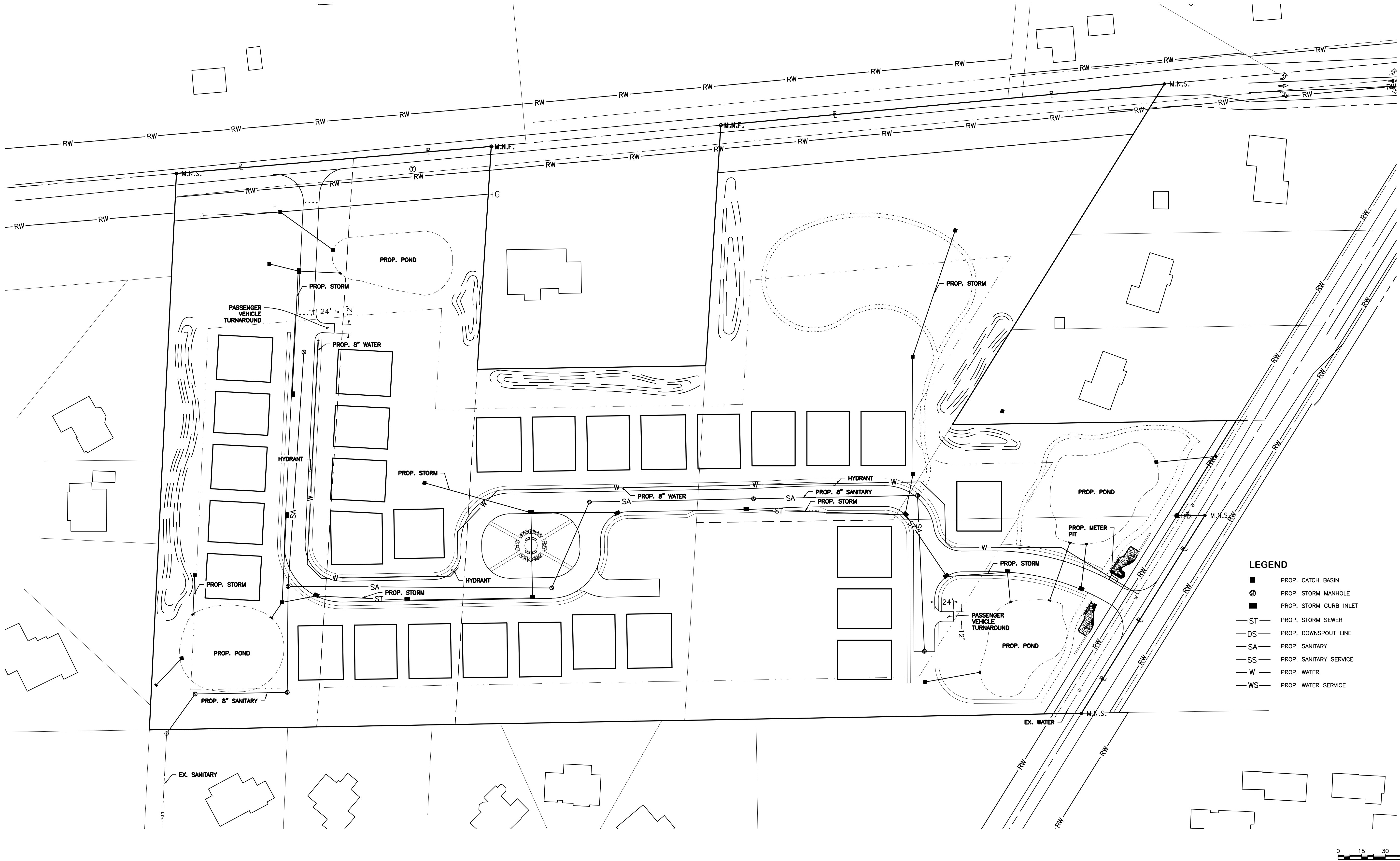


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- LEGEND**
- PROP. CATCH BASIN
 - ⊙ PROP. STORM MANHOLE
 - PROP. STORM CURB INLET
 - ST— PROP. STORM SEWER
 - DS— PROP. DOWNSPOUT LINE
 - SA— PROP. SANITARY
 - SS— PROP. SANITARY SERVICE
 - W— PROP. WATER
 - WS— PROP. WATER SERVICE

REVISIONS	DATE	BY	CHK.

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(614) 299-2999
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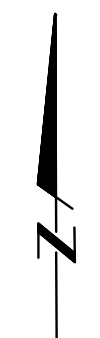
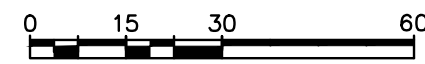
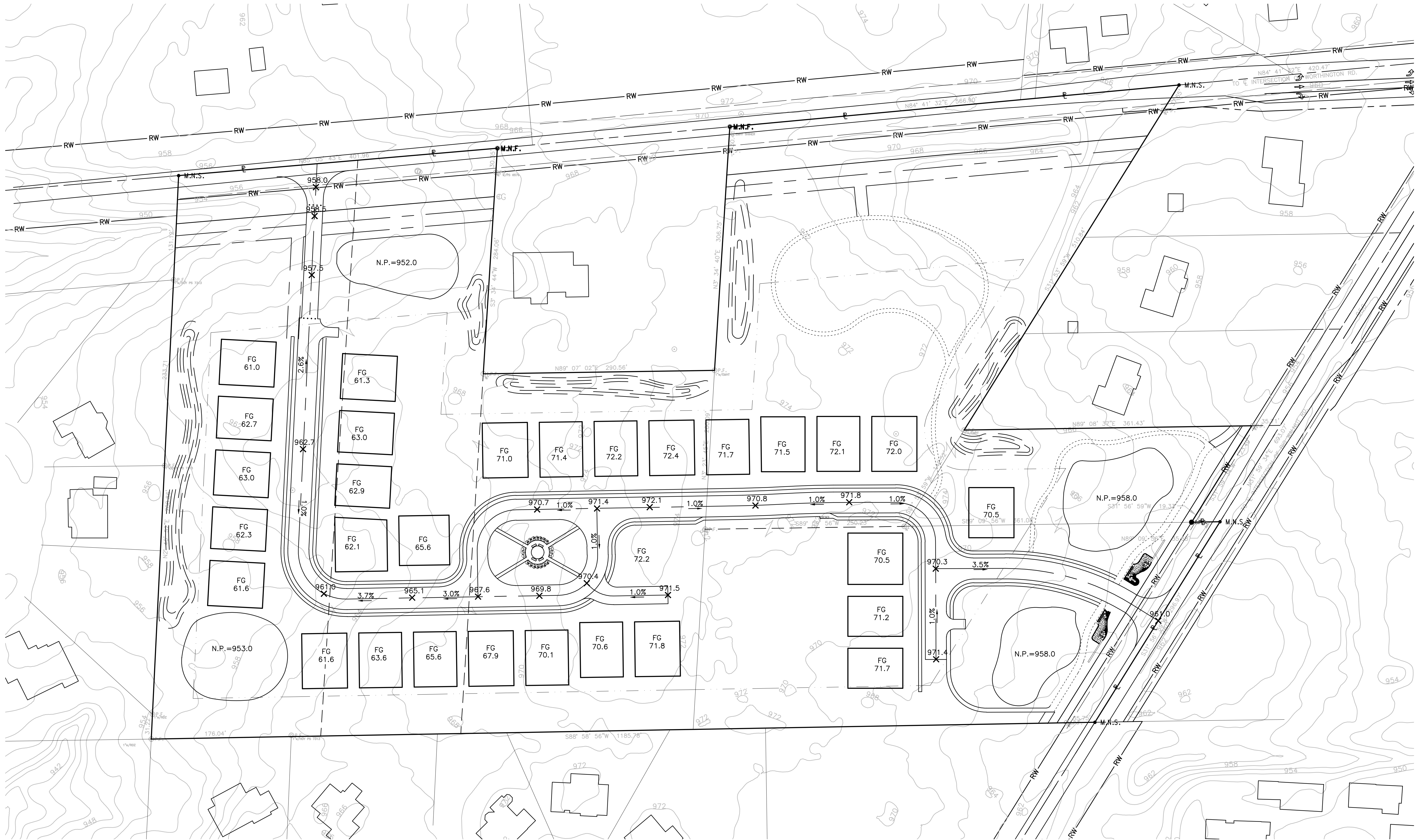
JOB NO.	1150.001
DESIGNED BY:	_____
DRAWN BY:	_____
CHECKED BY:	_____
APPROVED BY:	_____
DATE:	05/14/18

UTILITY EXHIBIT

EXHIBIT E-1

SCALE:	1" = 60'
SHEET NO.	OF
1	5

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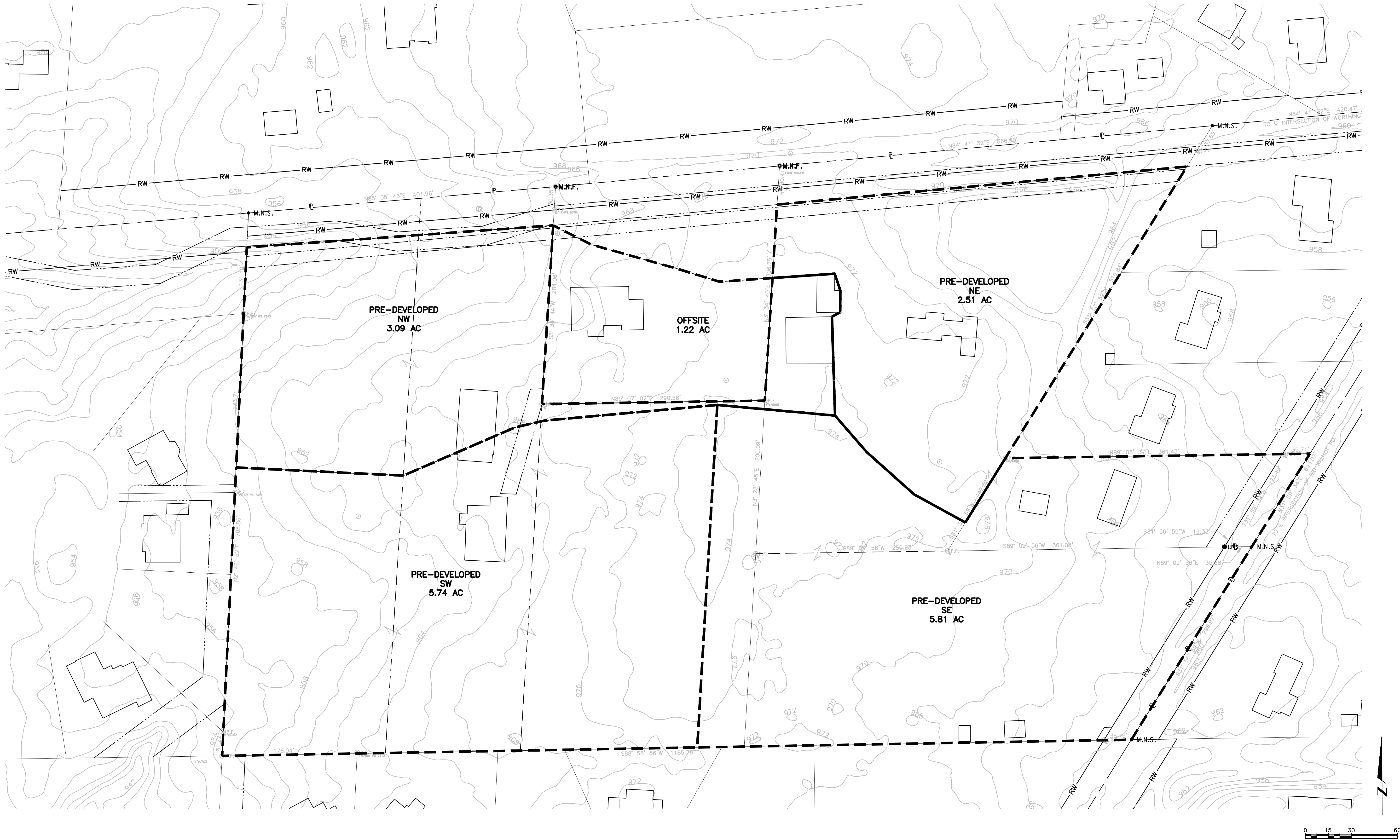
JOB NO.	1150.001
DESIGNED BY:	_____
DRAWN BY:	_____
CHECKED BY:	_____
APPROVED BY:	_____
DATE:	04/16/18

GRADING EXHIBIT

EXHIBIT E-1

SCALE: 1" = 60'	
SHEET NO.	OF
2	5

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HAWKS NEST PREMIER LIVING, LLC

JOB NO.	1150.001
DESIGNED BY:	_____
DRAWN BY:	_____
CHECKED BY:	_____
APPROVED BY:	_____
DATE:	04/16/18

PRE-DEVELOPMENT
TRIBUTARY MAP
EXHIBIT E-1

SCALE:
1" = 60'

SHEET NO.
3

OF
5

Preliminary Drainage Analysis

Hawks Nest at Highland Lakes

Genoa Township, Delaware County, Ohio

Prepared By:



880 King Ave.
Columbus, Ohio 43212

EP Ferris # 1150.001

EXECUTIVE SUMMARY:

The following report presents the preliminary design and analysis of the storm water management plan for a new development southwest of the intersection of Big Walnut and Worthington Road in Genoa Township, Delaware County, Ohio. Detention for the site will be provided through the use of an extended wet detention basins. The storage shall be governed by the release rates set forth in the Delaware County Standards Manual. Water quality shall be provided within the proposed detention facility per Ohio EPA and Delaware County requirements.

The total area for the proposed project is approximately 17.15 acres. The project is new development consisting of 30 residential units.

The pre-developed site contains 4 drainage outfalls; northwest (NW), southwest (SW), northeast (NE), and southeast (SE). The post-developed stormwater management system will consist of wet detention basins located at the NW, SW, and SE outfalls. The existing drainage patterns for the site will be maintained in the post-developed condition. The basins located at the SE outfall will convey the drainage for the pre-developed NE outfall as well. An area of offsite drainage will be directed as bypass through the proposed NW basin.

The proposed basins will handle water quality as well as detention for each outfall. The post-developed 100-year storm event for each outfall will be detained and discharged at a rate not to exceed the 2-year pre-developed discharge rate for each outfall.

Table 1 – Storm Water Runoff Summary Table

Storm Event	Pre-Dev. Peak NW (CFS)	Offsite NW (CFS)	Pre-Dev. Peak SW (CFS)	Pre-Dev. Peak NE+SE (CFS)	Post-Dev. Peak NW (CFS)	Post-Dev. Peak SW (CFS)	Post-Dev. Peak NE+SE (CFS)
2 Yr.	3.24	1.81	6.02	7.91	0.10	0.18	0.29
100 yr.	13.26	6.94	24.64	33.53	5.92	5.14	6.48

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Type II 24-hr 1-Year Rainfall=2.17"

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Page 1

Summary for Subcatchment 1S: PreDeveloped NW

Runoff = 1.95 cfs @ 12.12 hrs, Volume= 0.150 af, Depth= 0.58"

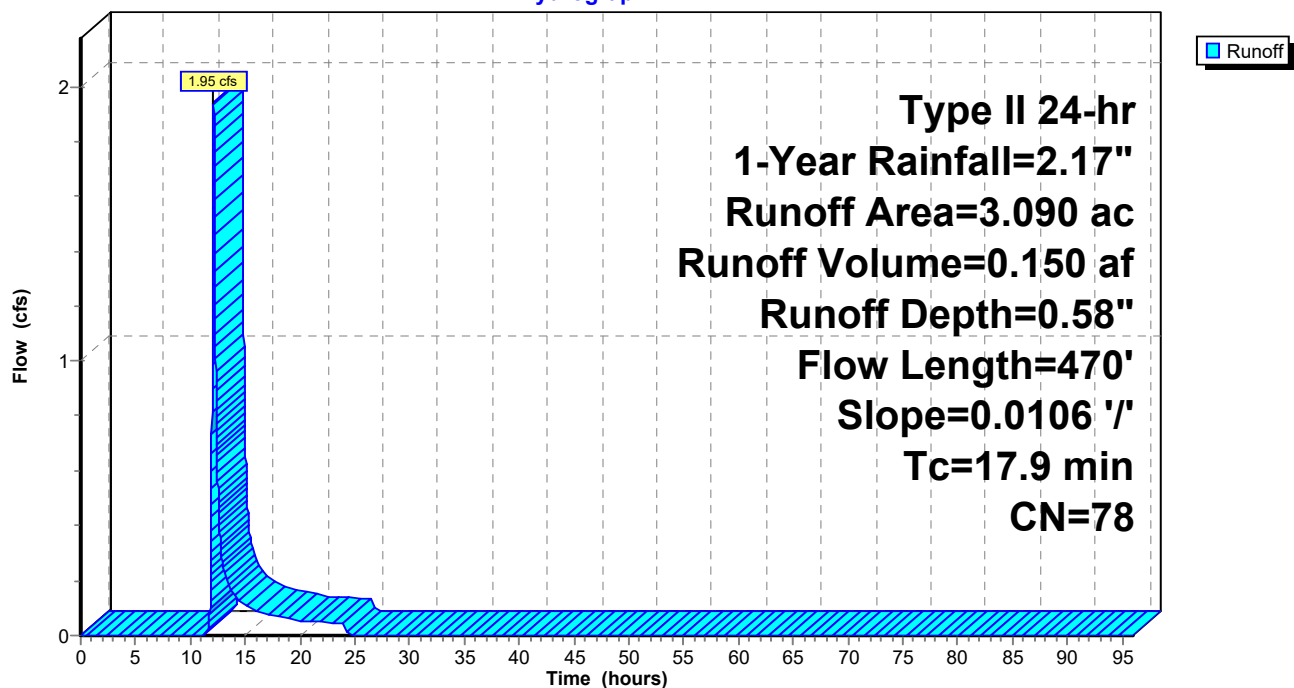
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.17"

Area (ac)	CN	Description
0.210	98	Roofs, HSG C
* 2.880	77	>75% Grass cover, Good, HSG D
3.090	78	Weighted Average
2.880		93.20% Pervious Area
0.210		6.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 1S: PreDeveloped NW

Hydrograph



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Summary for Subcatchment 2S: Developed NW

Runoff = 2.98 cfs @ 12.08 hrs, Volume= 0.197 af, Depth= 0.76"

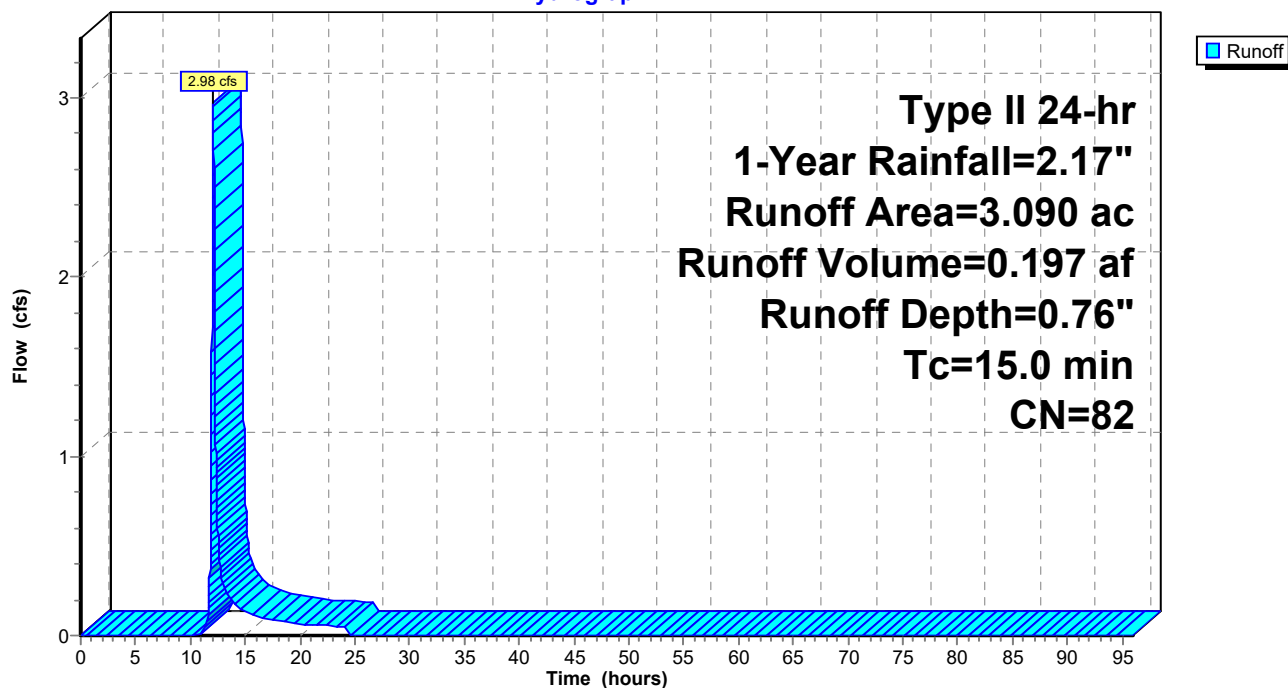
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.17"

Area (ac)	CN	Description
2.900	83	1/4 acre lots, 38% imp, HSG C
0.190	74	>75% Grass cover, Good, HSG C
3.090	82	Weighted Average
1.988		64.34% Pervious Area
1.102		35.66% Impervious Area

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

Subcatchment 2S: Developed NW

Hydrograph



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Summary for Subcatchment 4S: Offsite

Runoff = 1.13 cfs @ 12.03 hrs, Volume= 0.064 af, Depth= 0.62"

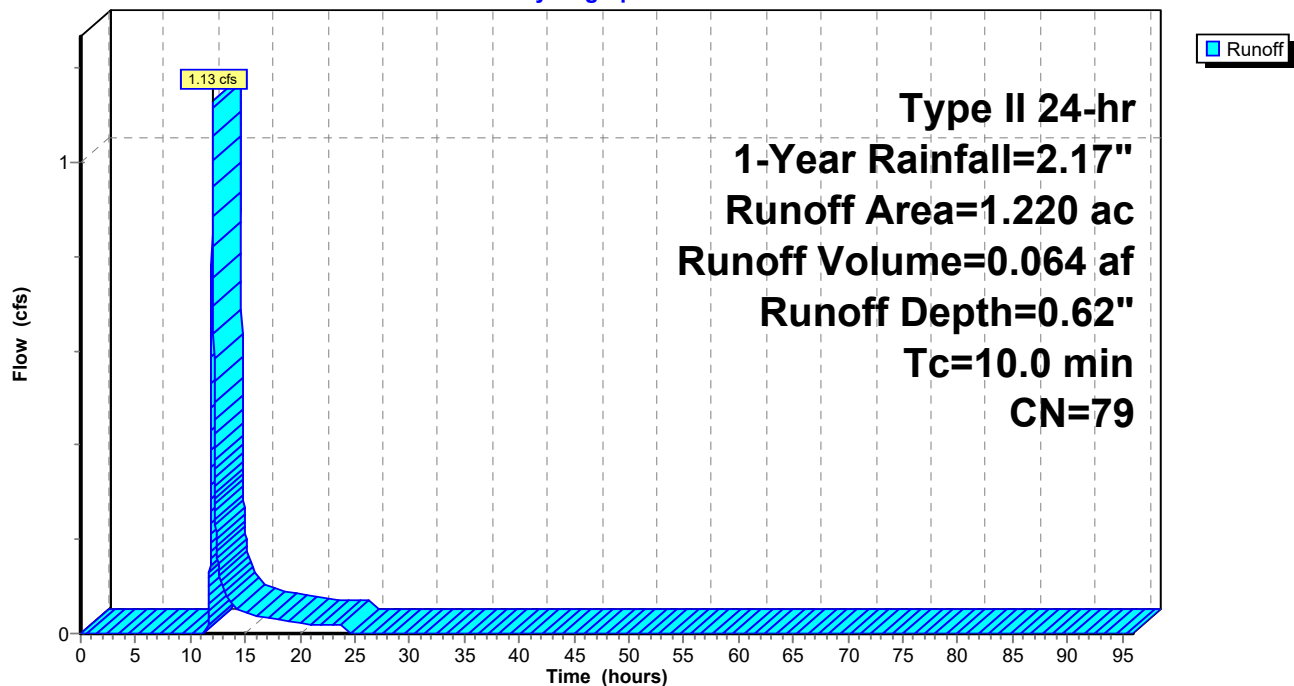
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.17"

Area (ac)	CN	Description
0.120	98	Roofs, HSG C
* 1.100	77	>75% Grass cover, Good, HSG D
1.220	79	Weighted Average
1.100		90.16% Pervious Area
0.120		9.84% Impervious Area

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

Subcatchment 4S: Offsite

Hydrograph



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Summary for Subcatchment 8S: PreDeveloped SW

Runoff = 3.61 cfs @ 12.12 hrs, Volume= 0.279 af, Depth= 0.58"

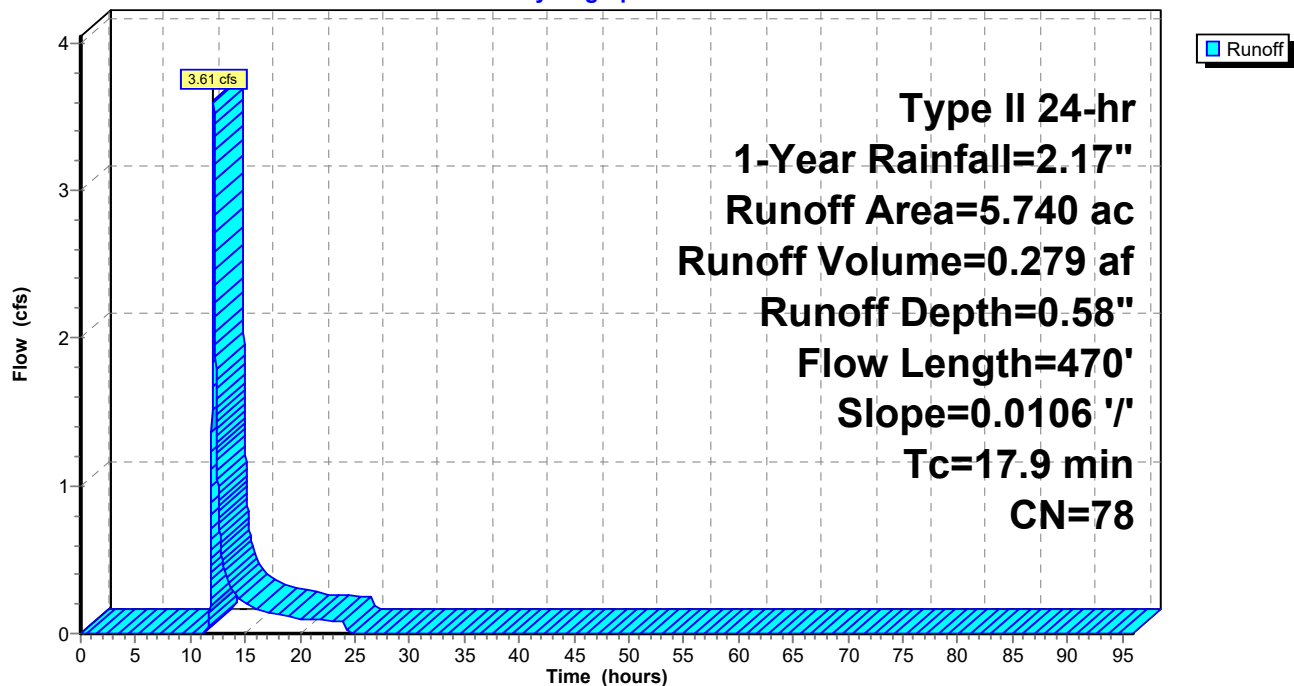
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.17"

Area (ac)	CN	Description
0.170	98	Roofs, HSG C
* 5.570	77	>75% Grass cover, Good, HSG D
5.740	78	Weighted Average
5.570		97.04% Pervious Area
0.170		2.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 8S: PreDeveloped SW

Hydrograph



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Summary for Subcatchment 9S: Developed SW

Runoff = 6.69 cfs @ 12.04 hrs, Volume= 0.393 af, Depth= 0.81"

