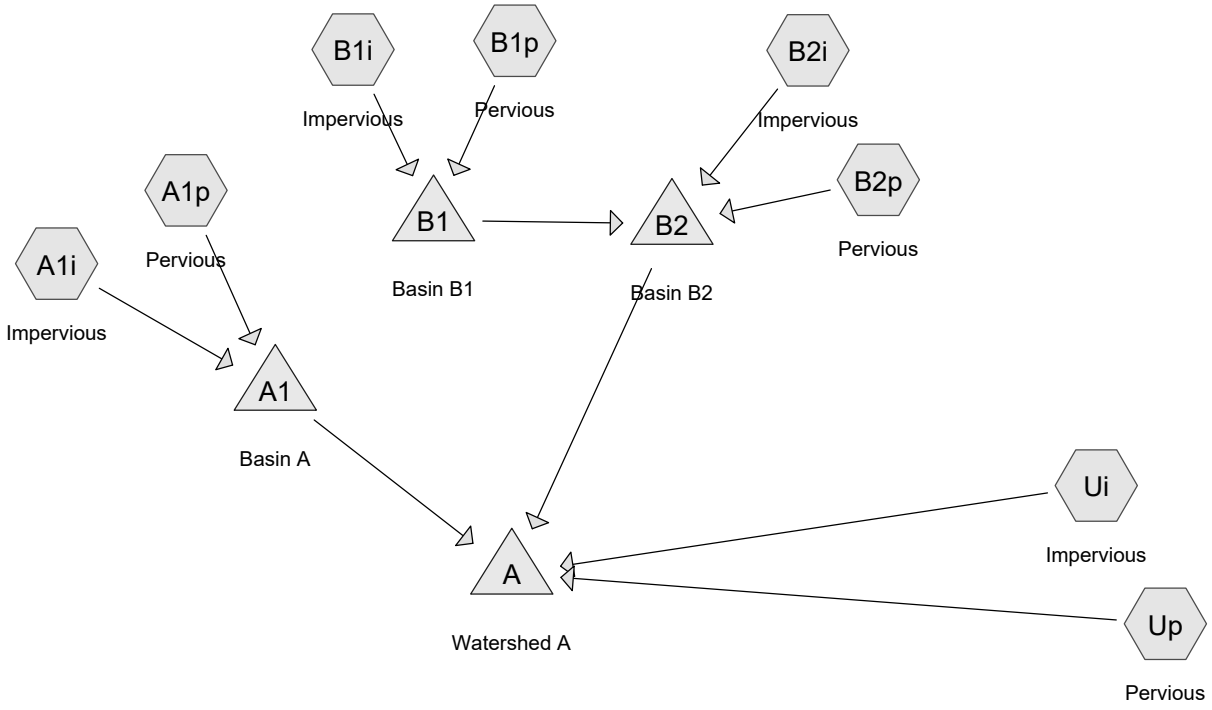
Primary OutFlow Max=8.0 cfs @ 12.52 hrs HW=93.34' (Free Discharge)
↑—**1=18" Pipe** (Passes 8.0 cfs of 26.5 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 2.0 cfs @ 10.31 fps)
—**3=Broad-Crested Rectangular Weir** (Weir Controls 5.9 cfs @ 5.08 fps)

Hydrograph for Pond B2: Basin B2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.0	0	88.00	0.0
2.00	0.1	381	88.05	0.0
4.00	0.2	1,462	88.19	0.0
6.00	0.2	2,870	88.38	0.0
8.00	0.7	5,765	88.75	0.2
10.00	1.3	9,253	89.20	0.6
12.00	**11.3**	**23,810**	**90.97**	**1.4**
14.00	**1.9**	**33,704**	**92.09**	**3.6**
16.00	1.1	26,489	91.27	1.7
18.00	0.7	22,432	90.80	1.4
20.00	0.6	18,156	90.29	1.2
22.00	0.5	14,544	89.86	1.0
24.00	0.5	11,612	89.49	0.8
26.00	0.0	7,362	88.96	0.4
28.00	0.0	5,515	88.72	0.1
30.00	0.0	4,872	88.64	0.1
32.00	0.0	4,570	88.60	0.0
34.00	0.0	4,391	88.57	0.0
36.00	0.0	4,266	88.56	0.0
38.00	0.0	4,178	88.55	0.0
40.00	0.0	4,116	88.54	0.0
42.00	0.0	4,073	88.53	0.0
44.00	0.0	4,043	88.53	0.0
46.00	0.0	4,021	88.53	0.0
48.00	0.0	4,006	88.52	0.0
50.00	0.0	3,993	88.52	0.0
52.00	0.0	3,980	88.52	0.0
54.00	0.0	3,969	88.52	0.0
56.00	0.0	3,958	88.52	0.0
58.00	0.0	3,948	88.52	0.0
60.00	0.0	3,939	88.52	0.0
62.00	0.0	3,930	88.51	0.0
64.00	0.0	3,922	88.51	0.0
66.00	0.0	3,915	88.51	0.0
68.00	0.0	3,908	88.51	0.0
70.00	0.0	3,902	88.51	0.0
72.00	0.0	3,896	88.51	0.0

A P P E N D I X D

Water Quality and Recharge Calculations



Subcat Reach Pond Link

Routing Diagram for Post Development - Inflitration
Prepared by Insite Engineering, LLC, Printed 4/29/2021

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1i: Impervious Runoff Area=6.5 ac 100.00% Impervious Runoff Depth=3.17"
Tc=10.0 min CN=98 Runoff=18.2 cfs 1.72 af

Subcatchment A1p: Pervious Runoff Area=3.2 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=100' Slope=0.0320 '/' Tc=10.7 min CN=39 Runoff=0.0 cfs 0.00 af

Subcatchment B1i: Impervious Runoff Area=1.6 ac 100.00% Impervious Runoff Depth=3.17"
Tc=10.0 min CN=98 Runoff=4.5 cfs 0.42 af

Subcatchment B1p: Pervious Runoff Area=0.6 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=126' Tc=10.0 min CN=39 Runoff=0.0 cfs 0.00 af

Subcatchment B2i: Impervious Runoff Area=1.3 ac 100.00% Impervious Runoff Depth=3.17"
Tc=10.0 min CN=98 Runoff=3.6 cfs 0.34 af

Subcatchment B2p: Pervious Runoff Area=1.9 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=125' Tc=17.3 min CN=38 Runoff=0.0 cfs 0.00 af

Subcatchment Ui: Impervious Runoff Area=0.1 ac 100.00% Impervious Runoff Depth=3.17"
Tc=10.0 min CN=98 Runoff=0.3 cfs 0.03 af

Subcatchment Up: Pervious Runoff Area=2.0 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=275' Tc=11.4 min CN=39 Runoff=0.0 cfs 0.00 af

Pond A: Watershed A Inflow=1.0 cfs 0.14 af
Primary=1.0 cfs 0.14 af

Pond A1: Basin A Peak Elev=85.42' Storage=18,492 cf Inflow=18.2 cfs 1.72 af
Discarded=3.1 cfs 1.68 af Primary=0.5 cfs 0.04 af Outflow=3.6 cfs 1.72 af

Pond B1: Basin B1 Peak Elev=97.49' Storage=5,095 cf Inflow=4.5 cfs 0.42 af
Discarded=0.3 cfs 0.34 af Primary=3.3 cfs 0.08 af Outflow=3.6 cfs 0.42 af

Pond B2: Basin B2 Peak Elev=89.02' Storage=7,828 cf Inflow=6.3 cfs 0.43 af
Discarded=0.4 cfs 0.35 af Primary=0.5 cfs 0.08 af Outflow=0.9 cfs 0.43 af

Total Runoff Area = 17.2 ac Runoff Volume = 2.51 af Average Runoff Depth = 1.75"
44.77% Pervious = 7.7 ac 55.23% Impervious = 9.5 ac

Summary for Subcatchment A1i: Impervious

Runoff = 18.2 cfs @ 12.17 hrs, Volume= 1.72 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
3.8	98	Paved parking, HSG A
2.7	98	Roofs, HSG A
6.5	98	Weighted Average
6.5		100.00% Impervious Area

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

Hydrograph for Subcatchment A1i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.01	0.1
3.00	0.13	0.03	0.2
4.00	0.18	0.06	0.2
5.00	0.23	0.09	0.3
6.00	0.29	0.14	0.3
7.00	0.36	0.19	0.4
8.00	0.44	0.27	0.5
9.00	0.54	0.35	0.6
10.00	0.67	0.48	0.9
11.00	0.88	0.68	1.7
12.00	1.63	1.41	**8.7**
13.00	2.52	2.29	**2.3**
14.00	2.73	2.50	1.1
15.00	2.86	2.63	0.8
16.00	2.96	2.73	0.6
17.00	3.04	2.81	0.5
18.00	3.11	2.88	0.4
19.00	3.17	2.94	0.4
20.00	3.22	2.99	0.3
21.00	3.27	3.04	0.3
22.00	3.32	3.09	0.3
23.00	3.36	3.13	0.3
24.00	**3.40**	**3.17**	0.2
25.00	3.40	3.17	0.0
26.00	3.40	3.17	0.0
27.00	3.40	3.17	0.0
28.00	3.40	3.17	0.0
29.00	3.40	3.17	0.0
30.00	3.40	3.17	0.0
31.00	3.40	3.17	0.0
32.00	3.40	3.17	0.0
33.00	3.40	3.17	0.0
34.00	3.40	3.17	0.0
35.00	3.40	3.17	0.0
36.00	3.40	3.17	0.0
37.00	3.40	3.17	0.0
38.00	3.40	3.17	0.0
39.00	3.40	3.17	0.0
40.00	3.40	3.17	0.0
41.00	3.40	3.17	0.0
42.00	3.40	3.17	0.0
43.00	3.40	3.17	0.0
44.00	3.40	3.17	0.0
45.00	3.40	3.17	0.0
46.00	3.40	3.17	0.0
47.00	3.40	3.17	0.0
48.00	3.40	3.17	0.0
49.00	3.40	3.17	0.0
50.00	3.40	3.17	0.0
51.00	3.40	3.17	0.0
52.00	3.40	3.17	0.0
53.00	3.40	3.17	0.0
54.00	3.40	3.17	0.0
55.00	3.40	3.17	0.0
56.00	3.40	3.17	0.0
57.00	3.40	3.17	0.0
58.00	3.40	3.17	0.0
59.00	3.40	3.17	0.0
60.00	3.40	3.17	0.0
61.00	3.40	3.17	0.0
62.00	3.40	3.17	0.0
63.00	3.40	3.17	0.0
64.00	3.40	3.17	0.0
65.00	3.40	3.17	0.0
66.00	3.40	3.17	0.0
67.00	3.40	3.17	0.0
68.00	3.40	3.17	0.0
69.00	3.40	3.17	0.0
70.00	3.40	3.17	0.0
71.00	3.40	3.17	0.0
72.00	3.40	3.17	0.0

Summary for Subcatchment A1p: Pervious

Runoff = 0.0 cfs @ 24.01 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
3.2	39	>75% Grass cover, Good, HSG A
3.2		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0320	0.16		**Sheet Flow, 105.3 - 102.1** Grass: Dense n= 0.240 P2= 3.89"

Hydrograph for Subcatchment A1p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.00	0.0
3.00	0.13	0.00	0.0
4.00	0.18	0.00	0.0
5.00	0.23	0.00	0.0
6.00	0.29	0.00	0.0
7.00	0.36	0.00	0.0
8.00	0.44	0.00	0.0
9.00	0.54	0.00	0.0
10.00	0.67	0.00	0.0
11.00	0.88	0.00	0.0
12.00	1.63	0.00	0.0
13.00	2.52	0.00	0.0
14.00	2.73	0.00	0.0
15.00	2.86	0.00	0.0
16.00	2.96	0.00	0.0
17.00	3.04	0.00	0.0
18.00	3.11	0.00	0.0
19.00	3.17	0.00	0.0
20.00	3.22	0.00	0.0
21.00	3.27	0.00	0.0
22.00	3.32	0.00	0.0
23.00	3.36	0.00	0.0
24.00	**3.40**	**0.00**	**0.0**
25.00	3.40	0.00	**0.0**
26.00	3.40	0.00	0.0
27.00	3.40	0.00	0.0
28.00	3.40	0.00	0.0
29.00	3.40	0.00	0.0
30.00	3.40	0.00	0.0
31.00	3.40	0.00	0.0
32.00	3.40	0.00	0.0
33.00	3.40	0.00	0.0
34.00	3.40	0.00	0.0
35.00	3.40	0.00	0.0
36.00	3.40	0.00	0.0
37.00	3.40	0.00	0.0
38.00	3.40	0.00	0.0
39.00	3.40	0.00	0.0
40.00	3.40	0.00	0.0
41.00	3.40	0.00	0.0
42.00	3.40	0.00	0.0
43.00	3.40	0.00	0.0
44.00	3.40	0.00	0.0
45.00	3.40	0.00	0.0
46.00	3.40	0.00	0.0
47.00	3.40	0.00	0.0
48.00	3.40	0.00	0.0
49.00	3.40	0.00	0.0
50.00	3.40	0.00	0.0
51.00	3.40	0.00	0.0
52.00	3.40	0.00	0.0
53.00	3.40	0.00	0.0
54.00	3.40	0.00	0.0
55.00	3.40	0.00	0.0
56.00	3.40	0.00	0.0
57.00	3.40	0.00	0.0
58.00	3.40	0.00	0.0
59.00	3.40	0.00	0.0
60.00	3.40	0.00	0.0
61.00	3.40	0.00	0.0
62.00	3.40	0.00	0.0
63.00	3.40	0.00	0.0
64.00	3.40	0.00	0.0
65.00	3.40	0.00	0.0
66.00	3.40	0.00	0.0
67.00	3.40	0.00	0.0
68.00	3.40	0.00	0.0
69.00	3.40	0.00	0.0
70.00	3.40	0.00	0.0
71.00	3.40	0.00	0.0
72.00	3.40	0.00	0.0

Summary for Subcatchment B1i: Impervious

Runoff = 4.5 cfs @ 12.17 hrs, Volume= 0.42 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.6	98	Paved parking, HSG A
1.6		100.00% Impervious Area

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

Hydrograph for Subcatchment B1i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.01	0.0
3.00	0.13	0.03	0.0
4.00	0.18	0.06	0.1
5.00	0.23	0.09	0.1
6.00	0.29	0.14	0.1
7.00	0.36	0.19	0.1
8.00	0.44	0.27	0.1
9.00	0.54	0.35	0.2
10.00	0.67	0.48	0.2
11.00	0.88	0.68	0.4
12.00	1.63	1.41	**2.1**
13.00	2.52	2.29	**0.6**
14.00	2.73	2.50	0.3
15.00	2.86	2.63	0.2
16.00	2.96	2.73	0.1
17.00	3.04	2.81	0.1
18.00	3.11	2.88	0.1
19.00	3.17	2.94	0.1
20.00	3.22	2.99	0.1
21.00	3.27	3.04	0.1
22.00	3.32	3.09	0.1
23.00	3.36	3.13	0.1
24.00	**3.40**	**3.17**	0.1
25.00	3.40	3.17	0.0
26.00	3.40	3.17	0.0
27.00	3.40	3.17	0.0
28.00	3.40	3.17	0.0
29.00	3.40	3.17	0.0
30.00	3.40	3.17	0.0
31.00	3.40	3.17	0.0
32.00	3.40	3.17	0.0
33.00	3.40	3.17	0.0
34.00	3.40	3.17	0.0
35.00	3.40	3.17	0.0
36.00	3.40	3.17	0.0
37.00	3.40	3.17	0.0
38.00	3.40	3.17	0.0
39.00	3.40	3.17	0.0
40.00	3.40	3.17	0.0
41.00	3.40	3.17	0.0
42.00	3.40	3.17	0.0
43.00	3.40	3.17	0.0
44.00	3.40	3.17	0.0
45.00	3.40	3.17	0.0
46.00	3.40	3.17	0.0
47.00	3.40	3.17	0.0
48.00	3.40	3.17	0.0
49.00	3.40	3.17	0.0
50.00	3.40	3.17	0.0
51.00	3.40	3.17	0.0
52.00	3.40	3.17	0.0
53.00	3.40	3.17	0.0
54.00	3.40	3.17	0.0
55.00	3.40	3.17	0.0
56.00	3.40	3.17	0.0
57.00	3.40	3.17	0.0
58.00	3.40	3.17	0.0
59.00	3.40	3.17	0.0
60.00	3.40	3.17	0.0
61.00	3.40	3.17	0.0
62.00	3.40	3.17	0.0
63.00	3.40	3.17	0.0
64.00	3.40	3.17	0.0
65.00	3.40	3.17	0.0
66.00	3.40	3.17	0.0
67.00	3.40	3.17	0.0
68.00	3.40	3.17	0.0
69.00	3.40	3.17	0.0
70.00	3.40	3.17	0.0
71.00	3.40	3.17	0.0
72.00	3.40	3.17	0.0

Summary for Subcatchment B1p: Pervious

Runoff = 0.0 cfs @ 24.01 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.6	39	>75% Grass cover, Good, HSG A
0.6		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	36	0.1140	0.14		**Sheet Flow, 114 -109.9** Woods: Light underbrush n= 0.400 P2= 3.89"
4.4	67	0.1330	0.25		**Sheet Flow, 109.9 - 101.0** Grass: Dense n= 0.240 P2= 3.89"
0.1	23	0.0430	4.21		**Shallow Concentrated Flow, 101.0 - 100.3** Paved Kv= 20.3 fps
8.8	126	Total, Increased to minimum Tc = 10.0 min			

Hydrograph for Subcatchment B1p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.00	0.0
3.00	0.13	0.00	0.0
4.00	0.18	0.00	0.0
5.00	0.23	0.00	0.0
6.00	0.29	0.00	0.0
7.00	0.36	0.00	0.0
8.00	0.44	0.00	0.0
9.00	0.54	0.00	0.0
10.00	0.67	0.00	0.0
11.00	0.88	0.00	0.0
12.00	1.63	0.00	0.0
13.00	2.52	0.00	0.0
14.00	2.73	0.00	0.0
15.00	2.86	0.00	0.0
16.00	2.96	0.00	0.0
17.00	3.04	0.00	0.0
18.00	3.11	0.00	0.0
19.00	3.17	0.00	0.0
20.00	3.22	0.00	0.0
21.00	3.27	0.00	0.0
22.00	3.32	0.00	0.0
23.00	3.36	0.00	0.0
24.00	**3.40**	**0.00**	**0.0**
25.00	3.40	0.00	**0.0**
26.00	3.40	0.00	0.0
27.00	3.40	0.00	0.0
28.00	3.40	0.00	0.0
29.00	3.40	0.00	0.0
30.00	3.40	0.00	0.0
31.00	3.40	0.00	0.0
32.00	3.40	0.00	0.0
33.00	3.40	0.00	0.0
34.00	3.40	0.00	0.0
35.00	3.40	0.00	0.0
36.00	3.40	0.00	0.0
37.00	3.40	0.00	0.0
38.00	3.40	0.00	0.0
39.00	3.40	0.00	0.0
40.00	3.40	0.00	0.0
41.00	3.40	0.00	0.0
42.00	3.40	0.00	0.0
43.00	3.40	0.00	0.0
44.00	3.40	0.00	0.0
45.00	3.40	0.00	0.0
46.00	3.40	0.00	0.0
47.00	3.40	0.00	0.0
48.00	3.40	0.00	0.0
49.00	3.40	0.00	0.0
50.00	3.40	0.00	0.0
51.00	3.40	0.00	0.0
52.00	3.40	0.00	0.0
53.00	3.40	0.00	0.0
54.00	3.40	0.00	0.0
55.00	3.40	0.00	0.0
56.00	3.40	0.00	0.0
57.00	3.40	0.00	0.0
58.00	3.40	0.00	0.0
59.00	3.40	0.00	0.0
60.00	3.40	0.00	0.0
61.00	3.40	0.00	0.0
62.00	3.40	0.00	0.0
63.00	3.40	0.00	0.0
64.00	3.40	0.00	0.0
65.00	3.40	0.00	0.0
66.00	3.40	0.00	0.0
67.00	3.40	0.00	0.0
68.00	3.40	0.00	0.0
69.00	3.40	0.00	0.0
70.00	3.40	0.00	0.0
71.00	3.40	0.00	0.0
72.00	3.40	0.00	0.0

Summary for Subcatchment B2i: Impervious

Runoff = 3.6 cfs @ 12.17 hrs, Volume= 0.34 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.3	98	Paved parking, HSG A
1.3		100.00% Impervious Area

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

Hydrograph for Subcatchment B2i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.01	0.0
3.00	0.13	0.03	0.0
4.00	0.18	0.06	0.0
5.00	0.23	0.09	0.1
6.00	0.29	0.14	0.1
7.00	0.36	0.19	0.1
8.00	0.44	0.27	0.1
9.00	0.54	0.35	0.1
10.00	0.67	0.48	0.2
11.00	0.88	0.68	0.3
12.00	1.63	1.41	**1.7**
13.00	2.52	2.29	**0.5**
14.00	2.73	2.50	0.2
15.00	2.86	2.63	0.2
16.00	2.96	2.73	0.1
17.00	3.04	2.81	0.1
18.00	3.11	2.88	0.1
19.00	3.17	2.94	0.1
20.00	3.22	2.99	0.1
21.00	3.27	3.04	0.1
22.00	3.32	3.09	0.1
23.00	3.36	3.13	0.1
24.00	**3.40**	**3.17**	0.0
25.00	3.40	3.17	0.0
26.00	3.40	3.17	0.0
27.00	3.40	3.17	0.0
28.00	3.40	3.17	0.0
29.00	3.40	3.17	0.0
30.00	3.40	3.17	0.0
31.00	3.40	3.17	0.0
32.00	3.40	3.17	0.0
33.00	3.40	3.17	0.0
34.00	3.40	3.17	0.0
35.00	3.40	3.17	0.0
36.00	3.40	3.17	0.0
37.00	3.40	3.17	0.0
38.00	3.40	3.17	0.0
39.00	3.40	3.17	0.0
40.00	3.40	3.17	0.0
41.00	3.40	3.17	0.0
42.00	3.40	3.17	0.0
43.00	3.40	3.17	0.0
44.00	3.40	3.17	0.0
45.00	3.40	3.17	0.0
46.00	3.40	3.17	0.0
47.00	3.40	3.17	0.0
48.00	3.40	3.17	0.0
49.00	3.40	3.17	0.0
50.00	3.40	3.17	0.0
51.00	3.40	3.17	0.0
52.00	3.40	3.17	0.0
53.00	3.40	3.17	0.0
54.00	3.40	3.17	0.0
55.00	3.40	3.17	0.0
56.00	3.40	3.17	0.0
57.00	3.40	3.17	0.0
58.00	3.40	3.17	0.0
59.00	3.40	3.17	0.0
60.00	3.40	3.17	0.0
61.00	3.40	3.17	0.0
62.00	3.40	3.17	0.0
63.00	3.40	3.17	0.0
64.00	3.40	3.17	0.0
65.00	3.40	3.17	0.0
66.00	3.40	3.17	0.0
67.00	3.40	3.17	0.0
68.00	3.40	3.17	0.0
69.00	3.40	3.17	0.0
70.00	3.40	3.17	0.0
71.00	3.40	3.17	0.0
72.00	3.40	3.17	0.0

Summary for Subcatchment B2p: Pervious

Runoff = 0.0 cfs @ 24.04 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.6	39	>75% Grass cover, Good, HSG A
0.3	30	Woods, Good, HSG A
1.9	38	Weighted Average
1.9		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0100	0.10		**Sheet Flow, 102.5 - 101.5** Grass: Dense n= 0.240 P2= 3.89"
0.2	25	0.0160	2.04		**Shallow Concentrated Flow, 101.5 - 101.1** Unpaved Kv= 16.1 fps
17.3	125	Total			