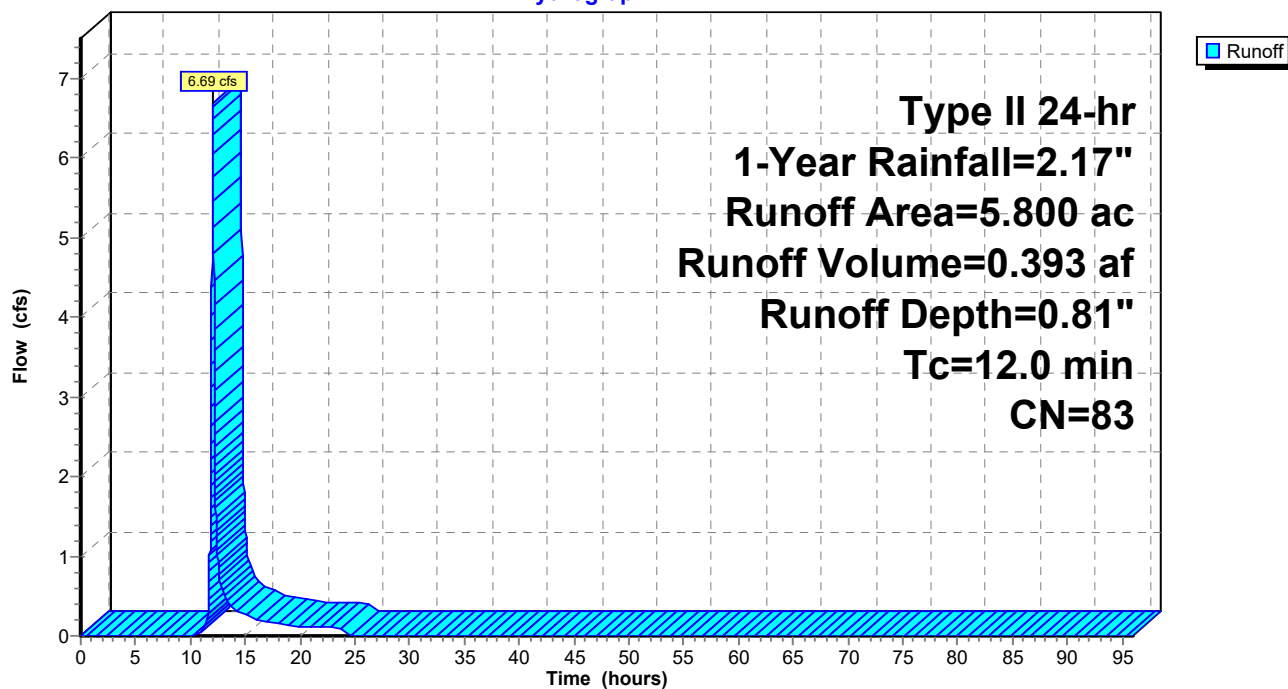
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.17"

Area (ac)	CN	Description
5.800	83	1/4 acre lots, 38% imp, HSG C
3.596		62.00% Pervious Area
2.204		38.00% Impervious Area

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

Subcatchment 9S: Developed SW

Hydrograph



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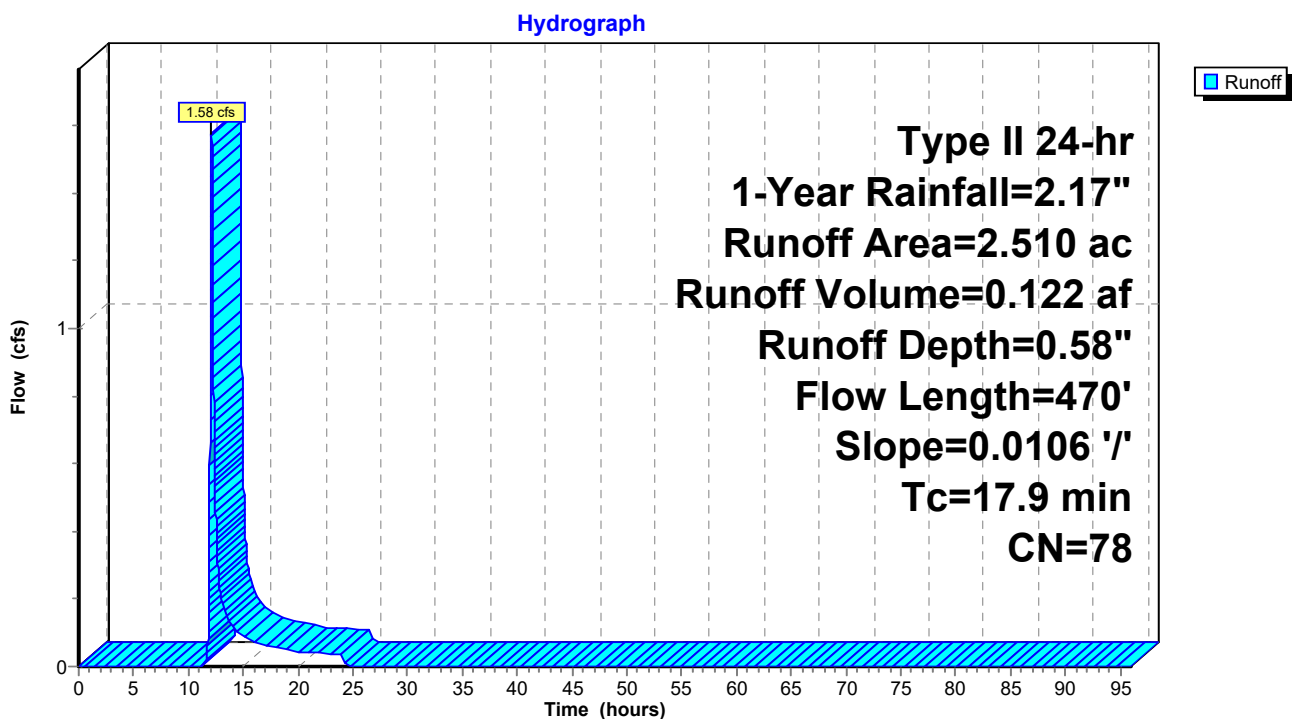
Summary for Subcatchment 11S: PreDeveloped NE

Runoff = 1.58 cfs @ 12.12 hrs, Volume= 0.122 af, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.17"

Area (ac)	CN	Description
0.090	98	Roofs, HSG C
* 2.420	77	>75% Grass cover, Good, HSG D
2.510	78	Weighted Average
2.420		96.41% Pervious Area
0.090		3.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 11S: PreDeveloped NE

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Summary for Subcatchment 12S: Developed SE

Runoff = 7.42 cfs @ 12.08 hrs, Volume= 0.500 af, Depth= 0.67"

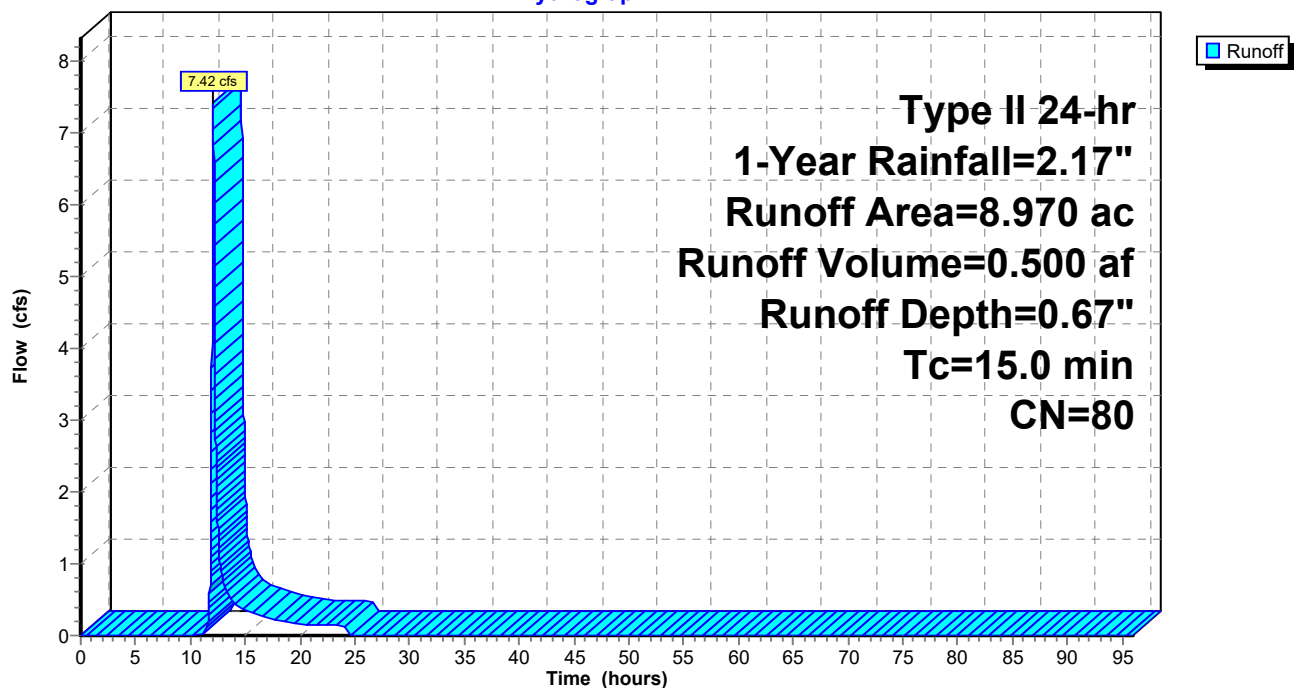
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.17"

Area (ac)	CN	Description
3.160	74	>75% Grass cover, Good, HSG C
5.810	83	1/4 acre lots, 38% imp, HSG C
8.970	80	Weighted Average
6.762		75.39% Pervious Area
2.208		24.61% Impervious Area

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

Subcatchment 12S: Developed SE

Hydrograph



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Summary for Subcatchment 14S: PreDeveloped SE

Runoff = 3.11 cfs @ 12.15 hrs, Volume= 0.263 af, Depth= 0.54"

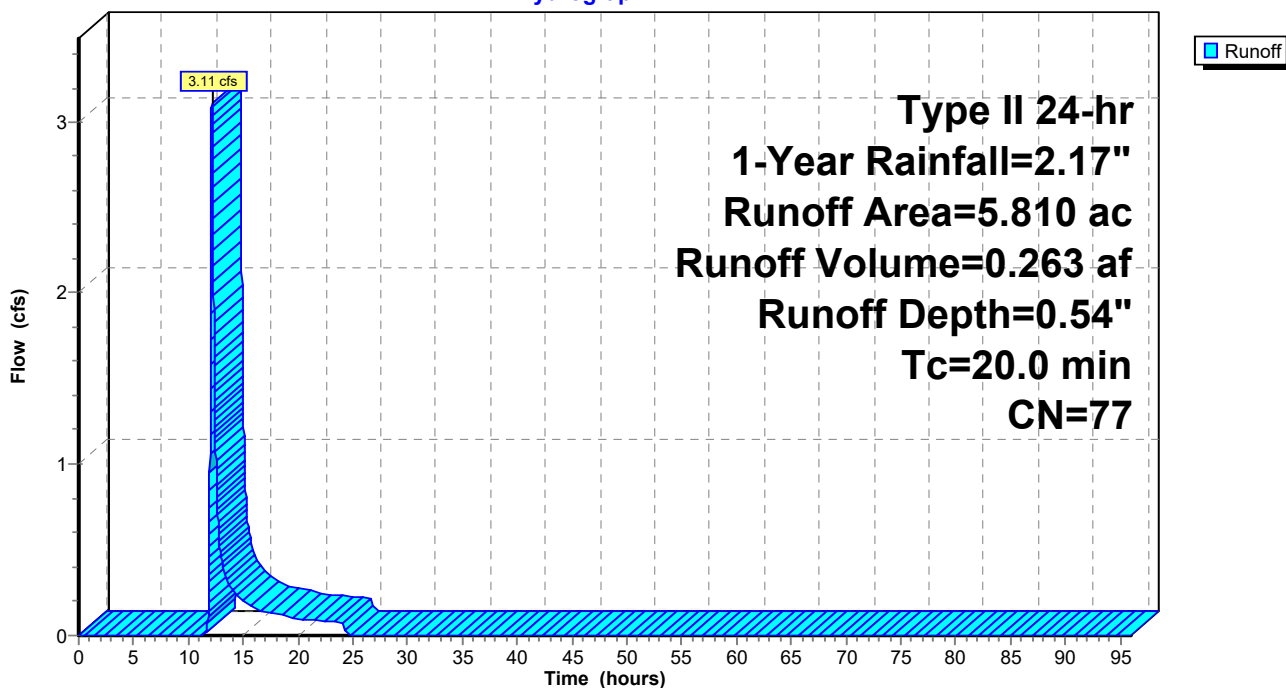
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-Year Rainfall=2.17"

Area (ac)	CN	Description
0.070	98	Roofs, HSG C
* 5.740	77	>75% Grass cover, Good, HSG D
5.810	77	Weighted Average
5.740		98.80% Pervious Area
0.070		1.20% Impervious Area

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

Subcatchment 14S: PreDeveloped SE

Hydrograph



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Type II 24-hr 1-Year Rainfall=2.17"

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Summary for Pond 3P: Retention Pond NW

Inflow Area = 4.310 ac, 28.35% Impervious, Inflow Depth = 0.72" for 1-Year event
 Inflow = 3.98 cfs @ 12.06 hrs, Volume= 0.260 af
 Outflow = 0.08 cfs @ 20.23 hrs, Volume= 0.259 af, Atten= 98%, Lag= 490.0 min
 Primary = 0.08 cfs @ 20.23 hrs, Volume= 0.259 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 953.90' @ 20.23 hrs Surf.Area= 5,323 sf Storage= 7,982 cf

Plug-Flow detention time= 1,230.4 min calculated for 0.259 af (100% of inflow)
 Center-of-Mass det. time= 1,229.3 min (2,093.2 - 863.9)

Volume	Invert	Avail.Storage	Storage Description
#1	952.00'	30,994 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
952.00	3,137	0	0
953.00	4,241	3,689	3,689
954.00	5,446	4,844	8,533
955.00	6,751	6,099	14,631
956.00	8,156	7,454	22,085
957.00	9,663	8,910	30,994

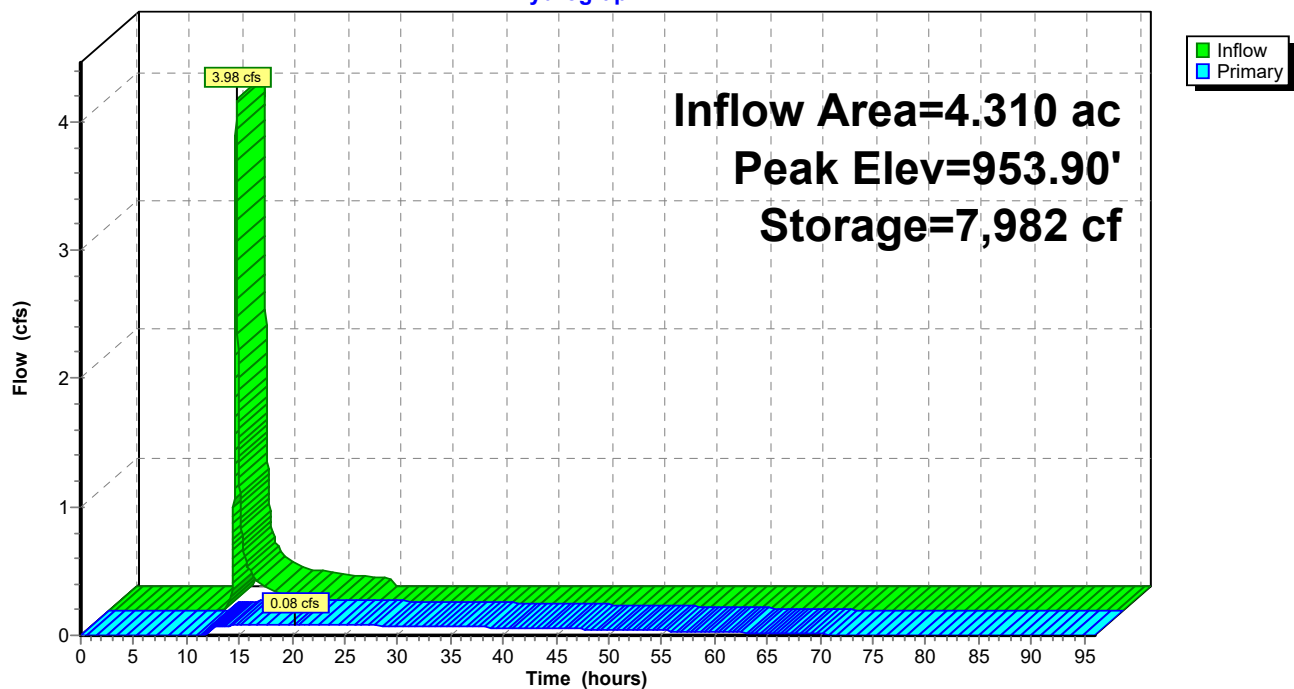
Device	Routing	Invert	Outlet Devices
#1	Primary	952.00'	12.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 952.00' / 951.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	952.00'	1.5" Vert. Orifice/Grate C= 0.600
#3	Primary	955.00'	24.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.08 cfs @ 20.23 hrs HW=953.90' (Free Discharge)

1=Culvert (Passes 0.08 cfs of 4.03 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.08 cfs @ 6.52 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 3P: Retention Pond NW

Hydrograph



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Type II 24-hr 1-Year Rainfall=2.17"

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Summary for Pond 10P: Retention Pond SW

Inflow Area = 5.800 ac, 38.00% Impervious, Inflow Depth = 0.81" for 1-Year event
 Inflow = 6.69 cfs @ 12.04 hrs, Volume= 0.393 af
 Outflow = 0.12 cfs @ 19.88 hrs, Volume= 0.226 af, Atten= 98%, Lag= 469.9 min
 Primary = 0.12 cfs @ 19.88 hrs, Volume= 0.226 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 954.65' @ 19.88 hrs Surf.Area= 8,702 sf Storage= 12,598 cf

Plug-Flow detention time= 892.6 min calculated for 0.226 af (57% of inflow)
 Center-of-Mass det. time= 765.6 min (1,620.8 - 855.2)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	49,908 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
953.00	6,620	0	0
954.00	7,843	7,232	7,232
955.00	9,167	8,505	15,737
956.00	10,598	9,883	25,619
957.00	12,118	11,358	36,977
958.00	13,744	12,931	49,908

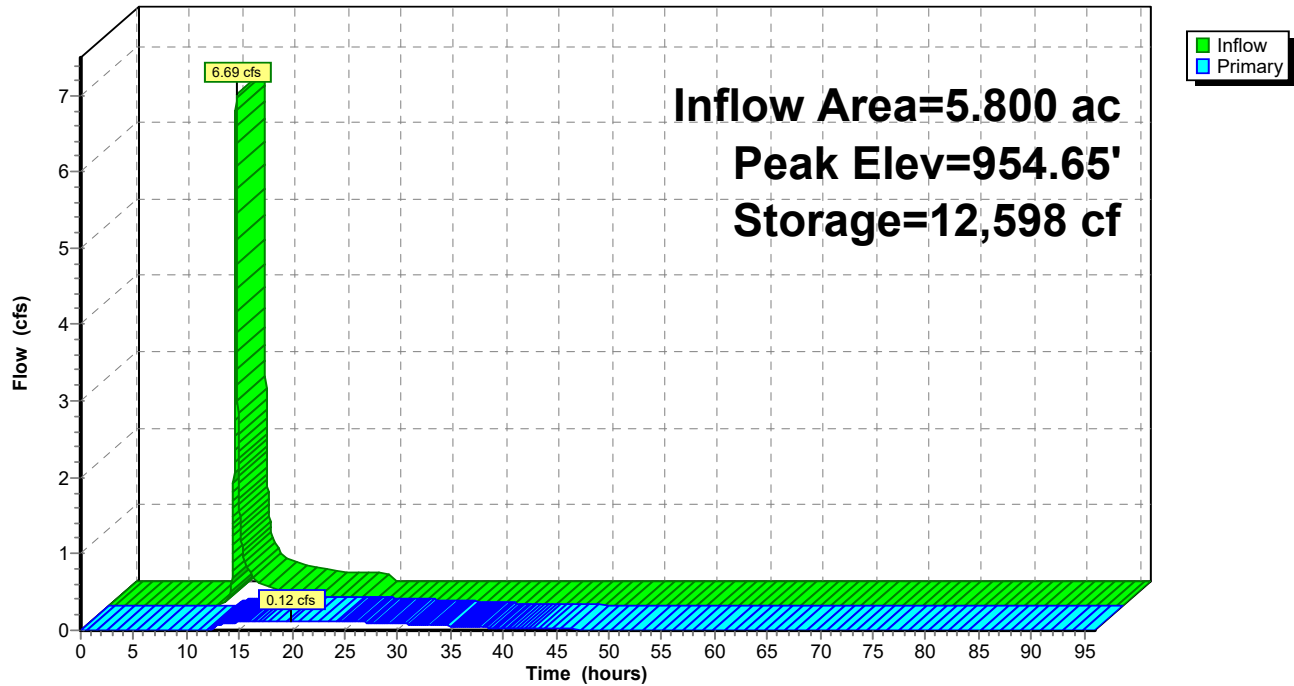
Device	Routing	Invert	Outlet Devices
#1	Primary	954.00'	12.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 954.00' / 953.50' S= 0.0100 ' / Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	954.00'	2.5" Vert. Orifice/Grate C= 0.600
#3	Primary	956.50'	24.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.12 cfs @ 19.88 hrs HW=954.65' (Free Discharge)

1=Culvert (Passes 0.12 cfs of 1.40 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.12 cfs @ 3.55 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 10P: Retention Pond SW

Hydrograph



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Type II 24-hr 1-Year Rainfall=2.17"

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Summary for Pond 13P: Retention Pond SE

Inflow Area = 8.970 ac, 24.61% Impervious, Inflow Depth = 0.67" for 1-Year event
 Inflow = 7.42 cfs @ 12.08 hrs, Volume= 0.500 af
 Outflow = 0.23 cfs @ 17.69 hrs, Volume= 0.494 af, Atten= 97%, Lag= 336.3 min
 Primary = 0.23 cfs @ 17.69 hrs, Volume= 0.494 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 959.07' @ 17.69 hrs Surf.Area= 13,888 sf Storage= 13,405 cf

Plug-Flow detention time= 811.1 min calculated for 0.494 af (99% of inflow)
 Center-of-Mass det. time= 805.2 min (1,675.4 - 870.2)

Volume	Invert	Avail.Storage	Storage Description
#1	958.00'	38,742 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	958.00'	27,604 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		66,346 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	6,743	0	0
959.00	8,123	7,433	7,433
960.00	9,608	8,866	16,299
961.00	11,197	10,403	26,701
962.00	12,885	12,041	38,742

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	4,423	0	0
959.00	5,571	4,997	4,997
960.00	6,823	6,197	11,194
961.00	8,179	7,501	18,695
962.00	9,639	8,909	27,604

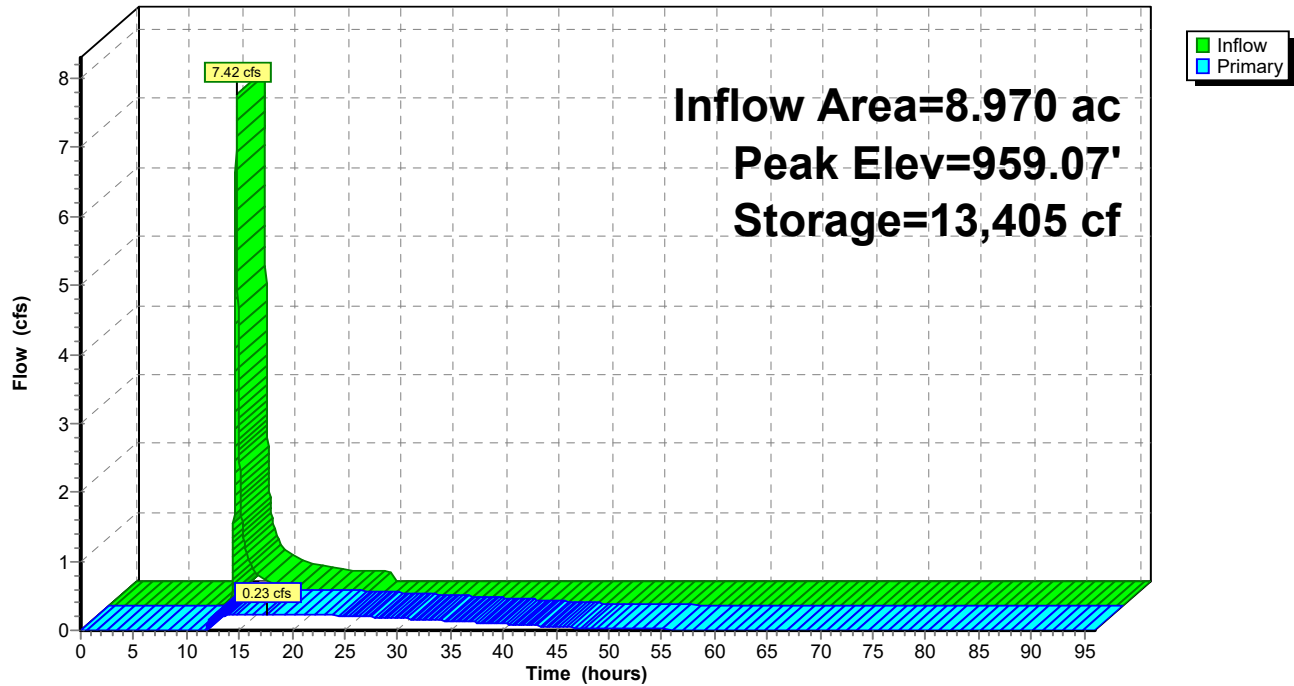
Device	Routing	Invert	Outlet Devices
#1	Primary	958.00'	12.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 958.00' / 957.00' S= 0.0100' /' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	958.00'	3.0" Vert. Orifice/Grate C= 0.600
#3	Primary	961.00'	36.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.23 cfs @ 17.69 hrs HW=959.07' (Free Discharge)

1=Culvert (Passes 0.23 cfs of 2.86 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.23 cfs @ 4.68 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 13P: Retention Pond SE

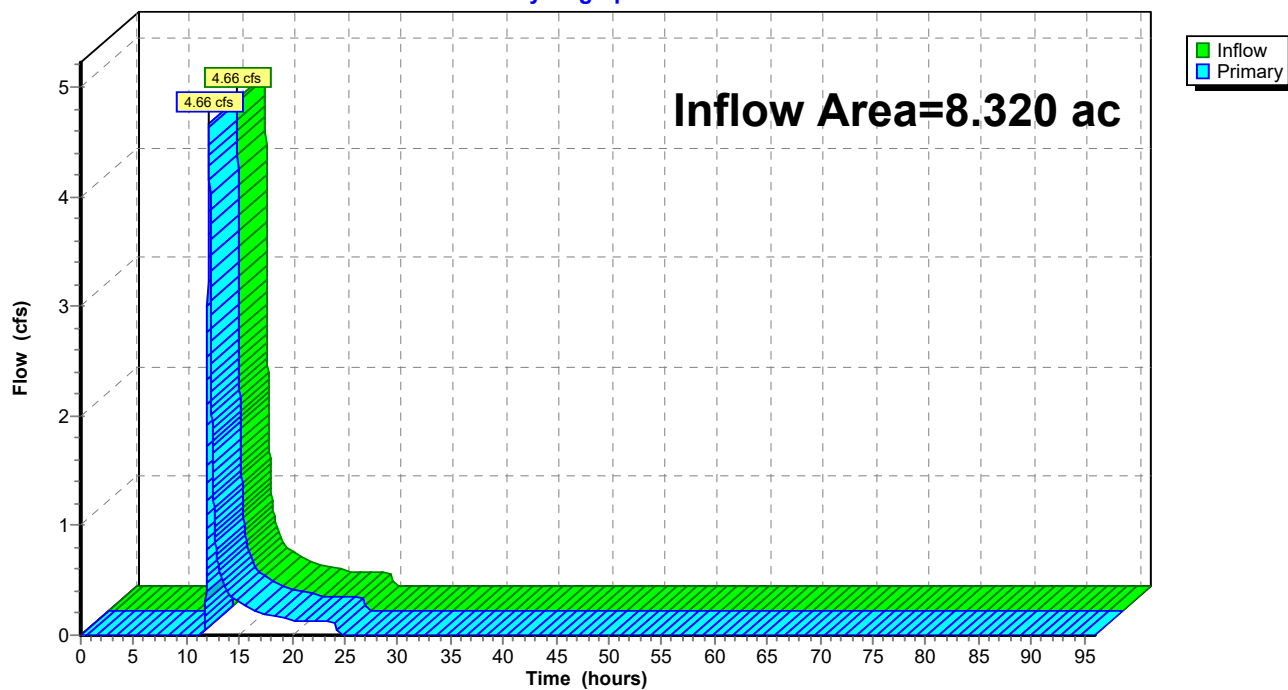
Hydrograph



Summary for Link 15L: Link

Inflow Area = 8.320 ac, 1.92% Impervious, Inflow Depth = 0.55" for 1-Year event
Inflow = 4.66 cfs @ 12.14 hrs, Volume= 0.384 af
Primary = 4.66 cfs @ 12.14 hrs, Volume= 0.384 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 15L: Link**Hydrograph**

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Type II 24-hr 2-Year Rainfall=2.70"

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Summary for Subcatchment 1S: PreDeveloped NW

Runoff = 3.24 cfs @ 12.11 hrs, Volume= 0.237 af, Depth= 0.92"

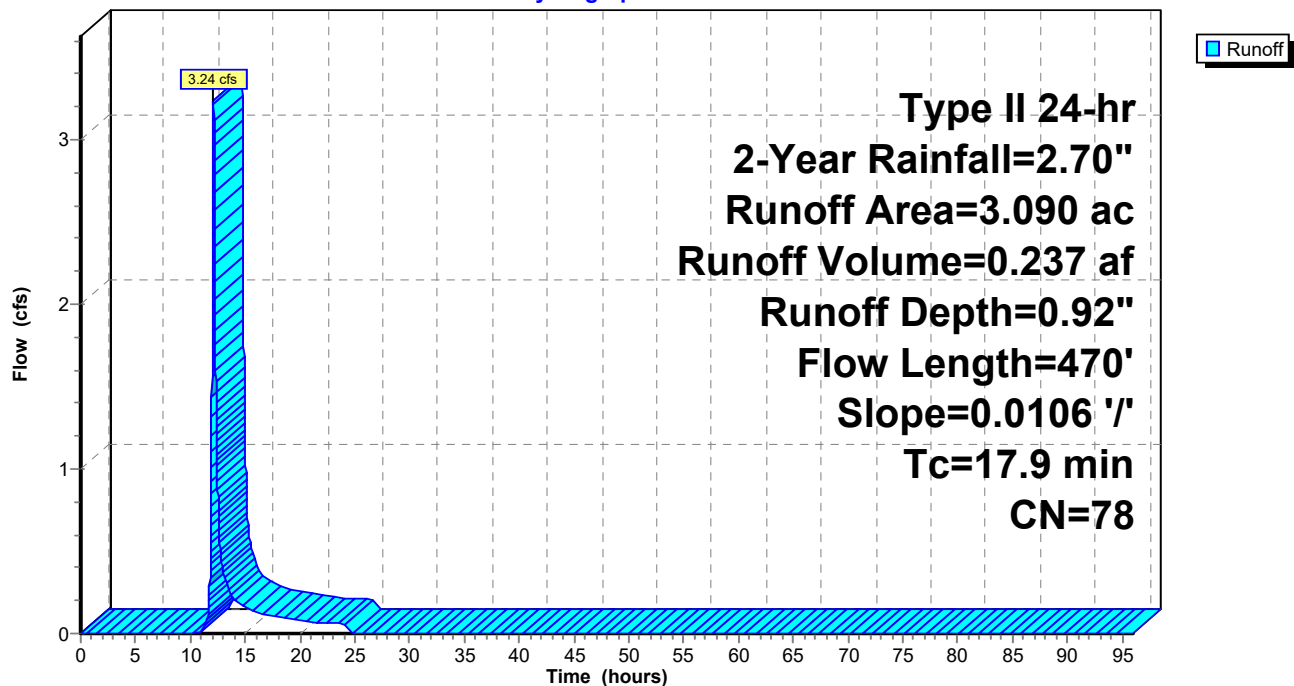
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.70"

Area (ac)	CN	Description
0.210	98	Roofs, HSG C
* 2.880	77	>75% Grass cover, Good, HSG D
3.090	78	Weighted Average
2.880		93.20% Pervious Area
0.210		6.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 1S: PreDeveloped NW

Hydrograph



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Type II 24-hr 2-Year Rainfall=2.70"

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Summary for Subcatchment 2S: Developed NW

Runoff = 4.56 cfs @ 12.08 hrs, Volume= 0.295 af, Depth= 1.15"

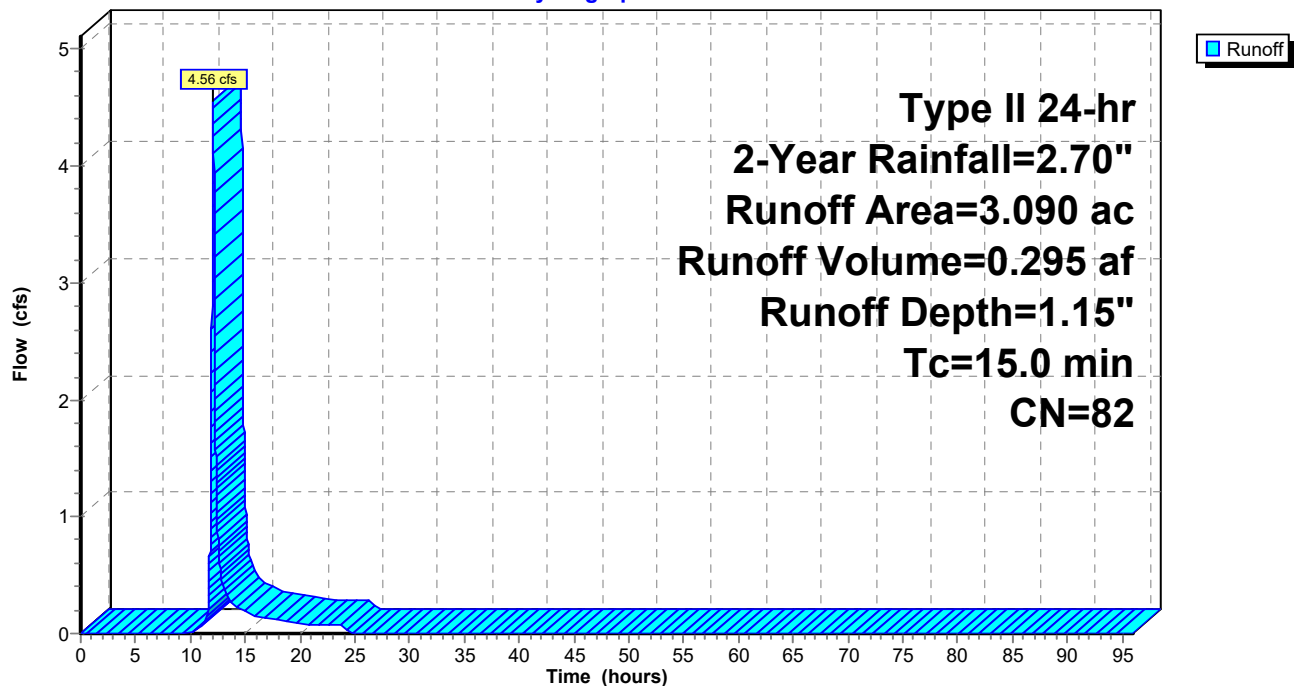
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.70"

Area (ac)	CN	Description
2.900	83	1/4 acre lots, 38% imp, HSG C
0.190	74	>75% Grass cover, Good, HSG C
3.090	82	Weighted Average
1.988		64.34% Pervious Area
1.102		35.66% Impervious Area

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

Subcatchment 2S: Developed NW

Hydrograph



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Type II 24-hr 2-Year Rainfall=2.70"

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Summary for Subcatchment 4S: Offsite

Runoff = 1.81 cfs @ 12.02 hrs, Volume= 0.099 af, Depth= 0.97"

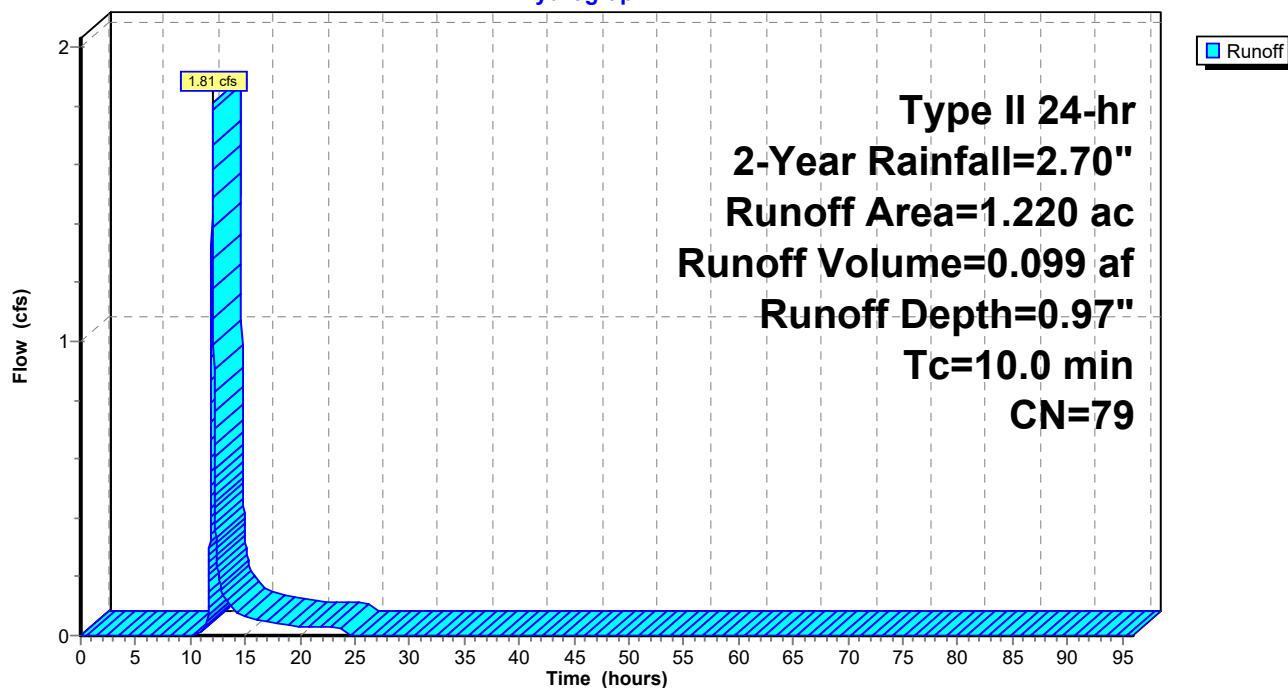
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.70"

Area (ac)	CN	Description
0.120	98	Roofs, HSG C
* 1.100	77	>75% Grass cover, Good, HSG D
1.220	79	Weighted Average
1.100		90.16% Pervious Area
0.120		9.84% Impervious Area

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

Subcatchment 4S: Offsite

Hydrograph



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Type II 24-hr 2-Year Rainfall=2.70"

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Summary for Subcatchment 8S: PreDeveloped SW

Runoff = 6.02 cfs @ 12.11 hrs, Volume= 0.440 af, Depth= 0.92"

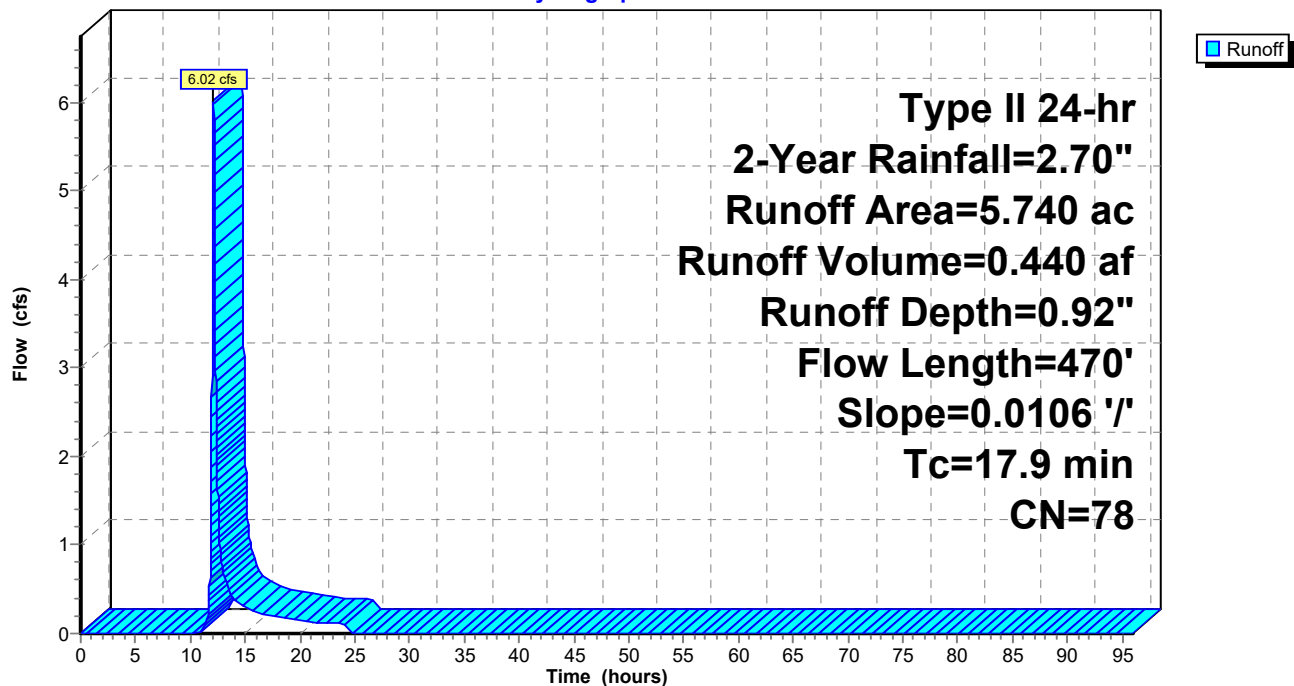
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.70"

Area (ac)	CN	Description
0.170	98	Roofs, HSG C
* 5.570	77	>75% Grass cover, Good, HSG D
5.740	78	Weighted Average
5.570		97.04% Pervious Area
0.170		2.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 8S: PreDeveloped SW

Hydrograph



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Type II 24-hr 2-Year Rainfall=2.70"

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Summary for Subcatchment 9S: Developed SW

Runoff = 10.06 cfs @ 12.04 hrs, Volume= 0.584 af, Depth= 1.21"

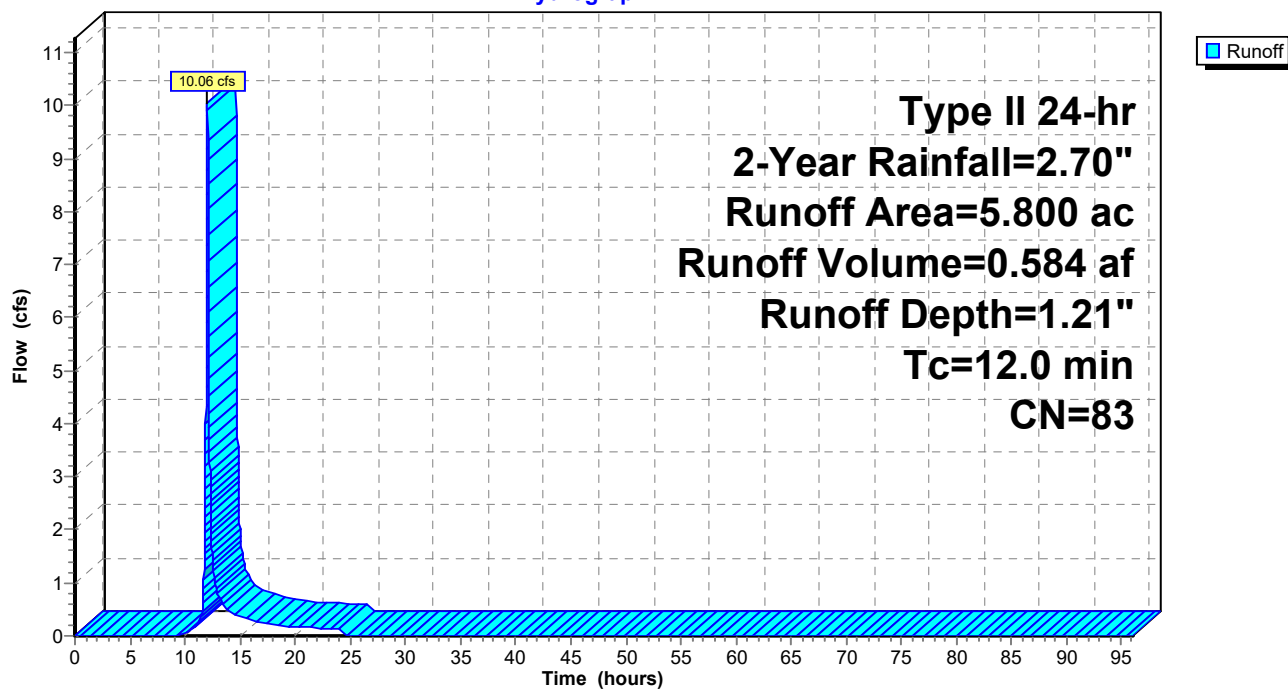
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.70"

Area (ac)	CN	Description
5.800	83	1/4 acre lots, 38% imp, HSG C
3.596		62.00% Pervious Area
2.204		38.00% Impervious Area

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

Subcatchment 9S: Developed SW

Hydrograph



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Type II 24-hr 2-Year Rainfall=2.70"

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Summary for Subcatchment 11S: PreDeveloped NE

Runoff = 2.63 cfs @ 12.11 hrs, Volume= 0.193 af, Depth= 0.92"

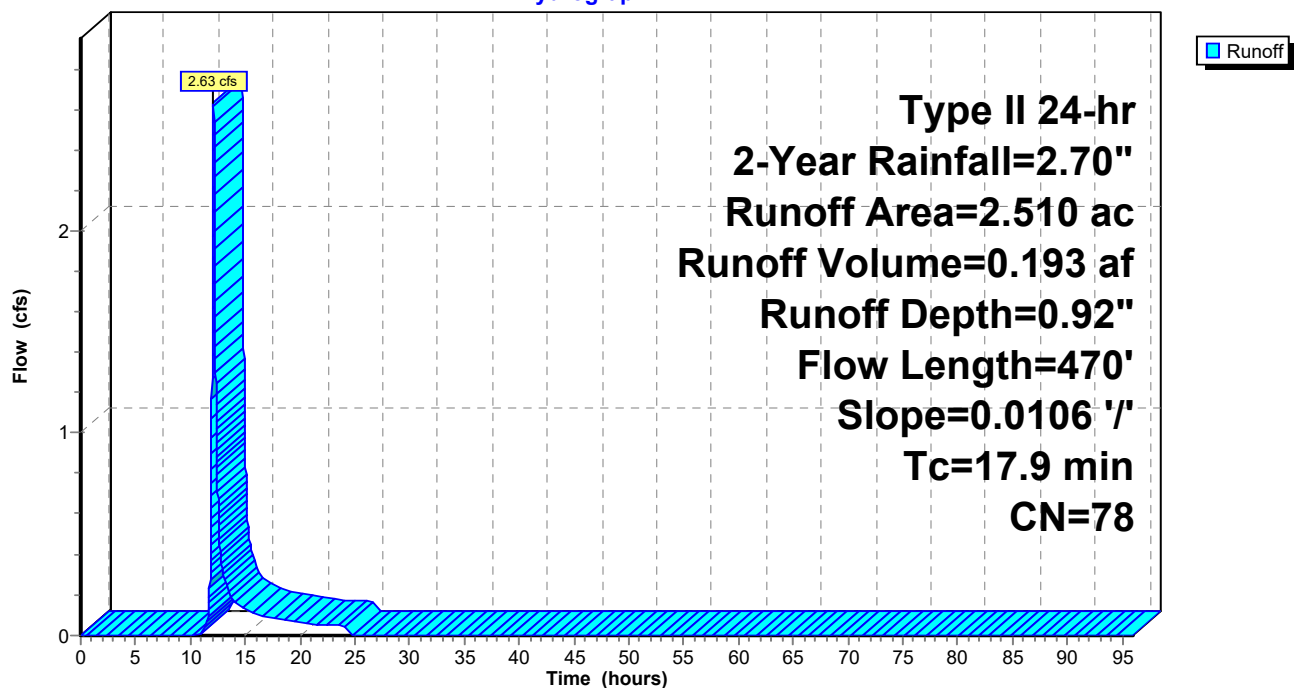
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.70"

Area (ac)	CN	Description
0.090	98	Roofs, HSG C
* 2.420	77	>75% Grass cover, Good, HSG D
2.510	78	Weighted Average
2.420		96.41% Pervious Area
0.090		3.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 11S: PreDeveloped NE

Hydrograph



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Type II 24-hr 2-Year Rainfall=2.70"

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Summary for Subcatchment 12S: Developed SE

Runoff = 11.78 cfs @ 12.08 hrs, Volume= 0.770 af, Depth= 1.03"

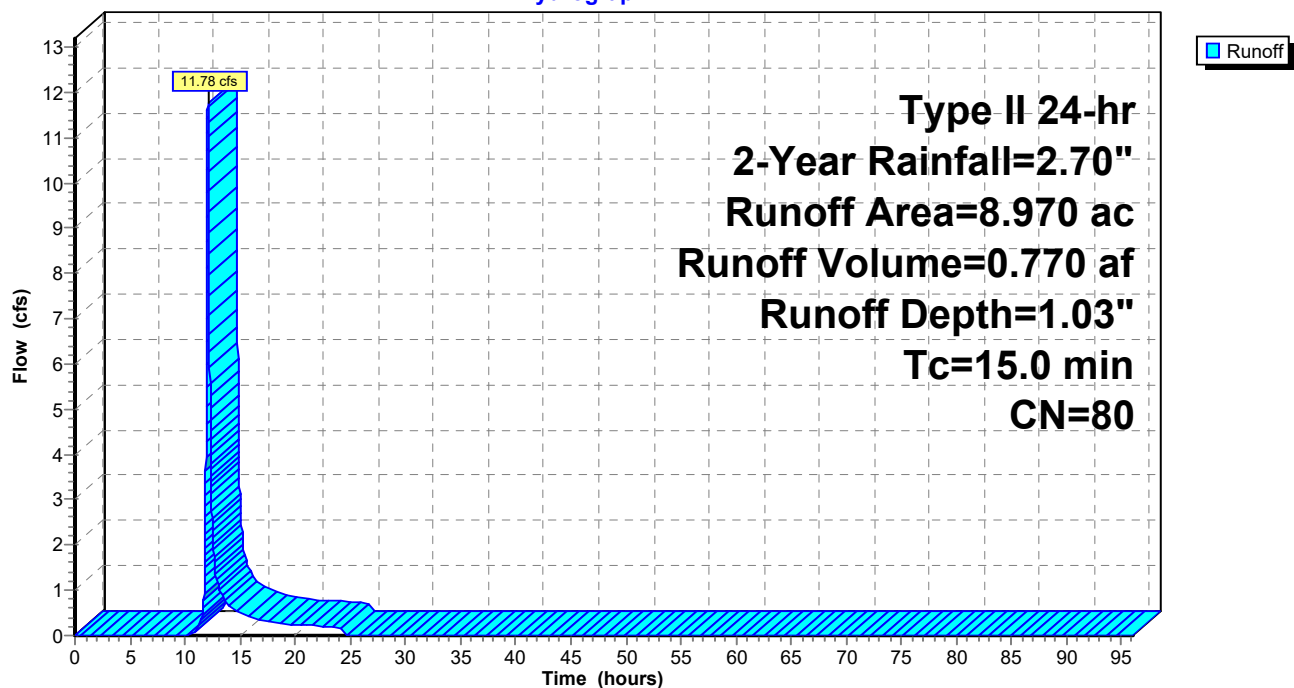
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.70"

Area (ac)	CN	Description
3.160	74	>75% Grass cover, Good, HSG C
5.810	83	1/4 acre lots, 38% imp, HSG C
8.970	80	Weighted Average
6.762		75.39% Pervious Area
2.208		24.61% Impervious Area

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

Subcatchment 12S: Developed SE

Hydrograph



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Type II 24-hr 2-Year Rainfall=2.70"

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Summary for Subcatchment 14S: PreDeveloped SE

Runoff = 5.31 cfs @ 12.14 hrs, Volume= 0.421 af, Depth= 0.87"

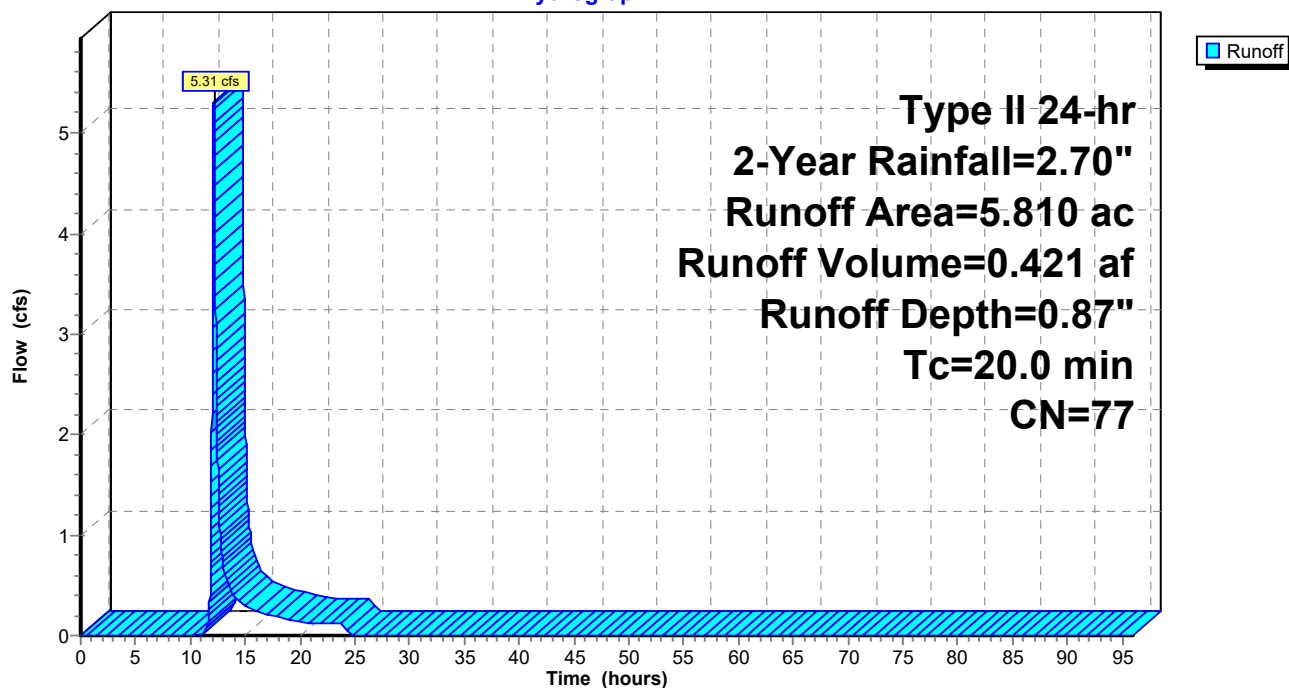
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Year Rainfall=2.70"

Area (ac)	CN	Description
0.070	98	Roofs, HSG C
* 5.740	77	>75% Grass cover, Good, HSG D
5.810	77	Weighted Average
5.740		98.80% Pervious Area
0.070		1.20% Impervious Area

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

Subcatchment 14S: PreDeveloped SE

Hydrograph



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Type II 24-hr 2-Year Rainfall=2.70"

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Summary for Pond 3P: Retention Pond NW

Inflow Area = 4.310 ac, 28.35% Impervious, Inflow Depth = 1.10" for 2-Year event
 Inflow = 6.19 cfs @ 12.05 hrs, Volume= 0.394 af
 Outflow = 0.10 cfs @ 23.86 hrs, Volume= 0.392 af, Atten= 98%, Lag= 708.1 min
 Primary = 0.10 cfs @ 23.86 hrs, Volume= 0.392 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 954.75' @ 23.86 hrs Surf.Area= 6,429 sf Storage= 13,004 cf

Plug-Flow detention time= 1,572.5 min calculated for 0.392 af (99% of inflow)
 Center-of-Mass det. time= 1,568.9 min (2,420.3 - 851.4)

Volume	Invert	Avail.Storage	Storage Description
#1	952.00'	30,994 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
952.00	3,137	0	0
953.00	4,241	3,689	3,689
954.00	5,446	4,844	8,533
955.00	6,751	6,099	14,631
956.00	8,156	7,454	22,085
957.00	9,663	8,910	30,994

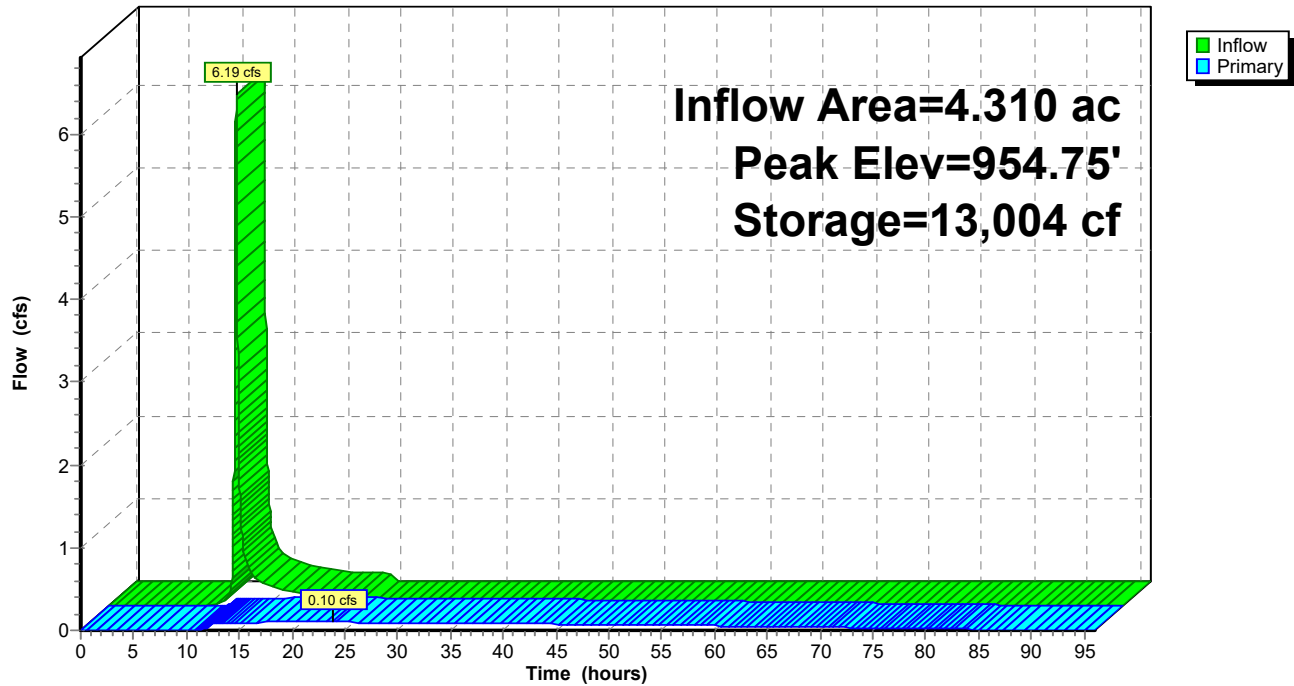
Device	Routing	Invert	Outlet Devices
#1	Primary	952.00'	12.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 952.00' / 951.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	952.00'	1.5" Vert. Orifice/Grate C= 0.600
#3	Primary	955.00'	24.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.10 cfs @ 23.86 hrs HW=954.75' (Free Discharge)