Hydrograph for Subcatchment B2p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.00	0.0
3.00	0.13	0.00	0.0
4.00	0.18	0.00	0.0
5.00	0.23	0.00	0.0
6.00	0.29	0.00	0.0
7.00	0.36	0.00	0.0
8.00	0.44	0.00	0.0
9.00	0.54	0.00	0.0
10.00	0.67	0.00	0.0
11.00	0.88	0.00	0.0
12.00	1.63	0.00	0.0
13.00	2.52	0.00	0.0
14.00	2.73	0.00	0.0
15.00	2.86	0.00	0.0
16.00	2.96	0.00	0.0
17.00	3.04	0.00	0.0
18.00	3.11	0.00	0.0
19.00	3.17	0.00	0.0
20.00	3.22	0.00	0.0
21.00	3.27	0.00	0.0
22.00	3.32	0.00	0.0
23.00	3.36	0.00	0.0
24.00	**3.40**	**0.00**	**0.0**
25.00	3.40	0.00	**0.0**
26.00	3.40	0.00	0.0
27.00	3.40	0.00	0.0
28.00	3.40	0.00	0.0
29.00	3.40	0.00	0.0
30.00	3.40	0.00	0.0
31.00	3.40	0.00	0.0
32.00	3.40	0.00	0.0
33.00	3.40	0.00	0.0
34.00	3.40	0.00	0.0
35.00	3.40	0.00	0.0
36.00	3.40	0.00	0.0
37.00	3.40	0.00	0.0
38.00	3.40	0.00	0.0
39.00	3.40	0.00	0.0
40.00	3.40	0.00	0.0
41.00	3.40	0.00	0.0
42.00	3.40	0.00	0.0
43.00	3.40	0.00	0.0
44.00	3.40	0.00	0.0
45.00	3.40	0.00	0.0
46.00	3.40	0.00	0.0
47.00	3.40	0.00	0.0
48.00	3.40	0.00	0.0
49.00	3.40	0.00	0.0
50.00	3.40	0.00	0.0
51.00	3.40	0.00	0.0
52.00	3.40	0.00	0.0
53.00	3.40	0.00	0.0
54.00	3.40	0.00	0.0
55.00	3.40	0.00	0.0
56.00	3.40	0.00	0.0
57.00	3.40	0.00	0.0
58.00	3.40	0.00	0.0
59.00	3.40	0.00	0.0
60.00	3.40	0.00	0.0
61.00	3.40	0.00	0.0
62.00	3.40	0.00	0.0
63.00	3.40	0.00	0.0
64.00	3.40	0.00	0.0
65.00	3.40	0.00	0.0
66.00	3.40	0.00	0.0
67.00	3.40	0.00	0.0
68.00	3.40	0.00	0.0
69.00	3.40	0.00	0.0
70.00	3.40	0.00	0.0
71.00	3.40	0.00	0.0
72.00	3.40	0.00	0.0

Summary for Subcatchment Ui: Impervious

Runoff = 0.3 cfs @ 12.17 hrs, Volume= 0.03 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.1	98	Paved parking, HSG A
0.1		100.00% Impervious Area

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

Hydrograph for Subcatchment Ui: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.01	0.0
3.00	0.13	0.03	0.0
4.00	0.18	0.06	0.0
5.00	0.23	0.09	0.0
6.00	0.29	0.14	0.0
7.00	0.36	0.19	0.0
8.00	0.44	0.27	0.0
9.00	0.54	0.35	0.0
10.00	0.67	0.48	0.0
11.00	0.88	0.68	0.0
12.00	1.63	1.41	**0.1**
13.00	2.52	2.29	**0.0**
14.00	2.73	2.50	0.0
15.00	2.86	2.63	0.0
16.00	2.96	2.73	0.0
17.00	3.04	2.81	0.0
18.00	3.11	2.88	0.0
19.00	3.17	2.94	0.0
20.00	3.22	2.99	0.0
21.00	3.27	3.04	0.0
22.00	3.32	3.09	0.0
23.00	3.36	3.13	0.0
24.00	**3.40**	**3.17**	0.0
25.00	3.40	3.17	0.0
26.00	3.40	3.17	0.0
27.00	3.40	3.17	0.0
28.00	3.40	3.17	0.0
29.00	3.40	3.17	0.0
30.00	3.40	3.17	0.0
31.00	3.40	3.17	0.0
32.00	3.40	3.17	0.0
33.00	3.40	3.17	0.0
34.00	3.40	3.17	0.0
35.00	3.40	3.17	0.0
36.00	3.40	3.17	0.0
37.00	3.40	3.17	0.0
38.00	3.40	3.17	0.0
39.00	3.40	3.17	0.0
40.00	3.40	3.17	0.0
41.00	3.40	3.17	0.0
42.00	3.40	3.17	0.0
43.00	3.40	3.17	0.0
44.00	3.40	3.17	0.0
45.00	3.40	3.17	0.0
46.00	3.40	3.17	0.0
47.00	3.40	3.17	0.0
48.00	3.40	3.17	0.0
49.00	3.40	3.17	0.0
50.00	3.40	3.17	0.0
51.00	3.40	3.17	0.0
52.00	3.40	3.17	0.0
53.00	3.40	3.17	0.0
54.00	3.40	3.17	0.0
55.00	3.40	3.17	0.0
56.00	3.40	3.17	0.0
57.00	3.40	3.17	0.0
58.00	3.40	3.17	0.0
59.00	3.40	3.17	0.0
60.00	3.40	3.17	0.0
61.00	3.40	3.17	0.0
62.00	3.40	3.17	0.0
63.00	3.40	3.17	0.0
64.00	3.40	3.17	0.0
65.00	3.40	3.17	0.0
66.00	3.40	3.17	0.0
67.00	3.40	3.17	0.0
68.00	3.40	3.17	0.0
69.00	3.40	3.17	0.0
70.00	3.40	3.17	0.0
71.00	3.40	3.17	0.0
72.00	3.40	3.17	0.0

Summary for Subcatchment Up: Pervious

Runoff = 0.0 cfs @ 24.01 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.9	39	>75% Grass cover, Good, HSG A
0.1	30	Woods, Good, HSG A
2.0	39	Weighted Average
2.0		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0380	0.17		**Sheet Flow, 94.0 - 90.2** Grass: Dense n= 0.240 P2= 3.89"
1.4	175	0.0180	2.16		**Shallow Concentrated Flow, 90.2 - 87.0** Unpaved Kv= 16.1 fps
11.4	275	Total			

Hydrograph for Subcatchment Up: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.04	0.00	0.0
2.00	0.08	0.00	0.0
3.00	0.13	0.00	0.0
4.00	0.18	0.00	0.0
5.00	0.23	0.00	0.0
6.00	0.29	0.00	0.0
7.00	0.36	0.00	0.0
8.00	0.44	0.00	0.0
9.00	0.54	0.00	0.0
10.00	0.67	0.00	0.0
11.00	0.88	0.00	0.0
12.00	1.63	0.00	0.0
13.00	2.52	0.00	0.0
14.00	2.73	0.00	0.0
15.00	2.86	0.00	0.0
16.00	2.96	0.00	0.0
17.00	3.04	0.00	0.0
18.00	3.11	0.00	0.0
19.00	3.17	0.00	0.0
20.00	3.22	0.00	0.0
21.00	3.27	0.00	0.0
22.00	3.32	0.00	0.0
23.00	3.36	0.00	0.0
24.00	**3.40**	**0.00**	**0.0**
25.00	3.40	0.00	**0.0**
26.00	3.40	0.00	0.0
27.00	3.40	0.00	0.0
28.00	3.40	0.00	0.0
29.00	3.40	0.00	0.0
30.00	3.40	0.00	0.0
31.00	3.40	0.00	0.0
32.00	3.40	0.00	0.0
33.00	3.40	0.00	0.0
34.00	3.40	0.00	0.0
35.00	3.40	0.00	0.0
36.00	3.40	0.00	0.0
37.00	3.40	0.00	0.0
38.00	3.40	0.00	0.0
39.00	3.40	0.00	0.0
40.00	3.40	0.00	0.0
41.00	3.40	0.00	0.0
42.00	3.40	0.00	0.0
43.00	3.40	0.00	0.0
44.00	3.40	0.00	0.0
45.00	3.40	0.00	0.0
46.00	3.40	0.00	0.0
47.00	3.40	0.00	0.0
48.00	3.40	0.00	0.0
49.00	3.40	0.00	0.0
50.00	3.40	0.00	0.0
51.00	3.40	0.00	0.0
52.00	3.40	0.00	0.0
53.00	3.40	0.00	0.0
54.00	3.40	0.00	0.0
55.00	3.40	0.00	0.0
56.00	3.40	0.00	0.0
57.00	3.40	0.00	0.0
58.00	3.40	0.00	0.0
59.00	3.40	0.00	0.0
60.00	3.40	0.00	0.0
61.00	3.40	0.00	0.0
62.00	3.40	0.00	0.0
63.00	3.40	0.00	0.0
64.00	3.40	0.00	0.0
65.00	3.40	0.00	0.0
66.00	3.40	0.00	0.0
67.00	3.40	0.00	0.0
68.00	3.40	0.00	0.0
69.00	3.40	0.00	0.0
70.00	3.40	0.00	0.0
71.00	3.40	0.00	0.0
72.00	3.40	0.00	0.0

Summary for Pond A: Watershed A

Inflow Area = 17.2 ac, 55.23% Impervious, Inflow Depth = 0.10" for 2-Year event
Inflow = 1.0 cfs @ 12.66 hrs, Volume= 0.14 af
Primary = 1.0 cfs @ 12.66 hrs, Volume= 0.14 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Hydrograph for Pond A: Watershed A

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.0		0.0
1.00	0.0		0.0
2.00	0.0		0.0
3.00	0.0		0.0
4.00	0.0		0.0
5.00	0.0		0.0
6.00	0.0		0.0
7.00	0.0		0.0
8.00	0.0		0.0
9.00	0.0		0.0
10.00	0.0		0.0
11.00	0.0		0.0
12.00	**0.1**		**0.1**
13.00	**0.9**		**0.9**
14.00	0.3		0.3
15.00	0.1		0.1
16.00	0.0		0.0
17.00	0.0		0.0
18.00	0.0		0.0
19.00	0.0		0.0
20.00	0.0		0.0
21.00	0.0		0.0
22.00	0.0		0.0
23.00	0.0		0.0
24.00	0.0		0.0
25.00	0.0		0.0
26.00	0.0		0.0
27.00	0.0		0.0
28.00	0.0		0.0
29.00	0.0		0.0
30.00	0.0		0.0
31.00	0.0		0.0
32.00	0.0		0.0
33.00	0.0		0.0
34.00	0.0		0.0
35.00	0.0		0.0
36.00	0.0		0.0
37.00	0.0		0.0
38.00	0.0		0.0
39.00	0.0		0.0
40.00	0.0		0.0
41.00	0.0		0.0
42.00	0.0		0.0
43.00	0.0		0.0
44.00	0.0		0.0
45.00	0.0		0.0
46.00	0.0		0.0
47.00	0.0		0.0
48.00	0.0		0.0
49.00	0.0		0.0
50.00	0.0		0.0
51.00	0.0		0.0
52.00	0.0		0.0
53.00	0.0		0.0
54.00	0.0		0.0
55.00	0.0		0.0
56.00	0.0		0.0
57.00	0.0		0.0
58.00	0.0		0.0
59.00	0.0		0.0
60.00	0.0		0.0
61.00	0.0		0.0
62.00	0.0		0.0
63.00	0.0		0.0
64.00	0.0		0.0
65.00	0.0		0.0
66.00	0.0		0.0
67.00	0.0		0.0
68.00	0.0		0.0
69.00	0.0		0.0
70.00	0.0		0.0
71.00	0.0		0.0
72.00	0.0		0.0

Summary for Pond A1: Basin A

Inflow Area = 9.7 ac, 67.01% Impervious, Inflow Depth = 2.12" for 2-Year event
Inflow = 18.2 cfs @ 12.17 hrs, Volume= 1.72 af
Outflow = 3.6 cfs @ 12.64 hrs, Volume= 1.72 af, Atten= 80%, Lag= 28.0 min
Discarded = 3.1 cfs @ 12.64 hrs, Volume= 1.68 af
Primary = 0.5 cfs @ 12.64 hrs, Volume= 0.04 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 85.42' @ 12.64 hrs Surf.Area= 13,308.0 sf Storage= 18,492 cf

Plug-Flow detention time= 34.8 min calculated for 1.72 af (100% of inflow)
Center-of-Mass det. time= 34.8 min (795.9 - 761.1)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	120,699 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	12,490.0	0	0
85.00	13,185.0	12,838	12,838
86.00	13,475.0	13,330	26,168
87.00	13,765.0	13,620	39,788
88.00	14,010.0	13,888	53,675
89.00	14,235.0	14,123	67,798
90.00	14,455.0	14,345	82,143
91.00	14,635.0	14,545	96,688
92.00	16,675.0	15,655	112,343
92.50	16,750.0	8,356	120,699

Device	Routing	Invert	Outlet Devices
#1	Primary	83.90'	**24.0" Round 24" Pipe** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 83.90' / 83.52' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	85.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	87.05'	**0.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	84.00'	**10.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=3.1 cfs @ 12.64 hrs HW=85.42' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 3.1 cfs)

Primary OutFlow Max=0.5 cfs @ 12.64 hrs HW=85.42' (Free Discharge)
└**1=24" Pipe** (Passes 0.5 cfs of 9.5 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.5 cfs @ 2.22 fps)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Hydrograph for Pond A1: Basin A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.0	0	84.00	0.0	0.0	0.0
2.00	0.1	25	84.00	0.1	0.1	0.0
4.00	0.2	77	84.01	0.2	0.2	0.0
6.00	0.3	113	84.01	0.3	0.3	0.0
8.00	0.5	187	84.01	0.5	0.5	0.0
10.00	0.9	340	84.03	0.9	0.9	0.0
12.00	**8.7**	**3,882**	**84.30**	**2.9**	**2.9**	**0.0**
14.00	**1.1**	**11,601**	**84.90**	**3.0**	**3.0**	**0.0**
16.00	0.6	234	84.02	0.6	0.6	0.0
18.00	0.4	158	84.01	0.4	0.4	0.0
20.00	0.3	131	84.01	0.3	0.3	0.0
22.00	0.3	113	84.01	0.3	0.3	0.0
24.00	0.3	95	84.01	0.3	0.3	0.0
26.00	0.0	0	84.00	0.0	0.0	0.0
28.00	0.0	0	84.00	0.0	0.0	0.0
30.00	0.0	0	84.00	0.0	0.0	0.0
32.00	0.0	0	84.00	0.0	0.0	0.0
34.00	0.0	0	84.00	0.0	0.0	0.0
36.00	0.0	0	84.00	0.0	0.0	0.0
38.00	0.0	0	84.00	0.0	0.0	0.0
40.00	0.0	0	84.00	0.0	0.0	0.0
42.00	0.0	0	84.00	0.0	0.0	0.0
44.00	0.0	0	84.00	0.0	0.0	0.0
46.00	0.0	0	84.00	0.0	0.0	0.0
48.00	0.0	0	84.00	0.0	0.0	0.0
50.00	0.0	0	84.00	0.0	0.0	0.0
52.00	0.0	0	84.00	0.0	0.0	0.0
54.00	0.0	0	84.00	0.0	0.0	0.0
56.00	0.0	0	84.00	0.0	0.0	0.0
58.00	0.0	0	84.00	0.0	0.0	0.0
60.00	0.0	0	84.00	0.0	0.0	0.0
62.00	0.0	0	84.00	0.0	0.0	0.0
64.00	0.0	0	84.00	0.0	0.0	0.0
66.00	0.0	0	84.00	0.0	0.0	0.0
68.00	0.0	0	84.00	0.0	0.0	0.0
70.00	0.0	0	84.00	0.0	0.0	0.0
72.00	0.0	0	84.00	0.0	0.0	0.0

Summary for Pond B1: Basin B1

Inflow Area = 2.2 ac, 72.73% Impervious, Inflow Depth = 2.30" for 2-Year event
Inflow = 4.5 cfs @ 12.17 hrs, Volume= 0.42 af
Outflow = 3.6 cfs @ 12.24 hrs, Volume= 0.42 af, Atten= 20%, Lag= 4.0 min
Discarded = 0.3 cfs @ 12.24 hrs, Volume= 0.34 af
Primary = 3.3 cfs @ 12.24 hrs, Volume= 0.08 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 97.49' @ 12.24 hrs Surf.Area= 4,783.6 sf Storage= 5,095 cf

Plug-Flow detention time= 110.4 min calculated for 0.42 af (100% of inflow)
Center-of-Mass det. time= 110.4 min (871.4 - 761.0)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	25,898 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	1,955.0	0	0
97.00	3,925.0	2,940	2,940
98.00	5,660.0	4,793	7,733
99.00	7,585.0	6,623	14,355
100.00	15,500.0	11,543	25,898

Device	Routing	Invert	Outlet Devices
#1	Primary	93.50'	**18.0" Round 18" Pipe** L= 49.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 93.50' / 92.52' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Device 1	97.40'	**1.0" x 5.0" Horiz. Orifice/Grate X 8.00 columns** X 14 rows C= 0.600 in 96.0" x 106.0" Grate (6% open area) Limited to weir flow at low heads
#3	Discarded	96.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.3 cfs @ 12.24 hrs HW=97.49' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=3.2 cfs @ 12.24 hrs HW=97.49' (Free Discharge)
└**1=18" Pipe** (Passes 3.2 cfs of 15.3 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 3.2 cfs @ 1.01 fps)

Hydrograph for Pond B1: Basin B1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.0	0	96.00	0.0	0.0	0.0
2.00	0.0	9	96.00	0.0	0.0	0.0
4.00	0.1	28	96.01	0.0	0.0	0.0
6.00	0.1	42	96.02	0.1	0.1	0.0
8.00	0.1	68	96.03	0.1	0.1	0.0
10.00	0.2	243	96.12	0.2	0.2	0.0
12.00	**2.1**	**2,875**	**96.98**	**0.3**	**0.3**	**0.0**
14.00	**0.3**	**4,612**	**97.39**	**0.3**	**0.3**	**0.0**
16.00	0.1	3,789	97.21	0.3	0.3	0.0
18.00	0.1	2,665	96.93	0.3	0.3	0.0
20.00	0.1	1,583	96.62	0.2	0.2	0.0
22.00	0.1	717	96.32	0.2	0.2	0.0
24.00	0.1	61	96.03	0.1	0.1	0.0
26.00	0.0	0	96.00	0.0	0.0	0.0
28.00	0.0	0	96.00	0.0	0.0	0.0
30.00	0.0	0	96.00	0.0	0.0	0.0
32.00	0.0	0	96.00	0.0	0.0	0.0
34.00	0.0	0	96.00	0.0	0.0	0.0
36.00	0.0	0	96.00	0.0	0.0	0.0
38.00	0.0	0	96.00	0.0	0.0	0.0
40.00	0.0	0	96.00	0.0	0.0	0.0
42.00	0.0	0	96.00	0.0	0.0	0.0
44.00	0.0	0	96.00	0.0	0.0	0.0
46.00	0.0	0	96.00	0.0	0.0	0.0
48.00	0.0	0	96.00	0.0	0.0	0.0
50.00	0.0	0	96.00	0.0	0.0	0.0
52.00	0.0	0	96.00	0.0	0.0	0.0
54.00	0.0	0	96.00	0.0	0.0	0.0
56.00	0.0	0	96.00	0.0	0.0	0.0
58.00	0.0	0	96.00	0.0	0.0	0.0
60.00	0.0	0	96.00	0.0	0.0	0.0
62.00	0.0	0	96.00	0.0	0.0	0.0
64.00	0.0	0	96.00	0.0	0.0	0.0
66.00	0.0	0	96.00	0.0	0.0	0.0
68.00	0.0	0	96.00	0.0	0.0	0.0
70.00	0.0	0	96.00	0.0	0.0	0.0
72.00	0.0	0	96.00	0.0	0.0	0.0

Summary for Pond B2: Basin B2

Inflow Area = 5.4 ac, 53.70% Impervious, Inflow Depth = 0.95" for 2-Year event
Inflow = 6.3 cfs @ 12.22 hrs, Volume= 0.43 af
Outflow = 0.9 cfs @ 12.90 hrs, Volume= 0.43 af, Atten= 86%, Lag= 40.4 min
Discarded = 0.4 cfs @ 12.90 hrs, Volume= 0.35 af
Primary = 0.5 cfs @ 12.90 hrs, Volume= 0.08 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 89.02' @ 12.90 hrs Surf.Area= 7,854.1 sf Storage= 7,828 cf

Plug-Flow detention time= 116.4 min calculated for 0.43 af (100% of inflow)
Center-of-Mass det. time= 116.3 min (875.0 - 758.7)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	82,563 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
88.00	7,435.0	0	0
89.00	7,845.0	7,640	7,640
90.00	8,235.0	8,040	15,680
91.00	8,600.0	8,418	24,098
92.00	8,950.0	8,775	32,873
93.00	9,280.0	9,115	41,988
94.00	9,670.0	9,475	51,463
95.00	9,990.0	9,830	61,293
96.00	13,445.0	11,718	73,010
96.50	24,765.0	9,553	82,563

Device	Routing	Invert	Outlet Devices
#1	Primary	82.90'	**18.0" Round 18" Pipe** L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 82.90' / 82.30' S= 0.0182 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Device 1	88.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	90.50'	**0.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	88.00'	**2.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.4 cfs @ 12.90 hrs HW=89.02' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.4 cfs)

Primary OutFlow Max=0.5 cfs @ 12.90 hrs HW=89.02' (Free Discharge)
└**1=18" Pipe** (Passes 0.5 cfs of 19.7 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.5 cfs @ 2.52 fps)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Hydrograph for Pond B2: Basin B2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.0	0	88.00	0.0	0.0	0.0
2.00	0.0	14	88.00	0.0	0.0	0.0
4.00	0.0	68	88.01	0.0	0.0	0.0
6.00	0.1	106	88.01	0.1	0.1	0.0
8.00	0.1	171	88.02	0.1	0.1	0.0
10.00	0.2	293	88.04	0.2	0.2	0.0
12.00	**1.7**	**1,680**	**88.22**	**0.3**	**0.3**	**0.0**
14.00	**0.2**	**6,437**	**88.84**	**0.6**	**0.4**	**0.3**
16.00	0.1	4,215	88.55	0.4	0.4	0.0
18.00	0.1	2,399	88.31	0.4	0.4	0.0
20.00	0.1	469	88.06	0.2	0.2	0.0
22.00	0.1	123	88.02	0.1	0.1	0.0
24.00	0.1	99	88.01	0.1	0.1	0.0
26.00	0.0	3	88.00	0.0	0.0	0.0
28.00	0.0	0	88.00	0.0	0.0	0.0
30.00	0.0	0	88.00	0.0	0.0	0.0
32.00	0.0	0	88.00	0.0	0.0	0.0
34.00	0.0	0	88.00	0.0	0.0	0.0
36.00	0.0	0	88.00	0.0	0.0	0.0
38.00	0.0	0	88.00	0.0	0.0	0.0
40.00	0.0	0	88.00	0.0	0.0	0.0
42.00	0.0	0	88.00	0.0	0.0	0.0
44.00	0.0	0	88.00	0.0	0.0	0.0
46.00	0.0	0	88.00	0.0	0.0	0.0
48.00	0.0	0	88.00	0.0	0.0	0.0
50.00	0.0	0	88.00	0.0	0.0	0.0
52.00	0.0	0	88.00	0.0	0.0	0.0
54.00	0.0	0	88.00	0.0	0.0	0.0
56.00	0.0	0	88.00	0.0	0.0	0.0
58.00	0.0	0	88.00	0.0	0.0	0.0
60.00	0.0	0	88.00	0.0	0.0	0.0
62.00	0.0	0	88.00	0.0	0.0	0.0
64.00	0.0	0	88.00	0.0	0.0	0.0
66.00	0.0	0	88.00	0.0	0.0	0.0
68.00	0.0	0	88.00	0.0	0.0	0.0
70.00	0.0	0	88.00	0.0	0.0	0.0
72.00	0.0	0	88.00	0.0	0.0	0.0

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1i: Impervious Runoff Area=6.5 ac 100.00% Impervious Runoff Depth=9.56"
Tc=10.0 min CN=98 Runoff=53.1 cfs 5.18 af

Subcatchment A1p: Pervious Runoff Area=3.2 ac 0.00% Impervious Runoff Depth=1.99"
Flow Length=100' Slope=0.0320 '/' Tc=10.7 min CN=39 Runoff=5.3 cfs 0.53 af

Subcatchment B1i: Impervious Runoff Area=1.6 ac 100.00% Impervious Runoff Depth=9.56"
Tc=10.0 min CN=98 Runoff=13.1 cfs 1.27 af

Subcatchment B1p: Pervious Runoff Area=0.6 ac 0.00% Impervious Runoff Depth=1.99"
Flow Length=126' Tc=10.0 min CN=39 Runoff=1.0 cfs 0.10 af

Subcatchment B2i: Impervious Runoff Area=1.3 ac 100.00% Impervious Runoff Depth=9.56"
Tc=10.0 min CN=98 Runoff=10.6 cfs 1.04 af

Subcatchment B2p: Pervious Runoff Area=1.9 ac 0.00% Impervious Runoff Depth=1.87"
Flow Length=125' Tc=17.3 min CN=38 Runoff=2.3 cfs 0.30 af

Subcatchment Ui: Impervious Runoff Area=0.1 ac 100.00% Impervious Runoff Depth=9.56"
Tc=10.0 min CN=98 Runoff=0.8 cfs 0.08 af

Subcatchment Up: Pervious Runoff Area=2.0 ac 0.00% Impervious Runoff Depth=1.99"
Flow Length=275' Tc=11.4 min CN=39 Runoff=3.2 cfs 0.33 af

Pond A: Watershed A Inflow=17.9 cfs 3.66 af
Primary=17.9 cfs 3.66 af

Pond A1: Basin A Peak Elev=89.56' Storage=75,859 cf Inflow=58.2 cfs 5.71 af
Discarded=3.3 cfs 3.88 af Primary=10.1 cfs 1.83 af Outflow=13.4 cfs 5.71 af

Pond B1: Basin B1 Peak Elev=97.80' Storage=6,635 cf Inflow=14.1 cfs 1.37 af
Discarded=0.4 cfs 0.60 af Primary=11.8 cfs 0.78 af Outflow=12.2 cfs 1.37 af

Pond B2: Basin B2 Peak Elev=92.47' Storage=37,197 cf Inflow=23.6 cfs 2.11 af
Discarded=0.4 cfs 0.69 af Primary=6.4 cfs 1.42 af Outflow=6.9 cfs 2.11 af

Total Runoff Area = 17.2 ac Runoff Volume = 8.83 af Average Runoff Depth = 6.16"
44.77% Pervious = 7.7 ac 55.23% Impervious = 9.5 ac

Summary for Subcatchment A1i: Impervious

Runoff = 53.1 cfs @ 12.17 hrs, Volume= 5.18 af, Depth= 9.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
3.8	98	Paved parking, HSG A
2.7	98	Roofs, HSG A
6.5	98	Weighted Average
6.5		100.00% Impervious Area

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

Hydrograph for Subcatchment A1i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.02	0.3
2.00	0.24	0.09	0.6
3.00	0.37	0.20	0.8
4.00	0.51	0.33	0.9
5.00	0.67	0.48	1.0
6.00	0.84	0.63	1.1
7.00	1.03	0.82	1.3
8.00	1.27	1.06	1.6
9.00	1.55	1.33	1.9
10.00	1.94	1.72	2.9
11.00	2.55	2.32	4.9
12.00	4.70	4.46	**25.5**
13.00	7.25	7.01	**6.7**
14.00	7.86	7.62	3.2
15.00	8.25	8.01	2.2
16.00	8.53	8.29	1.8
17.00	8.77	8.53	1.5
18.00	8.96	8.72	1.2
19.00	9.13	8.89	1.1
20.00	9.29	9.05	1.0
21.00	9.43	9.19	0.9
22.00	9.56	9.32	0.9
23.00	9.69	9.45	0.8
24.00	**9.80**	**9.56**	0.7
25.00	9.80	9.56	0.0
26.00	9.80	9.56	0.0
27.00	9.80	9.56	0.0
28.00	9.80	9.56	0.0
29.00	9.80	9.56	0.0
30.00	9.80	9.56	0.0
31.00	9.80	9.56	0.0
32.00	9.80	9.56	0.0
33.00	9.80	9.56	0.0
34.00	9.80	9.56	0.0
35.00	9.80	9.56	0.0
36.00	9.80	9.56	0.0
37.00	9.80	9.56	0.0
38.00	9.80	9.56	0.0
39.00	9.80	9.56	0.0
40.00	9.80	9.56	0.0
41.00	9.80	9.56	0.0
42.00	9.80	9.56	0.0
43.00	9.80	9.56	0.0
44.00	9.80	9.56	0.0
45.00	9.80	9.56	0.0
46.00	9.80	9.56	0.0
47.00	9.80	9.56	0.0
48.00	9.80	9.56	0.0
49.00	9.80	9.56	0.0
50.00	9.80	9.56	0.0
51.00	9.80	9.56	0.0
52.00	9.80	9.56	0.0
53.00	9.80	9.56	0.0
54.00	9.80	9.56	0.0
55.00	9.80	9.56	0.0
56.00	9.80	9.56	0.0
57.00	9.80	9.56	0.0
58.00	9.80	9.56	0.0
59.00	9.80	9.56	0.0
60.00	9.80	9.56	0.0
61.00	9.80	9.56	0.0
62.00	9.80	9.56	0.0
63.00	9.80	9.56	0.0
64.00	9.80	9.56	0.0
65.00	9.80	9.56	0.0
66.00	9.80	9.56	0.0
67.00	9.80	9.56	0.0
68.00	9.80	9.56	0.0
69.00	9.80	9.56	0.0
70.00	9.80	9.56	0.0
71.00	9.80	9.56	0.0
72.00	9.80	9.56	0.0

Summary for Subcatchment A1p: Pervious

Runoff = 5.3 cfs @ 12.20 hrs, Volume= 0.53 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
3.2	39	>75% Grass cover, Good, HSG A
3.2		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0320	0.16		**Sheet Flow, 105.3 - 102.1** Grass: Dense n= 0.240 P2= 3.89"

Hydrograph for Subcatchment A1p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.00	0.0
2.00	0.24	0.00	0.0
3.00	0.37	0.00	0.0
4.00	0.51	0.00	0.0
5.00	0.67	0.00	0.0
6.00	0.84	0.00	0.0
7.00	1.03	0.00	0.0
8.00	1.27	0.00	0.0
9.00	1.55	0.00	0.0
10.00	1.94	0.00	0.0
11.00	2.55	0.00	0.0
12.00	4.70	0.14	**1.2**
13.00	7.25	0.86	**1.2**
14.00	7.86	1.10	0.6
15.00	8.25	1.26	0.5
16.00	8.53	1.39	0.4
17.00	8.77	1.49	0.3
18.00	8.96	1.59	0.3
19.00	9.13	1.66	0.3
20.00	9.29	1.74	0.2
21.00	9.43	1.81	0.2
22.00	9.56	1.88	0.2
23.00	9.69	1.94	0.2
24.00	**9.80**	**1.99**	0.2
25.00	9.80	1.99	0.0
26.00	9.80	1.99	0.0
27.00	9.80	1.99	0.0
28.00	9.80	1.99	0.0
29.00	9.80	1.99	0.0
30.00	9.80	1.99	0.0
31.00	9.80	1.99	0.0
32.00	9.80	1.99	0.0
33.00	9.80	1.99	0.0
34.00	9.80	1.99	0.0
35.00	9.80	1.99	0.0
36.00	9.80	1.99	0.0
37.00	9.80	1.99	0.0
38.00	9.80	1.99	0.0
39.00	9.80	1.99	0.0
40.00	9.80	1.99	0.0
41.00	9.80	1.99	0.0
42.00	9.80	1.99	0.0
43.00	9.80	1.99	0.0
44.00	9.80	1.99	0.0
45.00	9.80	1.99	0.0
46.00	9.80	1.99	0.0
47.00	9.80	1.99	0.0
48.00	9.80	1.99	0.0
49.00	9.80	1.99	0.0
50.00	9.80	1.99	0.0
51.00	9.80	1.99	0.0
52.00	9.80	1.99	0.0
53.00	9.80	1.99	0.0
54.00	9.80	1.99	0.0
55.00	9.80	1.99	0.0
56.00	9.80	1.99	0.0
57.00	9.80	1.99	0.0
58.00	9.80	1.99	0.0
59.00	9.80	1.99	0.0
60.00	9.80	1.99	0.0
61.00	9.80	1.99	0.0
62.00	9.80	1.99	0.0
63.00	9.80	1.99	0.0
64.00	9.80	1.99	0.0
65.00	9.80	1.99	0.0
66.00	9.80	1.99	0.0
67.00	9.80	1.99	0.0
68.00	9.80	1.99	0.0
69.00	9.80	1.99	0.0
70.00	9.80	1.99	0.0
71.00	9.80	1.99	0.0
72.00	9.80	1.99	0.0

Summary for Subcatchment B1i: Impervious

Runoff = 13.1 cfs @ 12.17 hrs, Volume= 1.27 af, Depth= 9.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
1.6	98	Paved parking, HSG A
1.6		100.00% Impervious Area

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

Hydrograph for Subcatchment B1i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.02	0.1
2.00	0.24	0.09	0.1
3.00	0.37	0.20	0.2
4.00	0.51	0.33	0.2
5.00	0.67	0.48	0.2
6.00	0.84	0.63	0.3
7.00	1.03	0.82	0.3
8.00	1.27	1.06	0.4
9.00	1.55	1.33	0.5
10.00	1.94	1.72	0.7
11.00	2.55	2.32	1.2
12.00	4.70	4.46	**6.3**
13.00	7.25	7.01	**1.6**
14.00	7.86	7.62	0.8
15.00	8.25	8.01	0.5
16.00	8.53	8.29	0.4
17.00	8.77	8.53	0.4
18.00	8.96	8.72	0.3
19.00	9.13	8.89	0.3
20.00	9.29	9.05	0.2
21.00	9.43	9.19	0.2
22.00	9.56	9.32	0.2
23.00	9.69	9.45	0.2
24.00	**9.80**	**9.56**	0.2
25.00	9.80	9.56	0.0
26.00	9.80	9.56	0.0
27.00	9.80	9.56	0.0
28.00	9.80	9.56	0.0
29.00	9.80	9.56	0.0
30.00	9.80	9.56	0.0
31.00	9.80	9.56	0.0
32.00	9.80	9.56	0.0
33.00	9.80	9.56	0.0
34.00	9.80	9.56	0.0
35.00	9.80	9.56	0.0
36.00	9.80	9.56	0.0
37.00	9.80	9.56	0.0
38.00	9.80	9.56	0.0
39.00	9.80	9.56	0.0
40.00	9.80	9.56	0.0
41.00	9.80	9.56	0.0
42.00	9.80	9.56	0.0
43.00	9.80	9.56	0.0
44.00	9.80	9.56	0.0
45.00	9.80	9.56	0.0
46.00	9.80	9.56	0.0
47.00	9.80	9.56	0.0
48.00	9.80	9.56	0.0
49.00	9.80	9.56	0.0
50.00	9.80	9.56	0.0
51.00	9.80	9.56	0.0
52.00	9.80	9.56	0.0
53.00	9.80	9.56	0.0
54.00	9.80	9.56	0.0
55.00	9.80	9.56	0.0
56.00	9.80	9.56	0.0
57.00	9.80	9.56	0.0
58.00	9.80	9.56	0.0
59.00	9.80	9.56	0.0
60.00	9.80	9.56	0.0
61.00	9.80	9.56	0.0
62.00	9.80	9.56	0.0
63.00	9.80	9.56	0.0
64.00	9.80	9.56	0.0
65.00	9.80	9.56	0.0
66.00	9.80	9.56	0.0
67.00	9.80	9.56	0.0
68.00	9.80	9.56	0.0
69.00	9.80	9.56	0.0
70.00	9.80	9.56	0.0
71.00	9.80	9.56	0.0
72.00	9.80	9.56	0.0

Summary for Subcatchment B1p: Pervious

Runoff = 1.0 cfs @ 12.19 hrs, Volume= 0.10 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
0.6	39	>75% Grass cover, Good, HSG A
0.6		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	36	0.1140	0.14		**Sheet Flow, 114 -109.9** Woods: Light underbrush n= 0.400 P2= 3.89"
4.4	67	0.1330	0.25		**Sheet Flow, 109.9 - 101.0** Grass: Dense n= 0.240 P2= 3.89"
0.1	23	0.0430	4.21		**Shallow Concentrated Flow, 101.0 - 100.3** Paved Kv= 20.3 fps
8.8	126	Total, Increased to minimum Tc = 10.0 min			

Hydrograph for Subcatchment B1p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.00	0.0
2.00	0.24	0.00	0.0
3.00	0.37	0.00	0.0
4.00	0.51	0.00	0.0
5.00	0.67	0.00	0.0
6.00	0.84	0.00	0.0
7.00	1.03	0.00	0.0
8.00	1.27	0.00	0.0
9.00	1.55	0.00	0.0
10.00	1.94	0.00	0.0
11.00	2.55	0.00	0.0
12.00	4.70	0.14	**0.2**
13.00	7.25	0.86	**0.2**
14.00	7.86	1.10	0.1
15.00	8.25	1.26	0.1
16.00	8.53	1.39	0.1
17.00	8.77	1.49	0.1
18.00	8.96	1.59	0.1
19.00	9.13	1.66	0.0
20.00	9.29	1.74	0.0
21.00	9.43	1.81	0.0
22.00	9.56	1.88	0.0
23.00	9.69	1.94	0.0
24.00	**9.80**	**1.99**	0.0
25.00	9.80	1.99	0.0
26.00	9.80	1.99	0.0
27.00	9.80	1.99	0.0
28.00	9.80	1.99	0.0
29.00	9.80	1.99	0.0
30.00	9.80	1.99	0.0
31.00	9.80	1.99	0.0
32.00	9.80	1.99	0.0
33.00	9.80	1.99	0.0
34.00	9.80	1.99	0.0
35.00	9.80	1.99	0.0
36.00	9.80	1.99	0.0
37.00	9.80	1.99	0.0
38.00	9.80	1.99	0.0
39.00	9.80	1.99	0.0
40.00	9.80	1.99	0.0
41.00	9.80	1.99	0.0
42.00	9.80	1.99	0.0
43.00	9.80	1.99	0.0
44.00	9.80	1.99	0.0
45.00	9.80	1.99	0.0
46.00	9.80	1.99	0.0
47.00	9.80	1.99	0.0
48.00	9.80	1.99	0.0
49.00	9.80	1.99	0.0
50.00	9.80	1.99	0.0
51.00	9.80	1.99	0.0
52.00	9.80	1.99	0.0
53.00	9.80	1.99	0.0
54.00	9.80	1.99	0.0
55.00	9.80	1.99	0.0
56.00	9.80	1.99	0.0
57.00	9.80	1.99	0.0
58.00	9.80	1.99	0.0
59.00	9.80	1.99	0.0
60.00	9.80	1.99	0.0
61.00	9.80	1.99	0.0
62.00	9.80	1.99	0.0
63.00	9.80	1.99	0.0
64.00	9.80	1.99	0.0
65.00	9.80	1.99	0.0
66.00	9.80	1.99	0.0
67.00	9.80	1.99	0.0
68.00	9.80	1.99	0.0
69.00	9.80	1.99	0.0
70.00	9.80	1.99	0.0
71.00	9.80	1.99	0.0
72.00	9.80	1.99	0.0

Summary for Subcatchment B2i: Impervious

Runoff = 10.6 cfs @ 12.17 hrs, Volume= 1.04 af, Depth= 9.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
1.3	98	Paved parking, HSG A
1.3		100.00% Impervious Area

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

Hydrograph for Subcatchment B2i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.02	0.1
2.00	0.24	0.09	0.1
3.00	0.37	0.20	0.2
4.00	0.51	0.33	0.2
5.00	0.67	0.48	0.2
6.00	0.84	0.63	0.2
7.00	1.03	0.82	0.3
8.00	1.27	1.06	0.3
9.00	1.55	1.33	0.4
10.00	1.94	1.72	0.6
11.00	2.55	2.32	1.0
12.00	4.70	4.46	**5.1**
13.00	7.25	7.01	**1.3**
14.00	7.86	7.62	0.6
15.00	8.25	8.01	0.4
16.00	8.53	8.29	0.4
17.00	8.77	8.53	0.3
18.00	8.96	8.72	0.2
19.00	9.13	8.89	0.2
20.00	9.29	9.05	0.2
21.00	9.43	9.19	0.2
22.00	9.56	9.32	0.2
23.00	9.69	9.45	0.2
24.00	**9.80**	**9.56**	0.1
25.00	9.80	9.56	0.0
26.00	9.80	9.56	0.0
27.00	9.80	9.56	0.0
28.00	9.80	9.56	0.0
29.00	9.80	9.56	0.0
30.00	9.80	9.56	0.0
31.00	9.80	9.56	0.0
32.00	9.80	9.56	0.0
33.00	9.80	9.56	0.0
34.00	9.80	9.56	0.0
35.00	9.80	9.56	0.0
36.00	9.80	9.56	0.0
37.00	9.80	9.56	0.0
38.00	9.80	9.56	0.0
39.00	9.80	9.56	0.0
40.00	9.80	9.56	0.0
41.00	9.80	9.56	0.0
42.00	9.80	9.56	0.0
43.00	9.80	9.56	0.0
44.00	9.80	9.56	0.0
45.00	9.80	9.56	0.0
46.00	9.80	9.56	0.0
47.00	9.80	9.56	0.0
48.00	9.80	9.56	0.0
49.00	9.80	9.56	0.0
50.00	9.80	9.56	0.0
51.00	9.80	9.56	0.0
52.00	9.80	9.56	0.0
53.00	9.80	9.56	0.0
54.00	9.80	9.56	0.0
55.00	9.80	9.56	0.0
56.00	9.80	9.56	0.0
57.00	9.80	9.56	0.0
58.00	9.80	9.56	0.0
59.00	9.80	9.56	0.0
60.00	9.80	9.56	0.0
61.00	9.80	9.56	0.0
62.00	9.80	9.56	0.0
63.00	9.80	9.56	0.0
64.00	9.80	9.56	0.0
65.00	9.80	9.56	0.0
66.00	9.80	9.56	0.0
67.00	9.80	9.56	0.0
68.00	9.80	9.56	0.0
69.00	9.80	9.56	0.0
70.00	9.80	9.56	0.0
71.00	9.80	9.56	0.0
72.00	9.80	9.56	0.0

Summary for Subcatchment B2p: Pervious

Runoff = 2.3 cfs @ 12.29 hrs, Volume= 0.30 af, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
1.6	39	>75% Grass cover, Good, HSG A
0.3	30	Woods, Good, HSG A
1.9	38	Weighted Average
1.9		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0100	0.10		**Sheet Flow, 102.5 - 101.5** Grass: Dense n= 0.240 P2= 3.89"
0.2	25	0.0160	2.04		**Shallow Concentrated Flow, 101.5 - 101.1** Unpaved Kv= 16.1 fps
17.3	125	Total			

Hydrograph for Subcatchment B2p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.00	0.0
2.00	0.24	0.00	0.0
3.00	0.37	0.00	0.0
4.00	0.51	0.00	0.0
5.00	0.67	0.00	0.0
6.00	0.84	0.00	0.0
7.00	1.03	0.00	0.0
8.00	1.27	0.00	0.0
9.00	1.55	0.00	0.0
10.00	1.94	0.00	0.0
11.00	2.55	0.00	0.0
12.00	4.70	0.12	**0.3**
13.00	7.25	0.78	**0.7**
14.00	7.86	1.01	0.4
15.00	8.25	1.17	0.3
16.00	8.53	1.28	0.2
17.00	8.77	1.39	0.2
18.00	8.96	1.48	0.2
19.00	9.13	1.55	0.1
20.00	9.29	1.62	0.1
21.00	9.43	1.69	0.1
22.00	9.56	1.76	0.1
23.00	9.69	1.82	0.1
24.00	**9.80**	**1.87**	0.1
25.00	9.80	1.87	0.0
26.00	9.80	1.87	0.0
27.00	9.80	1.87	0.0
28.00	9.80	1.87	0.0
29.00	9.80	1.87	0.0
30.00	9.80	1.87	0.0
31.00	9.80	1.87	0.0
32.00	9.80	1.87	0.0
33.00	9.80	1.87	0.0
34.00	9.80	1.87	0.0
35.00	9.80	1.87	0.0
36.00	9.80	1.87	0.0
37.00	9.80	1.87	0.0
38.00	9.80	1.87	0.0
39.00	9.80	1.87	0.0
40.00	9.80	1.87	0.0
41.00	9.80	1.87	0.0
42.00	9.80	1.87	0.0
43.00	9.80	1.87	0.0
44.00	9.80	1.87	0.0
45.00	9.80	1.87	0.0
46.00	9.80	1.87	0.0
47.00	9.80	1.87	0.0
48.00	9.80	1.87	0.0
49.00	9.80	1.87	0.0
50.00	9.80	1.87	0.0
51.00	9.80	1.87	0.0
52.00	9.80	1.87	0.0
53.00	9.80	1.87	0.0
54.00	9.80	1.87	0.0
55.00	9.80	1.87	0.0
56.00	9.80	1.87	0.0
57.00	9.80	1.87	0.0
58.00	9.80	1.87	0.0
59.00	9.80	1.87	0.0
60.00	9.80	1.87	0.0
61.00	9.80	1.87	0.0
62.00	9.80	1.87	0.0
63.00	9.80	1.87	0.0
64.00	9.80	1.87	0.0
65.00	9.80	1.87	0.0
66.00	9.80	1.87	0.0
67.00	9.80	1.87	0.0
68.00	9.80	1.87	0.0
69.00	9.80	1.87	0.0
70.00	9.80	1.87	0.0
71.00	9.80	1.87	0.0
72.00	9.80	1.87	0.0

Summary for Subcatchment Ui: Impervious

Runoff = 0.8 cfs @ 12.17 hrs, Volume= 0.08 af, Depth= 9.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
0.1	98	Paved parking, HSG A
0.1		100.00% Impervious Area

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

Hydrograph for Subcatchment Ui: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.02	0.0
2.00	0.24	0.09	0.0
3.00	0.37	0.20	0.0
4.00	0.51	0.33	0.0
5.00	0.67	0.48	0.0
6.00	0.84	0.63	0.0
7.00	1.03	0.82	0.0
8.00	1.27	1.06	0.0
9.00	1.55	1.33	0.0
10.00	1.94	1.72	0.0
11.00	2.55	2.32	0.1
12.00	4.70	4.46	**0.4**
13.00	7.25	7.01	**0.1**
14.00	7.86	7.62	0.0
15.00	8.25	8.01	0.0
16.00	8.53	8.29	0.0
17.00	8.77	8.53	0.0
18.00	8.96	8.72	0.0
19.00	9.13	8.89	0.0
20.00	9.29	9.05	0.0
21.00	9.43	9.19	0.0
22.00	9.56	9.32	0.0
23.00	9.69	9.45	0.0
24.00	**9.80**	**9.56**	0.0
25.00	9.80	9.56	0.0
26.00	9.80	9.56	0.0
27.00	9.80	9.56	0.0
28.00	9.80	9.56	0.0
29.00	9.80	9.56	0.0
30.00	9.80	9.56	0.0
31.00	9.80	9.56	0.0
32.00	9.80	9.56	0.0
33.00	9.80	9.56	0.0
34.00	9.80	9.56	0.0
35.00	9.80	9.56	0.0
36.00	9.80	9.56	0.0
37.00	9.80	9.56	0.0
38.00	9.80	9.56	0.0
39.00	9.80	9.56	0.0
40.00	9.80	9.56	0.0
41.00	9.80	9.56	0.0
42.00	9.80	9.56	0.0
43.00	9.80	9.56	0.0
44.00	9.80	9.56	0.0
45.00	9.80	9.56	0.0
46.00	9.80	9.56	0.0
47.00	9.80	9.56	0.0
48.00	9.80	9.56	0.0
49.00	9.80	9.56	0.0
50.00	9.80	9.56	0.0
51.00	9.80	9.56	0.0
52.00	9.80	9.56	0.0
53.00	9.80	9.56	0.0
54.00	9.80	9.56	0.0
55.00	9.80	9.56	0.0
56.00	9.80	9.56	0.0
57.00	9.80	9.56	0.0
58.00	9.80	9.56	0.0
59.00	9.80	9.56	0.0
60.00	9.80	9.56	0.0
61.00	9.80	9.56	0.0
62.00	9.80	9.56	0.0
63.00	9.80	9.56	0.0
64.00	9.80	9.56	0.0
65.00	9.80	9.56	0.0
66.00	9.80	9.56	0.0
67.00	9.80	9.56	0.0
68.00	9.80	9.56	0.0
69.00	9.80	9.56	0.0
70.00	9.80	9.56	0.0
71.00	9.80	9.56	0.0
72.00	9.80	9.56	0.0

Summary for Subcatchment Up: Pervious

Runoff = 3.2 cfs @ 12.21 hrs, Volume= 0.33 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=9.80"

Area (ac)	CN	Description
1.9	39	>75% Grass cover, Good, HSG A
0.1	30	Woods, Good, HSG A
2.0	39	Weighted Average
2.0		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0380	0.17		**Sheet Flow, 94.0 - 90.2** Grass: Dense n= 0.240 P2= 3.89"
1.4	175	0.0180	2.16		**Shallow Concentrated Flow, 90.2 - 87.0** Unpaved Kv= 16.1 fps
11.4	275	Total			

Hydrograph for Subcatchment Up: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.11	0.00	0.0
2.00	0.24	0.00	0.0
3.00	0.37	0.00	0.0
4.00	0.51	0.00	0.0
5.00	0.67	0.00	0.0
6.00	0.84	0.00	0.0
7.00	1.03	0.00	0.0
8.00	1.27	0.00	0.0
9.00	1.55	0.00	0.0
10.00	1.94	0.00	0.0
11.00	2.55	0.00	0.0
12.00	4.70	0.14	**0.7**
13.00	7.25	0.86	**0.8**
14.00	7.86	1.10	0.4
15.00	8.25	1.26	0.3
16.00	8.53	1.39	0.2
17.00	8.77	1.49	0.2
18.00	8.96	1.59	0.2
19.00	9.13	1.66	0.2
20.00	9.29	1.74	0.1
21.00	9.43	1.81	0.1
22.00	9.56	1.88	0.1
23.00	9.69	1.94	0.1
24.00	**9.80**	**1.99**	0.1
25.00	9.80	1.99	0.0
26.00	9.80	1.99	0.0
27.00	9.80	1.99	0.0
28.00	9.80	1.99	0.0
29.00	9.80	1.99	0.0
30.00	9.80	1.99	0.0
31.00	9.80	1.99	0.0
32.00	9.80	1.99	0.0
33.00	9.80	1.99	0.0
34.00	9.80	1.99	0.0
35.00	9.80	1.99	0.0
36.00	9.80	1.99	0.0
37.00	9.80	1.99	0.0
38.00	9.80	1.99	0.0
39.00	9.80	1.99	0.0
40.00	9.80	1.99	0.0
41.00	9.80	1.99	0.0
42.00	9.80	1.99	0.0
43.00	9.80	1.99	0.0
44.00	9.80	1.99	0.0
45.00	9.80	1.99	0.0
46.00	9.80	1.99	0.0
47.00	9.80	1.99	0.0
48.00	9.80	1.99	0.0
49.00	9.80	1.99	0.0
50.00	9.80	1.99	0.0
51.00	9.80	1.99	0.0
52.00	9.80	1.99	0.0
53.00	9.80	1.99	0.0
54.00	9.80	1.99	0.0
55.00	9.80	1.99	0.0
56.00	9.80	1.99	0.0
57.00	9.80	1.99	0.0
58.00	9.80	1.99	0.0
59.00	9.80	1.99	0.0
60.00	9.80	1.99	0.0
61.00	9.80	1.99	0.0
62.00	9.80	1.99	0.0
63.00	9.80	1.99	0.0
64.00	9.80	1.99	0.0
65.00	9.80	1.99	0.0
66.00	9.80	1.99	0.0
67.00	9.80	1.99	0.0
68.00	9.80	1.99	0.0
69.00	9.80	1.99	0.0
70.00	9.80	1.99	0.0
71.00	9.80	1.99	0.0
72.00	9.80	1.99	0.0