1=Culvert (Passes 0.10 cfs of 4.86 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.10 cfs @ 7.90 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 3P: Retention Pond NW

Hydrograph



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Type II 24-hr 2-Year Rainfall=2.70"

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Summary for Pond 10P: Retention Pond SW

Inflow Area = 5.800 ac, 38.00% Impervious, Inflow Depth = 1.21" for 2-Year event
 Inflow = 10.06 cfs @ 12.04 hrs, Volume= 0.584 af
 Outflow = 0.18 cfs @ 19.41 hrs, Volume= 0.416 af, Atten= 98%, Lag= 442.3 min
 Primary = 0.18 cfs @ 19.41 hrs, Volume= 0.416 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 955.30' @ 19.41 hrs Surf.Area= 9,590 sf Storage= 18,509 cf

Plug-Flow detention time= 1,009.3 min calculated for 0.416 af (71% of inflow)
 Center-of-Mass det. time= 904.4 min (1,747.9 - 843.5)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	49,908 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
953.00	6,620	0	0
954.00	7,843	7,232	7,232
955.00	9,167	8,505	15,737
956.00	10,598	9,883	25,619
957.00	12,118	11,358	36,977
958.00	13,744	12,931	49,908

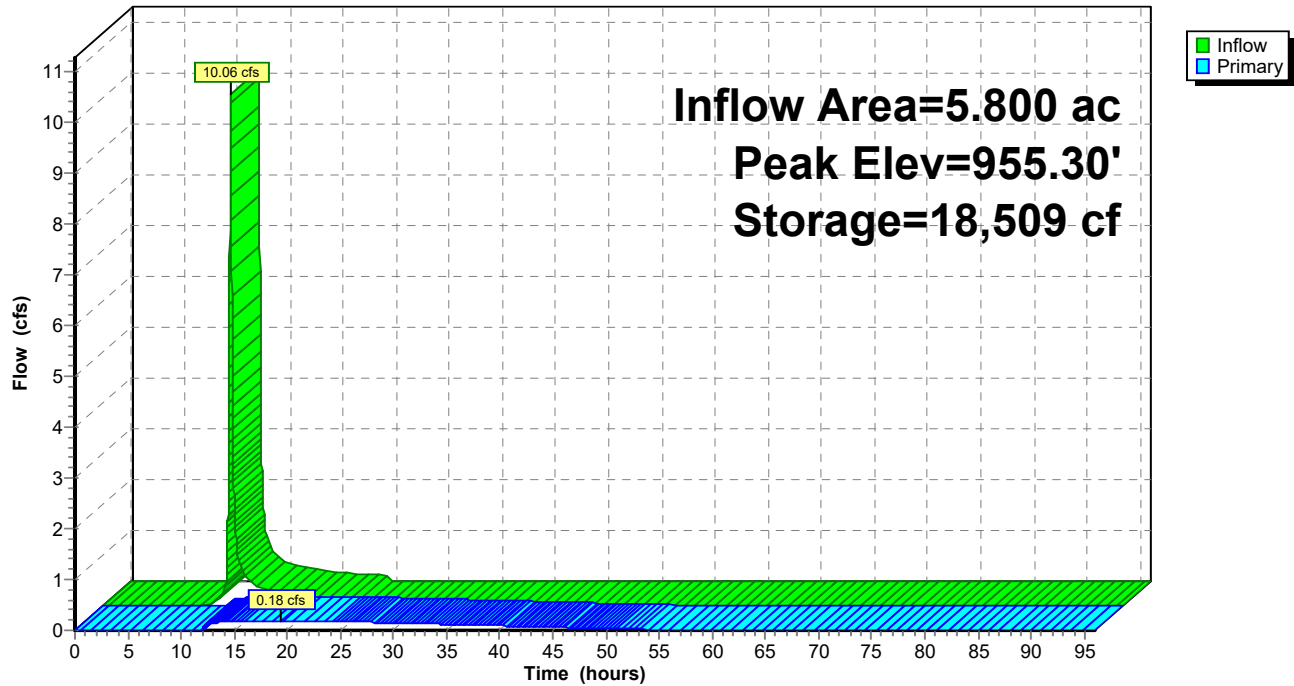
Device	Routing	Invert	Outlet Devices
#1	Primary	954.00'	12.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 954.00' / 953.50' S= 0.0100 ' / ' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	954.00'	2.5" Vert. Orifice/Grate C= 0.600
#3	Primary	956.50'	24.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.18 cfs @ 19.41 hrs HW=955.30' (Free Discharge)

1=Culvert (Passes 0.18 cfs of 3.35 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.18 cfs @ 5.26 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 10P: Retention Pond SW

Hydrograph



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Type II 24-hr 2-Year Rainfall=2.70"

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Summary for Pond 13P: Retention Pond SE

Inflow Area = 8.970 ac, 24.61% Impervious, Inflow Depth = 1.03" for 2-Year event
 Inflow = 11.78 cfs @ 12.08 hrs, Volume= 0.770 af
 Outflow = 0.29 cfs @ 18.46 hrs, Volume= 0.763 af, Atten= 98%, Lag= 382.6 min
 Primary = 0.29 cfs @ 18.46 hrs, Volume= 0.763 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 959.68' @ 18.46 hrs Surf.Area= 15,544 sf Storage= 22,309 cf

Plug-Flow detention time= 987.1 min calculated for 0.763 af (99% of inflow)
 Center-of-Mass det. time= 982.0 min (1,838.9 - 856.9)

Volume	Invert	Avail.Storage	Storage Description
#1	958.00'	38,742 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	958.00'	27,604 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		66,346 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	6,743	0	0
959.00	8,123	7,433	7,433
960.00	9,608	8,866	16,299
961.00	11,197	10,403	26,701
962.00	12,885	12,041	38,742

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	4,423	0	0
959.00	5,571	4,997	4,997
960.00	6,823	6,197	11,194
961.00	8,179	7,501	18,695
962.00	9,639	8,909	27,604

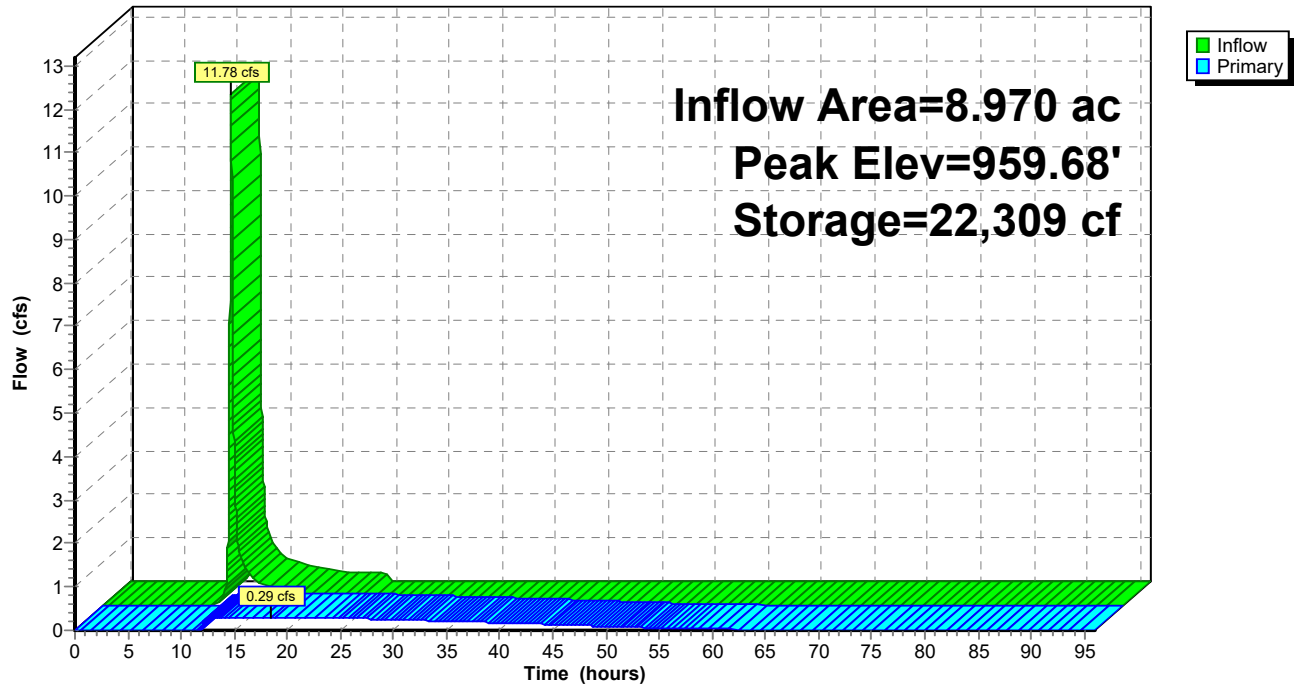
Device	Routing	Invert	Outlet Devices
#1	Primary	958.00'	12.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 958.00' / 957.00' S= 0.0100' /' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	958.00'	3.0" Vert. Orifice/Grate C= 0.600
#3	Primary	961.00'	36.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.29 cfs @ 18.46 hrs HW=959.68' (Free Discharge)

1=Culvert (Passes 0.29 cfs of 3.79 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.29 cfs @ 6.00 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 13P: Retention Pond SE

Hydrograph



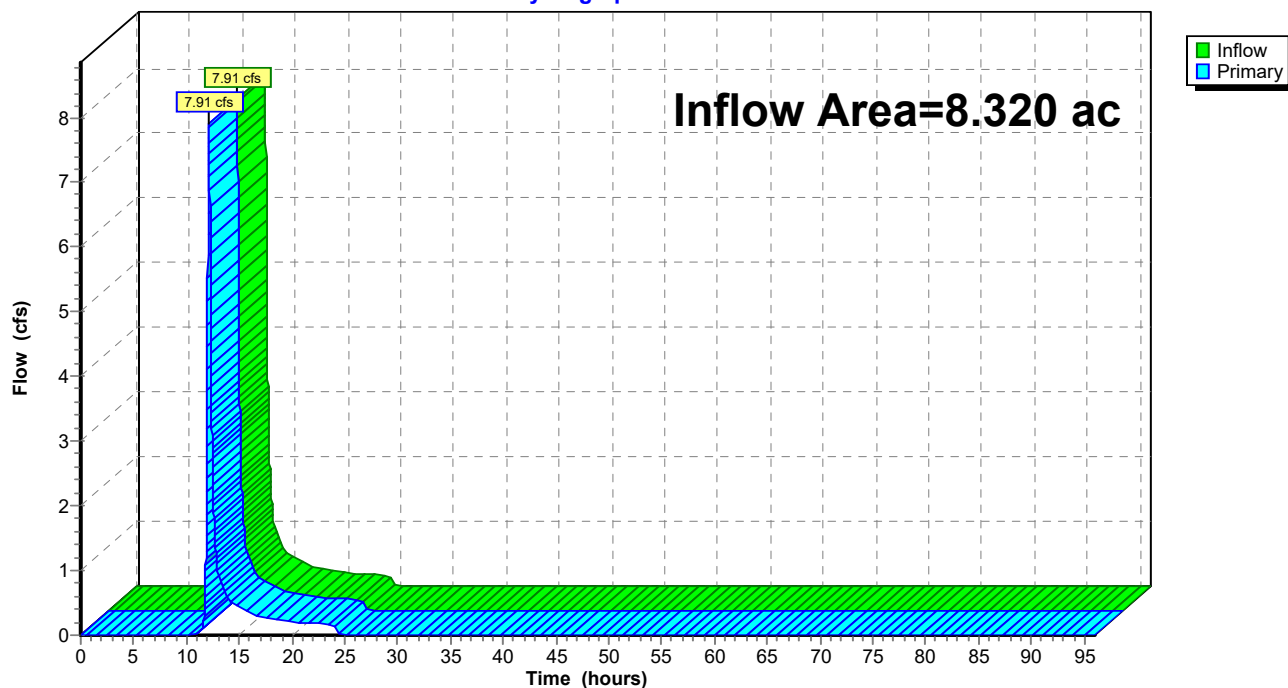
Summary for Link 15L: Link

Inflow Area = 8.320 ac, 1.92% Impervious, Inflow Depth = 0.88" for 2-Year event
Inflow = 7.91 cfs @ 12.13 hrs, Volume= 0.613 af
Primary = 7.91 cfs @ 12.13 hrs, Volume= 0.613 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 15L: Link

Hydrograph



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Type II 24-hr 5-Year Rainfall=3.35"

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Summary for Subcatchment 1S: PreDeveloped NW

Runoff = 5.00 cfs @ 12.11 hrs, Volume= 0.356 af, Depth= 1.38"

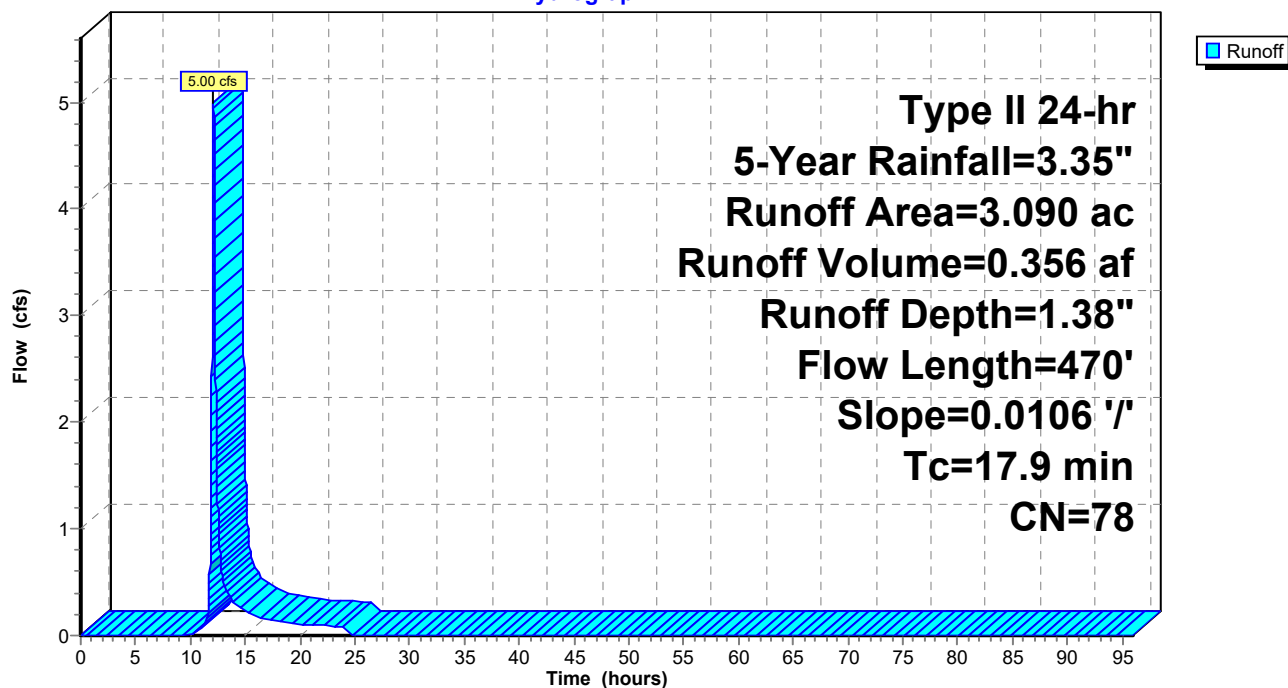
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=3.35"

Area (ac)	CN	Description
0.210	98	Roofs, HSG C
* 2.880	77	>75% Grass cover, Good, HSG D
3.090	78	Weighted Average
2.880		93.20% Pervious Area
0.210		6.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 1S: PreDeveloped NW

Hydrograph



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Type II 24-hr 5-Year Rainfall=3.35"

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Summary for Subcatchment 2S: Developed NW

Runoff = 6.64 cfs @ 12.07 hrs, Volume= 0.427 af, Depth= 1.66"

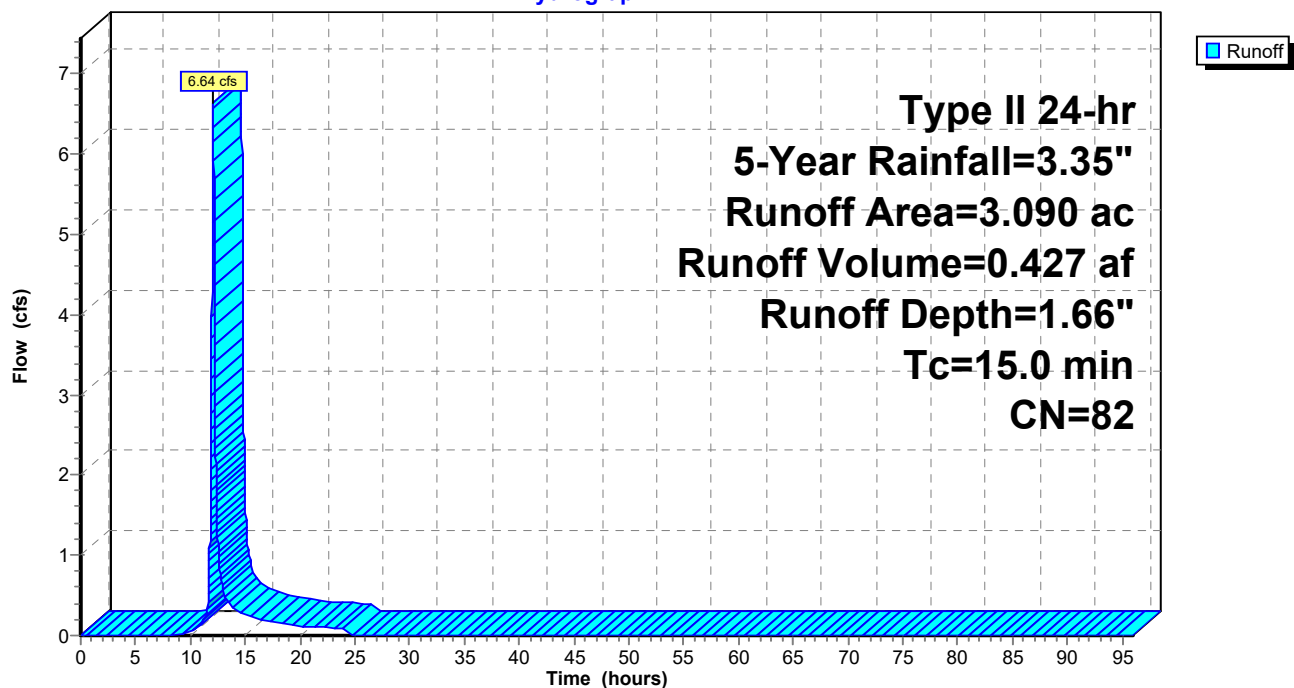
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=3.35"

Area (ac)	CN	Description
2.900	83	1/4 acre lots, 38% imp, HSG C
0.190	74	>75% Grass cover, Good, HSG C
3.090	82	Weighted Average
1.988		64.34% Pervious Area
1.102		35.66% Impervious Area

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

Subcatchment 2S: Developed NW

Hydrograph



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Type II 24-hr 5-Year Rainfall=3.35"

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Summary for Subcatchment 4S: Offsite

Runoff = 2.73 cfs @ 12.02 hrs, Volume= 0.147 af, Depth= 1.45"

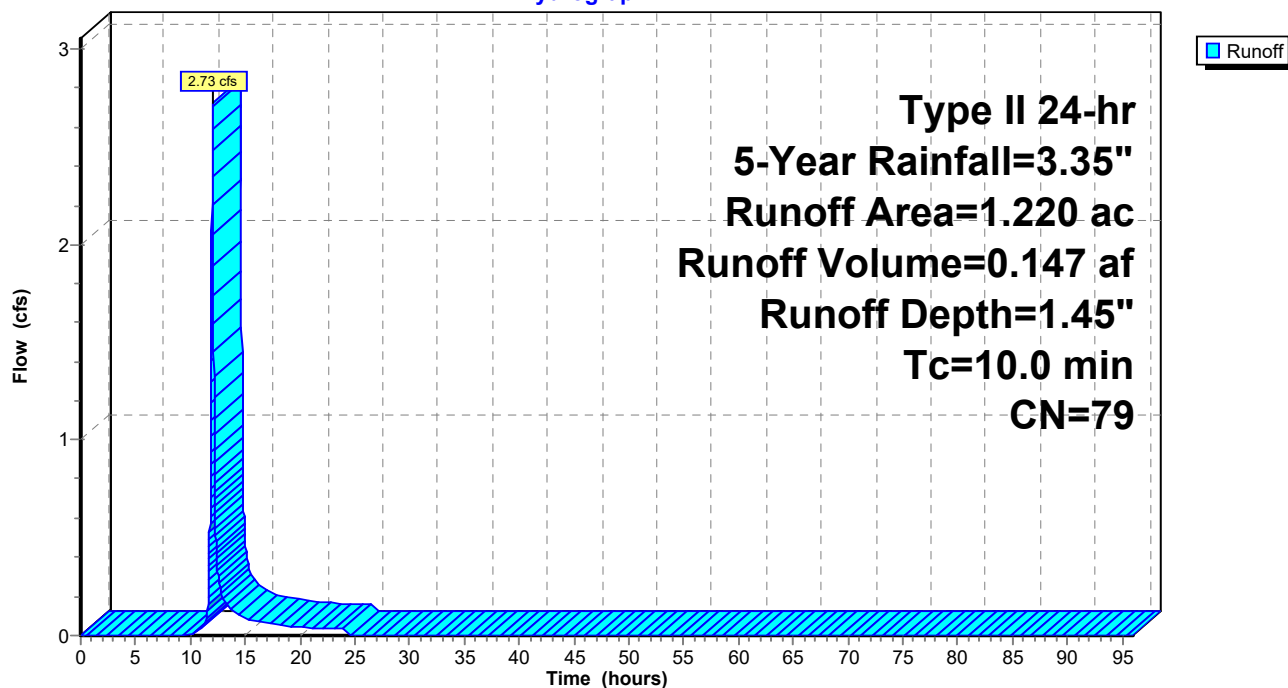
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=3.35"

Area (ac)	CN	Description
0.120	98	Roofs, HSG C
* 1.100	77	>75% Grass cover, Good, HSG D
1.220	79	Weighted Average
1.100		90.16% Pervious Area
0.120		9.84% Impervious Area

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

Subcatchment 4S: Offsite

Hydrograph



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Type II 24-hr 5-Year Rainfall=3.35"

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Summary for Subcatchment 8S: PreDeveloped SW

Runoff = 9.29 cfs @ 12.11 hrs, Volume= 0.662 af, Depth= 1.38"

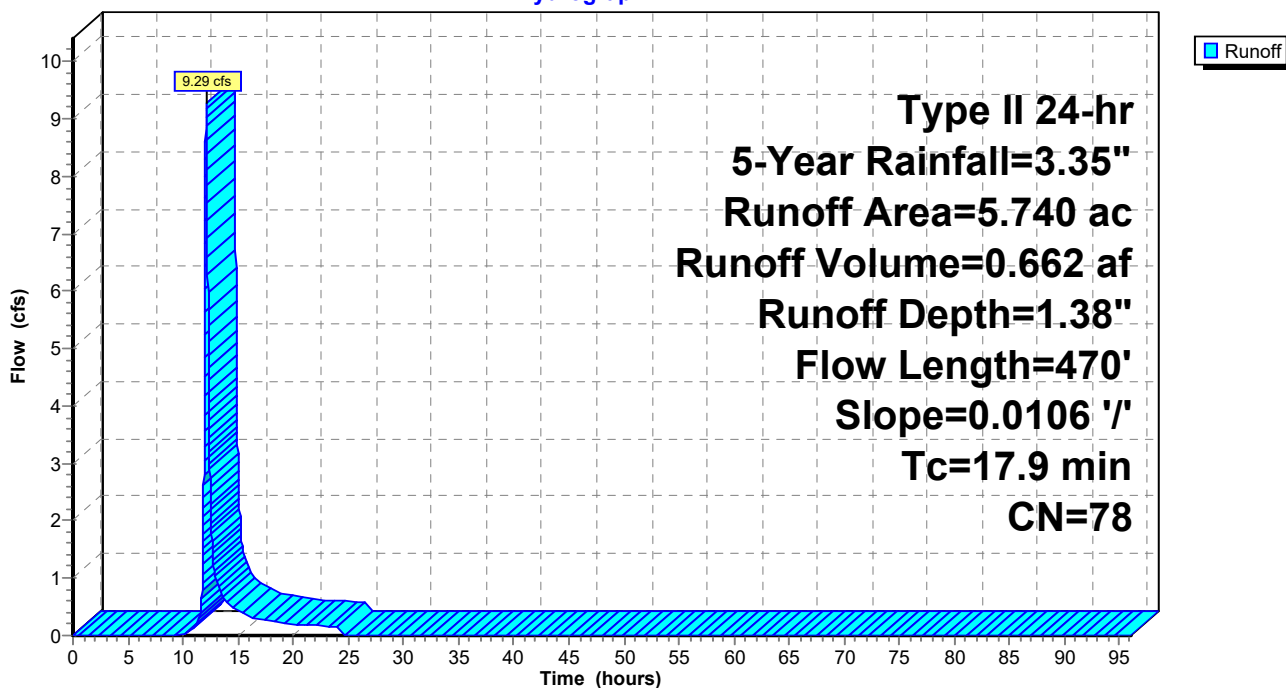
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=3.35"

Area (ac)	CN	Description
0.170	98	Roofs, HSG C
* 5.570	77	>75% Grass cover, Good, HSG D
5.740	78	Weighted Average
5.570		97.04% Pervious Area
0.170		2.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 8S: PreDeveloped SW

Hydrograph



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Type II 24-hr 5-Year Rainfall=3.35"

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Summary for Subcatchment 9S: Developed SW

Runoff = 14.44 cfs @ 12.04 hrs, Volume= 0.838 af, Depth= 1.73"

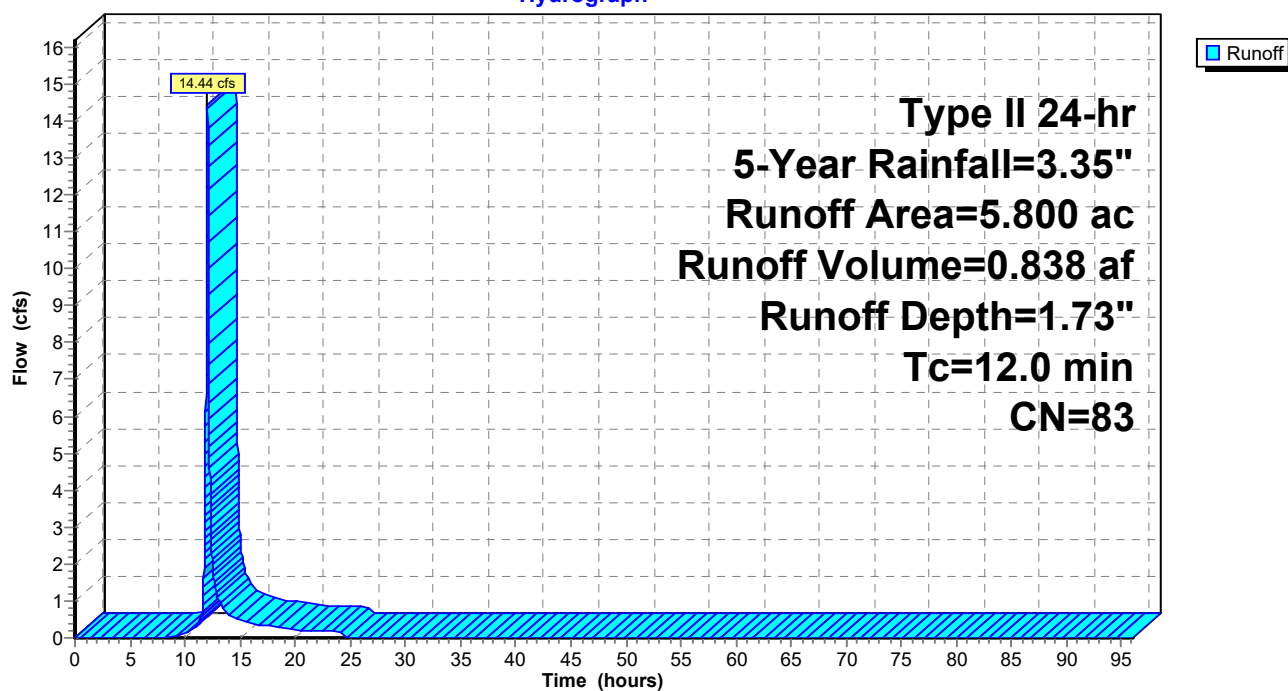
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=3.35"

Area (ac)	CN	Description
5.800	83	1/4 acre lots, 38% imp, HSG C
3.596		62.00% Pervious Area
2.204		38.00% Impervious Area

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

Subcatchment 9S: Developed SW

Hydrograph



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Type II 24-hr 5-Year Rainfall=3.35"

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Summary for Subcatchment 11S: PreDeveloped NE

Runoff = 4.06 cfs @ 12.11 hrs, Volume= 0.290 af, Depth= 1.38"