Summary for Pond A: Watershed A

Inflow Area = 17.2 ac, 55.23% Impervious, Inflow Depth = 2.55" for 100-Year event
Inflow = 17.9 cfs @ 12.55 hrs, Volume= 3.66 af
Primary = 17.9 cfs @ 12.55 hrs, Volume= 3.66 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Hydrograph for Pond A: Watershed A

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.0		0.0
1.00	0.0		0.0
2.00	0.0		0.0
3.00	0.0		0.0
4.00	0.0		0.0
5.00	0.0		0.0
6.00	0.0		0.0
7.00	0.0		0.0
8.00	0.0		0.0
9.00	0.0		0.0
10.00	0.0		0.0
11.00	0.1		0.1
12.00	**3.6**		**3.6**
13.00	**15.1**		**15.1**
14.00	7.9		7.9
15.00	4.4		4.4
16.00	3.3		3.3
17.00	2.4		2.4
18.00	1.3		1.3
19.00	0.9		0.9
20.00	0.7		0.7
21.00	0.4		0.4
22.00	0.3		0.3
23.00	0.2		0.2
24.00	0.1		0.1
25.00	0.0		0.0
26.00	0.0		0.0
27.00	0.0		0.0
28.00	0.0		0.0
29.00	0.0		0.0
30.00	0.0		0.0
31.00	0.0		0.0
32.00	0.0		0.0
33.00	0.0		0.0
34.00	0.0		0.0
35.00	0.0		0.0
36.00	0.0		0.0
37.00	0.0		0.0
38.00	0.0		0.0
39.00	0.0		0.0
40.00	0.0		0.0
41.00	0.0		0.0
42.00	0.0		0.0
43.00	0.0		0.0
44.00	0.0		0.0
45.00	0.0		0.0
46.00	0.0		0.0
47.00	0.0		0.0
48.00	0.0		0.0
49.00	0.0		0.0
50.00	0.0		0.0
51.00	0.0		0.0
52.00	0.0		0.0
53.00	0.0		0.0
54.00	0.0		0.0
55.00	0.0		0.0
56.00	0.0		0.0
57.00	0.0		0.0
58.00	0.0		0.0
59.00	0.0		0.0
60.00	0.0		0.0
61.00	0.0		0.0
62.00	0.0		0.0
63.00	0.0		0.0
64.00	0.0		0.0
65.00	0.0		0.0
66.00	0.0		0.0
67.00	0.0		0.0
68.00	0.0		0.0
69.00	0.0		0.0
70.00	0.0		0.0
71.00	0.0		0.0
72.00	0.0		0.0

Summary for Pond A1: Basin A

Inflow Area = 9.7 ac, 67.01% Impervious, Inflow Depth = 7.06" for 100-Year event
Inflow = 58.2 cfs @ 12.17 hrs, Volume= 5.71 af
Outflow = 13.4 cfs @ 12.60 hrs, Volume= 5.71 af, Atten= 77%, Lag= 25.4 min
Discarded = 3.3 cfs @ 12.60 hrs, Volume= 3.88 af
Primary = 10.1 cfs @ 12.60 hrs, Volume= 1.83 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 89.56' @ 12.60 hrs Surf.Area= 14,358.6 sf Storage= 75,859 cf

Plug-Flow detention time= 72.7 min calculated for 5.71 af (100% of inflow)
Center-of-Mass det. time= 72.7 min (831.5 - 758.8)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	120,699 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	12,490.0	0	0
85.00	13,185.0	12,838	12,838
86.00	13,475.0	13,330	26,168
87.00	13,765.0	13,620	39,788
88.00	14,010.0	13,888	53,675
89.00	14,235.0	14,123	67,798
90.00	14,455.0	14,345	82,143
91.00	14,635.0	14,545	96,688
92.00	16,675.0	15,655	112,343
92.50	16,750.0	8,356	120,699

Device	Routing	Invert	Outlet Devices
#1	Primary	83.90'	**24.0" Round 24" Pipe** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 83.90' / 83.52' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	85.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	87.05'	**0.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	84.00'	**10.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=3.3 cfs @ 12.60 hrs HW=89.56' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 3.3 cfs)

Primary OutFlow Max=10.1 cfs @ 12.60 hrs HW=89.56' (Free Discharge)
└**1=24" Pipe** (Passes 10.1 cfs of 32.7 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 3.5 cfs @ 9.90 fps)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 6.6 cfs @ 5.26 fps)

Hydrograph for Pond A1: Basin A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.0	0	84.00	0.0	0.0	0.0
2.00	0.6	213	84.02	0.6	0.6	0.0
4.00	0.9	326	84.03	0.9	0.9	0.0
6.00	1.1	398	84.03	1.1	1.1	0.0
8.00	1.6	601	84.05	1.6	1.6	0.0
10.00	2.9	1,036	84.08	2.8	2.8	0.0
12.00	**26.7**	**27,503**	**86.10**	**4.6**	**3.1**	**1.5**
14.00	**3.8**	**55,162**	**88.11**	**7.8**	**3.2**	**4.6**
16.00	2.1	32,651	86.48	4.9	3.2	1.8
18.00	1.5	15,693	85.21	3.2	3.1	0.2
20.00	1.2	3,453	84.27	2.9	2.9	0.0
22.00	1.1	403	84.03	1.1	1.1	0.0
24.00	0.9	337	84.03	0.9	0.9	0.0
26.00	0.0	0	84.00	0.0	0.0	0.0
28.00	0.0	0	84.00	0.0	0.0	0.0
30.00	0.0	0	84.00	0.0	0.0	0.0
32.00	0.0	0	84.00	0.0	0.0	0.0
34.00	0.0	0	84.00	0.0	0.0	0.0
36.00	0.0	0	84.00	0.0	0.0	0.0
38.00	0.0	0	84.00	0.0	0.0	0.0
40.00	0.0	0	84.00	0.0	0.0	0.0
42.00	0.0	0	84.00	0.0	0.0	0.0
44.00	0.0	0	84.00	0.0	0.0	0.0
46.00	0.0	0	84.00	0.0	0.0	0.0
48.00	0.0	0	84.00	0.0	0.0	0.0
50.00	0.0	0	84.00	0.0	0.0	0.0
52.00	0.0	0	84.00	0.0	0.0	0.0
54.00	0.0	0	84.00	0.0	0.0	0.0
56.00	0.0	0	84.00	0.0	0.0	0.0
58.00	0.0	0	84.00	0.0	0.0	0.0
60.00	0.0	0	84.00	0.0	0.0	0.0
62.00	0.0	0	84.00	0.0	0.0	0.0
64.00	0.0	0	84.00	0.0	0.0	0.0
66.00	0.0	0	84.00	0.0	0.0	0.0
68.00	0.0	0	84.00	0.0	0.0	0.0
70.00	0.0	0	84.00	0.0	0.0	0.0
72.00	0.0	0	84.00	0.0	0.0	0.0

Summary for Pond B1: Basin B1

Inflow Area = 2.2 ac, 72.73% Impervious, Inflow Depth = 7.50" for 100-Year event
Inflow = 14.1 cfs @ 12.17 hrs, Volume= 1.37 af
Outflow = 12.2 cfs @ 12.22 hrs, Volume= 1.37 af, Atten= 13%, Lag= 3.1 min
Discarded = 0.4 cfs @ 12.22 hrs, Volume= 0.60 af
Primary = 11.8 cfs @ 12.22 hrs, Volume= 0.78 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 97.80' @ 12.22 hrs Surf.Area= 5,312.9 sf Storage= 6,635 cf

Plug-Flow detention time= 81.8 min calculated for 1.37 af (100% of inflow)
Center-of-Mass det. time= 81.8 min (837.1 - 755.3)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	25,898 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	1,955.0	0	0
97.00	3,925.0	2,940	2,940
98.00	5,660.0	4,793	7,733
99.00	7,585.0	6,623	14,355
100.00	15,500.0	11,543	25,898

Device	Routing	Invert	Outlet Devices
#1	Primary	93.50'	**18.0" Round 18" Pipe** L= 49.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 93.50' / 92.52' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Device 1	97.40'	**1.0" x 5.0" Horiz. Orifice/Grate X 8.00 columns** X 14 rows C= 0.600 in 96.0" x 106.0" Grate (6% open area) Limited to weir flow at low heads
#3	Discarded	96.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.4 cfs @ 12.22 hrs HW=97.80' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.4 cfs)

Primary OutFlow Max=11.8 cfs @ 12.22 hrs HW=97.80' (Free Discharge)
└**1=18" Pipe** (Passes 11.8 cfs of 16.0 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 11.8 cfs @ 3.04 fps)

Hydrograph for Pond B1: Basin B1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.0	0	96.00	0.0	0.0	0.0
2.00	0.1	77	96.04	0.1	0.1	0.0
4.00	0.2	345	96.16	0.2	0.2	0.0
6.00	0.3	842	96.36	0.2	0.2	0.0
8.00	0.4	1,746	96.67	0.2	0.2	0.0
10.00	0.7	3,569	97.15	0.3	0.3	0.0
12.00	**6.5**	**5,293**	**97.54**	**5.9**	**0.3**	**5.6**
14.00	**0.9**	**4,776**	**97.43**	**0.9**	**0.3**	**0.6**
16.00	0.5	4,688	97.41	0.5	0.3	0.2
18.00	0.3	4,654	97.40	0.3	0.3	0.0
20.00	0.3	4,566	97.38	0.3	0.3	0.0
22.00	0.2	4,240	97.31	0.3	0.3	0.0
24.00	0.2	3,704	97.19	0.3	0.3	0.0
26.00	0.0	1,899	96.71	0.2	0.2	0.0
28.00	0.0	464	96.21	0.2	0.2	0.0
30.00	0.0	0	96.00	0.0	0.0	0.0
32.00	0.0	0	96.00	0.0	0.0	0.0
34.00	0.0	0	96.00	0.0	0.0	0.0
36.00	0.0	0	96.00	0.0	0.0	0.0
38.00	0.0	0	96.00	0.0	0.0	0.0
40.00	0.0	0	96.00	0.0	0.0	0.0
42.00	0.0	0	96.00	0.0	0.0	0.0
44.00	0.0	0	96.00	0.0	0.0	0.0
46.00	0.0	0	96.00	0.0	0.0	0.0
48.00	0.0	0	96.00	0.0	0.0	0.0
50.00	0.0	0	96.00	0.0	0.0	0.0
52.00	0.0	0	96.00	0.0	0.0	0.0
54.00	0.0	0	96.00	0.0	0.0	0.0
56.00	0.0	0	96.00	0.0	0.0	0.0
58.00	0.0	0	96.00	0.0	0.0	0.0
60.00	0.0	0	96.00	0.0	0.0	0.0
62.00	0.0	0	96.00	0.0	0.0	0.0
64.00	0.0	0	96.00	0.0	0.0	0.0
66.00	0.0	0	96.00	0.0	0.0	0.0
68.00	0.0	0	96.00	0.0	0.0	0.0
70.00	0.0	0	96.00	0.0	0.0	0.0
72.00	0.0	0	96.00	0.0	0.0	0.0

Summary for Pond B2: Basin B2

Inflow Area = 5.4 ac, 53.70% Impervious, Inflow Depth = 4.69" for 100-Year event
Inflow = 23.6 cfs @ 12.19 hrs, Volume= 2.11 af
Outflow = 6.9 cfs @ 12.58 hrs, Volume= 2.11 af, Atten= 71%, Lag= 23.0 min
Discarded = 0.4 cfs @ 12.58 hrs, Volume= 0.69 af
Primary = 6.4 cfs @ 12.58 hrs, Volume= 1.42 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 92.47' @ 12.58 hrs Surf.Area= 9,106.6 sf Storage= 37,197 cf

Plug-Flow detention time= 134.6 min calculated for 2.11 af (100% of inflow)
Center-of-Mass det. time= 134.7 min (906.5 - 771.8)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	82,563 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
88.00	7,435.0	0	0
89.00	7,845.0	7,640	7,640
90.00	8,235.0	8,040	15,680
91.00	8,600.0	8,418	24,098
92.00	8,950.0	8,775	32,873
93.00	9,280.0	9,115	41,988
94.00	9,670.0	9,475	51,463
95.00	9,990.0	9,830	61,293
96.00	13,445.0	11,718	73,010
96.50	24,765.0	9,553	82,563

Device	Routing	Invert	Outlet Devices
#1	Primary	82.90'	**18.0" Round 18" Pipe** L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 82.90' / 82.30' S= 0.0182 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Device 1	88.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	90.50'	**0.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	88.00'	**2.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.4 cfs @ 12.58 hrs HW=92.47' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.4 cfs)

Primary OutFlow Max=6.4 cfs @ 12.58 hrs HW=92.47' (Free Discharge)
└**1=18" Pipe** (Passes 6.4 cfs of 25.3 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 1.8 cfs @ 9.29 fps)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 4.6 cfs @ 4.67 fps)

Hydrograph for Pond B2: Basin B2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.0	0	88.00	0.0	0.0	0.0
2.00	0.1	166	88.02	0.1	0.1	0.0
4.00	0.2	306	88.04	0.2	0.2	0.0
6.00	0.2	384	88.05	0.2	0.2	0.0
8.00	0.3	557	88.07	0.3	0.3	0.0
10.00	0.6	1,122	88.15	0.3	0.3	0.0
12.00	**10.9**	**14,760**	**89.89**	**1.4**	**0.4**	**1.0**
14.00	**1.6**	**27,283**	**91.36**	**3.3**	**0.4**	**2.9**
16.00	0.8	19,466	90.45	1.6	0.4	1.2
18.00	0.4	13,174	89.69	1.3	0.4	0.9
20.00	0.3	7,967	89.04	0.9	0.4	0.5
22.00	0.3	5,489	88.72	0.5	0.4	0.1
24.00	0.2	4,388	88.57	0.4	0.4	0.0
26.00	0.0	2,006	88.26	0.3	0.3	0.0
28.00	0.0	112	88.01	0.1	0.1	0.0
30.00	0.0	2	88.00	0.0	0.0	0.0
32.00	0.0	0	88.00	0.0	0.0	0.0
34.00	0.0	0	88.00	0.0	0.0	0.0
36.00	0.0	0	88.00	0.0	0.0	0.0
38.00	0.0	0	88.00	0.0	0.0	0.0
40.00	0.0	0	88.00	0.0	0.0	0.0
42.00	0.0	0	88.00	0.0	0.0	0.0
44.00	0.0	0	88.00	0.0	0.0	0.0
46.00	0.0	0	88.00	0.0	0.0	0.0
48.00	0.0	0	88.00	0.0	0.0	0.0
50.00	0.0	0	88.00	0.0	0.0	0.0
52.00	0.0	0	88.00	0.0	0.0	0.0
54.00	0.0	0	88.00	0.0	0.0	0.0
56.00	0.0	0	88.00	0.0	0.0	0.0
58.00	0.0	0	88.00	0.0	0.0	0.0
60.00	0.0	0	88.00	0.0	0.0	0.0
62.00	0.0	0	88.00	0.0	0.0	0.0
64.00	0.0	0	88.00	0.0	0.0	0.0
66.00	0.0	0	88.00	0.0	0.0	0.0
68.00	0.0	0	88.00	0.0	0.0	0.0
70.00	0.0	0	88.00	0.0	0.0	0.0
72.00	0.0	0	88.00	0.0	0.0	0.0

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A1i: Impervious Runoff Area=6.5 ac 100.00% Impervious Runoff Depth=1.03"
Tc=10.0 min CN=98 Runoff=16.9 cfs 0.56 af

Subcatchment A1p: Pervious Runoff Area=3.2 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=100' Slope=0.0320 '/' Tc=10.7 min CN=39 Runoff=0.0 cfs 0.00 af

Subcatchment B1i: Impervious Runoff Area=1.6 ac 100.00% Impervious Runoff Depth=1.03"
Tc=10.0 min CN=98 Runoff=4.2 cfs 0.14 af

Subcatchment B1p: Pervious Runoff Area=0.6 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=126' Tc=10.0 min CN=39 Runoff=0.0 cfs 0.00 af

Subcatchment B2i: Impervious Runoff Area=1.3 ac 100.00% Impervious Runoff Depth=1.03"
Tc=10.0 min CN=98 Runoff=3.4 cfs 0.11 af

Subcatchment B2p: Pervious Runoff Area=1.9 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=125' Tc=17.3 min CN=38 Runoff=0.0 cfs 0.00 af

Subcatchment Ui: Impervious Runoff Area=0.1 ac 100.00% Impervious Runoff Depth=1.03"
Tc=10.0 min CN=98 Runoff=0.3 cfs 0.01 af

Subcatchment Up: Pervious Runoff Area=2.0 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=275' Tc=11.4 min CN=39 Runoff=0.0 cfs 0.00 af

Pond A: Watershed A Inflow=0.3 cfs 0.01 af
Primary=0.3 cfs 0.01 af

Pond A1: Basin A Peak Elev=85.03' Storage=13,220 cf Inflow=16.9 cfs 0.56 af
Discarded=3.1 cfs 0.56 af Primary=0.0 cfs 0.00 af Outflow=3.1 cfs 0.56 af

Pond B1: Basin B1 Peak Elev=97.40' Storage=4,662 cf Inflow=4.2 cfs 0.14 af
Discarded=0.3 cfs 0.14 af Primary=0.1 cfs 0.00 af Outflow=0.4 cfs 0.14 af

Pond B2: Basin B2 Peak Elev=88.45' Storage=3,468 cf Inflow=3.4 cfs 0.11 af
Discarded=0.4 cfs 0.11 af Primary=0.0 cfs 0.00 af Outflow=0.4 cfs 0.11 af

Total Runoff Area = 17.2 ac Runoff Volume = 0.82 af Average Runoff Depth = 0.57"
44.77% Pervious = 7.7 ac 55.23% Impervious = 9.5 ac

Summary for Subcatchment A1i: Impervious

Runoff = 16.9 cfs @ 1.15 hrs, Volume= 0.56 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
3.8	98	Paved parking, HSG A
2.7	98	Roofs, HSG A
6.5	98	Weighted Average
6.5		100.00% Impervious Area

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

Hydrograph for Subcatchment A1i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.63	0.43	**6.8**
2.00	**1.25**	**1.03**	**0.8**
3.00	1.25	1.03	0.0
4.00	1.25	1.03	0.0
5.00	1.25	1.03	0.0
6.00	1.25	1.03	0.0
7.00	1.25	1.03	0.0
8.00	1.25	1.03	0.0
9.00	1.25	1.03	0.0
10.00	1.25	1.03	0.0
11.00	1.25	1.03	0.0
12.00	1.25	1.03	0.0
13.00	1.25	1.03	0.0
14.00	1.25	1.03	0.0
15.00	1.25	1.03	0.0
16.00	1.25	1.03	0.0
17.00	1.25	1.03	0.0
18.00	1.25	1.03	0.0
19.00	1.25	1.03	0.0
20.00	1.25	1.03	0.0
21.00	1.25	1.03	0.0
22.00	1.25	1.03	0.0
23.00	1.25	1.03	0.0
24.00	1.25	1.03	0.0
25.00	1.25	1.03	0.0
26.00	1.25	1.03	0.0
27.00	1.25	1.03	0.0
28.00	1.25	1.03	0.0
29.00	1.25	1.03	0.0
30.00	1.25	1.03	0.0
31.00	1.25	1.03	0.0
32.00	1.25	1.03	0.0
33.00	1.25	1.03	0.0
34.00	1.25	1.03	0.0
35.00	1.25	1.03	0.0
36.00	1.25	1.03	0.0
37.00	1.25	1.03	0.0
38.00	1.25	1.03	0.0
39.00	1.25	1.03	0.0
40.00	1.25	1.03	0.0
41.00	1.25	1.03	0.0
42.00	1.25	1.03	0.0
43.00	1.25	1.03	0.0
44.00	1.25	1.03	0.0
45.00	1.25	1.03	0.0
46.00	1.25	1.03	0.0
47.00	1.25	1.03	0.0
48.00	1.25	1.03	0.0
49.00	1.25	1.03	0.0
50.00	1.25	1.03	0.0
51.00	1.25	1.03	0.0
52.00	1.25	1.03	0.0
53.00	1.25	1.03	0.0
54.00	1.25	1.03	0.0
55.00	1.25	1.03	0.0
56.00	1.25	1.03	0.0
57.00	1.25	1.03	0.0
58.00	1.25	1.03	0.0
59.00	1.25	1.03	0.0
60.00	1.25	1.03	0.0
61.00	1.25	1.03	0.0
62.00	1.25	1.03	0.0
63.00	1.25	1.03	0.0
64.00	1.25	1.03	0.0
65.00	1.25	1.03	0.0
66.00	1.25	1.03	0.0
67.00	1.25	1.03	0.0
68.00	1.25	1.03	0.0
69.00	1.25	1.03	0.0
70.00	1.25	1.03	0.0
71.00	1.25	1.03	0.0
72.00	1.25	1.03	0.0

Summary for Subcatchment A1p: Pervious

Runoff = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
3.2	39	>75% Grass cover, Good, HSG A
3.2		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0320	0.16		**Sheet Flow, 105.3 - 102.1** Grass: Dense n= 0.240 P2= 3.89"

Hydrograph for Subcatchment A1p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	**0.0**
1.00	0.63	0.00	0.0
2.00	**1.25**	0.00	0.0
3.00	1.25	0.00	0.0
4.00	1.25	0.00	0.0
5.00	1.25	0.00	0.0
6.00	1.25	0.00	0.0
7.00	1.25	0.00	0.0
8.00	1.25	0.00	0.0
9.00	1.25	0.00	0.0
10.00	1.25	0.00	0.0
11.00	1.25	0.00	0.0
12.00	1.25	0.00	0.0
13.00	1.25	0.00	0.0
14.00	1.25	0.00	0.0
15.00	1.25	0.00	0.0
16.00	1.25	0.00	0.0
17.00	1.25	0.00	0.0
18.00	1.25	0.00	0.0
19.00	1.25	0.00	0.0
20.00	1.25	0.00	0.0
21.00	1.25	0.00	0.0
22.00	1.25	0.00	0.0
23.00	1.25	0.00	0.0
24.00	1.25	0.00	0.0
25.00	1.25	0.00	0.0
26.00	1.25	0.00	0.0
27.00	1.25	0.00	0.0
28.00	1.25	0.00	0.0
29.00	1.25	0.00	0.0
30.00	1.25	0.00	0.0
31.00	1.25	0.00	0.0
32.00	1.25	0.00	0.0
33.00	1.25	0.00	0.0
34.00	1.25	0.00	0.0
35.00	1.25	0.00	0.0
36.00	1.25	0.00	0.0
37.00	1.25	0.00	0.0
38.00	1.25	0.00	0.0
39.00	1.25	0.00	0.0
40.00	1.25	0.00	0.0
41.00	1.25	0.00	0.0
42.00	1.25	0.00	0.0
43.00	1.25	0.00	0.0
44.00	1.25	0.00	0.0
45.00	1.25	0.00	0.0
46.00	1.25	0.00	0.0
47.00	1.25	0.00	0.0
48.00	1.25	0.00	0.0
49.00	1.25	0.00	0.0
50.00	1.25	0.00	0.0
51.00	1.25	0.00	0.0
52.00	1.25	0.00	0.0
53.00	1.25	0.00	0.0
54.00	1.25	0.00	0.0
55.00	1.25	0.00	0.0
56.00	1.25	0.00	0.0
57.00	1.25	0.00	0.0
58.00	1.25	0.00	0.0
59.00	1.25	0.00	0.0
60.00	1.25	0.00	0.0
61.00	1.25	0.00	0.0
62.00	1.25	0.00	0.0
63.00	1.25	0.00	0.0
64.00	1.25	0.00	0.0
65.00	1.25	0.00	0.0
66.00	1.25	0.00	0.0
67.00	1.25	0.00	0.0
68.00	1.25	0.00	0.0
69.00	1.25	0.00	0.0
70.00	1.25	0.00	0.0
71.00	1.25	0.00	0.0
72.00	1.25	0.00	0.0

Summary for Subcatchment B1i: Impervious

Runoff = 4.2 cfs @ 1.15 hrs, Volume= 0.14 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
1.6	98	Paved parking, HSG A
1.6		100.00% Impervious Area