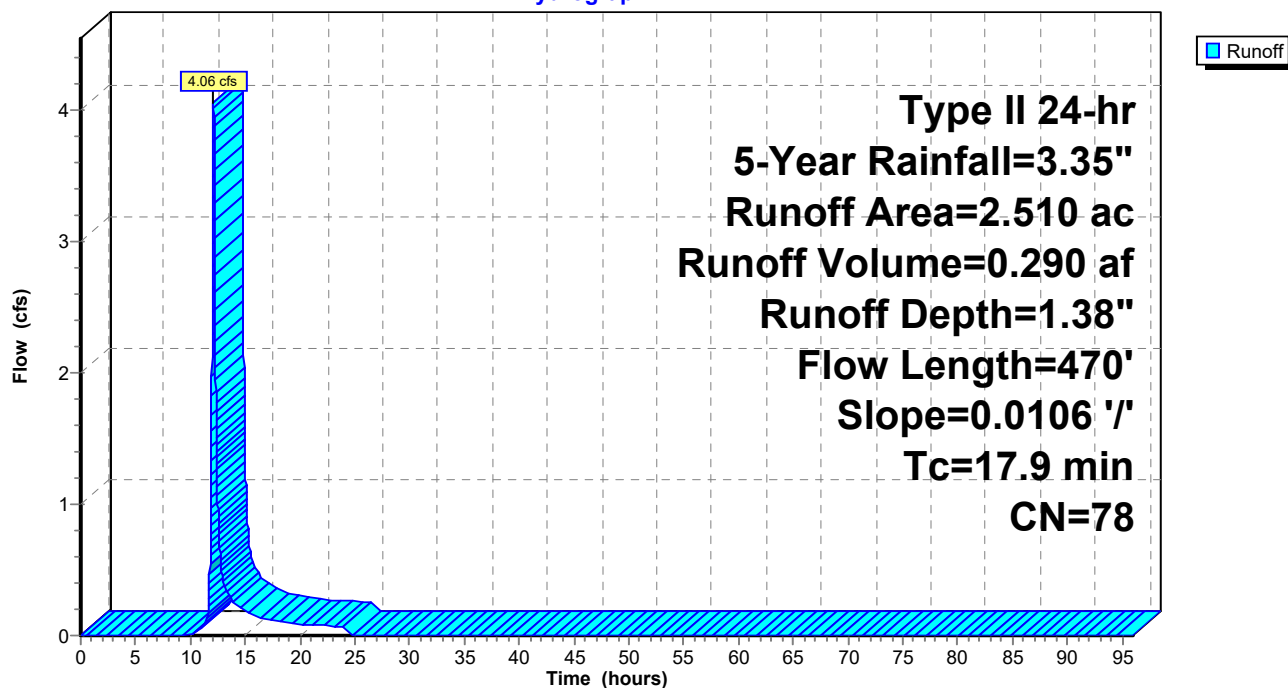
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=3.35"

Area (ac)	CN	Description
0.090	98	Roofs, HSG C
* 2.420	77	>75% Grass cover, Good, HSG D
2.510	78	Weighted Average
2.420		96.41% Pervious Area
0.090		3.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 11S: PreDeveloped NE

Hydrograph



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Type II 24-hr 5-Year Rainfall=3.35"

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Summary for Subcatchment 12S: Developed SE

Runoff = 17.60 cfs @ 12.08 hrs, Volume= 1.135 af, Depth= 1.52"

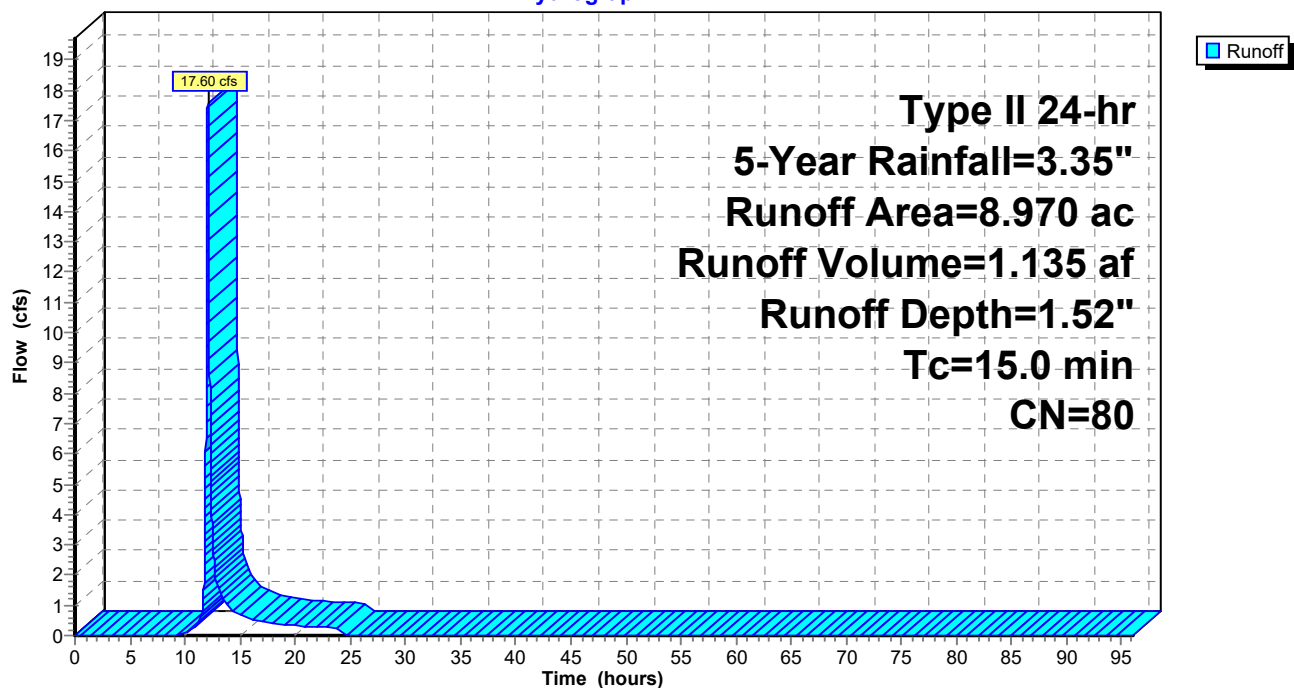
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=3.35"

Area (ac)	CN	Description
3.160	74	>75% Grass cover, Good, HSG C
5.810	83	1/4 acre lots, 38% imp, HSG C
8.970	80	Weighted Average
6.762		75.39% Pervious Area
2.208		24.61% Impervious Area

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

Subcatchment 12S: Developed SE

Hydrograph



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Type II 24-hr 5-Year Rainfall=3.35"

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Summary for Subcatchment 14S: PreDeveloped SE

Runoff = 8.34 cfs @ 12.13 hrs, Volume= 0.639 af, Depth= 1.32"

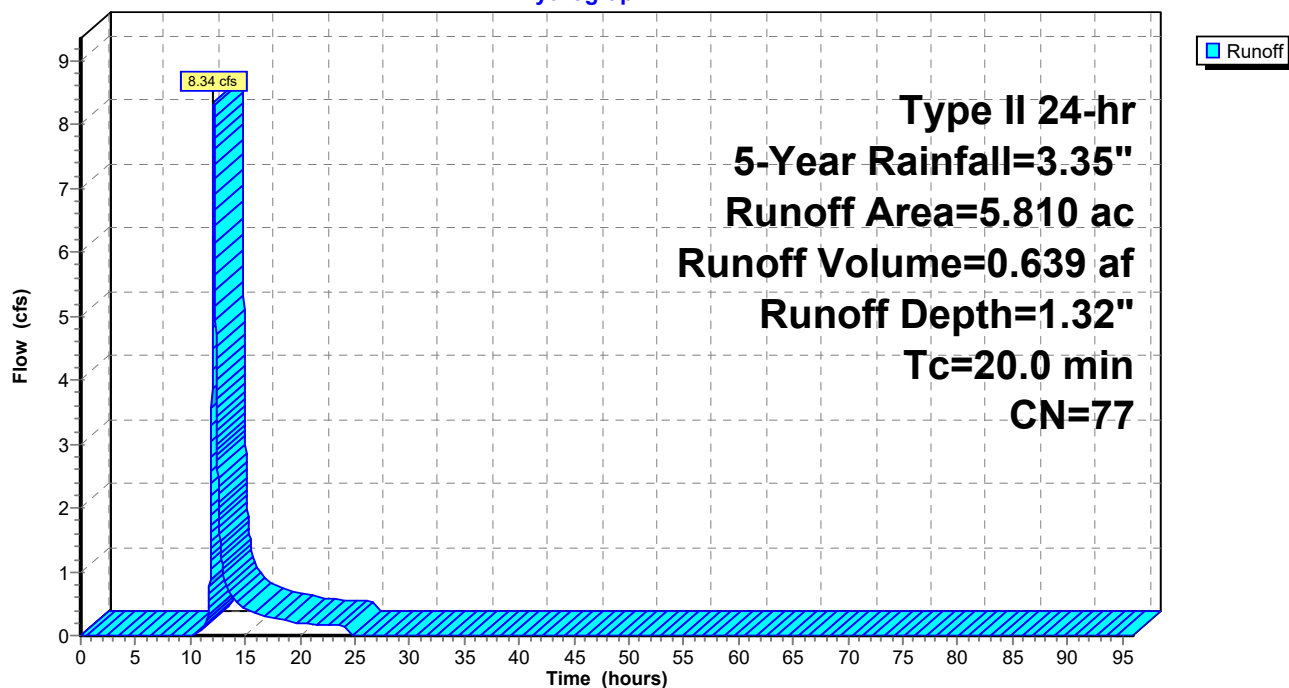
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-Year Rainfall=3.35"

Area (ac)	CN	Description
0.070	98	Roofs, HSG C
* 5.740	77	>75% Grass cover, Good, HSG D
5.810	77	Weighted Average
5.740		98.80% Pervious Area
0.070		1.20% Impervious Area

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

Subcatchment 14S: PreDeveloped SE

Hydrograph



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Type II 24-hr 5-Year Rainfall=3.35"

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Summary for Pond 3P: Retention Pond NW

Inflow Area = 4.310 ac, 28.35% Impervious, Inflow Depth = 1.60" for 5-Year event
 Inflow = 9.11 cfs @ 12.05 hrs, Volume= 0.575 af
 Outflow = 0.45 cfs @ 13.96 hrs, Volume= 0.571 af, Atten= 95%, Lag= 114.4 min
 Primary = 0.45 cfs @ 13.96 hrs, Volume= 0.571 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 955.14' @ 13.96 hrs Surf.Area= 6,953 sf Storage= 15,614 cf

Plug-Flow detention time= 1,322.6 min calculated for 0.571 af (99% of inflow)
 Center-of-Mass det. time= 1,318.9 min (2,159.3 - 840.4)

Volume	Invert	Avail.Storage	Storage Description
#1	952.00'	30,994 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
952.00	3,137	0	0
953.00	4,241	3,689	3,689
954.00	5,446	4,844	8,533
955.00	6,751	6,099	14,631
956.00	8,156	7,454	22,085
957.00	9,663	8,910	30,994

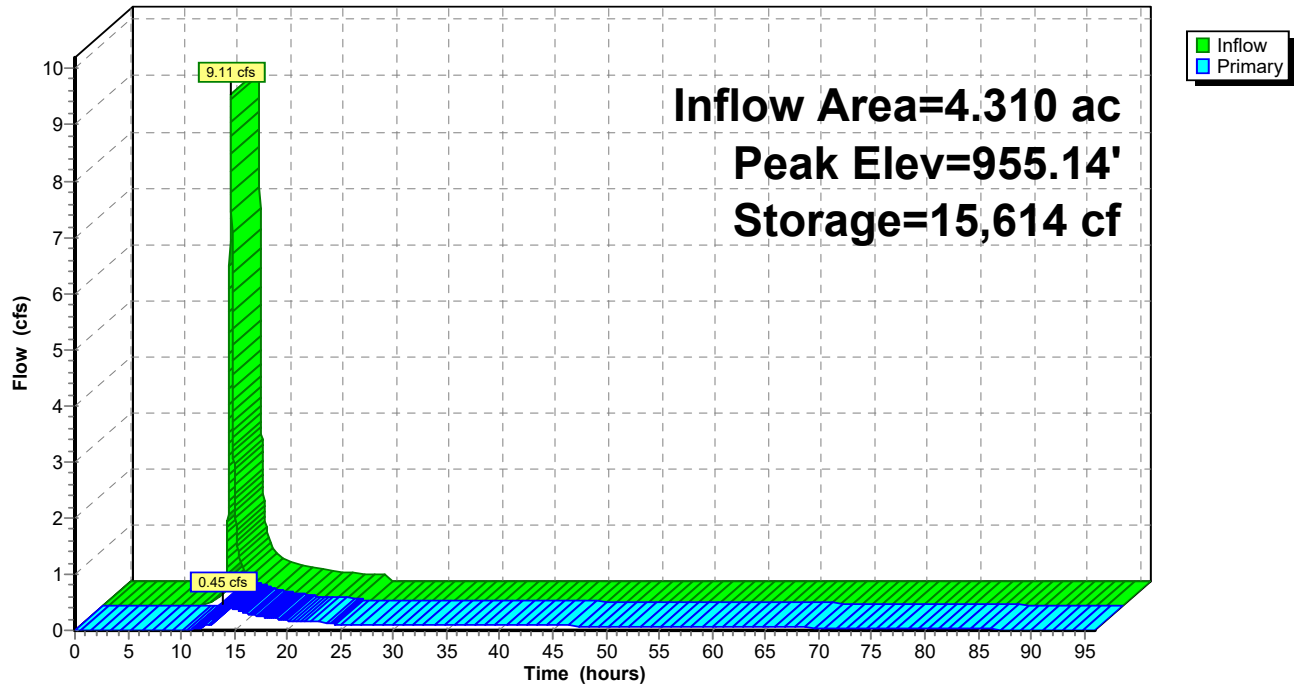
Device	Routing	Invert	Outlet Devices
#1	Primary	952.00'	12.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 952.00' / 951.00' S= 0.0100 ' / ' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	952.00'	1.5" Vert. Orifice/Grate C= 0.600
#3	Primary	955.00'	24.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.45 cfs @ 13.96 hrs HW=955.14' (Free Discharge)

- 1=Culvert (Passes 0.10 cfs of 5.19 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.10 cfs @ 8.45 fps)
 3=Orifice/Grate (Orifice Controls 0.35 cfs @ 1.22 fps)

Pond 3P: Retention Pond NW

Hydrograph



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Type II 24-hr 5-Year Rainfall=3.35"

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Summary for Pond 10P: Retention Pond SW

Inflow Area = 5.800 ac, 38.00% Impervious, Inflow Depth = 1.73" for 5-Year event
 Inflow = 14.44 cfs @ 12.04 hrs, Volume= 0.838 af
 Outflow = 0.23 cfs @ 19.53 hrs, Volume= 0.668 af, Atten= 98%, Lag= 449.6 min
 Primary = 0.23 cfs @ 19.53 hrs, Volume= 0.668 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 956.14' @ 19.53 hrs Surf.Area= 10,818 sf Storage= 27,168 cf

Plug-Flow detention time= 1,200.4 min calculated for 0.668 af (80% of inflow)
 Center-of-Mass det. time= 1,115.7 min (1,948.9 - 833.2)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	49,908 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
953.00	6,620	0	0
954.00	7,843	7,232	7,232
955.00	9,167	8,505	15,737
956.00	10,598	9,883	25,619
957.00	12,118	11,358	36,977
958.00	13,744	12,931	49,908

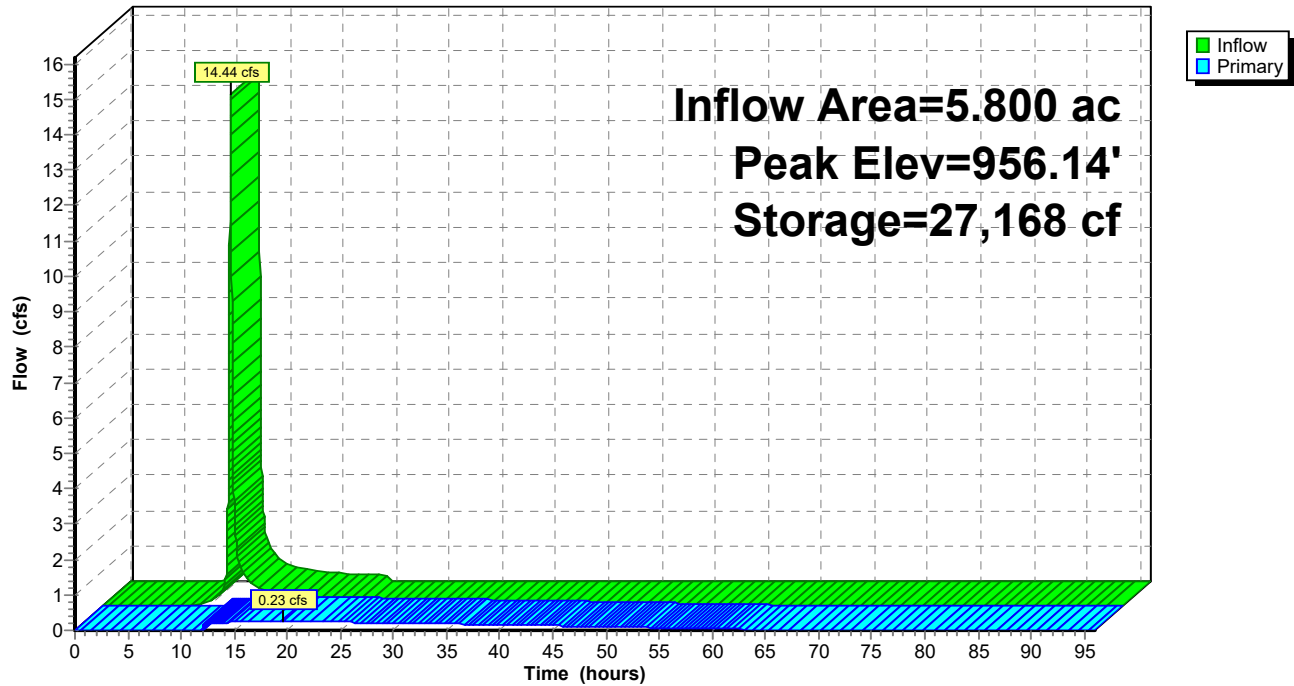
Device	Routing	Invert	Outlet Devices
#1	Primary	954.00'	12.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 954.00' / 953.50' S= 0.0100 ' / Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	954.00'	2.5" Vert. Orifice/Grate C= 0.600
#3	Primary	956.50'	24.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.23 cfs @ 19.53 hrs HW=956.14' (Free Discharge)

1=Culvert (Passes 0.23 cfs of 4.61 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.23 cfs @ 6.88 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 10P: Retention Pond SW

Hydrograph



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Type II 24-hr 5-Year Rainfall=3.35"

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Summary for Pond 13P: Retention Pond SE

Inflow Area = 8.970 ac, 24.61% Impervious, Inflow Depth = 1.52" for 5-Year event
 Inflow = 17.60 cfs @ 12.08 hrs, Volume= 1.135 af
 Outflow = 0.36 cfs @ 19.21 hrs, Volume= 1.125 af, Atten= 98%, Lag= 428.2 min
 Primary = 0.36 cfs @ 19.21 hrs, Volume= 1.125 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 960.44' @ 19.21 hrs Surf.Area= 17,730 sf Storage= 35,026 cf

Plug-Flow detention time= 1,208.5 min calculated for 1.125 af (99% of inflow)
 Center-of-Mass det. time= 1,203.6 min (2,049.1 - 845.5)

Volume	Invert	Avail.Storage	Storage Description
#1	958.00'	38,742 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	958.00'	27,604 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		66,346 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	6,743	0	0
959.00	8,123	7,433	7,433
960.00	9,608	8,866	16,299
961.00	11,197	10,403	26,701
962.00	12,885	12,041	38,742

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	4,423	0	0
959.00	5,571	4,997	4,997
960.00	6,823	6,197	11,194
961.00	8,179	7,501	18,695
962.00	9,639	8,909	27,604

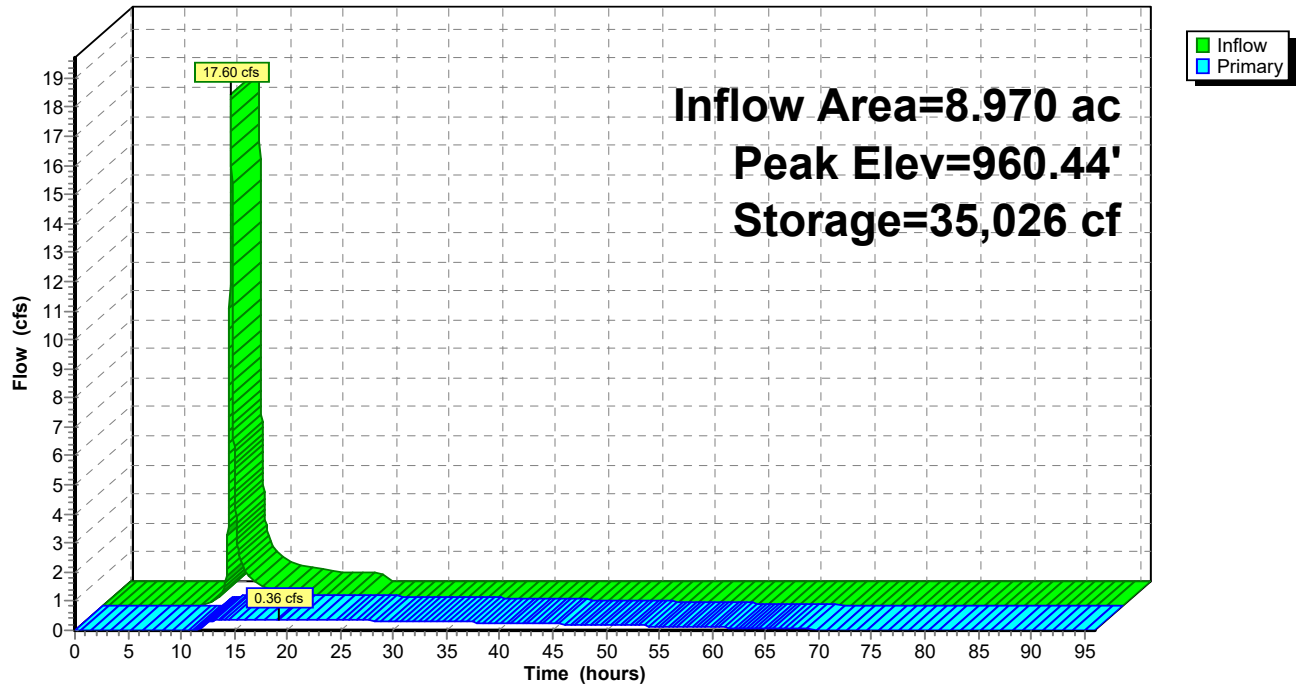
Device	Routing	Invert	Outlet Devices
#1	Primary	958.00'	12.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 958.00' / 957.00' S= 0.0100' /' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	958.00'	3.0" Vert. Orifice/Grate C= 0.600
#3	Primary	961.00'	36.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.36 cfs @ 19.21 hrs HW=960.44' (Free Discharge)

- 1=Culvert (Passes 0.36 cfs of 4.57 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.36 cfs @ 7.33 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 13P: Retention Pond SE

Hydrograph



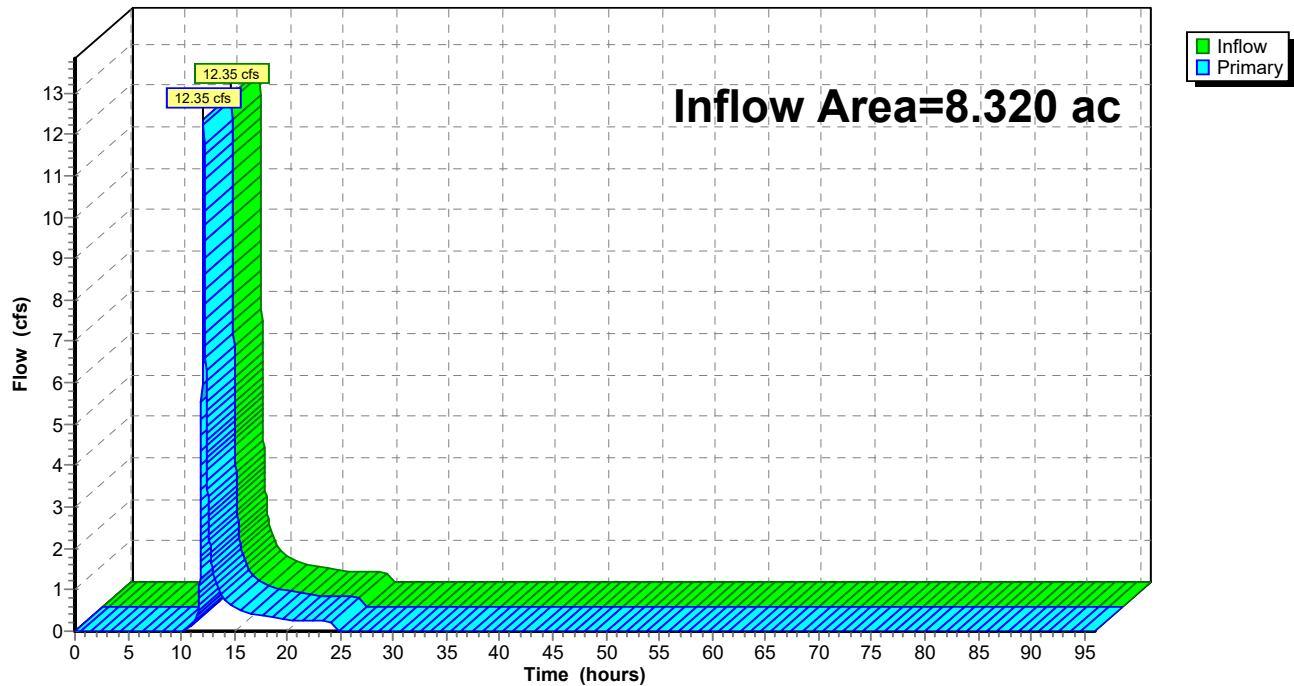
Summary for Link 15L: Link

Inflow Area = 8.320 ac, 1.92% Impervious, Inflow Depth = 1.34" for 5-Year event
 Inflow = 12.35 cfs @ 12.13 hrs, Volume= 0.929 af
 Primary = 12.35 cfs @ 12.13 hrs, Volume= 0.929 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 15L: Link

Hydrograph



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Type II 24-hr 10-Year Rainfall=3.86"

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Summary for Subcatchment 1S: PreDeveloped NW

Runoff = 6.47 cfs @ 12.11 hrs, Volume= 0.457 af, Depth= 1.78"

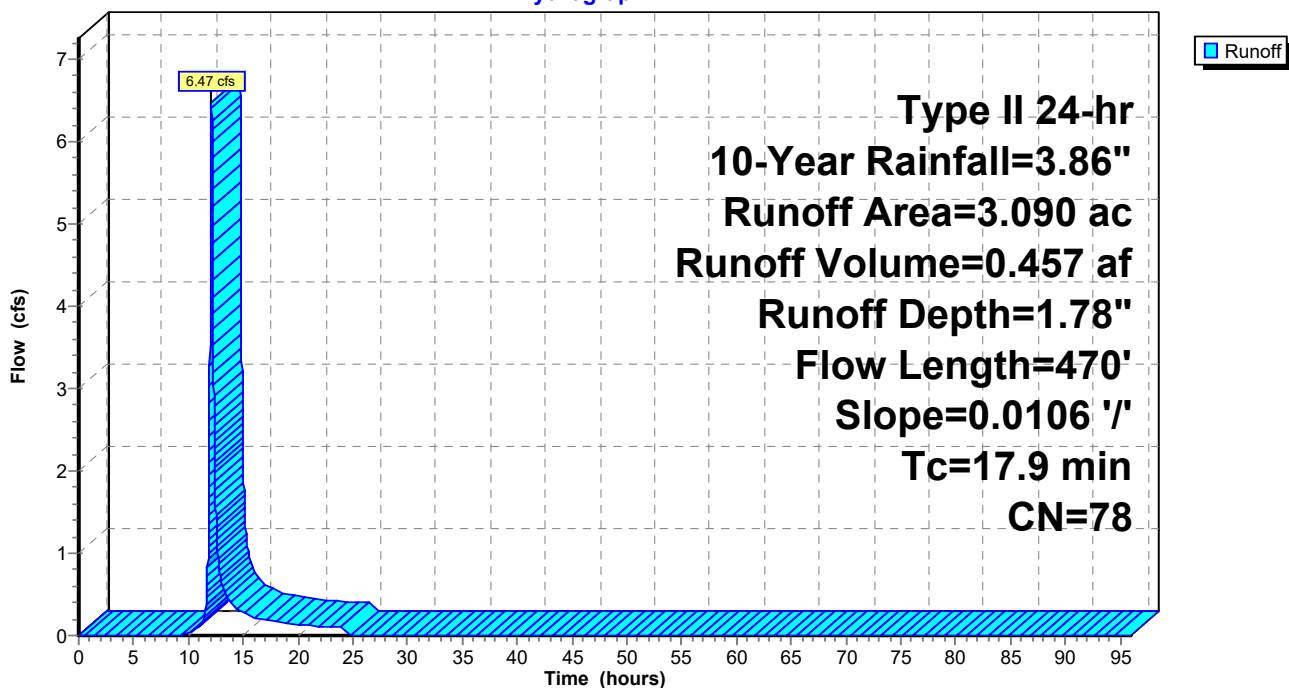
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.86"

Area (ac)	CN	Description
0.210	98	Roofs, HSG C
* 2.880	77	>75% Grass cover, Good, HSG D
3.090	78	Weighted Average
2.880		93.20% Pervious Area
0.210		6.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 1S: PreDeveloped NW

Hydrograph



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Type II 24-hr 10-Year Rainfall=3.86"

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Summary for Subcatchment 2S: Developed NW

Runoff = 8.35 cfs @ 12.07 hrs, Volume= 0.537 af, Depth= 2.08"

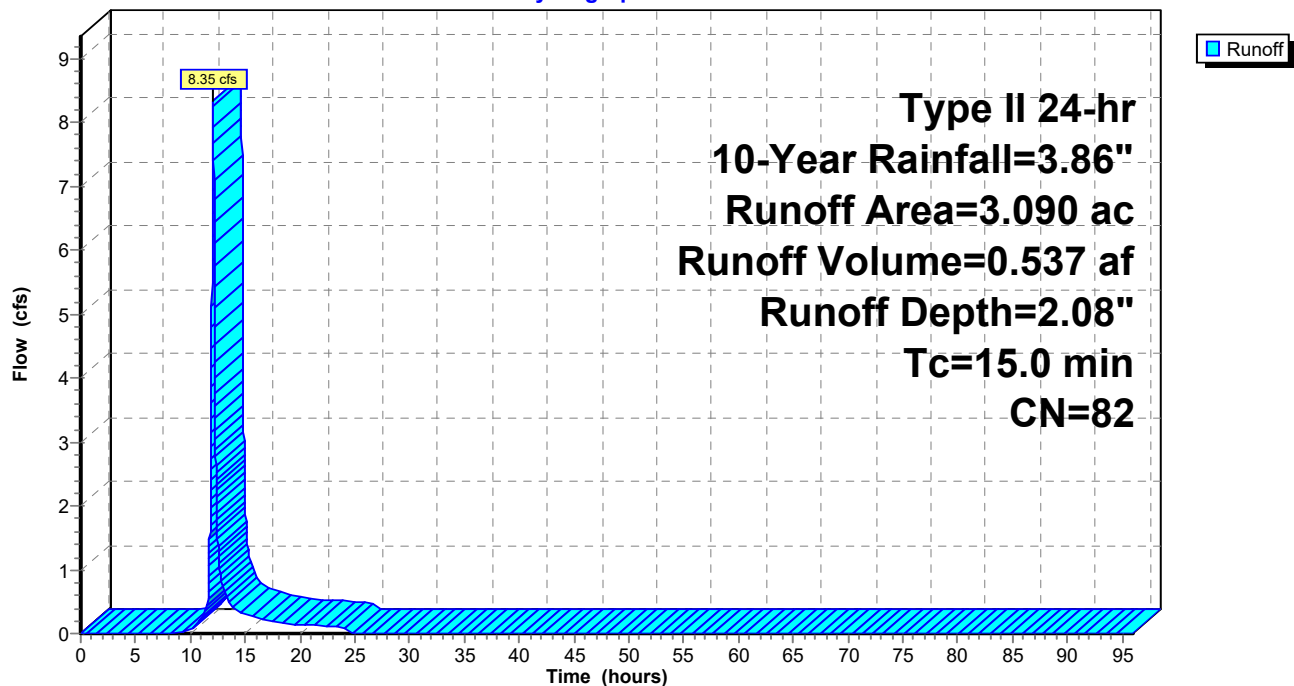
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.86"

Area (ac)	CN	Description
2.900	83	1/4 acre lots, 38% imp, HSG C
0.190	74	>75% Grass cover, Good, HSG C
3.090	82	Weighted Average
1.988		64.34% Pervious Area
1.102		35.66% Impervious Area

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

Subcatchment 2S: Developed NW

Hydrograph



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Type II 24-hr 10-Year Rainfall=3.86"

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Summary for Subcatchment 4S: Offsite

Runoff = 3.48 cfs @ 12.02 hrs, Volume= 0.188 af, Depth= 1.85"

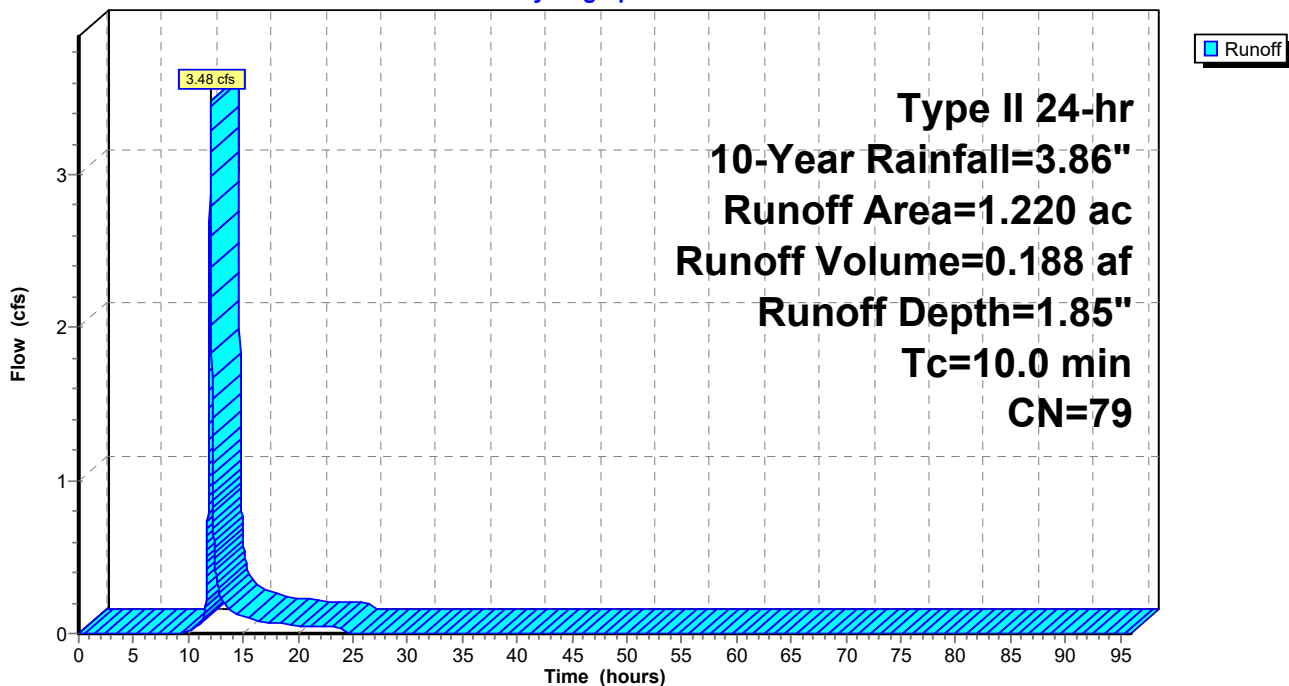
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.86"

Area (ac)	CN	Description
0.120	98	Roofs, HSG C
* 1.100	77	>75% Grass cover, Good, HSG D
1.220	79	Weighted Average
1.100		90.16% Pervious Area
0.120		9.84% Impervious Area

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

Subcatchment 4S: Offsite

Hydrograph



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Type II 24-hr 10-Year Rainfall=3.86"

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Summary for Subcatchment 8S: PreDeveloped SW

Runoff = 12.02 cfs @ 12.11 hrs, Volume= 0.850 af, Depth= 1.78"

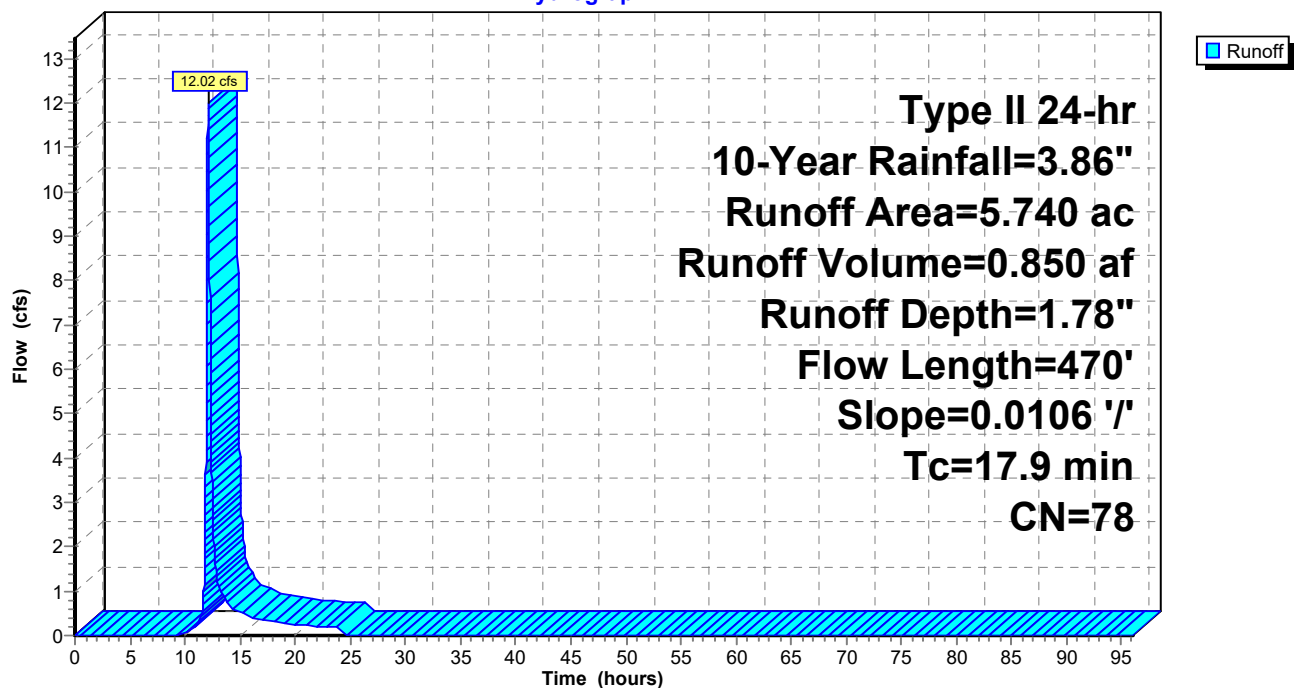
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.86"

Area (ac)	CN	Description
0.170	98	Roofs, HSG C
* 5.570	77	>75% Grass cover, Good, HSG D
5.740	78	Weighted Average
5.570		97.04% Pervious Area
0.170		2.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 8S: PreDeveloped SW

Hydrograph



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Type II 24-hr 10-Year Rainfall=3.86"

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Summary for Subcatchment 9S: Developed SW

Runoff = 18.00 cfs @ 12.04 hrs, Volume= 1.046 af, Depth= 2.17"

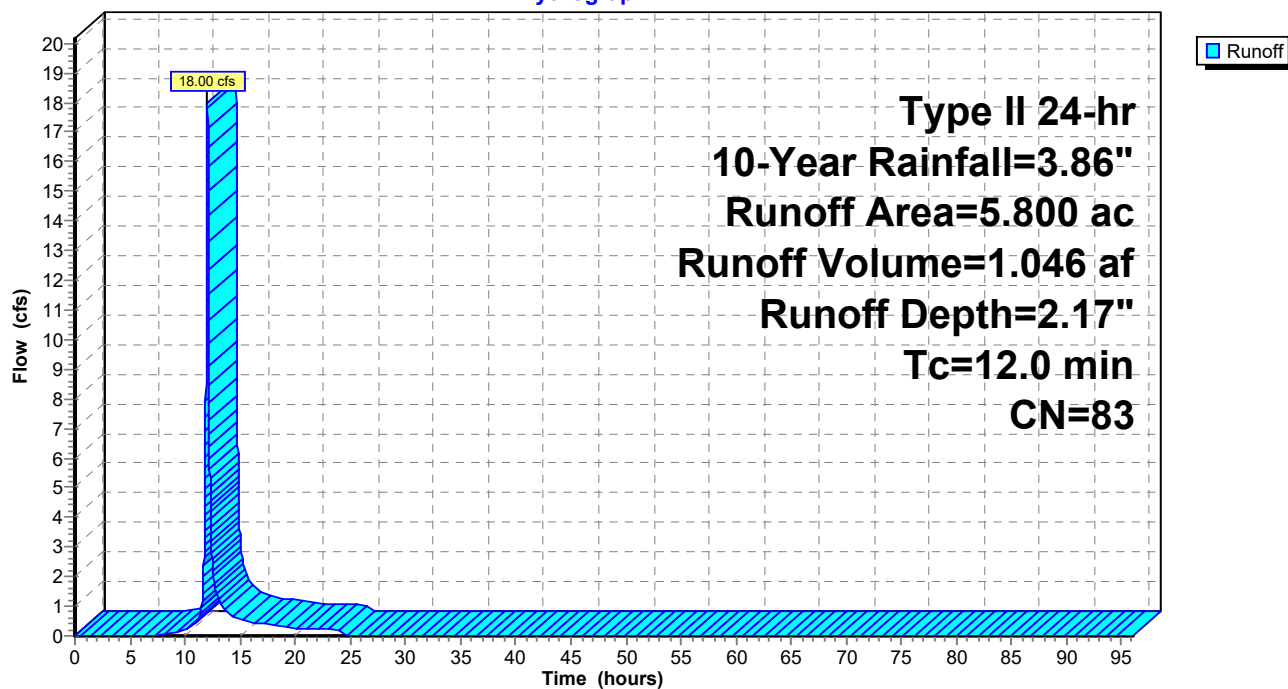
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.86"

Area (ac)	CN	Description
5.800	83	1/4 acre lots, 38% imp, HSG C
3.596		62.00% Pervious Area
2.204		38.00% Impervious Area

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

Subcatchment 9S: Developed SW

Hydrograph



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Type II 24-hr 10-Year Rainfall=3.86"

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Summary for Subcatchment 11S: PreDeveloped NE

Runoff = 5.25 cfs @ 12.11 hrs, Volume= 0.371 af, Depth= 1.78"

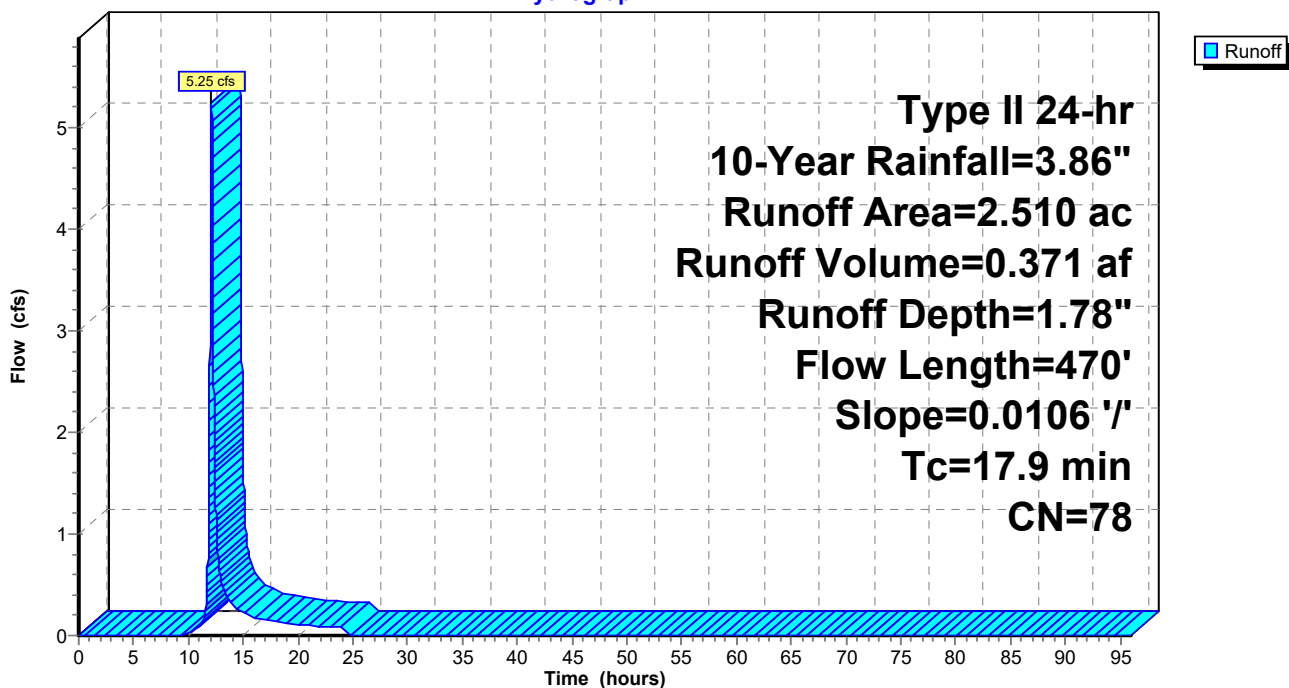
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.86"

Area (ac)	CN	Description
0.090	98	Roofs, HSG C
* 2.420	77	>75% Grass cover, Good, HSG D
2.510	78	Weighted Average
2.420		96.41% Pervious Area
0.090		3.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 11S: PreDeveloped NE

Hydrograph



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Type II 24-hr 10-Year Rainfall=3.86"

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Summary for Subcatchment 12S: Developed SE

Runoff = 22.39 cfs @ 12.07 hrs, Volume= 1.440 af, Depth= 1.93"

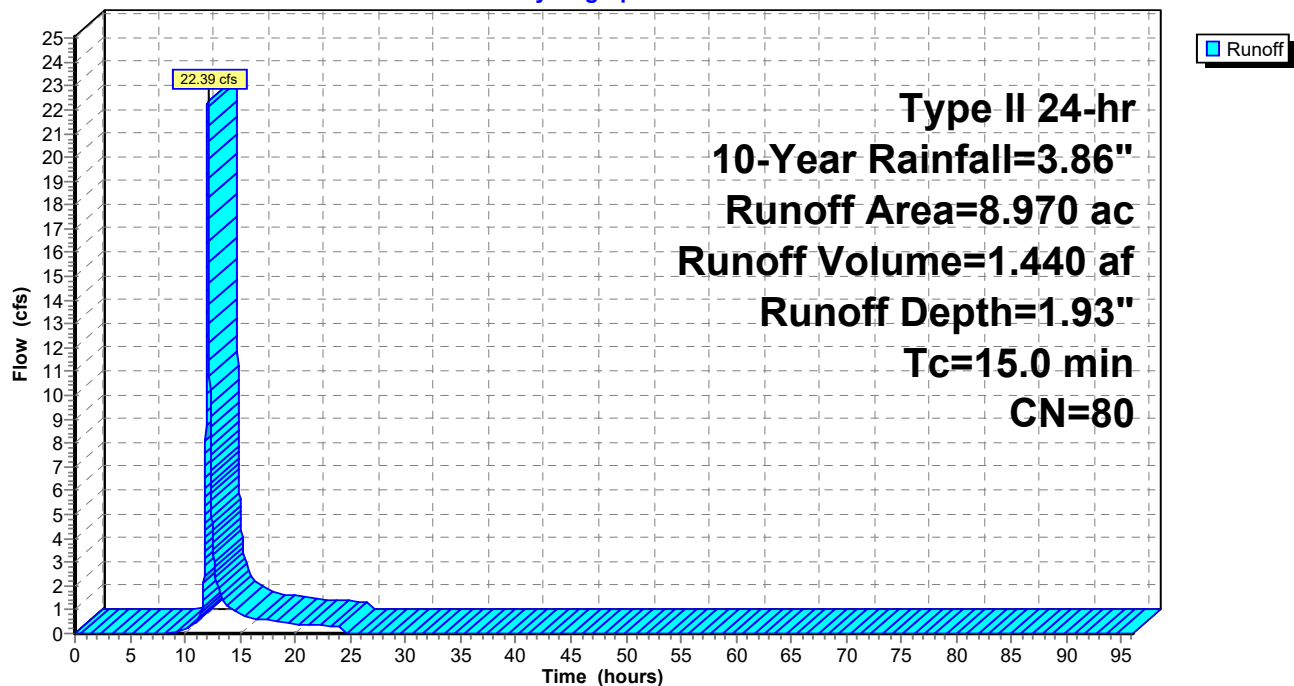
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.86"

Area (ac)	CN	Description
3.160	74	>75% Grass cover, Good, HSG C
5.810	83	1/4 acre lots, 38% imp, HSG C
8.970	80	Weighted Average
6.762		75.39% Pervious Area
2.208		24.61% Impervious Area

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

Subcatchment 12S: Developed SE

Hydrograph



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Type II 24-hr 10-Year Rainfall=3.86"

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Summary for Subcatchment 14S: PreDeveloped SE

Runoff = 10.89 cfs @ 12.13 hrs, Volume= 0.825 af, Depth= 1.70"

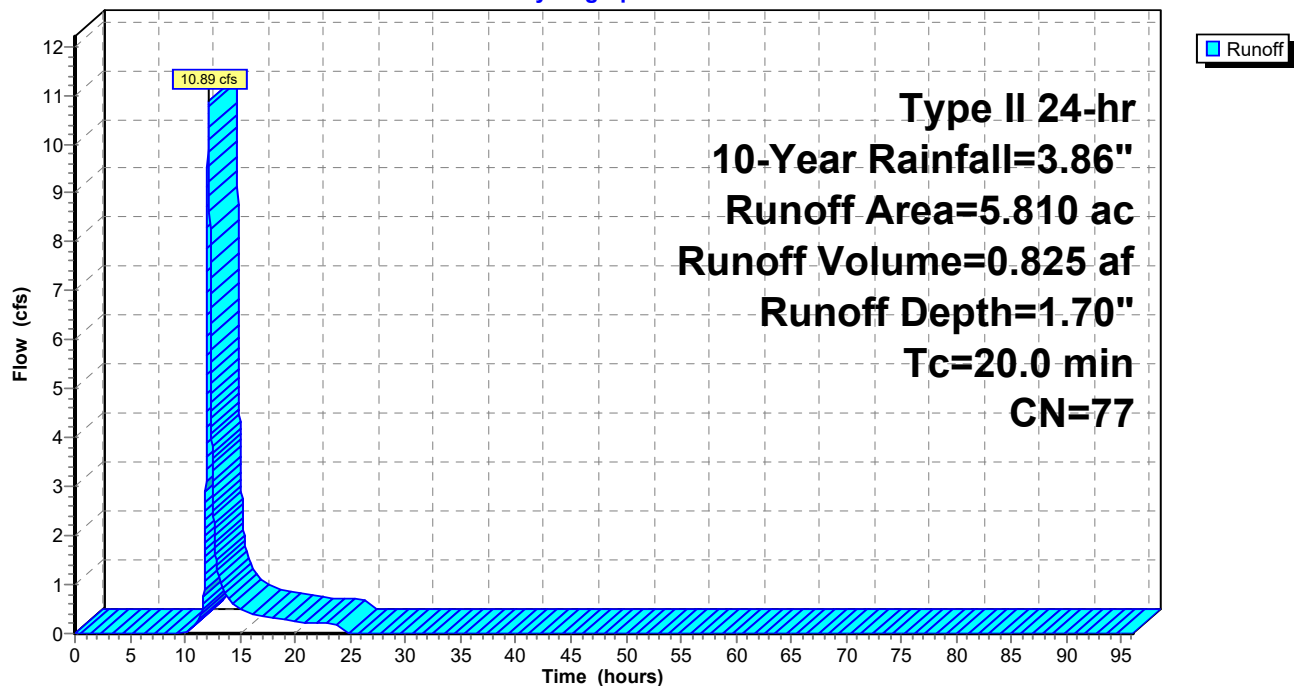
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-Year Rainfall=3.86"

Area (ac)	CN	Description
0.070	98	Roofs, HSG C
* 5.740	77	>75% Grass cover, Good, HSG D
5.810	77	Weighted Average
5.740		98.80% Pervious Area
0.070		1.20% Impervious Area

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

Subcatchment 14S: PreDeveloped SE

Hydrograph



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Type II 24-hr 10-Year Rainfall=3.86"

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Summary for Pond 3P: Retention Pond NW

Inflow Area = 4.310 ac, 28.35% Impervious, Inflow Depth = 2.02" for 10-Year event
 Inflow = 11.50 cfs @ 12.05 hrs, Volume= 0.725 af
 Outflow = 1.28 cfs @ 12.68 hrs, Volume= 0.721 af, Atten= 89%, Lag= 37.5 min
 Primary = 1.28 cfs @ 12.68 hrs, Volume= 0.721 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 955.32' @ 12.68 hrs Surf.Area= 7,202 sf Storage= 16,870 cf

Plug-Flow detention time= 1,065.8 min calculated for 0.721 af (100% of inflow)
 Center-of-Mass det. time= 1,062.8 min (1,896.6 - 833.8)

Volume	Invert	Avail.Storage	Storage Description
#1	952.00'	30,994 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
952.00	3,137	0	0
953.00	4,241	3,689	3,689
954.00	5,446	4,844	8,533
955.00	6,751	6,099	14,631
956.00	8,156	7,454	22,085
957.00	9,663	8,910	30,994

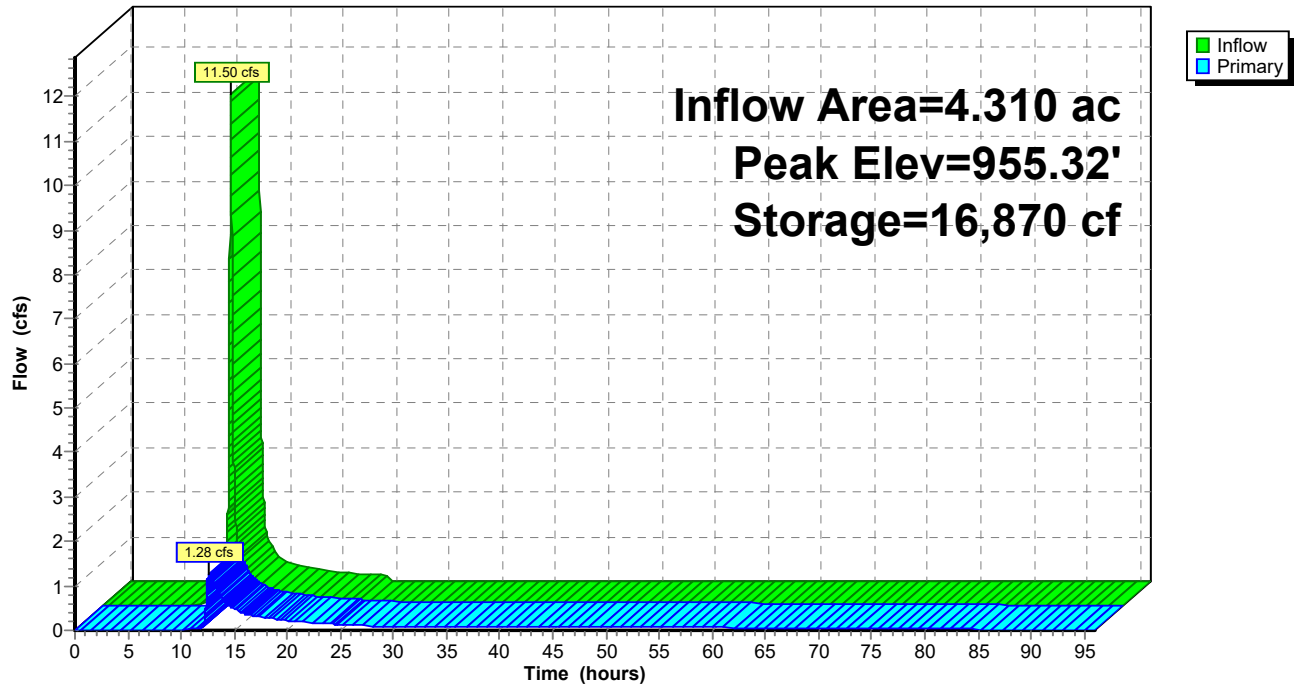
Device	Routing	Invert	Outlet Devices
#1	Primary	952.00'	12.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 952.00' / 951.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	952.00'	1.5" Vert. Orifice/Grate C= 0.600
#3	Primary	955.00'	24.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.27 cfs @ 12.68 hrs HW=955.32' (Free Discharge)

1=Culvert (Passes 0.11 cfs of 5.33 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.11 cfs @ 8.69 fps)
 3=Orifice/Grate (Orifice Controls 1.17 cfs @ 1.82 fps)

Pond 3P: Retention Pond NW

Hydrograph



20180411 HawksNest Preliminary

Type II 24-hr 10-Year Rainfall=3.86"

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Summary for Pond 10P: Retention Pond SW

Inflow Area = 5.800 ac, 38.00% Impervious, Inflow Depth = 2.17" for 10-Year event
 Inflow = 18.00 cfs @ 12.04 hrs, Volume= 1.046 af
 Outflow = 0.49 cfs @ 15.76 hrs, Volume= 0.876 af, Atten= 97%, Lag= 223.1 min
 Primary = 0.49 cfs @ 15.76 hrs, Volume= 0.876 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 956.61' @ 15.76 hrs Surf.Area= 11,521 sf Storage= 32,338 cf