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

Hydrograph for Subcatchment B1i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.63	0.43	**1.7**
2.00	**1.25**	**1.03**	**0.2**
3.00	1.25	1.03	0.0
4.00	1.25	1.03	0.0
5.00	1.25	1.03	0.0
6.00	1.25	1.03	0.0
7.00	1.25	1.03	0.0
8.00	1.25	1.03	0.0
9.00	1.25	1.03	0.0
10.00	1.25	1.03	0.0
11.00	1.25	1.03	0.0
12.00	1.25	1.03	0.0
13.00	1.25	1.03	0.0
14.00	1.25	1.03	0.0
15.00	1.25	1.03	0.0
16.00	1.25	1.03	0.0
17.00	1.25	1.03	0.0
18.00	1.25	1.03	0.0
19.00	1.25	1.03	0.0
20.00	1.25	1.03	0.0
21.00	1.25	1.03	0.0
22.00	1.25	1.03	0.0
23.00	1.25	1.03	0.0
24.00	1.25	1.03	0.0
25.00	1.25	1.03	0.0
26.00	1.25	1.03	0.0
27.00	1.25	1.03	0.0
28.00	1.25	1.03	0.0
29.00	1.25	1.03	0.0
30.00	1.25	1.03	0.0
31.00	1.25	1.03	0.0
32.00	1.25	1.03	0.0
33.00	1.25	1.03	0.0
34.00	1.25	1.03	0.0
35.00	1.25	1.03	0.0
36.00	1.25	1.03	0.0
37.00	1.25	1.03	0.0
38.00	1.25	1.03	0.0
39.00	1.25	1.03	0.0
40.00	1.25	1.03	0.0
41.00	1.25	1.03	0.0
42.00	1.25	1.03	0.0
43.00	1.25	1.03	0.0
44.00	1.25	1.03	0.0
45.00	1.25	1.03	0.0
46.00	1.25	1.03	0.0
47.00	1.25	1.03	0.0
48.00	1.25	1.03	0.0
49.00	1.25	1.03	0.0
50.00	1.25	1.03	0.0
51.00	1.25	1.03	0.0
52.00	1.25	1.03	0.0
53.00	1.25	1.03	0.0
54.00	1.25	1.03	0.0
55.00	1.25	1.03	0.0
56.00	1.25	1.03	0.0
57.00	1.25	1.03	0.0
58.00	1.25	1.03	0.0
59.00	1.25	1.03	0.0
60.00	1.25	1.03	0.0
61.00	1.25	1.03	0.0
62.00	1.25	1.03	0.0
63.00	1.25	1.03	0.0
64.00	1.25	1.03	0.0
65.00	1.25	1.03	0.0
66.00	1.25	1.03	0.0
67.00	1.25	1.03	0.0
68.00	1.25	1.03	0.0
69.00	1.25	1.03	0.0
70.00	1.25	1.03	0.0
71.00	1.25	1.03	0.0
72.00	1.25	1.03	0.0

Summary for Subcatchment B1p: Pervious

Runoff = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.6	39	>75% Grass cover, Good, HSG A
0.6		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	36	0.1140	0.14		**Sheet Flow, 114 -109.9** Woods: Light underbrush n= 0.400 P2= 3.89"
4.4	67	0.1330	0.25		**Sheet Flow, 109.9 - 101.0** Grass: Dense n= 0.240 P2= 3.89"
0.1	23	0.0430	4.21		**Shallow Concentrated Flow, 101.0 - 100.3** Paved Kv= 20.3 fps
8.8	126	Total, Increased to minimum Tc = 10.0 min			

Hydrograph for Subcatchment B1p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	**0.0**
1.00	0.63	0.00	0.0
2.00	**1.25**	0.00	0.0
3.00	1.25	0.00	0.0
4.00	1.25	0.00	0.0
5.00	1.25	0.00	0.0
6.00	1.25	0.00	0.0
7.00	1.25	0.00	0.0
8.00	1.25	0.00	0.0
9.00	1.25	0.00	0.0
10.00	1.25	0.00	0.0
11.00	1.25	0.00	0.0
12.00	1.25	0.00	0.0
13.00	1.25	0.00	0.0
14.00	1.25	0.00	0.0
15.00	1.25	0.00	0.0
16.00	1.25	0.00	0.0
17.00	1.25	0.00	0.0
18.00	1.25	0.00	0.0
19.00	1.25	0.00	0.0
20.00	1.25	0.00	0.0
21.00	1.25	0.00	0.0
22.00	1.25	0.00	0.0
23.00	1.25	0.00	0.0
24.00	1.25	0.00	0.0
25.00	1.25	0.00	0.0
26.00	1.25	0.00	0.0
27.00	1.25	0.00	0.0
28.00	1.25	0.00	0.0
29.00	1.25	0.00	0.0
30.00	1.25	0.00	0.0
31.00	1.25	0.00	0.0
32.00	1.25	0.00	0.0
33.00	1.25	0.00	0.0
34.00	1.25	0.00	0.0
35.00	1.25	0.00	0.0
36.00	1.25	0.00	0.0
37.00	1.25	0.00	0.0
38.00	1.25	0.00	0.0
39.00	1.25	0.00	0.0
40.00	1.25	0.00	0.0
41.00	1.25	0.00	0.0
42.00	1.25	0.00	0.0
43.00	1.25	0.00	0.0
44.00	1.25	0.00	0.0
45.00	1.25	0.00	0.0
46.00	1.25	0.00	0.0
47.00	1.25	0.00	0.0
48.00	1.25	0.00	0.0
49.00	1.25	0.00	0.0
50.00	1.25	0.00	0.0
51.00	1.25	0.00	0.0
52.00	1.25	0.00	0.0
53.00	1.25	0.00	0.0
54.00	1.25	0.00	0.0
55.00	1.25	0.00	0.0
56.00	1.25	0.00	0.0
57.00	1.25	0.00	0.0
58.00	1.25	0.00	0.0
59.00	1.25	0.00	0.0
60.00	1.25	0.00	0.0
61.00	1.25	0.00	0.0
62.00	1.25	0.00	0.0
63.00	1.25	0.00	0.0
64.00	1.25	0.00	0.0
65.00	1.25	0.00	0.0
66.00	1.25	0.00	0.0
67.00	1.25	0.00	0.0
68.00	1.25	0.00	0.0
69.00	1.25	0.00	0.0
70.00	1.25	0.00	0.0
71.00	1.25	0.00	0.0
72.00	1.25	0.00	0.0

Summary for Subcatchment B2i: Impervious

Runoff = 3.4 cfs @ 1.15 hrs, Volume= 0.11 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
1.3	98	Paved parking, HSG A
1.3		100.00% Impervious Area

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

Hydrograph for Subcatchment B2i: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.63	0.43	**1.4**
2.00	**1.25**	**1.03**	**0.2**
3.00	1.25	1.03	0.0
4.00	1.25	1.03	0.0
5.00	1.25	1.03	0.0
6.00	1.25	1.03	0.0
7.00	1.25	1.03	0.0
8.00	1.25	1.03	0.0
9.00	1.25	1.03	0.0
10.00	1.25	1.03	0.0
11.00	1.25	1.03	0.0
12.00	1.25	1.03	0.0
13.00	1.25	1.03	0.0
14.00	1.25	1.03	0.0
15.00	1.25	1.03	0.0
16.00	1.25	1.03	0.0
17.00	1.25	1.03	0.0
18.00	1.25	1.03	0.0
19.00	1.25	1.03	0.0
20.00	1.25	1.03	0.0
21.00	1.25	1.03	0.0
22.00	1.25	1.03	0.0
23.00	1.25	1.03	0.0
24.00	1.25	1.03	0.0
25.00	1.25	1.03	0.0
26.00	1.25	1.03	0.0
27.00	1.25	1.03	0.0
28.00	1.25	1.03	0.0
29.00	1.25	1.03	0.0
30.00	1.25	1.03	0.0
31.00	1.25	1.03	0.0
32.00	1.25	1.03	0.0
33.00	1.25	1.03	0.0
34.00	1.25	1.03	0.0
35.00	1.25	1.03	0.0
36.00	1.25	1.03	0.0
37.00	1.25	1.03	0.0
38.00	1.25	1.03	0.0
39.00	1.25	1.03	0.0
40.00	1.25	1.03	0.0
41.00	1.25	1.03	0.0
42.00	1.25	1.03	0.0
43.00	1.25	1.03	0.0
44.00	1.25	1.03	0.0
45.00	1.25	1.03	0.0
46.00	1.25	1.03	0.0
47.00	1.25	1.03	0.0
48.00	1.25	1.03	0.0
49.00	1.25	1.03	0.0
50.00	1.25	1.03	0.0
51.00	1.25	1.03	0.0
52.00	1.25	1.03	0.0
53.00	1.25	1.03	0.0
54.00	1.25	1.03	0.0
55.00	1.25	1.03	0.0
56.00	1.25	1.03	0.0
57.00	1.25	1.03	0.0
58.00	1.25	1.03	0.0
59.00	1.25	1.03	0.0
60.00	1.25	1.03	0.0
61.00	1.25	1.03	0.0
62.00	1.25	1.03	0.0
63.00	1.25	1.03	0.0
64.00	1.25	1.03	0.0
65.00	1.25	1.03	0.0
66.00	1.25	1.03	0.0
67.00	1.25	1.03	0.0
68.00	1.25	1.03	0.0
69.00	1.25	1.03	0.0
70.00	1.25	1.03	0.0
71.00	1.25	1.03	0.0
72.00	1.25	1.03	0.0

Summary for Subcatchment B2p: Pervious

Runoff = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
1.6	39	>75% Grass cover, Good, HSG A
0.3	30	Woods, Good, HSG A
1.9	38	Weighted Average
1.9		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0100	0.10		**Sheet Flow, 102.5 - 101.5** Grass: Dense n= 0.240 P2= 3.89"
0.2	25	0.0160	2.04		**Shallow Concentrated Flow, 101.5 - 101.1** Unpaved Kv= 16.1 fps
17.3	125	Total			

Hydrograph for Subcatchment B2p: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	**0.0**
1.00	0.63	0.00	0.0
2.00	**1.25**	0.00	0.0
3.00	1.25	0.00	0.0
4.00	1.25	0.00	0.0
5.00	1.25	0.00	0.0
6.00	1.25	0.00	0.0
7.00	1.25	0.00	0.0
8.00	1.25	0.00	0.0
9.00	1.25	0.00	0.0
10.00	1.25	0.00	0.0
11.00	1.25	0.00	0.0
12.00	1.25	0.00	0.0
13.00	1.25	0.00	0.0
14.00	1.25	0.00	0.0
15.00	1.25	0.00	0.0
16.00	1.25	0.00	0.0
17.00	1.25	0.00	0.0
18.00	1.25	0.00	0.0
19.00	1.25	0.00	0.0
20.00	1.25	0.00	0.0
21.00	1.25	0.00	0.0
22.00	1.25	0.00	0.0
23.00	1.25	0.00	0.0
24.00	1.25	0.00	0.0
25.00	1.25	0.00	0.0
26.00	1.25	0.00	0.0
27.00	1.25	0.00	0.0
28.00	1.25	0.00	0.0
29.00	1.25	0.00	0.0
30.00	1.25	0.00	0.0
31.00	1.25	0.00	0.0
32.00	1.25	0.00	0.0
33.00	1.25	0.00	0.0
34.00	1.25	0.00	0.0
35.00	1.25	0.00	0.0
36.00	1.25	0.00	0.0
37.00	1.25	0.00	0.0
38.00	1.25	0.00	0.0
39.00	1.25	0.00	0.0
40.00	1.25	0.00	0.0
41.00	1.25	0.00	0.0
42.00	1.25	0.00	0.0
43.00	1.25	0.00	0.0
44.00	1.25	0.00	0.0
45.00	1.25	0.00	0.0
46.00	1.25	0.00	0.0
47.00	1.25	0.00	0.0
48.00	1.25	0.00	0.0
49.00	1.25	0.00	0.0
50.00	1.25	0.00	0.0
51.00	1.25	0.00	0.0
52.00	1.25	0.00	0.0
53.00	1.25	0.00	0.0
54.00	1.25	0.00	0.0
55.00	1.25	0.00	0.0
56.00	1.25	0.00	0.0
57.00	1.25	0.00	0.0
58.00	1.25	0.00	0.0
59.00	1.25	0.00	0.0
60.00	1.25	0.00	0.0
61.00	1.25	0.00	0.0
62.00	1.25	0.00	0.0
63.00	1.25	0.00	0.0
64.00	1.25	0.00	0.0
65.00	1.25	0.00	0.0
66.00	1.25	0.00	0.0
67.00	1.25	0.00	0.0
68.00	1.25	0.00	0.0
69.00	1.25	0.00	0.0
70.00	1.25	0.00	0.0
71.00	1.25	0.00	0.0
72.00	1.25	0.00	0.0

Summary for Subcatchment Ui: Impervious

Runoff = 0.3 cfs @ 1.15 hrs, Volume= 0.01 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.1	98	Paved parking, HSG A
0.1		100.00% Impervious Area

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

Hydrograph for Subcatchment Ui: Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.0
1.00	0.63	0.43	**0.1**
2.00	**1.25**	**1.03**	**0.0**
3.00	1.25	1.03	0.0
4.00	1.25	1.03	0.0
5.00	1.25	1.03	0.0
6.00	1.25	1.03	0.0
7.00	1.25	1.03	0.0
8.00	1.25	1.03	0.0
9.00	1.25	1.03	0.0
10.00	1.25	1.03	0.0
11.00	1.25	1.03	0.0
12.00	1.25	1.03	0.0
13.00	1.25	1.03	0.0
14.00	1.25	1.03	0.0
15.00	1.25	1.03	0.0
16.00	1.25	1.03	0.0
17.00	1.25	1.03	0.0
18.00	1.25	1.03	0.0
19.00	1.25	1.03	0.0
20.00	1.25	1.03	0.0
21.00	1.25	1.03	0.0
22.00	1.25	1.03	0.0
23.00	1.25	1.03	0.0
24.00	1.25	1.03	0.0
25.00	1.25	1.03	0.0
26.00	1.25	1.03	0.0
27.00	1.25	1.03	0.0
28.00	1.25	1.03	0.0
29.00	1.25	1.03	0.0
30.00	1.25	1.03	0.0
31.00	1.25	1.03	0.0
32.00	1.25	1.03	0.0
33.00	1.25	1.03	0.0
34.00	1.25	1.03	0.0
35.00	1.25	1.03	0.0
36.00	1.25	1.03	0.0
37.00	1.25	1.03	0.0
38.00	1.25	1.03	0.0
39.00	1.25	1.03	0.0
40.00	1.25	1.03	0.0
41.00	1.25	1.03	0.0
42.00	1.25	1.03	0.0
43.00	1.25	1.03	0.0
44.00	1.25	1.03	0.0
45.00	1.25	1.03	0.0
46.00	1.25	1.03	0.0
47.00	1.25	1.03	0.0
48.00	1.25	1.03	0.0
49.00	1.25	1.03	0.0
50.00	1.25	1.03	0.0
51.00	1.25	1.03	0.0
52.00	1.25	1.03	0.0
53.00	1.25	1.03	0.0
54.00	1.25	1.03	0.0
55.00	1.25	1.03	0.0
56.00	1.25	1.03	0.0
57.00	1.25	1.03	0.0
58.00	1.25	1.03	0.0
59.00	1.25	1.03	0.0
60.00	1.25	1.03	0.0
61.00	1.25	1.03	0.0
62.00	1.25	1.03	0.0
63.00	1.25	1.03	0.0
64.00	1.25	1.03	0.0
65.00	1.25	1.03	0.0
66.00	1.25	1.03	0.0
67.00	1.25	1.03	0.0
68.00	1.25	1.03	0.0
69.00	1.25	1.03	0.0
70.00	1.25	1.03	0.0
71.00	1.25	1.03	0.0
72.00	1.25	1.03	0.0

Summary for Subcatchment Up: Pervious

Runoff = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
1.9	39	>75% Grass cover, Good, HSG A
0.1	30	Woods, Good, HSG A
2.0	39	Weighted Average
2.0		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0380	0.17		**Sheet Flow, 94.0 - 90.2** Grass: Dense n= 0.240 P2= 3.89"
1.4	175	0.0180	2.16		**Shallow Concentrated Flow, 90.2 - 87.0** Unpaved Kv= 16.1 fps
11.4	275	Total			

Hydrograph for Subcatchment Up: Pervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	**0.00**	**0.0**
1.00	0.63	0.00	0.0
2.00	**1.25**	0.00	0.0
3.00	1.25	0.00	0.0
4.00	1.25	0.00	0.0
5.00	1.25	0.00	0.0
6.00	1.25	0.00	0.0
7.00	1.25	0.00	0.0
8.00	1.25	0.00	0.0
9.00	1.25	0.00	0.0
10.00	1.25	0.00	0.0
11.00	1.25	0.00	0.0
12.00	1.25	0.00	0.0
13.00	1.25	0.00	0.0
14.00	1.25	0.00	0.0
15.00	1.25	0.00	0.0
16.00	1.25	0.00	0.0
17.00	1.25	0.00	0.0
18.00	1.25	0.00	0.0
19.00	1.25	0.00	0.0
20.00	1.25	0.00	0.0
21.00	1.25	0.00	0.0
22.00	1.25	0.00	0.0
23.00	1.25	0.00	0.0
24.00	1.25	0.00	0.0
25.00	1.25	0.00	0.0
26.00	1.25	0.00	0.0
27.00	1.25	0.00	0.0
28.00	1.25	0.00	0.0
29.00	1.25	0.00	0.0
30.00	1.25	0.00	0.0
31.00	1.25	0.00	0.0
32.00	1.25	0.00	0.0
33.00	1.25	0.00	0.0
34.00	1.25	0.00	0.0
35.00	1.25	0.00	0.0
36.00	1.25	0.00	0.0
37.00	1.25	0.00	0.0
38.00	1.25	0.00	0.0
39.00	1.25	0.00	0.0
40.00	1.25	0.00	0.0
41.00	1.25	0.00	0.0
42.00	1.25	0.00	0.0
43.00	1.25	0.00	0.0
44.00	1.25	0.00	0.0
45.00	1.25	0.00	0.0
46.00	1.25	0.00	0.0
47.00	1.25	0.00	0.0
48.00	1.25	0.00	0.0
49.00	1.25	0.00	0.0
50.00	1.25	0.00	0.0
51.00	1.25	0.00	0.0
52.00	1.25	0.00	0.0
53.00	1.25	0.00	0.0
54.00	1.25	0.00	0.0
55.00	1.25	0.00	0.0
56.00	1.25	0.00	0.0
57.00	1.25	0.00	0.0
58.00	1.25	0.00	0.0
59.00	1.25	0.00	0.0
60.00	1.25	0.00	0.0
61.00	1.25	0.00	0.0
62.00	1.25	0.00	0.0
63.00	1.25	0.00	0.0
64.00	1.25	0.00	0.0
65.00	1.25	0.00	0.0
66.00	1.25	0.00	0.0
67.00	1.25	0.00	0.0
68.00	1.25	0.00	0.0
69.00	1.25	0.00	0.0
70.00	1.25	0.00	0.0
71.00	1.25	0.00	0.0
72.00	1.25	0.00	0.0

Summary for Pond A: Watershed A

Inflow Area = 17.2 ac, 55.23% Impervious, Inflow Depth = 0.01" for WQ event
Inflow = 0.3 cfs @ 1.15 hrs, Volume= 0.01 af
Primary = 0.3 cfs @ 1.15 hrs, Volume= 0.01 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Hydrograph for Pond A: Watershed A

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.0		0.0
1.00	**0.1**		**0.1**
2.00	**0.0**		**0.0**
3.00	0.0		0.0
4.00	0.0		0.0
5.00	0.0		0.0
6.00	0.0		0.0
7.00	0.0		0.0
8.00	0.0		0.0
9.00	0.0		0.0
10.00	0.0		0.0
11.00	0.0		0.0
12.00	0.0		0.0
13.00	0.0		0.0
14.00	0.0		0.0
15.00	0.0		0.0
16.00	0.0		0.0
17.00	0.0		0.0
18.00	0.0		0.0
19.00	0.0		0.0
20.00	0.0		0.0
21.00	0.0		0.0
22.00	0.0		0.0
23.00	0.0		0.0
24.00	0.0		0.0
25.00	0.0		0.0
26.00	0.0		0.0
27.00	0.0		0.0
28.00	0.0		0.0
29.00	0.0		0.0
30.00	0.0		0.0
31.00	0.0		0.0
32.00	0.0		0.0
33.00	0.0		0.0
34.00	0.0		0.0
35.00	0.0		0.0
36.00	0.0		0.0
37.00	0.0		0.0
38.00	0.0		0.0
39.00	0.0		0.0
40.00	0.0		0.0
41.00	0.0		0.0
42.00	0.0		0.0
43.00	0.0		0.0
44.00	0.0		0.0
45.00	0.0		0.0
46.00	0.0		0.0
47.00	0.0		0.0
48.00	0.0		0.0
49.00	0.0		0.0
50.00	0.0		0.0
51.00	0.0		0.0
52.00	0.0		0.0
53.00	0.0		0.0
54.00	0.0		0.0
55.00	0.0		0.0
56.00	0.0		0.0
57.00	0.0		0.0
58.00	0.0		0.0
59.00	0.0		0.0
60.00	0.0		0.0
61.00	0.0		0.0
62.00	0.0		0.0
63.00	0.0		0.0
64.00	0.0		0.0
65.00	0.0		0.0
66.00	0.0		0.0
67.00	0.0		0.0
68.00	0.0		0.0
69.00	0.0		0.0
70.00	0.0		0.0
71.00	0.0		0.0
72.00	0.0		0.0

Summary for Pond A1: Basin A

Inflow Area = 9.7 ac, 67.01% Impervious, Inflow Depth = 0.69" for WQ event
Inflow = 16.9 cfs @ 1.15 hrs, Volume= 0.56 af
Outflow = 3.1 cfs @ 1.48 hrs, Volume= 0.56 af, Atten= 82%, Lag= 20.2 min
Discarded = 3.1 cfs @ 1.48 hrs, Volume= 0.56 af
Primary = 0.0 cfs @ 1.48 hrs, Volume= 0.00 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 85.03' @ 1.48 hrs Surf.Area= 13,193.3 sf Storage= 13,220 cf

Plug-Flow detention time= 42.4 min calculated for 0.56 af (100% of inflow)
Center-of-Mass det. time= 42.4 min (116.4 - 74.0)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	120,699 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	12,490.0	0	0
85.00	13,185.0	12,838	12,838
86.00	13,475.0	13,330	26,168
87.00	13,765.0	13,620	39,788
88.00	14,010.0	13,888	53,675
89.00	14,235.0	14,123	67,798
90.00	14,455.0	14,345	82,143
91.00	14,635.0	14,545	96,688
92.00	16,675.0	15,655	112,343
92.50	16,750.0	8,356	120,699

Device	Routing	Invert	Outlet Devices
#1	Primary	83.90'	**24.0" Round 24" Pipe** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 83.90' / 83.52' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	85.00'	**8.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	87.05'	**0.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	84.00'	**10.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=3.1 cfs @ 1.48 hrs HW=85.03' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 3.1 cfs)

Primary OutFlow Max=0.0 cfs @ 1.48 hrs HW=85.03' (Free Discharge)
└**1=24" Pipe** (Passes 0.0 cfs of 5.9 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 0.58 fps)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Hydrograph for Pond A1: Basin A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	**0.0**	**0**	**84.00**	**0.0**	**0.0**	**0.0**
2.00	**0.8**	**11,143**	**84.87**	**3.0**	**3.0**	**0.0**
4.00	0.0	0	84.00	0.0	0.0	0.0
6.00	0.0	0	84.00	0.0	0.0	0.0
8.00	0.0	0	84.00	0.0	0.0	0.0
10.00	0.0	0	84.00	0.0	0.0	0.0
12.00	0.0	0	84.00	0.0	0.0	0.0
14.00	0.0	0	84.00	0.0	0.0	0.0
16.00	0.0	0	84.00	0.0	0.0	0.0
18.00	0.0	0	84.00	0.0	0.0	0.0
20.00	0.0	0	84.00	0.0	0.0	0.0
22.00	0.0	0	84.00	0.0	0.0	0.0
24.00	0.0	0	84.00	0.0	0.0	0.0
26.00	0.0	0	84.00	0.0	0.0	0.0
28.00	0.0	0	84.00	0.0	0.0	0.0
30.00	0.0	0	84.00	0.0	0.0	0.0
32.00	0.0	0	84.00	0.0	0.0	0.0
34.00	0.0	0	84.00	0.0	0.0	0.0
36.00	0.0	0	84.00	0.0	0.0	0.0
38.00	0.0	0	84.00	0.0	0.0	0.0
40.00	0.0	0	84.00	0.0	0.0	0.0
42.00	0.0	0	84.00	0.0	0.0	0.0
44.00	0.0	0	84.00	0.0	0.0	0.0
46.00	0.0	0	84.00	0.0	0.0	0.0
48.00	0.0	0	84.00	0.0	0.0	0.0
50.00	0.0	0	84.00	0.0	0.0	0.0
52.00	0.0	0	84.00	0.0	0.0	0.0
54.00	0.0	0	84.00	0.0	0.0	0.0
56.00	0.0	0	84.00	0.0	0.0	0.0
58.00	0.0	0	84.00	0.0	0.0	0.0
60.00	0.0	0	84.00	0.0	0.0	0.0
62.00	0.0	0	84.00	0.0	0.0	0.0
64.00	0.0	0	84.00	0.0	0.0	0.0
66.00	0.0	0	84.00	0.0	0.0	0.0
68.00	0.0	0	84.00	0.0	0.0	0.0
70.00	0.0	0	84.00	0.0	0.0	0.0
72.00	0.0	0	84.00	0.0	0.0	0.0