Plug-Flow detention time= 1,189.2 min calculated for 0.876 af (84% of inflow)
 Center-of-Mass det. time= 1,116.4 min (1,943.2 - 826.8)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	49,908 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
953.00	6,620	0	0
954.00	7,843	7,232	7,232
955.00	9,167	8,505	15,737
956.00	10,598	9,883	25,619
957.00	12,118	11,358	36,977
958.00	13,744	12,931	49,908

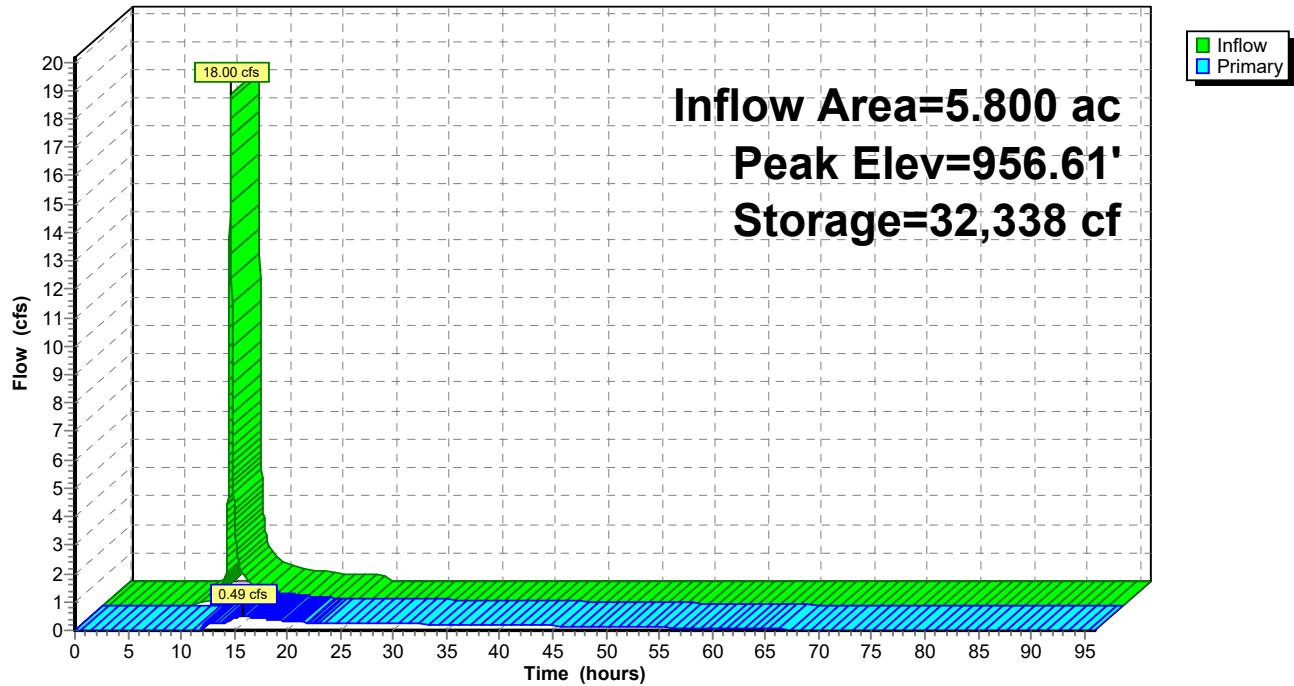
Device	Routing	Invert	Outlet Devices
#1	Primary	954.00'	12.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 954.00' / 953.50' S= 0.0100 ' / ' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	954.00'	2.5" Vert. Orifice/Grate C= 0.600
#3	Primary	956.50'	24.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.49 cfs @ 15.76 hrs HW=956.61' (Free Discharge)

1=Culvert (Passes 0.26 cfs of 5.22 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.26 cfs @ 7.62 fps)
 3=Orifice/Grate (Orifice Controls 0.23 cfs @ 1.05 fps)

Pond 10P: Retention Pond SW

Hydrograph



20180411 HawksNest Preliminary

Type II 24-hr 10-Year Rainfall=3.86"

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Summary for Pond 13P: Retention Pond SE

Inflow Area = 8.970 ac, 24.61% Impervious, Inflow Depth = 1.93" for 10-Year event
 Inflow = 22.39 cfs @ 12.07 hrs, Volume= 1.440 af
 Outflow = 0.44 cfs @ 19.10 hrs, Volume= 1.428 af, Atten= 98%, Lag= 421.4 min
 Primary = 0.44 cfs @ 19.10 hrs, Volume= 1.428 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 961.02' @ 19.10 hrs Surf.Area= 19,443 sf Storage= 45,807 cf

Plug-Flow detention time= 1,367.0 min calculated for 1.428 af (99% of inflow)
 Center-of-Mass det. time= 1,361.8 min (2,200.4 - 838.7)

Volume	Invert	Avail.Storage	Storage Description
#1	958.00'	38,742 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	958.00'	27,604 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		66,346 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	6,743	0	0
959.00	8,123	7,433	7,433
960.00	9,608	8,866	16,299
961.00	11,197	10,403	26,701
962.00	12,885	12,041	38,742

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	4,423	0	0
959.00	5,571	4,997	4,997
960.00	6,823	6,197	11,194
961.00	8,179	7,501	18,695
962.00	9,639	8,909	27,604

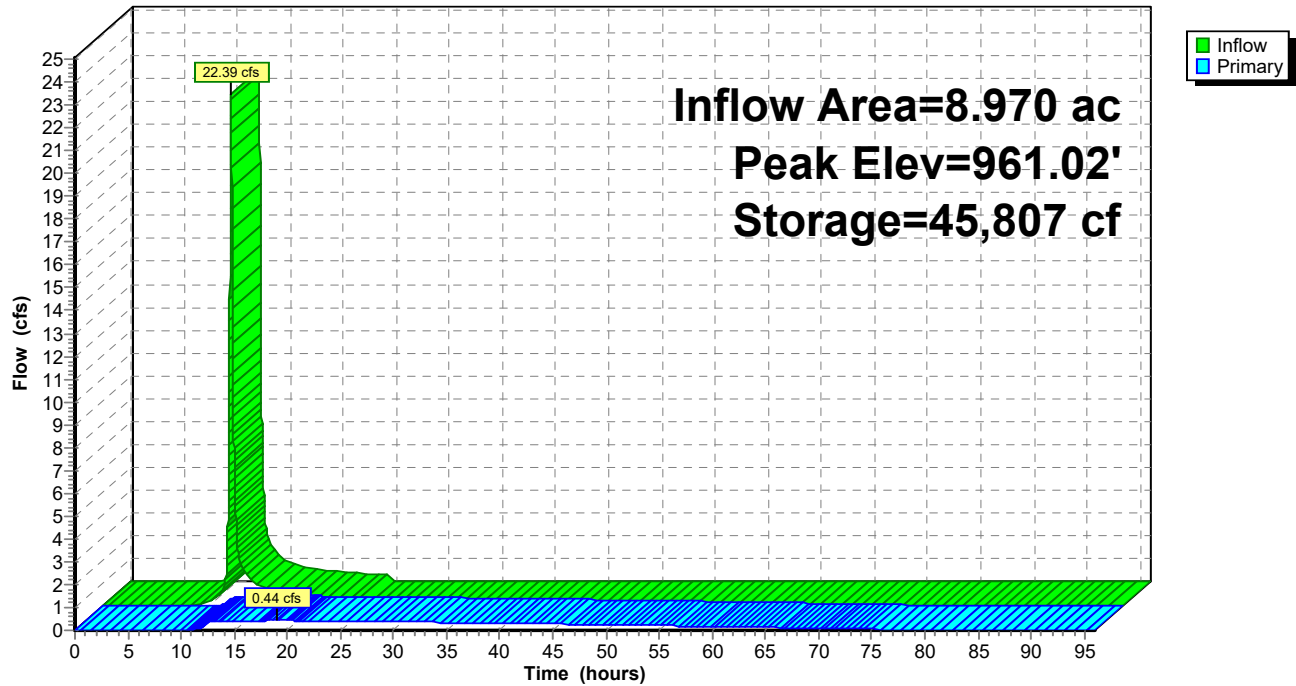
Device	Routing	Invert	Outlet Devices
#1	Primary	958.00'	12.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 958.00' / 957.00' S= 0.0100'/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	958.00'	3.0" Vert. Orifice/Grate C= 0.600
#3	Primary	961.00'	36.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.43 cfs @ 19.10 hrs HW=961.02' (Free Discharge)

- 1=Culvert (Passes 0.40 cfs of 5.09 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.40 cfs @ 8.19 fps)
 3=Orifice/Grate (Orifice Controls 0.03 cfs @ 0.47 fps)

Pond 13P: Retention Pond SE

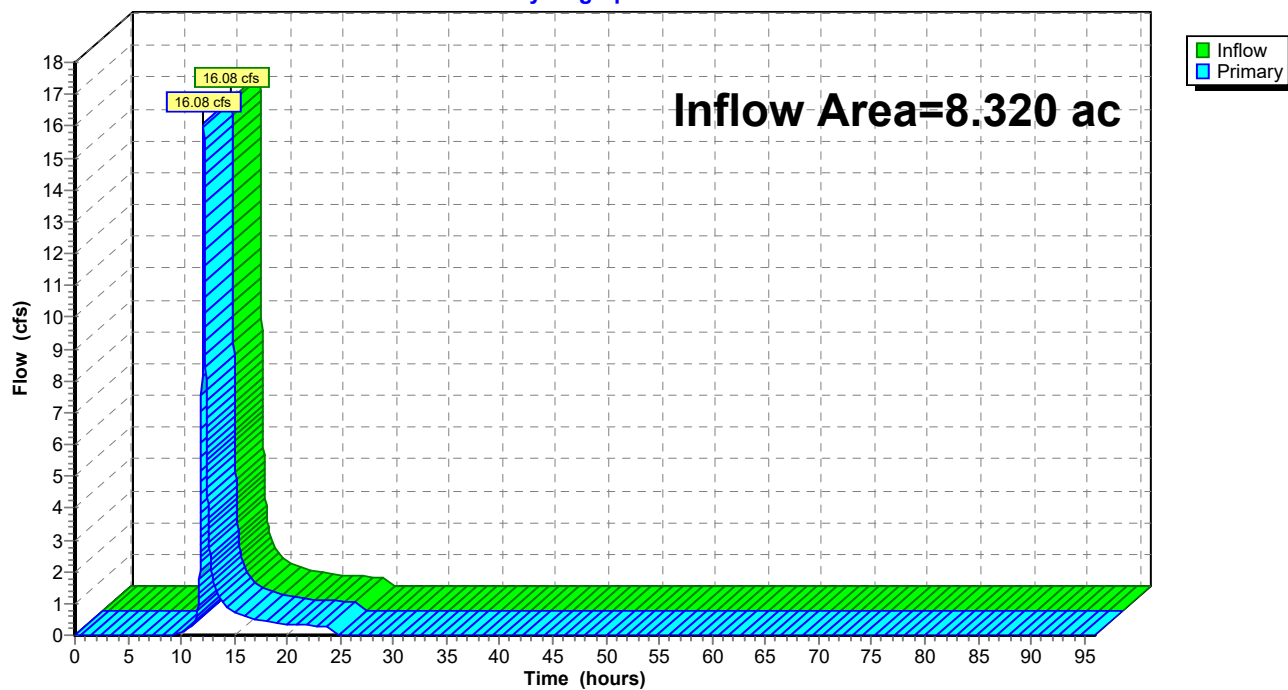
Hydrograph



Summary for Link 15L: Link

Inflow Area = 8.320 ac, 1.92% Impervious, Inflow Depth = 1.73" for 10-Year event
Inflow = 16.08 cfs @ 12.12 hrs, Volume= 1.196 af
Primary = 16.08 cfs @ 12.12 hrs, Volume= 1.196 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 15L: Link**Hydrograph**

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Type II 24-hr 25-Year Rainfall=4.64"

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Summary for Subcatchment 1S: PreDeveloped NW

Runoff = 8.82 cfs @ 12.11 hrs, Volume= 0.620 af, Depth= 2.41"

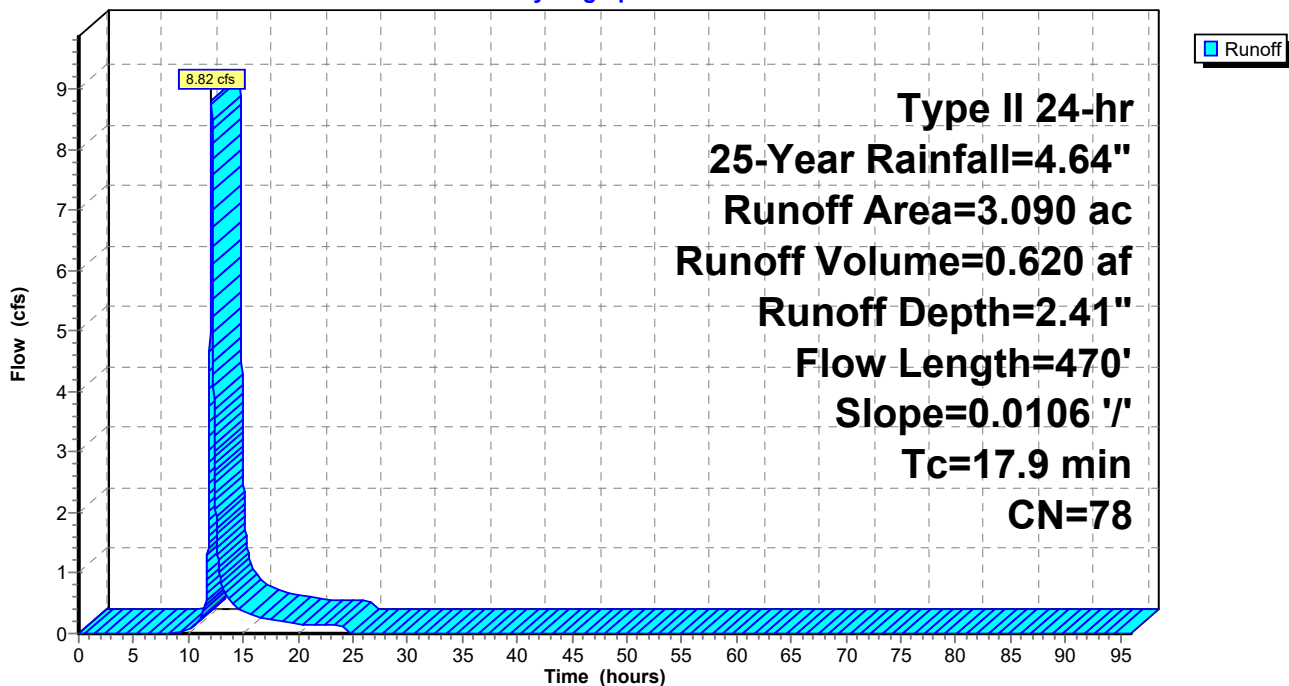
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=4.64"

Area (ac)	CN	Description
0.210	98	Roofs, HSG C
* 2.880	77	>75% Grass cover, Good, HSG D
3.090	78	Weighted Average
2.880		93.20% Pervious Area
0.210		6.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 1S: PreDeveloped NW

Hydrograph



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Type II 24-hr 25-Year Rainfall=4.64"

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Summary for Subcatchment 2S: Developed NW

Runoff = 11.01 cfs @ 12.07 hrs, Volume= 0.710 af, Depth= 2.76"

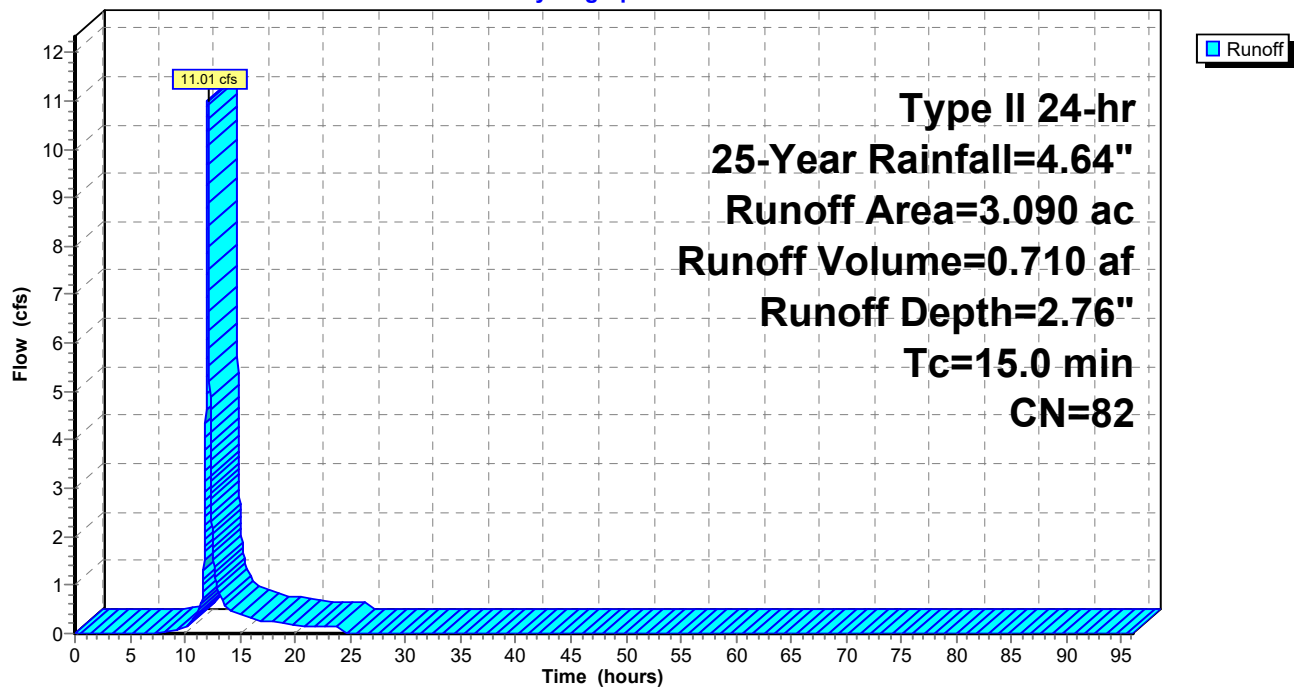
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=4.64"

Area (ac)	CN	Description
2.900	83	1/4 acre lots, 38% imp, HSG C
0.190	74	>75% Grass cover, Good, HSG C
3.090	82	Weighted Average
1.988		64.34% Pervious Area
1.102		35.66% Impervious Area

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

Subcatchment 2S: Developed NW

Hydrograph



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Type II 24-hr 25-Year Rainfall=4.64"

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Summary for Subcatchment 4S: Offsite

Runoff = 4.68 cfs @ 12.02 hrs, Volume= 0.254 af, Depth= 2.49"

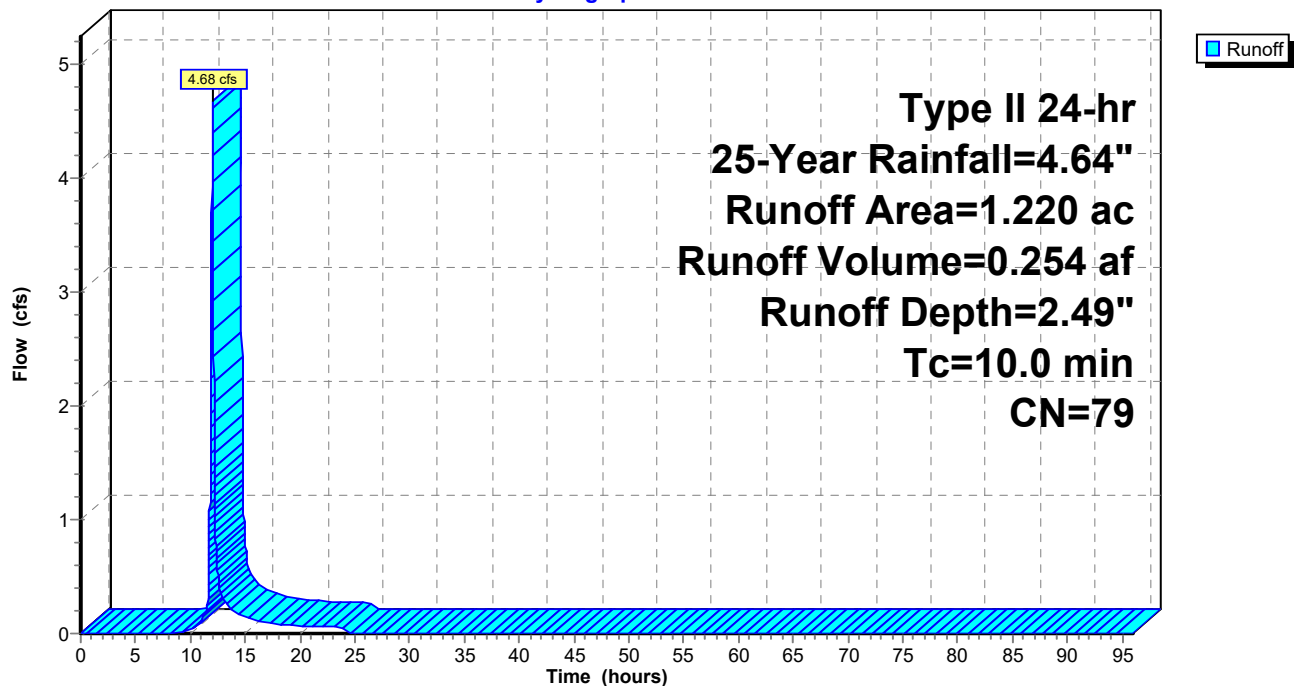
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=4.64"

Area (ac)	CN	Description
0.120	98	Roofs, HSG C
* 1.100	77	>75% Grass cover, Good, HSG D
1.220	79	Weighted Average
1.100		90.16% Pervious Area
0.120		9.84% Impervious Area

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

Subcatchment 4S: Offsite

Hydrograph



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Type II 24-hr 25-Year Rainfall=4.64"

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Summary for Subcatchment 8S: PreDeveloped SW

Runoff = 16.38 cfs @ 12.11 hrs, Volume= 1.152 af, Depth= 2.41"

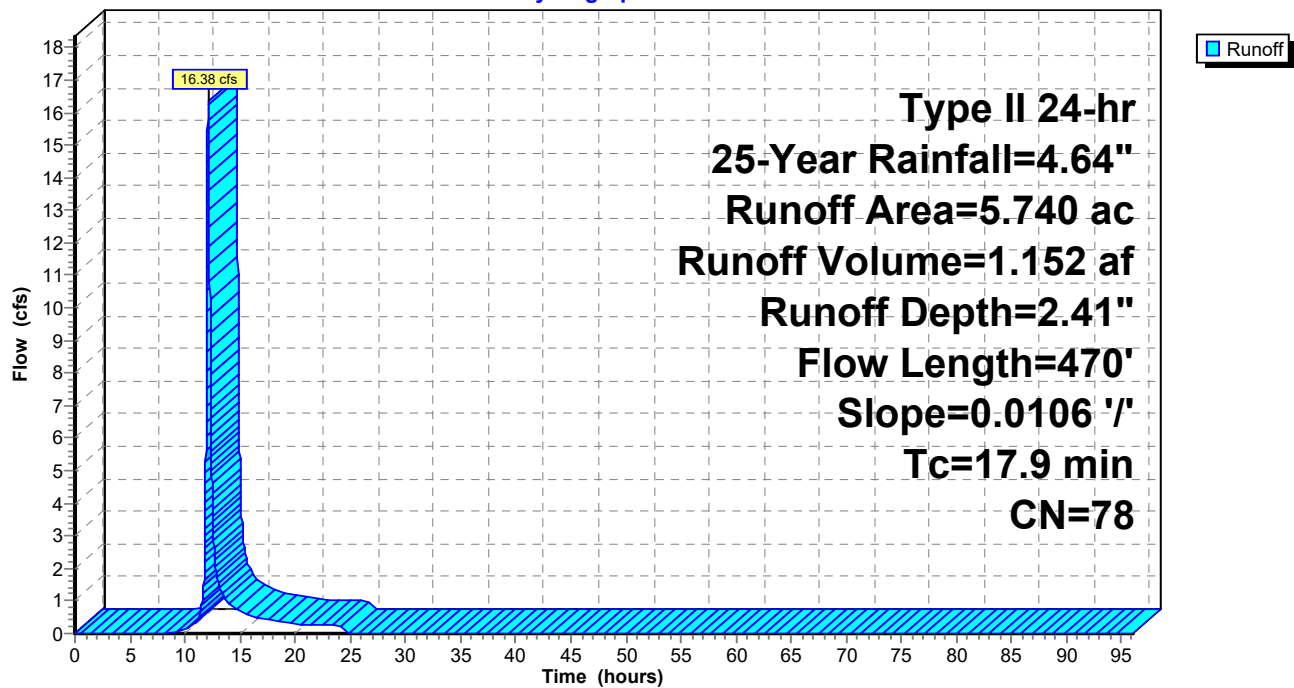
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=4.64"

Area (ac)	CN	Description
0.170	98	Roofs, HSG C
* 5.570	77	>75% Grass cover, Good, HSG D
5.740	78	Weighted Average
5.570		97.04% Pervious Area
0.170		2.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 8S: PreDeveloped SW

Hydrograph



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Type II 24-hr 25-Year Rainfall=4.64"

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Summary for Subcatchment 9S: Developed SW

Runoff = 23.55 cfs @ 12.04 hrs, Volume= 1.378 af, Depth= 2.85"

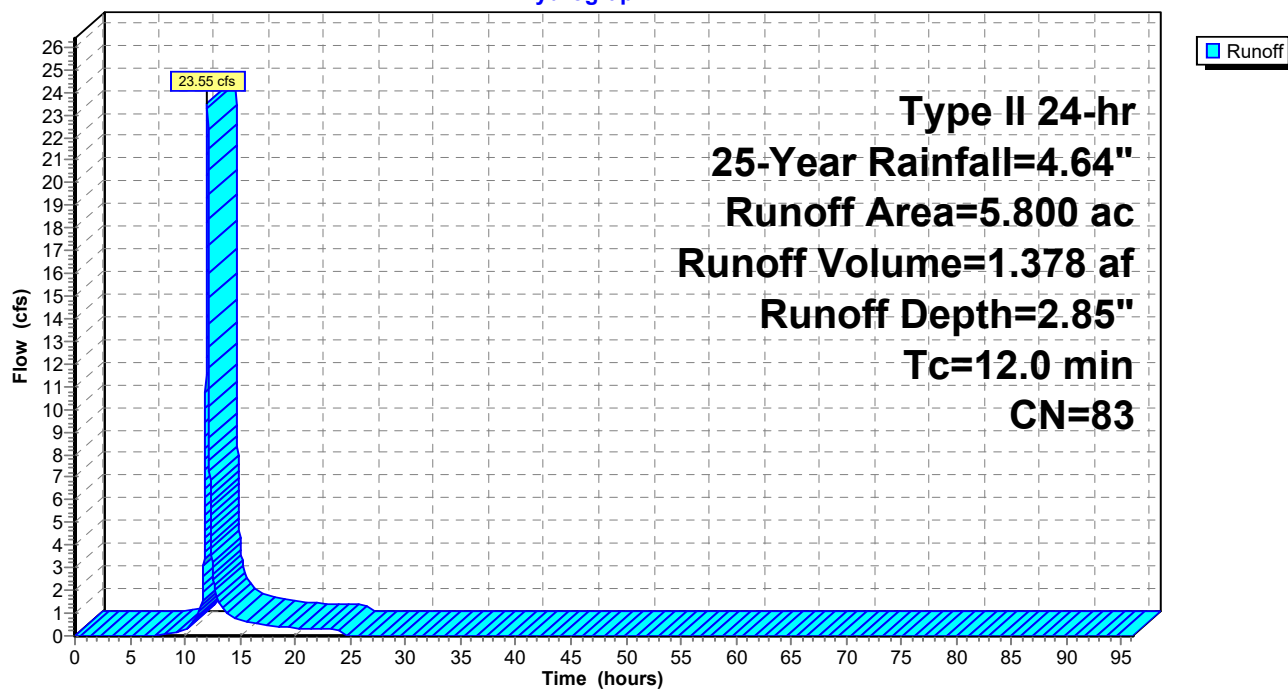
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=4.64"

Area (ac)	CN	Description
5.800	83	1/4 acre lots, 38% imp, HSG C
3.596		62.00% Pervious Area
2.204		38.00% Impervious Area

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

Subcatchment 9S: Developed SW

Hydrograph



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Type II 24-hr 25-Year Rainfall=4.64"

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Summary for Subcatchment 11S: PreDeveloped NE

Runoff = 7.16 cfs @ 12.11 hrs, Volume= 0.504 af, Depth= 2.41"