Summary for Pond B1: Basin B1

Inflow Area = 2.2 ac, 72.73% Impervious, Inflow Depth = 0.75" for WQ event
Inflow = 4.2 cfs @ 1.15 hrs, Volume= 0.14 af
Outflow = 0.4 cfs @ 1.86 hrs, Volume= 0.14 af, Atten= 91%, Lag= 42.9 min
Discarded = 0.3 cfs @ 1.86 hrs, Volume= 0.14 af
Primary = 0.1 cfs @ 1.86 hrs, Volume= 0.00 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 97.40' @ 1.86 hrs Surf.Area= 4,623.8 sf Storage= 4,662 cf

Plug-Flow detention time= 153.7 min calculated for 0.14 af (100% of inflow)
Center-of-Mass det. time= 153.8 min (227.8 - 74.0)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	25,898 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.00	1,955.0	0	0
97.00	3,925.0	2,940	2,940
98.00	5,660.0	4,793	7,733
99.00	7,585.0	6,623	14,355
100.00	15,500.0	11,543	25,898

Device	Routing	Invert	Outlet Devices
#1	Primary	93.50'	**18.0" Round 18" Pipe** L= 49.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 93.50' / 92.52' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Device 1	97.40'	**1.0" x 5.0" Horiz. Orifice/Grate X 8.00 columns** X 14 rows C= 0.600 in 96.0" x 106.0" Grate (6% open area) Limited to weir flow at low heads
#3	Discarded	96.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.3 cfs @ 1.86 hrs HW=97.40' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=0.0 cfs @ 1.86 hrs HW=97.40' (Free Discharge)
└**1=18" Pipe** (Passes 0.0 cfs of 15.1 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 0.0 cfs @ 0.17 fps)

Hydrograph for Pond B1: Basin B1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	**0.0**	**0**	**96.00**	**0.0**	**0.0**	**0.0**
2.00	**0.2**	**4,623**	**97.39**	**0.3**	**0.3**	**0.0**
4.00	0.0	2,614	96.92	0.3	0.3	0.0
6.00	0.0	981	96.42	0.2	0.2	0.0
8.00	0.0	3	96.00	0.0	0.0	0.0
10.00	0.0	0	96.00	0.0	0.0	0.0
12.00	0.0	0	96.00	0.0	0.0	0.0
14.00	0.0	0	96.00	0.0	0.0	0.0
16.00	0.0	0	96.00	0.0	0.0	0.0
18.00	0.0	0	96.00	0.0	0.0	0.0
20.00	0.0	0	96.00	0.0	0.0	0.0
22.00	0.0	0	96.00	0.0	0.0	0.0
24.00	0.0	0	96.00	0.0	0.0	0.0
26.00	0.0	0	96.00	0.0	0.0	0.0
28.00	0.0	0	96.00	0.0	0.0	0.0
30.00	0.0	0	96.00	0.0	0.0	0.0
32.00	0.0	0	96.00	0.0	0.0	0.0
34.00	0.0	0	96.00	0.0	0.0	0.0
36.00	0.0	0	96.00	0.0	0.0	0.0
38.00	0.0	0	96.00	0.0	0.0	0.0
40.00	0.0	0	96.00	0.0	0.0	0.0
42.00	0.0	0	96.00	0.0	0.0	0.0
44.00	0.0	0	96.00	0.0	0.0	0.0
46.00	0.0	0	96.00	0.0	0.0	0.0
48.00	0.0	0	96.00	0.0	0.0	0.0
50.00	0.0	0	96.00	0.0	0.0	0.0
52.00	0.0	0	96.00	0.0	0.0	0.0
54.00	0.0	0	96.00	0.0	0.0	0.0
56.00	0.0	0	96.00	0.0	0.0	0.0
58.00	0.0	0	96.00	0.0	0.0	0.0
60.00	0.0	0	96.00	0.0	0.0	0.0
62.00	0.0	0	96.00	0.0	0.0	0.0
64.00	0.0	0	96.00	0.0	0.0	0.0
66.00	0.0	0	96.00	0.0	0.0	0.0
68.00	0.0	0	96.00	0.0	0.0	0.0
70.00	0.0	0	96.00	0.0	0.0	0.0
72.00	0.0	0	96.00	0.0	0.0	0.0

Summary for Pond B2: Basin B2

Inflow Area = 5.4 ac, 53.70% Impervious, Inflow Depth = 0.25" for WQ event
Inflow = 3.4 cfs @ 1.15 hrs, Volume= 0.11 af
Outflow = 0.4 cfs @ 1.87 hrs, Volume= 0.11 af, Atten= 90%, Lag= 43.5 min
Discarded = 0.4 cfs @ 1.87 hrs, Volume= 0.11 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 88.45' @ 1.87 hrs Surf.Area= 7,621.1 sf Storage= 3,468 cf

Plug-Flow detention time= 97.1 min calculated for 0.11 af (100% of inflow)
Center-of-Mass det. time= 97.1 min (171.3 - 74.1)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	82,563 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
88.00	7,435.0	0	0
89.00	7,845.0	7,640	7,640
90.00	8,235.0	8,040	15,680
91.00	8,600.0	8,418	24,098
92.00	8,950.0	8,775	32,873
93.00	9,280.0	9,115	41,988
94.00	9,670.0	9,475	51,463
95.00	9,990.0	9,830	61,293
96.00	13,445.0	11,718	73,010
96.50	24,765.0	9,553	82,563

Device	Routing	Invert	Outlet Devices
#1	Primary	82.90'	**18.0" Round 18" Pipe** L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 82.90' / 82.30' S= 0.0182 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Device 1	88.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	90.50'	**0.5' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Discarded	88.00'	**2.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.4 cfs @ 1.87 hrs HW=88.45' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.4 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=88.00' (Free Discharge)
└**1=18" Pipe** (Passes 0.0 cfs of 17.7 cfs potential flow)
  ├**2=Orifice/Grate** (Controls 0.0 cfs)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Hydrograph for Pond B2: Basin B2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	**0.0**	**0**	**88.00**	**0.0**	**0.0**	**0.0**
2.00	**0.2**	**3,408**	**88.45**	**0.4**	**0.4**	0.0
4.00	0.0	967	88.13	0.3	0.3	0.0
6.00	0.0	23	88.00	0.0	0.0	0.0
8.00	0.0	0	88.00	0.0	0.0	0.0
10.00	0.0	0	88.00	0.0	0.0	0.0
12.00	0.0	0	88.00	0.0	0.0	0.0
14.00	0.0	0	88.00	0.0	0.0	0.0
16.00	0.0	0	88.00	0.0	0.0	0.0
18.00	0.0	0	88.00	0.0	0.0	0.0
20.00	0.0	0	88.00	0.0	0.0	0.0
22.00	0.0	0	88.00	0.0	0.0	0.0
24.00	0.0	0	88.00	0.0	0.0	0.0
26.00	0.0	0	88.00	0.0	0.0	0.0
28.00	0.0	0	88.00	0.0	0.0	0.0
30.00	0.0	0	88.00	0.0	0.0	0.0
32.00	0.0	0	88.00	0.0	0.0	0.0
34.00	0.0	0	88.00	0.0	0.0	0.0
36.00	0.0	0	88.00	0.0	0.0	0.0
38.00	0.0	0	88.00	0.0	0.0	0.0
40.00	0.0	0	88.00	0.0	0.0	0.0
42.00	0.0	0	88.00	0.0	0.0	0.0
44.00	0.0	0	88.00	0.0	0.0	0.0
46.00	0.0	0	88.00	0.0	0.0	0.0
48.00	0.0	0	88.00	0.0	0.0	0.0
50.00	0.0	0	88.00	0.0	0.0	0.0
52.00	0.0	0	88.00	0.0	0.0	0.0
54.00	0.0	0	88.00	0.0	0.0	0.0
56.00	0.0	0	88.00	0.0	0.0	0.0
58.00	0.0	0	88.00	0.0	0.0	0.0
60.00	0.0	0	88.00	0.0	0.0	0.0
62.00	0.0	0	88.00	0.0	0.0	0.0
64.00	0.0	0	88.00	0.0	0.0	0.0
66.00	0.0	0	88.00	0.0	0.0	0.0
68.00	0.0	0	88.00	0.0	0.0	0.0
70.00	0.0	0	88.00	0.0	0.0	0.0
72.00	0.0	0	88.00	0.0	0.0	0.0

A P P E N D I X E

Emergency Spillway Calculations

Time span=0.00-300.00 hrs, dt=0.01 hrs, 30001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Pond A1: Basin A Peak Elev=91.77' Storage=108,790 cf Inflow=94.5 cfs 9.14 af
Outflow=92.5 cfs 9.11 af

Pond B2: Basin B2 Peak Elev=94.08' Storage=51,672 cf Inflow=36.0 cfs 4.38 af
Outflow=35.5 cfs 4.25 af

Summary for Pond A1: Basin A

Inflow Area = 9.7 ac, 67.01% Impervious, Inflow Depth = 11.31" for 150-Year event
Inflow = 94.5 cfs @ 12.17 hrs, Volume= 9.14 af
Outflow = 92.5 cfs @ 12.19 hrs, Volume= 9.11 af, Atten= 2%, Lag= 1.1 min
Primary = 92.5 cfs @ 12.19 hrs, Volume= 9.11 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs / 2
Starting Elev= 91.00' Surf.Area= 14,635.0 sf Storage= 96,688 cf
Peak Elev= 91.77' @ 12.19 hrs Surf.Area= 16,212.0 sf Storage= 108,790 cf (12,102 cf above start)

Plug-Flow detention time= 191.4 min calculated for 6.89 af (75% of inflow)
Center-of-Mass det. time= 7.1 min (766.1 - 759.0)

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	120,699 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	12,490.0	0	0
85.00	13,185.0	12,838	12,838
86.00	13,475.0	13,330	26,168
87.00	13,765.0	13,620	39,788
88.00	14,010.0	13,888	53,675
89.00	14,235.0	14,123	67,798
90.00	14,455.0	14,345	82,143
91.00	14,635.0	14,545	96,688
92.00	16,675.0	15,655	112,343
92.50	16,750.0	8,356	120,699

Device	Routing	Invert	Outlet Devices
#1	Primary	91.10'	**60.0' 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=92.3 cfs @ 12.19 hrs HW=91.77' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 92.3 cfs @ 2.29 fps)

Summary for Pond B2: Basin B2

Inflow Area = 5.4 ac, 53.70% Impervious, Inflow Depth = 9.73" for 150-Year event
Inflow = 36.0 cfs @ 12.19 hrs, Volume= 4.38 af
Outflow = 35.5 cfs @ 12.22 hrs, Volume= 4.25 af, Atten= 2%, Lag= 1.5 min
Primary = 35.5 cfs @ 12.22 hrs, Volume= 4.25 af

Routing by Stor-Ind method, Time Span= 0.00-300.00 hrs, dt= 0.01 hrs / 2
Starting Elev= 92.99' Surf.Area= 9,276.7 sf Storage= 41,896 cf
Peak Elev= 94.08' @ 12.22 hrs Surf.Area= 8,770.4 sf Storage= 51,672 cf (9,775 cf above start)

Plug-Flow detention time= 178.3 min calculated for 3.29 af (75% of inflow)
Center-of-Mass det. time= 20.1 min (807.0 - 786.9)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	66,151 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
88.00	7,435.0	0	0
89.00	7,845.0	7,640	7,640
90.00	8,235.0	8,040	15,680
91.00	8,600.0	8,418	24,098
92.00	8,950.0	8,775	32,873
93.00	9,280.0	9,115	41,988
94.00	8,670.0	8,975	50,963
95.00	9,990.0	9,330	60,293
95.50	13,445.0	5,859	66,151

Device	Routing	Invert	Outlet Devices
#1	Primary	93.60'	**40.0' long x 18.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=35.5 cfs @ 12.22 hrs HW=94.08' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 35.5 cfs @ 1.86 fps)

A P P E N D I X F

Conduit Outlet Protection Calculations

InSite Engineering LLC

Project Name: Marlboro Residential
Project #: 20-1417-01
Date: 4/30/2021
Structure Name: FES A33
Pipe Diameter (in.): 24

CONDUIT OUTLET PROTECTION

Inside Width, W_o = 2 ft

Inside Height, D_o = 2 ft

Design Flow, Q_{25} = **9.3** cfs

(Q/W_o) q = 4.65 cfs/ft

Basin 2-Year WSE = **0.00**

Pipe Invert = **82.00**

Tailwater, TW = 0.40 ft
Assumed (TW = 0.2Do)

TW Elevation = 82.40

1/2 D_o = Pipe C/L = 83.00

If TW Elev < 1/2 D_o

Length of Apron

$$L_a = 1.8\left(\frac{q}{D_{o\wedge 1/2}}\right) + 7D_o$$

L_a = 19.9 ft **USE 20 ft**

Width of Apron

$$W_a = 3\,W_o + L_a$$

W_a = 25.9 ft **USE 26 ft**

If TW Elev ≥ 1/2 D_o

Length of Apron

$$L_a = 3\left(\frac{q}{D_{o\wedge 1/2}}\right)$$

L_a = 9.9 ft **USE 10 ft**

Width of Apron

$$W_a = 3\,W_o + 0.4\,L_a$$

W_a = 9.9 ft **USE 10 ft**

RipRap Size

$$D_{50} = \frac{0.016}{TW}\,q^{1.33}$$

D_{50} = 0.309 ft

D_{50} = 3.7 in **USE 4 in**

Apron Thickness

Th = $2D_{50}$ ft with filter fabric

Th = 0.6 ft with filter fabric **USE 8 in**

RipRap Volume

$$V = \frac{1/2(3W_o+W_a)(L_a)(Th)}{27}$$

V = 7.3 cy

InSite Engineering LLC

Project Name: Marlboro Residential
Project #: 20-1417-01
Date: 10/21/2020
Structure Name: FES B15
Pipe Diameter (in.): 18

CONDUIT OUTLET PROTECTION

Inside Width, W_o = 1.5 ft

Inside Height, D_o = 1.5 ft

Design Flow, Q_{25} = **2.7** cfs

(Q/W_o) q = 1.80 cfs/ft

Basin 2-Year WSE = **0.00**

Tailwater, TW = 0.30 ft
Assumed (TW = 0.2Do)

Pipe Invert = **82.30**
TW Elevation = 82.60
1/2 D_o = Pipe C/L = 83.05

If TW Elev < 1/2 D_o

Length of Apron

$$L_a = 1.8\left(\frac{q}{D_{o\wedge 1/2}}\right) + 7D_o$$

L_a = 13.1 ft **USE 13 ft**

Width of Apron

$$W_a = 3W_o + L_a$$

W_a = 17.6 ft **USE 18 ft**

If TW Elev ≥ 1/2 D_o

Length of Apron

$$L_a = 3\left(\frac{q}{D_{o\wedge 1/2}}\right)$$

L_a = 4.4 ft **USE 4 ft**

Width of Apron

$$W_a = 3W_o + 0.4L_a$$

W_a = 6.3 ft **USE 6 ft**

RipRap Size

$$D_{50} = \frac{0.016}{TW} q^{1.33}$$

D_{50} = 0.117 ft
D_{50} = 1.4 in **USE 3 in**

Apron Thickness

Th = $2D_{50}$ ft with filter fabric
Th = 0.5 ft with filter fabric **USE 6 in**

RipRap Volume

$$V = \frac{1/2(3W_o+W_a)(L_a)(Th)}{27}$$

V = 2.7 cy

InSite Engineering LLC

Project Name: Marlboro Residential
Project #: 20-1417-01
Date: 10/21/2020 REV. 4/30/21
Structure Name: HW A28
Pipe Diameter (in.): 42

CONDUIT OUTLET PROTECTION

Inside Width, W_o = 3.5 ft

Inside Height, D_o = 3.5 ft

Design Flow, Q_{25} = **35** cfs

(Q/W_o) q = 10.00 cfs/ft

Basin 2-Year WSE = **3.20**

Tailwater, TW = 3.20 ft
Assumed (TW = 0.2Do)

Pipe Invert = **84.00**
TW Elevation = 87.20
1/2 D_o = Pipe C/L = 85.75

If TW Elev < 1/2 D_o

Length of Apron

$$L_a = 1.8\left(\frac{q}{D_{o\wedge 1/2}}\right) + 7D_o$$

L_a = **34.1** ft **USE 34 ft**

Width of Apron

$$W_a = 3W_o + L_a$$

W_a = **44.6** ft **USE 45 ft**

If TW Elev ≥ 1/2 D_o

Length of Apron

$$L_a = 3\left(\frac{q}{D_{o\wedge 1/2}}\right)$$

L_a = 16.0 ft USE 16 ft

Width of Apron

$$W_a = 3W_o + 0.4L_a$$

W_a = 16.9 ft USE 17 ft

RipRap Size

$$D_{50} = \frac{0.016}{TW} q^{1.33}$$

D_{50} = 0.107 ft
D_{50} = 1.3 in USE 3 in

Apron Thickness

Th = $2D_{50}$ ft with filter fabric
Th = 0.5 ft with filter fabric USE 6 in

RipRap Volume

$$V = \frac{1/2(3W_o+W_a)(L_a)(Th)}{27}$$

V = 17.4 cy

InSite Engineering LLC

Project Name: Marlboro Residential
Project #: 20-1417-01
Date: 10/21/2020
Structure Name: HW B9 / HW B10
Pipe Diameter (in.): 18

CONDUIT OUTLET PROTECTION

Inside Width, W_o = 1.5 ft

Inside Height, D_o = 1.5 ft

Design Flow, Q_{25} = **4.1** cfs

(Q/W_o) q = 2.73 cfs/ft

Basin 2-Year WSE = **1.52**

Pipe Invert = **85.00**

Tailwater, TW = 1.52 ft

Assumed (TW = 0.2Do)

TW Elevation = 86.52

1/2 D_o = Pipe C/L = 85.75

If TW Elev < 1/2 D_o

Length of Apron

$$L_a = 1.8\left(\frac{q}{D_{o^{1/2}}}\right) + 7D_o$$

L_a = **14.5** ft **USE 15 ft**

Width of Apron

$W_a = 3W_o + L_a$

W_a = **19.0** ft **USE 19 ft**

If TW Elev ≥ 1/2 D_o

Length of Apron

$$L_a = 3\left(\frac{q}{D_{o^{1/2}}}\right)$$

L_a = 6.7 ft USE 7 ft

Width of Apron

$W_a = 3W_o + 0.4L_a$

W_a = 7.2 ft USE 7 ft

RipRap Size

$$D_{50} = \frac{0.016}{TW} q^{1.33}$$

D_{50} = 0.040 ft

D_{50} = 0.5 in USE 3 in

Apron Thickness

Th = $2D_{50}$ ft with filter fabric

Th = 0.5 ft with filter fabric USE 6 in

RipRap Volume

$$V = \frac{1/2(3W_o+W_a)(L_a)(Th)}{27}$$

V = 3.2 cy

InSite Engineering LLC

Project Name: Marlboro Residential
Project #: 20-1417-01
Date: 10/21/2020
Structure Name: HW B13
Pipe Diameter (in.): 24

CONDUIT OUTLET PROTECTION

Inside Width, W_o = 2 ft

Inside Height, D_o = 2 ft

Design Flow, Q_{25} = 15 cfs

(Q/W_o) q = 7.50 cfs/ft

Basin 2-Year WSE = 1.80

Tailwater, TW = 1.80 ft
Assumed (TW = 0.2Do)

Pipe Invert = 88.00
TW Elevation = 89.80
1/2 D_o = Pipe C/L = 89.00

If TW Elev < 1/2 D_o

Length of Apron

$$L_a = 1.8\left(\frac{q}{D_{o\wedge 1/2}}\right) + 7D_o$$

L_a = 23.5 ft USE 24 ft

Width of Apron

$$W_a = 3W_o + L_a$$

W_a = 29.5 ft USE 30 ft

If TW Elev ≥ 1/2 D_o

Length of Apron

$$L_a = 3\left(\frac{q}{D_{o\wedge 1/2}}\right)$$

L_a = 15.9 ft USE 16 ft

Width of Apron

$$W_a = 3W_o + 0.4L_a$$

W_a = 12.4 ft USE 12 ft

RipRap Size

$$D_{50} = \frac{0.016}{TW} q^{1.33}$$

D_{50} = 0.130 ft

D_{50} = 1.6 in USE 3 in

Apron Thickness

Th = $2D_{50}$ ft with filter fabric

Th = 0.5 ft with filter fabric USE 6 in

RipRap Volume

$$V = \frac{1/2(3W_o+W_a)(L_a)(Th)}{27}$$

V = 7.7 cy

A P P E N D I X G

Tier A- Major Development Stormwater Summary

Attachment D – Major Development Stormwater Summary

General Information

1. Project Name: STONE RISE
2. Municipality: MARLBORO County: MONMOUTH Block(s): 4 Lot(s): 4,10-13
3. Site Location (State Plane Coordinates – NAD83): E: N:
4. Date of Final Approval for Construction by Municipality: (TO BE DETERMINED)
   Date of Certificate of Occupancy: (TO BE DETERMINED)
5. Project Type (check all that apply):
   Residential ☑ Commercial ☐ Industrial ☐ Other (please specify) _____
6. Soil Conservation District Project Number: 2020-878
7. Did project require an NJDEP Land Use Permit? Yes ◉ No ○ Land Use Permit #: WETLANDS/FLOOD HAZARD: TBD
8. Did project require the use of any mitigation measures? Yes ○ No ◉
   If yes, which standard was mitigated? _____

Site Design Specifications

1. Area of Disturbance (acres): 17.0 Area of Proposed Impervious (acres): 9.5
2. List all Hydrologic Soil Groups: A
3. Please Identify the Amount of Each Best Management Practices (BMPs) Utilized in Design Below:
   Bioretention Systems 1 Constructed Wetlands ___ Dry Wells ___ Extended Detention Basins ___
   Infiltration Basins ___ Combination Infiltration/Detention Basins 2 Manufactured Treatment Devices ___
   Pervious Paving Systems ___ Sand Filters ___ Vegetative Filter Strips ___ Wet Ponds ___
   Grass Swales ___ Subsurface Gravel Wetlands ___ Other _____

Storm Event Information

Storm Event - Rainfall (inches and duration): 2 yr.: 3.40 10 yr.: 5.20
100 yr.: 9.80 WQDS: 1.25

Runoff Computation Method:
NRCS: Dimensionless Unit Hydrograph ☑ NRCS: Delmarva Unit Hydrograph ☐ Rational ☐ Modified Rational ☐
Other: _____

Basin Specifications (answer all that apply)

If more than one basin, attach multiple sheets

1. Type of Basin: BASIN A-Infiltration/Detention Basin Surface/Subsurface (select one): Surface ◉ Subsurface ○
2. Owner (select one):
   ○ Public ◉ Private: If so, Name: SPG MARLBORO,LLC Phone number: 908-259-9800
3. Basin Construction Completion Date: (TO BE DETERMINED)
4. Drain Down Time (hr.): LESS THAN 26 HOURS
5. Design Soil Permeability (in./hr.): 10
6. Seasonal High Water Table Depth from Bottom of Basin (ft.): 16 FEET Date Obtained: SEPT. 2020
7. Groundwater Recharge Methodology (select one): 2 Year Difference ◉ NJGRS ○ Other ○ NA ○
8. Groundwater Mounding Analysis (select one): Yes ◉ No ○ If, Yes Methodology Used: HANTUSH
9. Maintenance Plan Submitted: Yes ◉ No ○ Is the Basin Deed Restricted: Yes ◉ No ○

Comments:

Name of Person Filling Out This Form: Eric Ballou,PE Signature _____

Title: Partner Date: 4/30/2021

Basin Specifications (answer all that apply) *If more than one basin, attach multiple sheets*	
1. Type of Basin: Basin B1- Bioretention	Surface/Subsurface (select one): Surface ◉ Subsurface ○
2. Owner (select one): ○ Public ◉ Private: If so, Name: SPG MARLBORO,LLC	Phone number: 908-259-9800
3. Basin Construction Completion Date: (TO BE DETERMINED)	
4. Drain Down Time (hr.): LESS THAN 30 HOURS	
5. Design Soil Permeability (in./hr.): 3	
6. Seasonal High Water Table Depth from Bottom of Basin (ft.): > 10	Date Obtained: SEPT. 2020
7. Groundwater Recharge Methodology (select one): 2 Year Difference ◉ NJGRS ○ Other ○ NA ○	
8. Groundwater Mounding Analysis (select one): Yes ◉ No ○	If, Yes Methodology Used: HANTUSH
9. Maintenance Plan Submitted: Yes ◉ No ○	Is the Basin Deed Restricted: Yes ◉ No ○

Basin Specifications (answer all that apply) *If more than one basin, attach multiple sheets*	
1. Type of Basin: BASIN B2 - INFILTRATION/DETENTION	Surface/Subsurface (select one): Surface ◉ Subsurface ○
2. Owner (select one): ○ Public ○ Private: If so, Name: SPG MARLBOR,LLC	Phone number: 908-259-9800
3. Basin Construction Completion Date: (TO BE DETERMINED)	
4. Drain Down Time (hr.): LESS THAN 30 HOURS	
5. Design Soil Permeability (in./hr.): 2	
6. Seasonal High Water Table Depth from Bottom of Basin (ft.): > 8	Date Obtained: SEPT. 2020
7. Groundwater Recharge Methodology (select one): 2 Year Difference ◉ NJGRS ○ Other ○ NA ○	
8. Groundwater Mounding Analysis (select one): Yes ◉ No ○	If, Yes Methodology Used: HANTUSH
9. Maintenance Plan Submitted: Yes ◉ No ○	Is the Basin Deed Restricted: Yes ◉ No ○

Basin Specifications (answer all that apply) *If more than one basin, attach multiple sheets*	
1. Type of Basin:	Surface/Subsurface (select one): Surface ○ Subsurface ○
2. Owner (select one): ○ Public ○ Private: If so, Name:	Phone number:
3. Basin Construction Completion Date:	
4. Drain Down Time (hr.):	
5. Design Soil Permeability (in./hr.):	
6. Seasonal High Water Table Depth from Bottom of Basin (ft.):	Date Obtained:
7. Groundwater Recharge Methodology (select one): 2 Year Difference ○ NJGRS ○ Other ○ NA ○	
8. Groundwater Mounding Analysis (select one): Yes ○ No ○	If, Yes Methodology Used:
9. Maintenance Plan Submitted: Yes ○ No ○	Is the Basin Deed Restricted: Yes ○ No ○

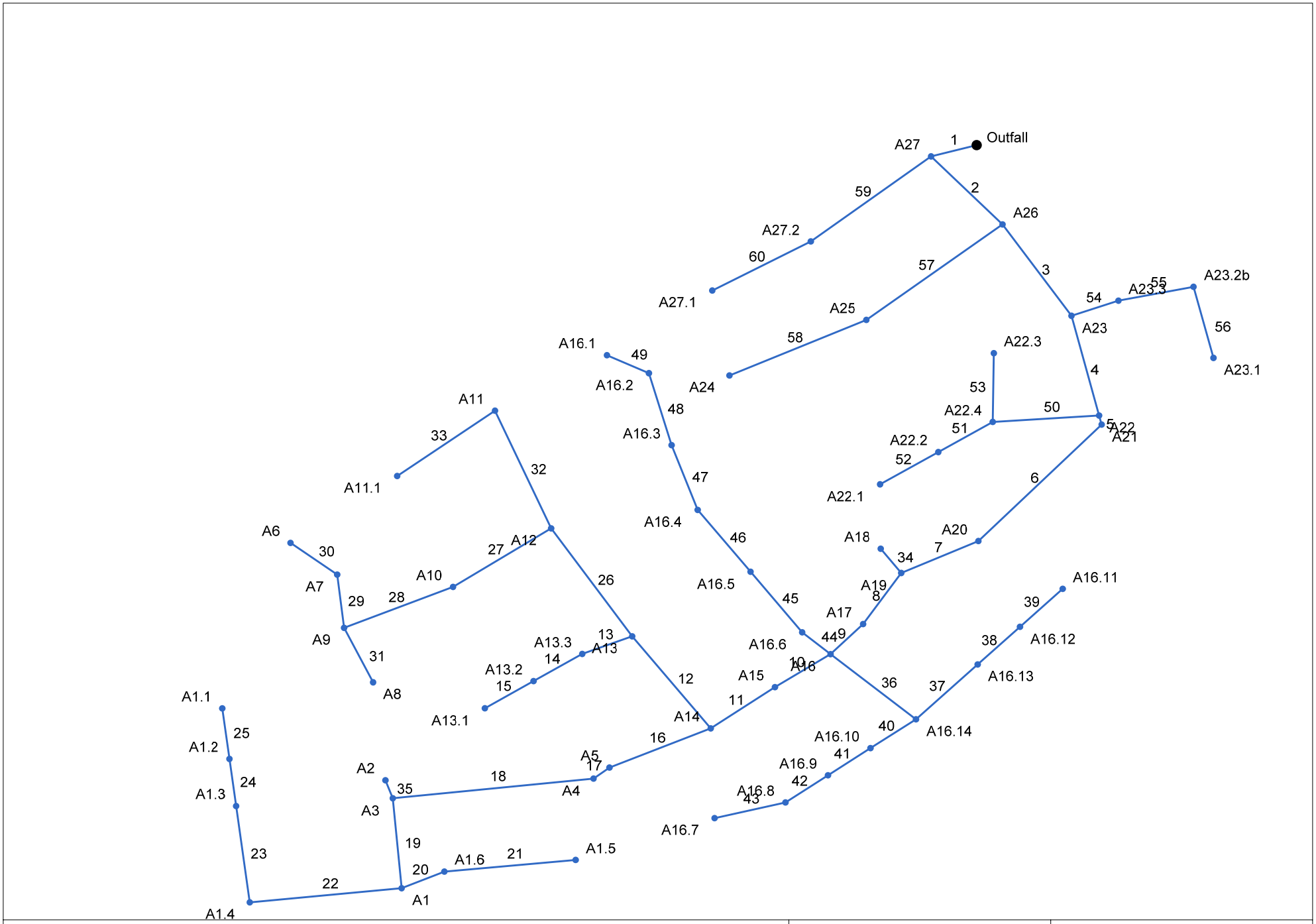
Name of Person Filling Out This Form: Eric Ballou,PE _____ Signature: _____

Title: Partner _____ Date: 4/30/2021 _____

A P P E N D I X H

Storm Sewer Conduit Capacity Calculations

Hydraflow Storm Sewers Extension for Autodesk® AutoCAD® Civil 3D® Plan



Project File: 201022 Pipe Capacity (2).stm	Number of lines: 60	Date: 10/26/2020

InSite

Line No.	DnStm Ln No	Inlet ID	Drng Area (ac)	Runoff Coeff (C)	Incr CxA	Total CxA	i Inlet (in/hr)	i Sys (in/hr)	Incr Q (cfs)	Total Runoff (cfs)	Capac Full (cfs)	Vel Ave (ft/s)	Line Size (in)	Line Type	n-val Pipe	Line Length (ft)	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	HGL Up (ft)	
1	Outfall	A27	0.12	0.80	0.10	7.55	7.14	5.30	0.69	40.06	100.09	7.14	42	Cir	0.012	42	0.84	85.35	85.00	94.30	87.32 j	
2	1	A26	0.16	0.80	0.13	7.06	7.14	5.35	0.91	37.77	148.40	12.54	36	Cir	0.012	96	4.22	93.05	89.00	99.95	95.05	
3	2	A23	0.17	0.80	0.14	6.42	7.14	5.40	0.97	34.70	0.00	7.12	36	Cir	0.012	115	0.43	93.55	93.05	100.29	95.46	
4	3	A22	0.12	0.80	0.10	6.10	7.14	5.46	0.69	33.27	0.00	7.04	36	Cir	0.012	110	0.40	93.99	93.55	99.62	95.88	
5	4	A21	0.23	0.80	0.18	5.49	7.14	5.46	1.31	29.97	0.00	6.11	30	Cir	0.012	10	0.40	94.53	94.49	99.76	97.10	
6	5	A20	0.23	0.80	0.18	5.30	7.14	5.53	1.31	29.32	0.00	5.97	30	Cir	0.012	165	0.40	95.19	94.53	101.71	98.54	
7	6	A19	0.00	0.80	0.00	5.12	0.00	5.56	0.00	28.46	0.00	5.80	30	Cir	0.012	75	0.37	95.47	95.19	102.16	99.21	
8	7	A17	0.14	0.80	0.11	4.86	7.14	5.59	0.80	27.13	0.00	5.53	30	Cir	0.012	64	0.40	95.73	95.47	101.95	99.97	
9	8	A16	0.00	0.80	0.00	4.74	0.00	5.61	0.00	26.60	0.00	5.42	30	Cir	0.012	43	0.42	95.91	95.73	102.51	100.36	
10	9	A15	0.13	0.80	0.10	3.16	7.14	5.65	0.74	17.84	0.00	3.64	30	Cir	0.012	60	0.40	96.15	95.91	102.23	100.91	
11	10	A14	0.16	0.80	0.13	3.06	7.14	5.70	0.91	17.41	0.00	3.55	30	Cir	0.012	71	0.39	96.43	96.15	103.05	101.13	
12	11	A13	0.17	0.80	0.14	1.69	7.14	5.80	0.97	9.79	0.00	3.12	24	Cir	0.012	120	0.40	97.41	96.93	103.30	101.71	
13	12	A13.3	0.45	0.80	0.36	0.54	7.14	7.14	2.57	3.83	0.00	4.87	12	Cir	0.012	47	0.50	101.54	101.30	103.40	102.77	
14	13	A13.2	0.08	0.80	0.06	0.18	7.14	7.14	0.46	1.26	0.00	2.30	10	Cir	0.012	51	0.50	101.97	101.71	103.40	103.10	
15	14	A13.1	0.14	0.80	0.11	0.11	7.14	7.14	0.80	0.80	0.00	2.29	8	Cir	0.012	51	0.50	102.40	102.14	103.61	103.33	
16	11	A5	0.11	0.80	0.09	1.24	7.14	6.78	0.63	8.41	0.00	2.68	24	Cir	0.012	98	0.40	97.32	96.93	102.84	101.63	
17	16	A4	0.13	0.80	0.10	1.15	7.14	6.82	0.74	7.85	0.00	2.50	24	Cir	0.012	18	0.38	97.39	97.32	102.78	101.71	
18	17	A3	0.19	0.80	0.15	1.05	7.14	7.14	1.09	7.48	0.00	2.38	24	Cir	0.012	176	0.40	98.10	97.39	103.39	101.96	
19	18	A1	0.07	0.80	0.06	0.78	7.14	7.14	0.40	5.54	0.00	1.76	24	Cir	0.012	97	0.40	98.49	98.10	102.39	102.21	
20	19	A1.6	0.13	0.80	0.10	0.28	7.14	7.14	0.74	2.00	0.00	2.55	12	Cir	0.012	41	0.99	100.64	100.23	102.95	102.43	
21	20	A1.5	0.22	0.80	0.18	0.18	7.14	7.14	1.26	1.26	0.00	3.60	8	Cir	0.012	115	1.00	101.89	100.74	103.60	103.55	
22	19	A1.4	0.18	0.80	0.14	0.44	7.14	7.14	1.03	3.14	0.00	2.56	15	Cir	0.012	133	0.40	99.52	98.99	103.35	102.58	
23	22	A1.3	0.12	0.80	0.10	0.30	7.14	7.14	0.69	2.11	0.00	2.69	12	Cir	0.012	104	0.40	100.02	99.60	102.90	103.05	

Project File: 201022 Pipe Capacity (2).stm | Number of lines: 60 | Date: 10/26/2020

NOTES: Intensity = 55.79 / (Inlet time + 11.10) ^ 0.74 – Return period = 25 Yrs. ; ** Critical depth

Line No.	DnStm Ln No	Inlet ID	Drng Area (ac)	Runoff Coeff (C)	Incr CxA	Total CxA	i Inlet (in/hr)	i Sys (in/hr)	Incr Q (cfs)	Total Runoff (cfs)	Capac Full (cfs)	Vel Ave (ft/s)	Line Size (in)	Line Type	n-val Pipe	Line Length (ft)	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	HGL Up (ft)	
24	23	A1.2	0.22	0.80	0.18	0.20	7.14	7.14	1.26	1.43	0.00	2.62	10	Cir	0.012	51	0.39	100.39	100.19	103.20	103.29	
25	24	A1.1	0.03	0.80	0.02	0.02	7.14	7.14	0.17	0.17	0.00	0.49	8	Cir	0.012	55	0.40	100.61	100.39	103.20	103.35	
26	12	A12	0.14	0.80	0.11	1.02	7.14	6.01	0.80	6.10	0.00	1.94	24	Cir	0.012	136	0.40	97.95	97.41	104.31	102.08	
27	26	A10	0.36	0.80	0.29	0.50	7.14	6.21	2.06	3.08	0.00	1.74	18	Cir	0.012	106	0.40	98.87	98.45	103.63	102.25	
28	27	A9	0.10	0.80	0.08	0.21	7.14	6.75	0.57	1.40	0.00	0.79	18	Cir	0.012	105	0.40	99.29	98.87	103.99	102.29	
29	28	A7	0.00	0.80	0.00	0.06	0.00	7.14	0.00	0.46	0.00	0.26	18	Cir	0.012	58	0.40	99.52	99.29	104.57	102.32	
30	29	A6	0.08	0.80	0.06	0.06	7.14	7.14	0.46	0.46	0.00	0.37	15	Cir	0.012	53	0.62	100.10	99.77	103.00	102.32	
31	28	A8	0.08	0.80	0.06	0.06	7.14	7.14	0.46	0.46	0.00	0.37	15	Cir	0.012	64	0.41	99.80	99.54	104.00	102.32	
32	26	A11	0.13	0.80	0.10	0.41	7.14	7.14	0.74	2.91	0.00	2.37	15	Cir	0.012	136	0.50	99.38	98.70	103.90	102.41	
33	32	A11.1	0.38	0.80	0.30	0.30	7.14	7.14	2.17	2.17	0.00	2.76	12	Cir	0.012	110	1.00	100.73	99.63	104.00	102.89	
34	7	A18	0.33	0.80	0.26	0.26	7.14	7.14	1.89	1.89	0.00	4.07	15	Cir	0.012	32	1.01	99.58	99.26	101.93	100.13	
35	18	A2	0.15	0.80	0.12	0.12	7.14	7.14	0.86	0.86	0.00	0.70	15	Cir	0.012	20	0.39	98.93	98.85	103.93	102.16	
36	9	A16.14	0.00	0.80	0.00	0.63	0.00	7.14	0.00	4.51	0.00	2.55	18	Cir	0.012	102	1.00	97.46	96.44	103.00	100.98	
37	36	A16.13	0.34	0.80	0.27	0.32	7.14	7.14	1.94	2.29	0.00	4.19	10	Cir	0.012	80	0.50	98.36	97.96	101.95	101.82	
38	37	A16.12	0.03	0.80	0.02	0.05	7.14	7.14	0.17	0.34	0.00	0.63	10	Cir	0.012	55	0.49	98.63	98.36	101.95	101.97	
39	38	A16.11	0.03	0.80	0.02	0.02	7.14	7.14	0.17	0.17	0.00	0.49	8	Cir	0.012	55	0.51	99.08	98.80	101.95	101.98	
40	36	A16.10	0.02	0.80	0.02	0.31	7.14	7.14	0.11	2.23	0.00	4.09	10	Cir	0.012	50	0.52	97.88	97.62	102.90	101.52	
41	40	A16.9	0.22	0.80	0.18	0.30	7.14	7.14	1.26	2.11	0.00	3.88	10	Cir	0.012	47	0.51	98.12	97.88	102.90	102.03	
42	41	A16.8	0.03	0.80	0.02	0.12	7.14	7.14	0.17	0.86	0.00	1.57	10	Cir	0.012	47	0.51	98.36	98.12	102.90	102.21	
43	42	A16.7	0.12	0.80	0.10	0.10	7.14	7.14	0.69	0.69	0.00	1.96	8	Cir	0.012	64	0.50	98.77	98.45	102.00	102.41	
44	9	A16.6	0.46	0.80	0.37	0.95	7.14	7.14	2.63	6.80	0.00	3.85	18	Cir	0.012	34	0.79	96.20	95.93	102.05	100.94	
45	44	A16.5	0.10	0.80	0.08	0.58	7.14	7.14	0.57	4.17	0.00	2.36	18	Cir	0.012	79	0.51	96.60	96.20	102.20	101.16	
46	45	A16.4	0.19	0.80	0.15	0.50	7.14	7.14	1.09	3.60	0.00	2.93	15	Cir	0.012	81	0.49	97.25	96.85	102.05	101.42	

Project File: 201022 Pipe Capacity (2).stm | Number of lines: 60 | Date: 10/26/2020

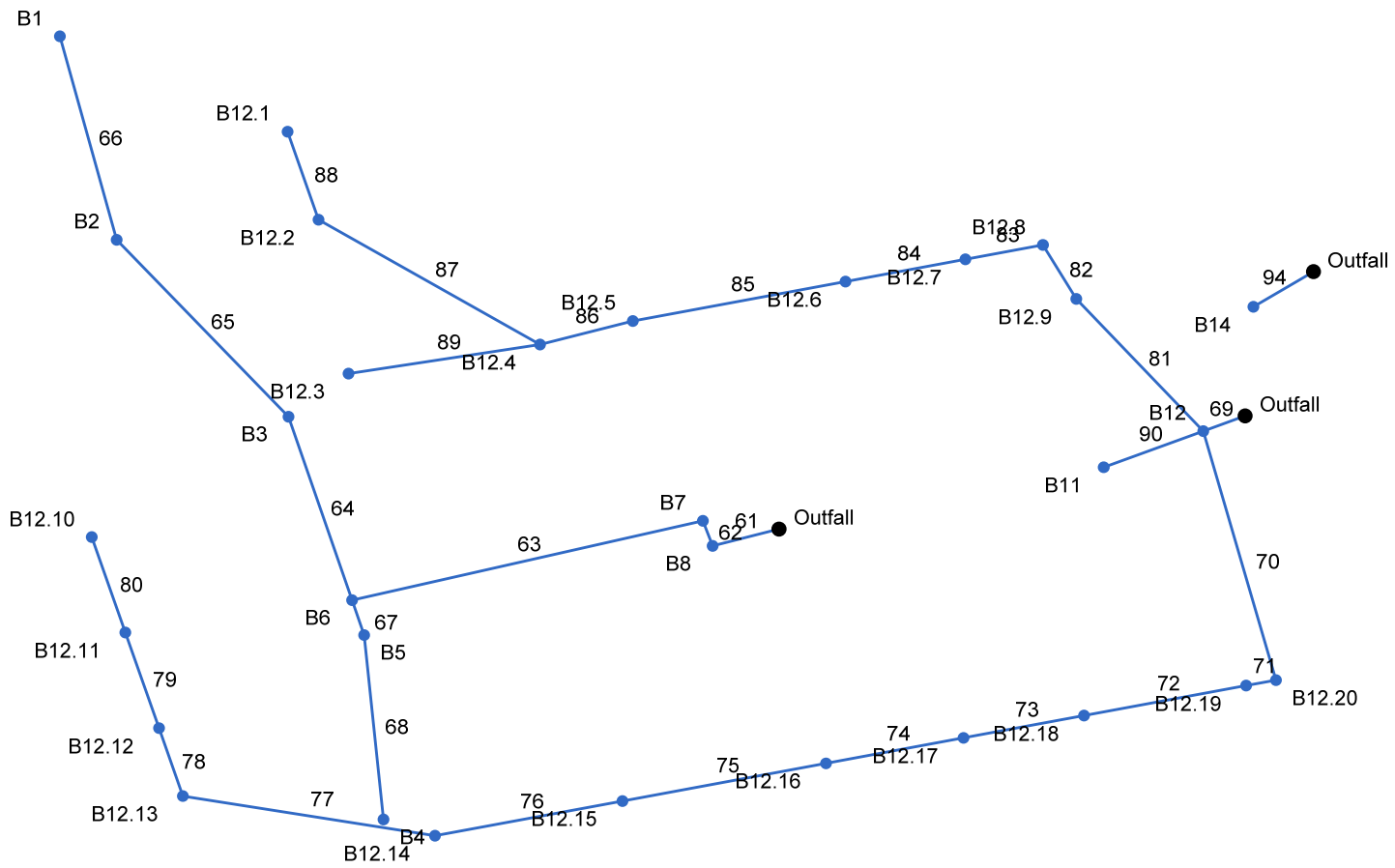
NOTES: Intensity = 55.79 / (Inlet time + 11.10) ^ 0.74 – Return period = 25 Yrs. ; ** Critical depth

Line No.	DnStm Ln No	Inlet ID	Drng Area (ac)	Runoff Coeff (C)	Incr CxA	Total CxA	i Inlet (in/hr)	i Sys (in/hr)	Incr Q (cfs)	Total Runoff (cfs)	Capac Full (cfs)	Vel Ave (ft/s)	Line Size (in)	Line Type	n-val Pipe	Line Length (ft)	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	HGL Up (ft)	
47	46	A16.3	0.15	0.80	0.12	0.35	7.14	7.14	0.86	2.51	0.00	3.20	12	Cir	0.012	73	0.51	97.87	97.50	102.05	101.80	
48	47	A16.2	0.17	0.80	0.14	0.23	7.14	7.14	0.97	1.66	0.00	3.04	10	Cir	0.012	80	0.50	98.44	98.04	102.20	102.27	
49	48	A16.1	0.12	0.80	0.10	0.10	7.14	7.14	0.69	0.69	0.00	1.96	8	Cir	0.012	41	0.99	99.02	98.61	102.80	102.55	
50	4	A22.4	0.11	0.80	0.09	0.51	7.14	7.14	0.63	3.66	0.00	5.00	12	Cir	0.012	93	2.00	97.29	95.43	101.30	98.10	
51	50	A22.2	0.40	0.80	0.32	0.39	7.14	7.14	2.29	2.80	0.00	5.13	10	Cir	0.012	57	0.51	97.75	97.46	101.30	99.09	
52	51	A22.1	0.09	0.80	0.07	0.07	7.14	7.14	0.51	0.51	0.00	1.47	8	Cir	0.012	61	0.50	98.23	97.92	101.25	99.39	
53	50	A22.3	0.04	0.80	0.03	0.03	7.14	7.14	0.23	0.23	0.00	0.89	10	Cir	0.012	74	0.50	97.83	97.46	102.37	98.13	
54	3	A23.3	0.02	0.80	0.02	0.19	7.14	7.14	0.11	1.37	0.00	3.43	10	Cir	0.012	44	0.50	96.60	96.38	100.60	97.17	
55	54	A23.2b	0.17	0.80	0.14	0.18	7.14	7.14	0.97	1.26	0.00	3.04	10	Cir	0.012	67	0.49	96.93	96.60	100.70	97.47	
56	55	A23.1	0.05	0.80	0.04	0.04	7.14	7.14	0.29	0.29	0.00	1.30	8	Cir	0.012	78	0.50	97.49	97.10	101.40	97.80	
57	2	A25	0.51	0.80	0.41	0.51	7.14	7.14	2.91	3.66	0.00	5.18	15	Cir	0.012	157	1.00	96.00	94.43	100.20	96.77	
58	57	A24	0.13	0.80	0.10	0.10	7.14	7.14	0.74	0.74	0.00	2.36	12	Cir	0.012	133	2.00	98.92	96.25	102.79	99.28	
59	1	A27.2	0.38	0.80	0.30	0.39	7.14	7.14	2.17	2.80	0.00	6.87	12	Cir	0.012	139	4.06	95.65	90.00	99.10	96.37	
60	59	A27.1	0.11	0.80	0.09	0.09	7.14	7.14	0.63	0.63	0.00	3.11	8	Cir	0.012	101	1.00	97.00	95.99	100.50	97.37	

Project File: 201022 Pipe Capacity (2).stm | Number of lines: 60 | Date: 10/26/2020

NOTES: Intensity = 55.79 / (Inlet time + 11.10) ^ 0.74 – Return period = 25 Yrs. ; ** Critical depth

Hydraflow Storm Sewers Extension for Autodesk® AutoCAD® Civil 3D® Plan



Project File: 201022 Pipe Capacity (2).stm	Number of lines: 34	Date: 10/26/2020

InSite

Line No.	DnStm Ln No	Inlet ID	Drng Area (ac)	Runoff Coeff (C)	Incr CxA	Total CxA	i Inlet (in/hr)	i Sys (in/hr)	Incr Q (cfs)	Total Runoff (cfs)	Capac Full (cfs)	Vel Ave (ft/s)	Line Size (in)	Line Type	n-val Pipe	Line Length (ft)	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	HGL Up (ft)	
61	Outfall	B8	0.00	0.80	0.00	0.74	0.00	6.79	0.00	5.00	0.00	4.13	18	Cir	0.012	31	0.00	96.00	96.00	99.86	97.14	
62	61	B7	0.00	0.80	0.00	0.74	0.00	6.82	0.00	5.02	0.00	3.08	18	Cir	0.012	14	0.41	96.06	96.00	100.16	97.34	
63	62	B6	0.00	0.80	0.00	0.74	0.00	7.10	0.00	5.22	0.00	3.19	18	Cir	0.012	162	0.30	96.55	96.06	100.96	97.78	
64	63	B3	0.26	0.80	0.21	0.50	7.14	7.14	1.49	3.54	0.00	2.24	18	Cir	0.012	105	0.30	96.87	96.55	100.32	98.03	
65	64	B2	0.18	0.80	0.14	0.29	7.14	7.14	1.03	2.06	0.00	1.61	18	Cir	0.012	124	0.30	97.24	96.87	100.73	98.13	
66	65	B1	0.18	0.80	0.14	0.14	7.14	7.14	1.03	1.03	0.00	1.58	15	Cir	0.012	115	0.40	97.70	97.24	101.50	98.22	
67	63	B5	0.11	0.80	0.09	0.24	7.14	7.14	0.63	1.71	0.00	1.40	15	Cir	0.012	20	0.30	96.61	96.55	100.23	97.97	
68	67	B4	0.19	0.80	0.15	0.15	7.14	7.14	1.09	1.09	0.00	0.92	15	Cir	0.012	102	0.30	96.92	96.61	100.31	98.00	
69	Outfall	B12	0.00	0.80	0.00	3.27	0.00	7.14	0.00	23.37	0.00	9.22	24	Cir	0.012	20	0.98	88.20	88.00	100.81	90.18	
70	69	B12.20	0.00	0.80	0.00	1.53	0.00	7.14	0.00	10.91	0.00	5.74	24	Cir	0.012	141	0.50	93.03	92.32	101.13	94.21	
71	70	B12.19	0.23	0.80	0.18	1.53	7.14	7.14	1.31	10.91	0.00	6.18	18	Cir	0.012	14	0.51	93.60	93.53	100.60	95.16	
72	71	B12.18	0.03	0.80	0.02	1.34	7.14	7.14	0.17	9.60	0.00	5.43	18	Cir	0.012	74	0.50	93.97	93.60	100.65	95.98	
73	72	B12.17	0.06	0.80	0.05	1.32	7.14	7.14	0.34	9.43	0.00	5.33	18	Cir	0.012	55	0.51	94.25	93.97	100.45	96.59	
74	73	B12.16	0.25	0.80	0.20	1.27	7.14	7.14	1.43	9.08	0.00	5.14	18	Cir	0.012	63	0.49	94.56	94.25	100.20	97.21	
75	74	B12.15	0.37	0.80	0.30	1.07	7.14	7.14	2.11	7.66	0.00	4.33	18	Cir	0.012	93	0.51	95.03	94.56	100.65	97.84	
76	75	B12.14	0.13	0.80	0.10	0.78	7.14	7.14	0.74	5.54	0.00	4.52	15	Cir	0.012	86	0.50	95.71	95.28	100.25	98.52	
77	76	B12.13	0.31	0.80	0.25	0.67	7.14	7.14	1.77	4.80	0.00	3.91	15	Cir	0.012	114	0.50	96.28	95.71	101.00	99.28	
78	77	B12.12	0.27	0.80	0.22	0.42	7.14	7.14	1.54	3.03	0.00	3.86	12	Cir	0.012	39	0.49	96.72	96.53	101.10	99.84	
79	78	B12.11	0.07	0.80	0.06	0.21	7.14	7.14	0.40	1.49	0.00	1.89	12	Cir	0.012	55	0.49	97.00	96.73	101.10	100.04	
80	79	B12.10	0.19	0.80	0.15	0.15	7.14	7.14	1.09	1.09	0.00	1.38	12	Cir	0.012	55	0.49	97.27	97.00	101.10	100.11	
81	69	B12.9	0.05	0.80	0.04	0.74	7.14	7.14	0.29	5.31	0.00	4.64	24	Cir	0.012	92	0.50	93.98	93.52	101.86	94.79	
82	81	B12.8	0.00	0.80	0.00	0.70	0.00	7.14	0.00	5.03	0.00	4.65	15	Cir	0.012	33	0.51	94.90	94.73	101.43	95.93	
83	82	B12.7	0.22	0.80	0.18	0.70	7.14	7.14	1.26	5.03	0.00	4.10	15	Cir	0.012	35	0.51	95.08	94.90	100.85	96.44	

Project File: 201022 Pipe Capacity (2).stm | Number of lines: 34 | Date: 10/26/2020

NOTES: Intensity = 55.79 / (Inlet time + 11.10) ^ 0.74 – Return period = 25 Yrs. ; ** Critical depth

Line No.	DnStm Ln No	Inlet ID	Drng Area (ac)	Runoff Coeff (C)	Incr CxA	Total CxA	i Inlet (in/hr)	i Sys (in/hr)	Incr Q (cfs)	Total Runoff (cfs)	Capac Full (cfs)	Vel Ave (ft/s)	Line Size (in)	Line Type	n-val Pipe	Line Length (ft)	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	Gnd/Rim El Up (ft)	HGL Up (ft)	
84	83	B12.6	0.03	0.80	0.02	0.53	7.14	7.14	0.17	3.77	0.00	3.07	15	Cir	0.012	55	0.49	95.35	95.08	100.65	96.73	
85	84	B12.5	0.14	0.80	0.11	0.50	7.14	7.14	0.80	3.60	0.00	4.58	12	Cir	0.012	97	0.50	96.09	95.60	100.15	97.65	
86	85	B12.4	0.16	0.80	0.13	0.39	7.14	7.14	0.91	2.80	0.00	5.13	10	Cir	0.012	43	0.51	96.48	96.26	100.70	98.42	
87	86	B12.2	0.16	0.80	0.13	0.15	7.14	7.14	0.91	1.09	0.00	3.11	8	Cir	0.012	120	0.50	97.08	96.48	101.00	99.92	
88	87	B12.1	0.03	0.80	0.02	0.02	7.14	7.14	0.17	0.17	0.00	0.49	8	Cir	0.012	50	0.50	97.50	97.25	101.00	100.08	
89	86	B12.3	0.14	0.80	0.11	0.11	7.14	7.14	0.80	0.80	0.00	2.29	8	Cir	0.012	87	0.50	96.91	96.48	100.10	99.42	
90	69	B11	1.25	0.80	1.00	1.00	7.14	7.14	12.15	7.14	0.00	8.71	18	Cir	0.012	49	2.02	94.50	93.52	97.40	95.82	
91	Outfall	A32	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.73	24	Cir	0.012	23	0.43	82.10	82.00	86.79	82.69	
92	91	A31	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.72	24	Cir	0.012	69	3.13	84.25	82.10	89.75	84.84	
93	92	A30	0.00	0.80	0.00	0.00	0.00	0.00	2.90	0.00	0.00	3.72	24	Cir	0.012	21	3.14	84.90	84.25	87.55	85.49	
94	Outfall	B14	0.00	0.80	0.00	0.00	0.00	0.00	1.60	0.00	0.00	3.36	18	Cir	0.012	33	1.82	82.90	82.30	93.00	83.47	

Project File: 201022 Pipe Capacity (2).stm | Number of lines: 34 | Date: 10/26/2020

NOTES: Intensity = 55.79 / (Inlet time + 11.10) ^ 0.74 -- Return period = 25 Yrs. ; ** Critical depth

A P P E N D I X I

Groundwater Mounding Calculations

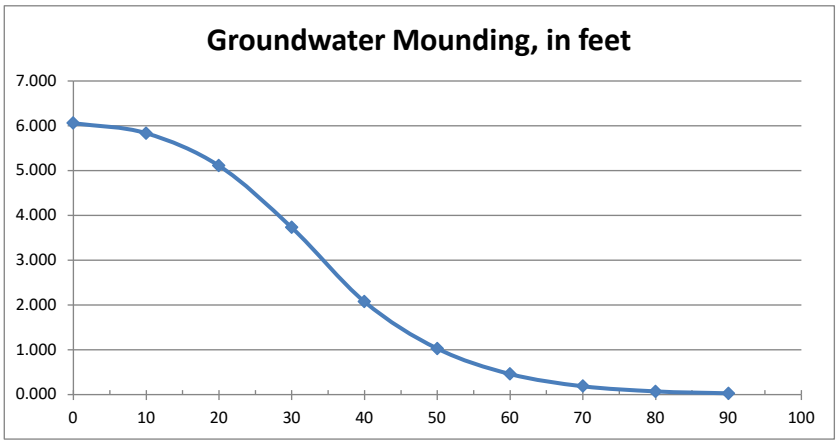
Input Values

10.00	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
50.00	Kh	Kh = 5xRecharge Rate (R) in the costal plan; Kh=R outside the coastal plan
31.225	x	1/2 length of basin (x direction, in feet)
100.000	y	1/2 width of basin (y direction, in feet)
1.27	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

16.060	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
6.060	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
6.060	0
5.834	10
5.109	20
3.731	30
2.072	40
1.024	50
0.455	60
0.184	70
0.068	80
0.024	90

Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

Stone Rise Basin A. 4/26/21

20-1417-01

Test / Field. test or design?

Permeability / Infiltration Rate: 20 in/hr

Design Infiltration Rt.

Recharge Rate (R) = 1/2 Infiltration Rate = 1/2 x (20 in/hr) = 10 in/hr

Infiltration Area (IA) = 12,490 SF

Dimensions: L = 12,490 / 200 = 62.45' x = 31.225'

W = longest side = 200' y = 100'

$$T = \frac{\text{vol. run off to be infiltrated (cf)} \times 12\ \text{in/ft}}{IA\ (sf) \times R\ (\text{in/hr})} = \frac{13{,}220\ cf \times 12\ \text{in/ft}}{12{,}490\ sf \times 10\ \text{in/hr}} = 1.27\ \text{hrs}$$

$K_h = 5 \times R = 50$ in/hr

From 100 yr storm:

T = 10 hrs

$R_{10} = RT = 10(1.27) = X(10) \Rightarrow X = 1.27$

Basin Bottom: 84'

SHWT: < 73'

Difference: 9'

R (in/hr)	T (hrs)	Mounding (ft.)
10	1.27	6.06
1.27	10	

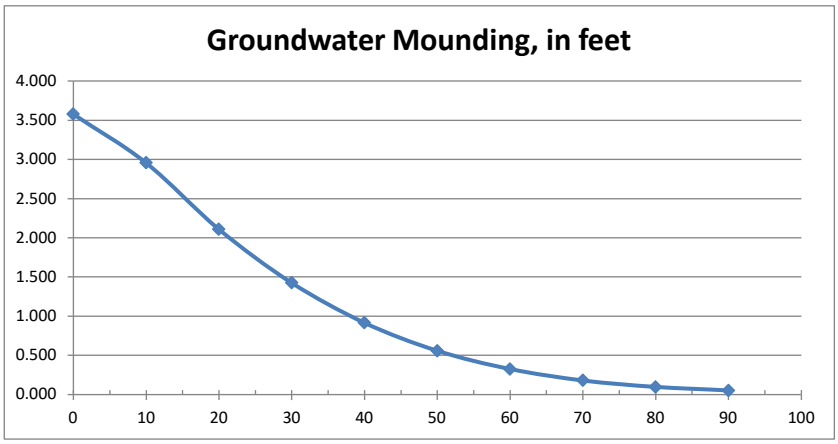
Input Values

3.00	R	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
15.00	Kh	Kh = 5xRecharge Rate (R) in the costal plan; Kh=R outside the coastal plan
6.885	x	1/2 length of basin (x direction, in feet)
71.000	y	1/2 width of basin (y direction, in feet)
9.54	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

13.577	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
3.577	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
3.577	0
2.956	10
2.107	20
1.425	30
0.914	40
0.557	50
0.324	60
0.180	70
0.096	80
0.051	90

Re-Calculate Now



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Stone Rise Basin B1 4/26/21

Test/Field
Infiltration Rate = 6 in/hr
Design Infiltration Rate/
Recharge Rate (R) = $6 \times \frac{1}{2}$ = 3 in/hr

Infiltration Area (IA) = 1,955 sf

Dimensions: W = 1955 / 156 = 13.77' x = 6.885'

L = Longest side = 142' y = 71'

$$T = \frac{4662 \text{ cf} \times 12 \text{ in/ft}}{1955 \text{ sf} \times 3 \text{ in/hr}} = 9.54 \text{ hrs.}$$

$K_n = 5 \times R = 15$ in/hr

~~From 100yr storm:~~

T = 16 hrs

$R_{16} =$ RT = 3(9.54) = x(16) => x = 1.79 in/hr

Basin Bottom: 96'

SHWT: <80'

Difference: 16'

R (in/hr)	T (hrs)	Mounding (ft)
3	9.54	3.577
1.79	16	

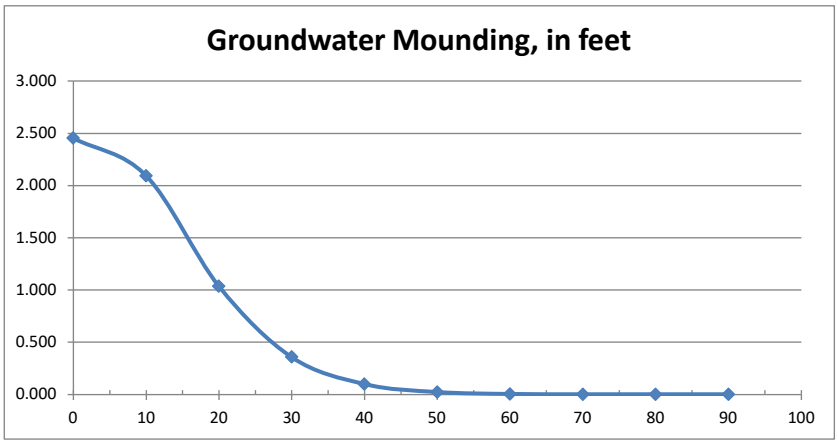
Input Values

2.00	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
10.00	Kh	Kh = 5xRecharge Rate (R) in the costal plan; Kh=R outside the coastal plan
15.750	x	1/2 length of basin (x direction, in feet)
118.000	y	1/2 width of basin (y direction, in feet)
2.80	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

12.453	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
2.453	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
2.453	0
2.094	10
1.035	20
0.357	30
0.099	40
0.022	50
0.005	60
0.002	70
0.001	80
0.001	90

Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

Stone Rise Basin B2

Test/Field
Infiltration Rate : 4 in/hr
Design Infiltration Rate
Recharge Rate (R) = $4 \times \frac{1}{2} = 2$ in/hr

Infiltration Area: 7,435 sf

Dimensions: W = 31.50' X = 15.75'

L = Longest Side = 236' Y = 118'

$$T = \frac{3468\text{cf} \times 12\text{in/hr}}{7435\text{sf} \times 2\text{in/hr}} = 2.8 \text{ hrs}$$

$K_n = 5 \times R = 10$ in/hr

T = 16 hrs

$R_{16} = RT = 2(2.8) = x(16) \Rightarrow x = 0.35$ in/hr

Basin Bottom: 88'
SHWT: < 80'
Difference: 8'

R (in/hr)	T (hrs)	Mounding (ft)
2	2.8	2.453
0.35	16	

A P P E N D I X J

DRAINAGE MAPS:

1. **Pre-Development Drainage Area Map**
2. **Post-Development Drainage Area Map**
3. **Inlet Drainage Area Map**

LEGEND

EXISTING		PROPOSED
	BOUNDARY LINE	
	CONTOUR LINE	
+ 46.80	SPOT ELEVATION	+46.80
	BUILDING	
	WALL	
	GAS	GAS
	WATER	WTR
	INLET	
	STORM	
	SANITARY MAIN	
	SANITARY LATERAL	SAN
	OVERHEAD WIRE	O/H
	ELECTRIC	E
	TELEPHONE	TEL
	UTILITY POLE	
	HYDRANT	
	SIGN POST	
	FENCE	
	LIGHT FIXTURE	
	TEST PIT LOCATION	
	GRADE FLOW ARROW	
	SWALE CENTER LINE	

COVERAGE CHART

PRE-DEVELOPMENT
ANALYSIS AREA: 17.1 AC.

HYDROLOGICAL SOIL GROUP: A

	WOODS	12.0 AC.
	GRAVEL	4.8 AC.
	CONCRETE	0.2 AC.
	STRUCTURES	0.1 AC.
	TOTAL:	17.1 AC.
	ANALYSIS AREA	

Soil Group Data

AtsA	ATSION SAND 0 TO 2 PERCENT SLOPES, NORTHERN COSTAL PLAIN
KkgkB	KLEJ LOAMY SAND, CLAYEY SUBSTRATUM, 0 TO 5 PERCENT SLOPES
EveB	EVESBORO SAND, 0 TO 5 PERCENT SLOPES
EveC	EVESBORO SAND 5 TO 10 PERCENT SLOPES
EkaAr	ELKTON LOAM, 0 TO 2 PERCENT SLOPES, RARELY FLOODED

Soil Group Boundary

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STONE RISE

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WATER	BLUE
SEWER	GREEN
TEMP. SURVEY MARKINGS	MAGENTA
PROPOSED EXCAVATION	WHITE

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0	12/18/20	INITIAL RELEASE

SCALE: 1" = 60'	DESIGNED BY: EGE
DATE: 12/18/20	DRAWN BY: EGE
JOB #: 20-1417-01	CHECKED BY: ERB
CAD ID: 20-1417-01r0	

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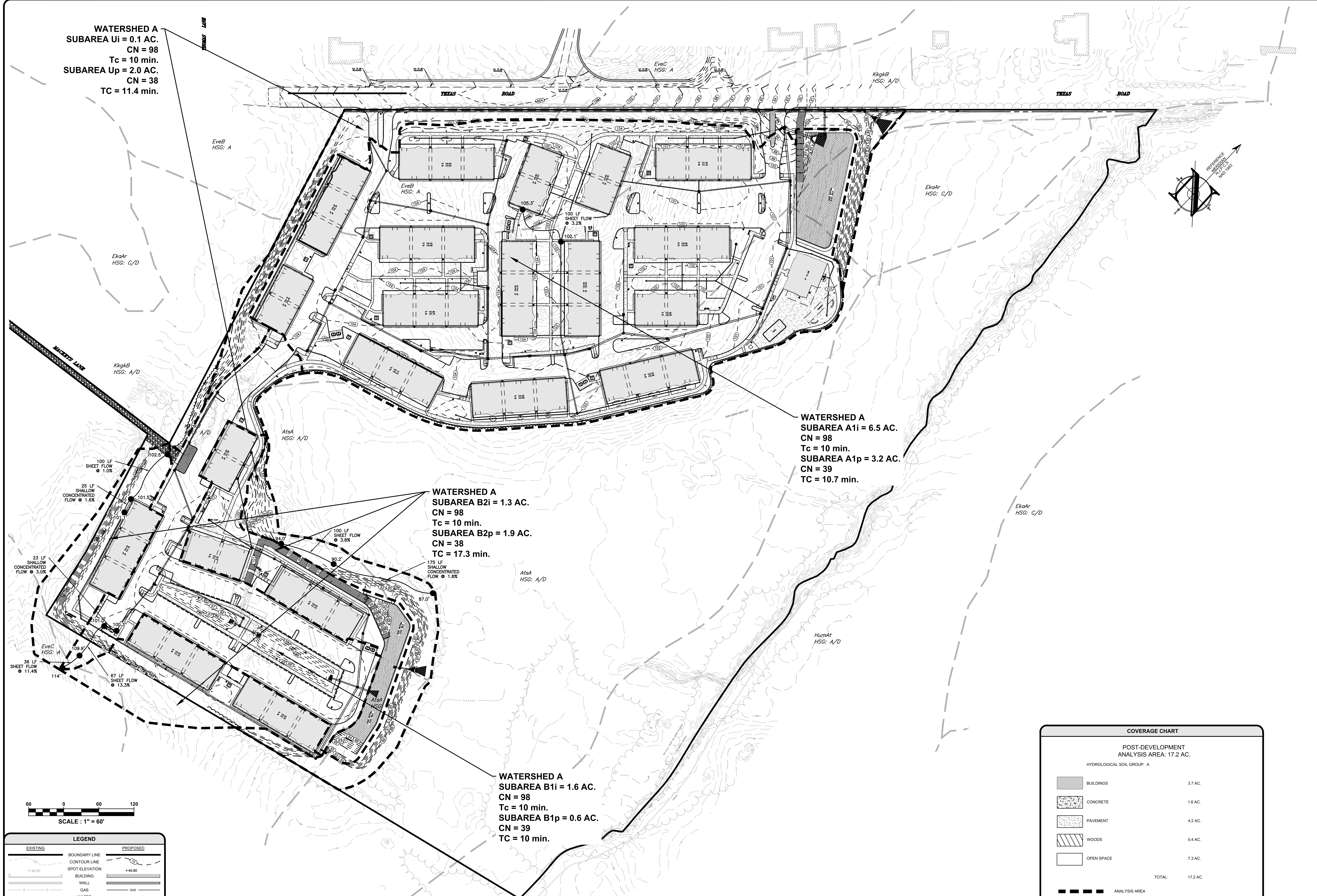
PLAN INFORMATION

DRAWING TITLE:
PRELIMINARY & FINAL MAJOR SITE PLAN

SHEET TITLE:
PRE-DEVELOPMENT DRAINAGE AREA MAP

SHEET NO:
1 OF 3



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	HYDRANT	
	SIGN POST	
	FENCE	
	LIGHT FIXTURE	
	TEST PIT LOCATION	
	GRADE FLOW ARROW	
	SWALE CENTER LINE	

COVERAGE CHART

POST-DEVELOPMENT
ANALYSIS AREA: 17.2 AC.

HYDROLOGICAL SOIL GROUP: A

	BUILDINGS	3.7 AC.
	CONCRETE	1.6 AC.
	PAVEMENT	4.2 AC.
	WOODS	0.4 AC.
	OPEN SPACE	7.3 AC.
	TOTAL:	17.2 AC.
	ANALYSIS AREA	

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1	04/30/21	REV PER TWP/MMUA/FSCD/NJDEP COMMENTS
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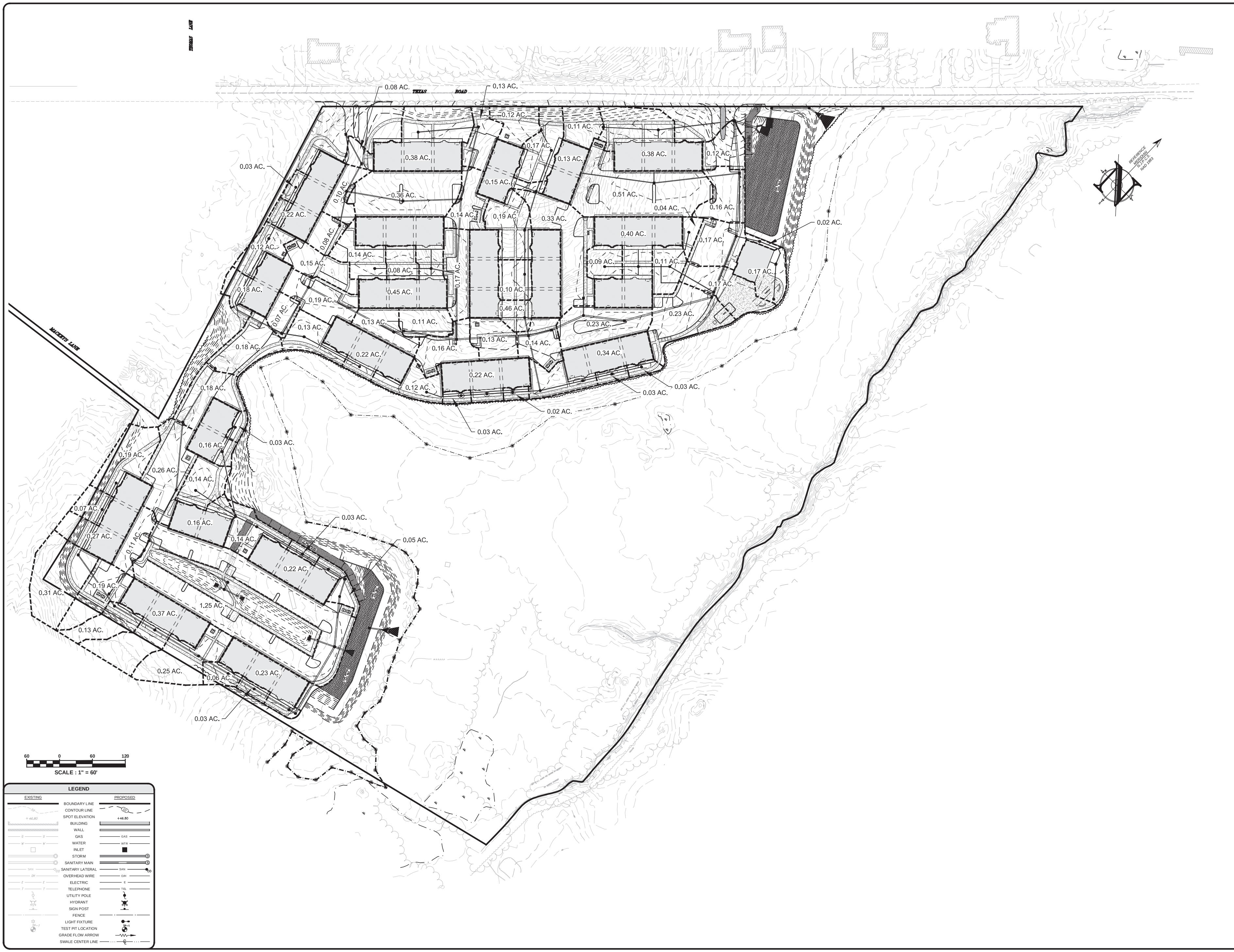

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