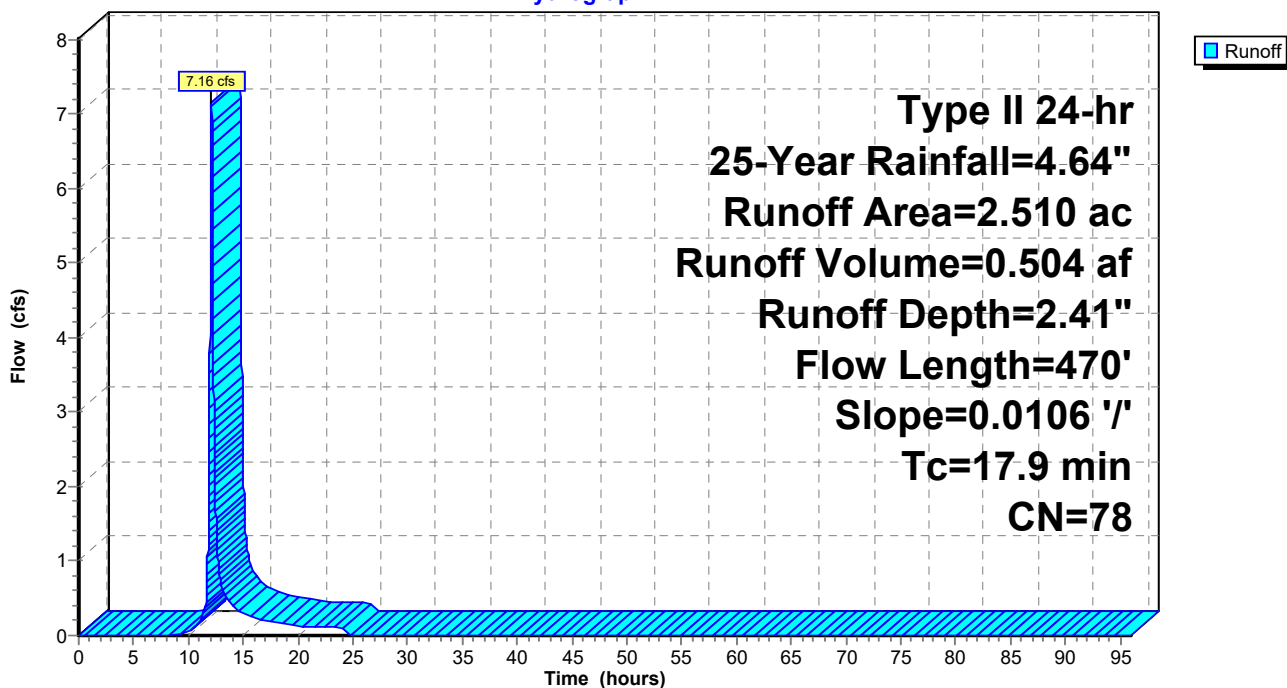
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=4.64"

Area (ac)	CN	Description
0.090	98	Roofs, HSG C
* 2.420	77	>75% Grass cover, Good, HSG D
2.510	78	Weighted Average
2.420		96.41% Pervious Area
0.090		3.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 11S: PreDeveloped NE

Hydrograph



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Type II 24-hr 25-Year Rainfall=4.64"

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Summary for Subcatchment 12S: Developed SE

Runoff = 29.99 cfs @ 12.07 hrs, Volume= 1.929 af, Depth= 2.58"

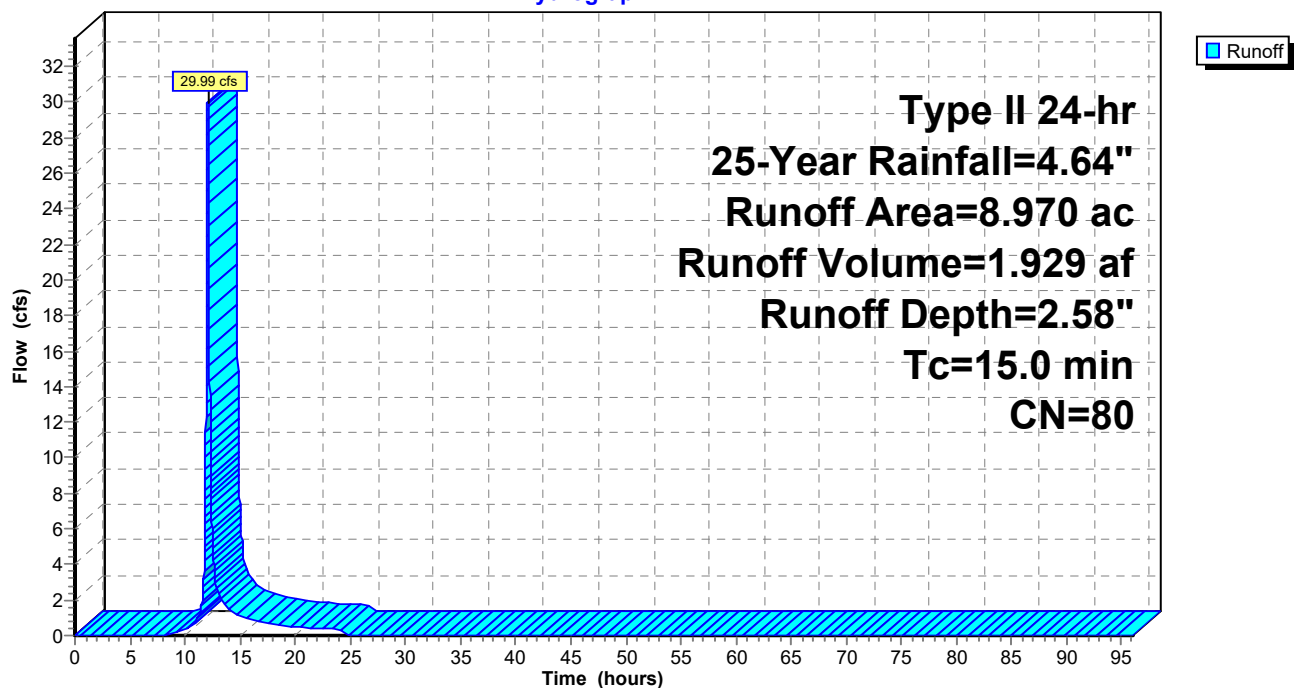
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=4.64"

Area (ac)	CN	Description
3.160	74	>75% Grass cover, Good, HSG C
5.810	83	1/4 acre lots, 38% imp, HSG C
8.970	80	Weighted Average
6.762		75.39% Pervious Area
2.208		24.61% Impervious Area

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

Subcatchment 12S: Developed SE

Hydrograph



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Type II 24-hr 25-Year Rainfall=4.64"

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Summary for Subcatchment 14S: PreDeveloped SE

Runoff = 14.99 cfs @ 12.13 hrs, Volume= 1.126 af, Depth= 2.32"

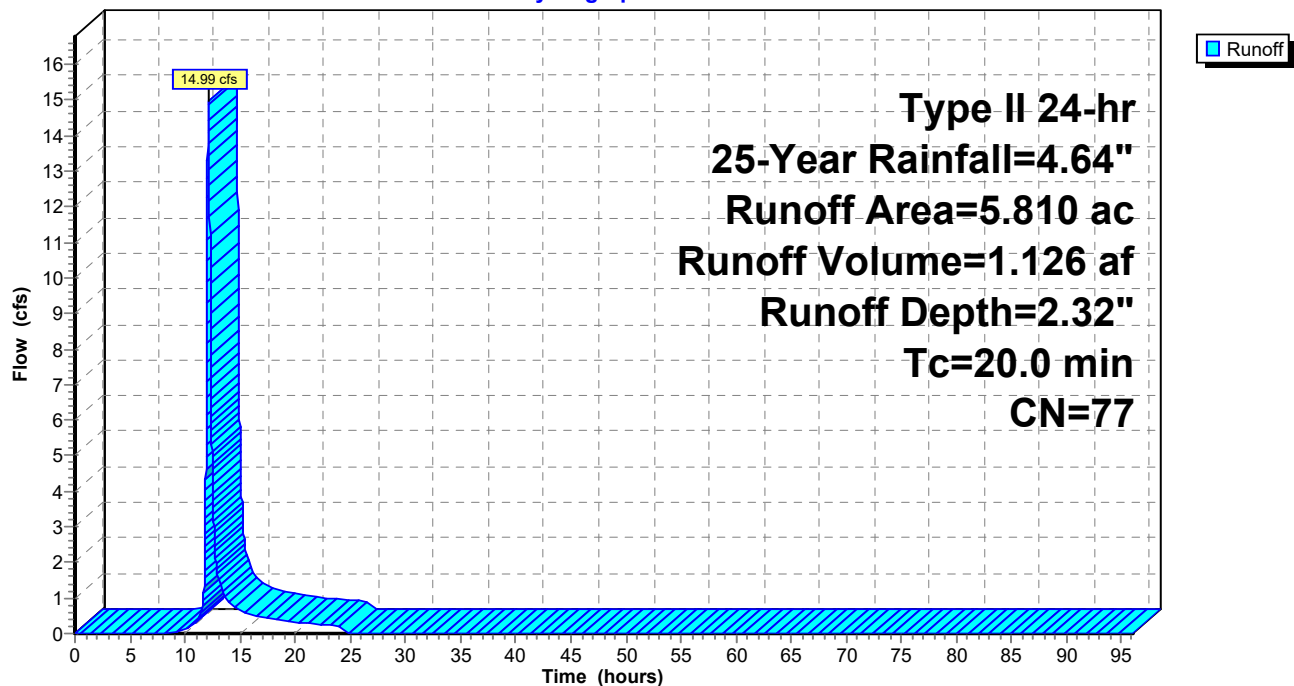
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-Year Rainfall=4.64"

Area (ac)	CN	Description
0.070	98	Roofs, HSG C
* 5.740	77	>75% Grass cover, Good, HSG D
5.810	77	Weighted Average
5.740		98.80% Pervious Area
0.070		1.20% Impervious Area

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

Subcatchment 14S: PreDeveloped SE

Hydrograph



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Type II 24-hr 25-Year Rainfall=4.64"

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Summary for Pond 3P: Retention Pond NW

Inflow Area = 4.310 ac, 28.35% Impervious, Inflow Depth = 2.68" for 25-Year event
 Inflow = 15.27 cfs @ 12.05 hrs, Volume= 0.964 af
 Outflow = 3.42 cfs @ 12.38 hrs, Volume= 0.961 af, Atten= 78%, Lag= 19.6 min
 Primary = 3.42 cfs @ 12.38 hrs, Volume= 0.961 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 955.73' @ 12.38 hrs Surf.Area= 7,780 sf Storage= 19,953 cf

Plug-Flow detention time= 814.7 min calculated for 0.961 af (100% of inflow)
 Center-of-Mass det. time= 812.4 min (1,638.0 - 825.7)

Volume	Invert	Avail.Storage	Storage Description
#1	952.00'	30,994 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
952.00	3,137	0	0
953.00	4,241	3,689	3,689
954.00	5,446	4,844	8,533
955.00	6,751	6,099	14,631
956.00	8,156	7,454	22,085
957.00	9,663	8,910	30,994

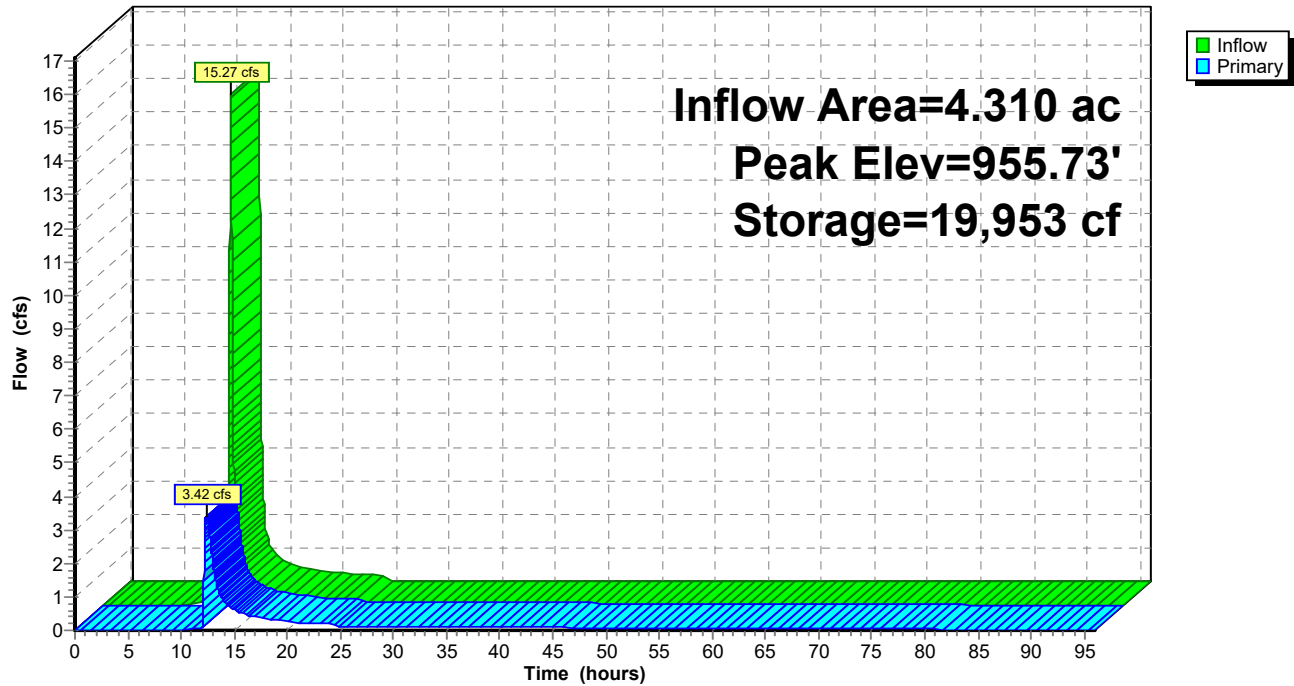
Device	Routing	Invert	Outlet Devices
#1	Primary	952.00'	12.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 952.00' / 951.00' S= 0.0100 ' / ' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	952.00'	1.5" Vert. Orifice/Grate C= 0.600
#3	Primary	955.00'	24.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=3.42 cfs @ 12.38 hrs HW=955.73' (Free Discharge)

1=Culvert (Passes 0.11 cfs of 5.65 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.11 cfs @ 9.22 fps)
 3=Orifice/Grate (Orifice Controls 3.30 cfs @ 3.30 fps)

Pond 3P: Retention Pond NW

Hydrograph



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Type II 24-hr 25-Year Rainfall=4.64"

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Summary for Pond 10P: Retention Pond SW

Inflow Area = 5.800 ac, 38.00% Impervious, Inflow Depth = 2.85" for 25-Year event
 Inflow = 23.55 cfs @ 12.04 hrs, Volume= 1.378 af
 Outflow = 1.75 cfs @ 12.89 hrs, Volume= 1.207 af, Atten= 93%, Lag= 51.1 min
 Primary = 1.75 cfs @ 12.89 hrs, Volume= 1.207 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 956.88' @ 12.89 hrs Surf.Area= 11,928 sf Storage= 35,477 cf

Plug-Flow detention time= 907.5 min calculated for 1.207 af (88% of inflow)
 Center-of-Mass det. time= 847.8 min (1,666.8 - 819.0)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	49,908 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
953.00	6,620	0	0
954.00	7,843	7,232	7,232
955.00	9,167	8,505	15,737
956.00	10,598	9,883	25,619
957.00	12,118	11,358	36,977
958.00	13,744	12,931	49,908

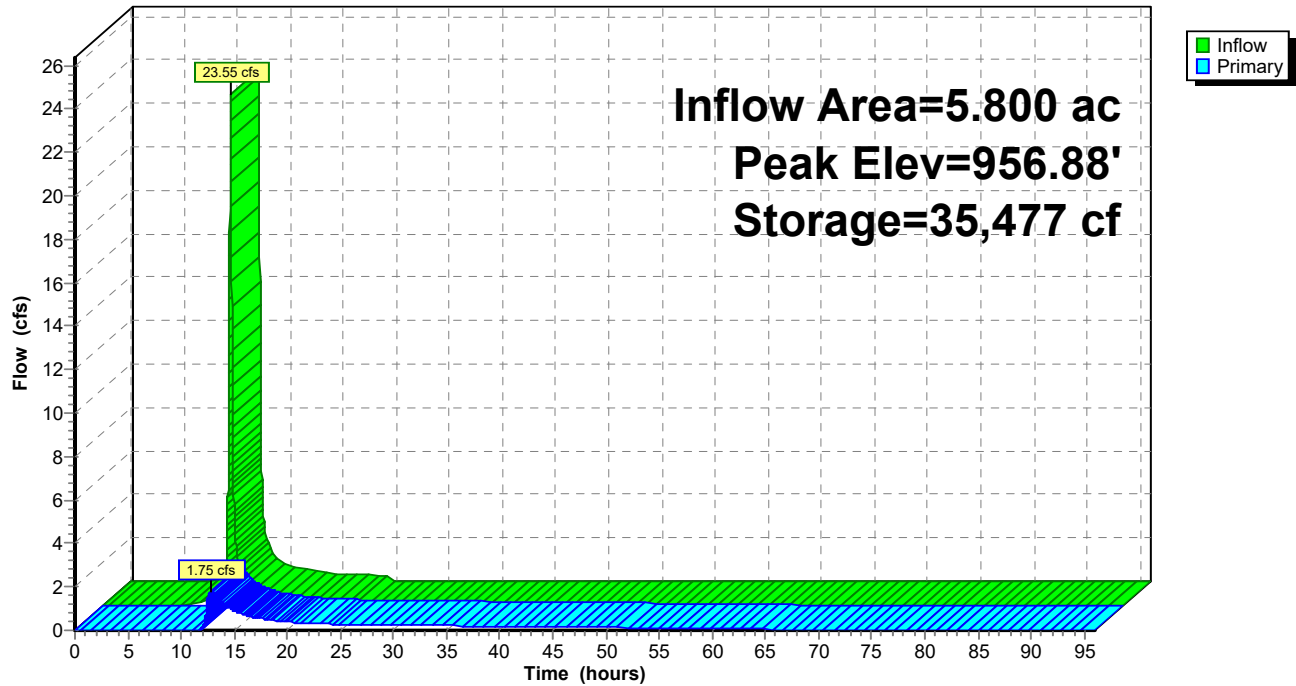
Device	Routing	Invert	Outlet Devices
#1	Primary	954.00'	12.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 954.00' / 953.50' S= 0.0100 ' / Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	954.00'	2.5" Vert. Orifice/Grate C= 0.600
#3	Primary	956.50'	24.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.75 cfs @ 12.89 hrs HW=956.88' (Free Discharge)

1=Culvert (Passes 0.27 cfs of 5.54 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.27 cfs @ 8.02 fps)
 3=Orifice/Grate (Orifice Controls 1.48 cfs @ 1.97 fps)

Pond 10P: Retention Pond SW

Hydrograph



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Type II 24-hr 25-Year Rainfall=4.64"

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Summary for Pond 13P: Retention Pond SE

Inflow Area = 8.970 ac, 24.61% Impervious, Inflow Depth = 2.58" for 25-Year event
 Inflow = 29.99 cfs @ 12.07 hrs, Volume= 1.929 af
 Outflow = 1.80 cfs @ 13.51 hrs, Volume= 1.917 af, Atten= 94%, Lag= 86.3 min
 Primary = 1.80 cfs @ 13.51 hrs, Volume= 1.917 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 961.27' @ 13.51 hrs Surf.Area= 20,237 sf Storage= 50,812 cf

Plug-Flow detention time= 1,079.0 min calculated for 1.916 af (99% of inflow)
 Center-of-Mass det. time= 1,075.2 min (1,905.5 - 830.3)

Volume	Invert	Avail.Storage	Storage Description
#1	958.00'	38,742 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	958.00'	27,604 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		66,346 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	6,743	0	0
959.00	8,123	7,433	7,433
960.00	9,608	8,866	16,299
961.00	11,197	10,403	26,701
962.00	12,885	12,041	38,742

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	4,423	0	0
959.00	5,571	4,997	4,997
960.00	6,823	6,197	11,194
961.00	8,179	7,501	18,695
962.00	9,639	8,909	27,604

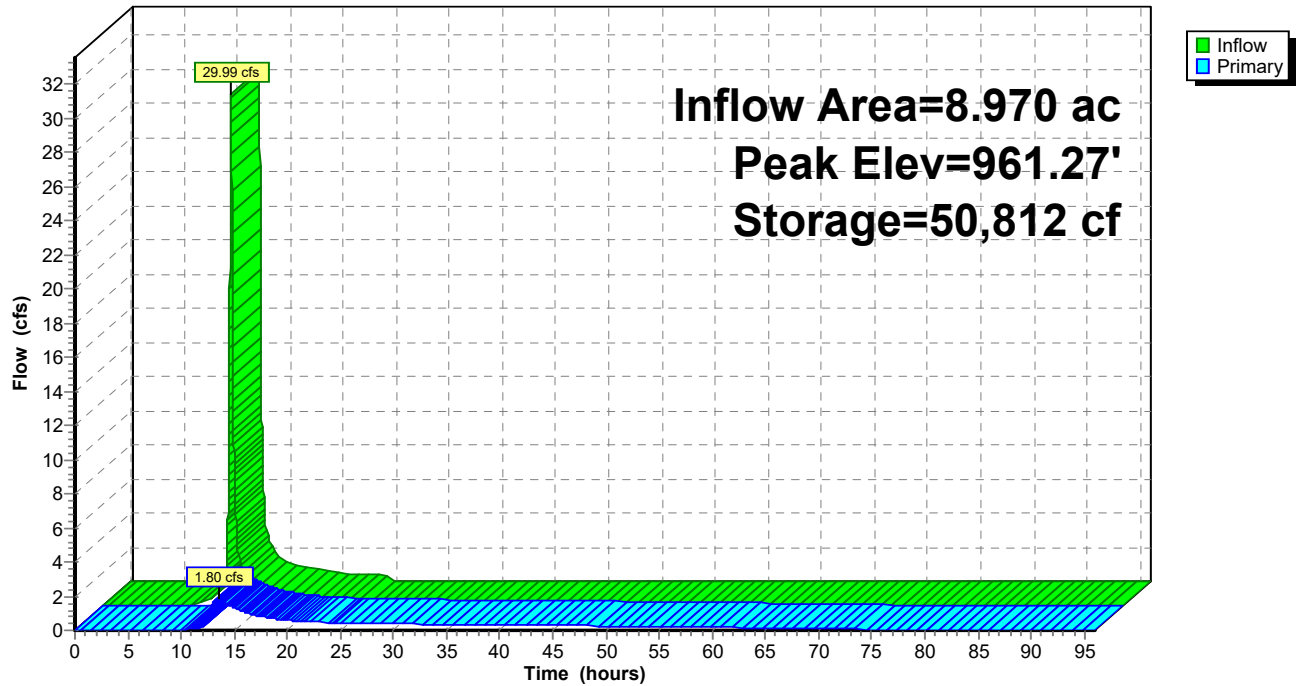
Device	Routing	Invert	Outlet Devices
#1	Primary	958.00'	12.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 958.00' / 957.00' S= 0.0100'/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	958.00'	3.0" Vert. Orifice/Grate C= 0.600
#3	Primary	961.00'	36.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.80 cfs @ 13.51 hrs HW=961.27' (Free Discharge)

- 1=Culvert (Passes 0.42 cfs of 5.29 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.42 cfs @ 8.54 fps)
 3=Orifice/Grate (Orifice Controls 1.38 cfs @ 1.68 fps)

Pond 13P: Retention Pond SE

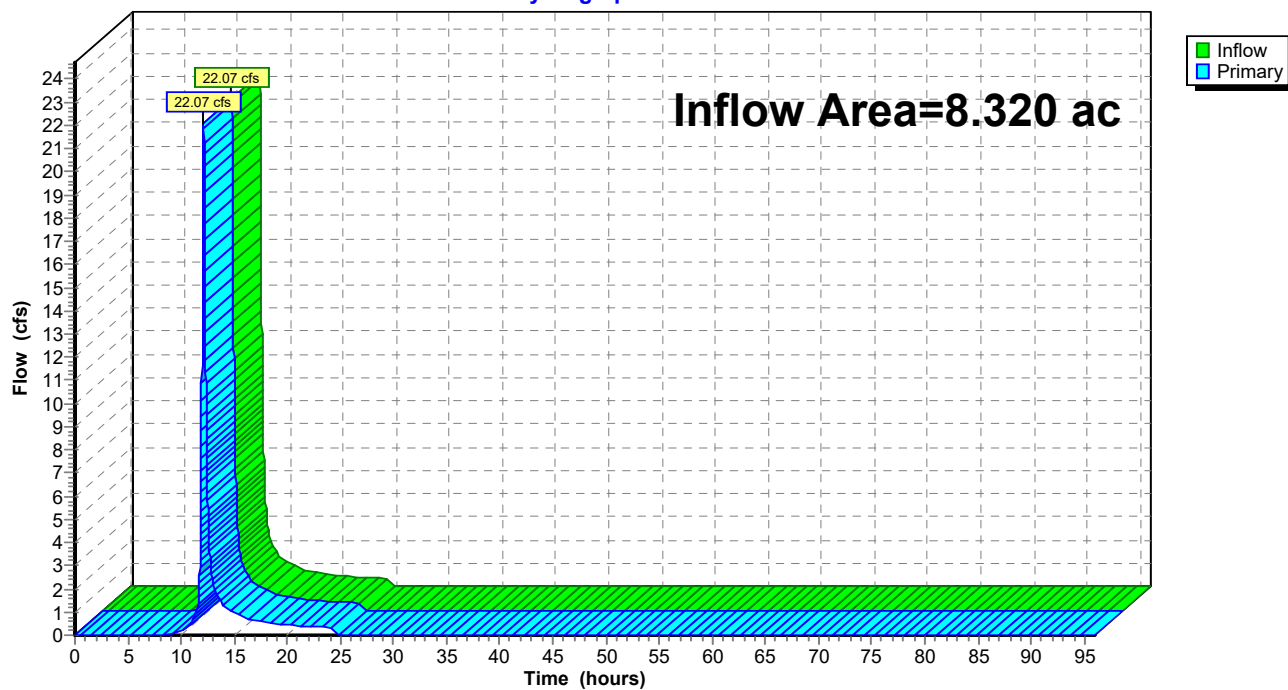
Hydrograph



Summary for Link 15L: Link

Inflow Area = 8.320 ac, 1.92% Impervious, Inflow Depth = 2.35" for 25-Year event
Inflow = 22.07 cfs @ 12.12 hrs, Volume= 1.629 af
Primary = 22.07 cfs @ 12.12 hrs, Volume= 1.629 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 15L: Link**Hydrograph**

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Type II 24-hr 50-Year Rainfall=5.33"

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Summary for Subcatchment 1S: PreDeveloped NW

Runoff = 10.96 cfs @ 12.11 hrs, Volume= 0.771 af, Depth= 2.99"

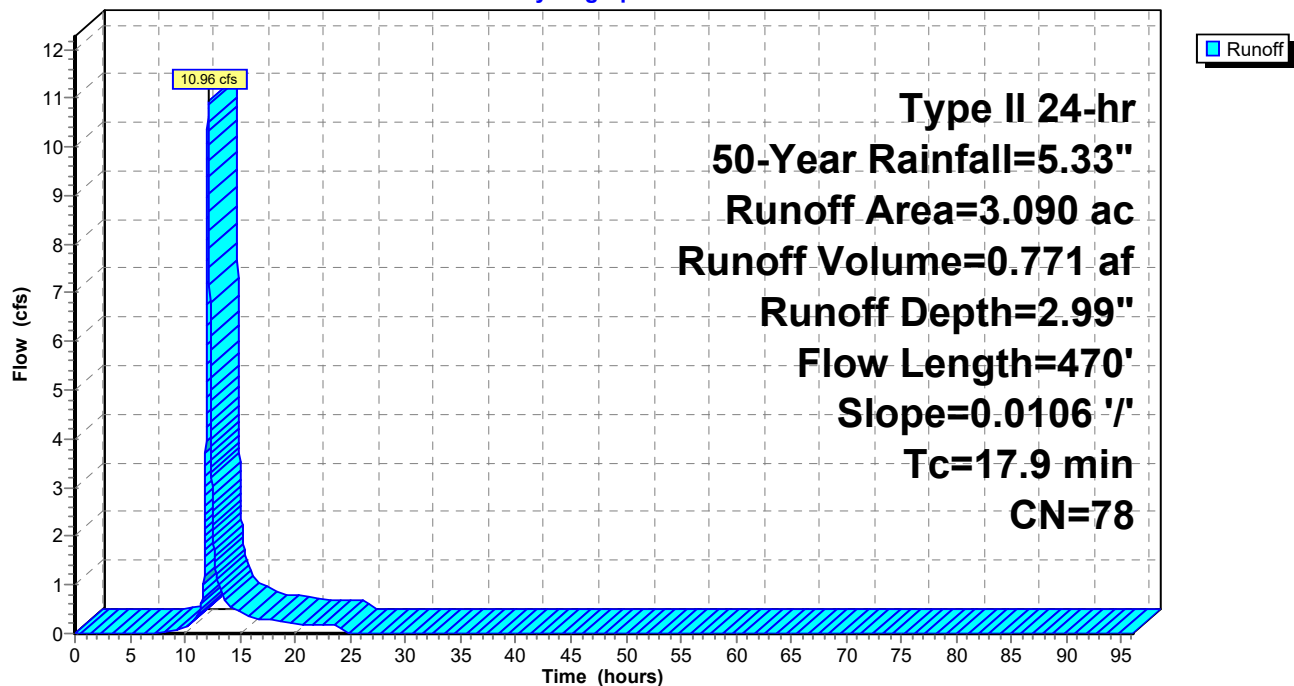
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=5.33"

Area (ac)	CN	Description
0.210	98	Roofs, HSG C
* 2.880	77	>75% Grass cover, Good, HSG D
3.090	78	Weighted Average
2.880		93.20% Pervious Area
0.210		6.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 1S: PreDeveloped NW

Hydrograph



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Type II 24-hr 50-Year Rainfall=5.33"

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Summary for Subcatchment 2S: Developed NW

Runoff = 13.41 cfs @ 12.07 hrs, Volume= 0.869 af, Depth= 3.38"

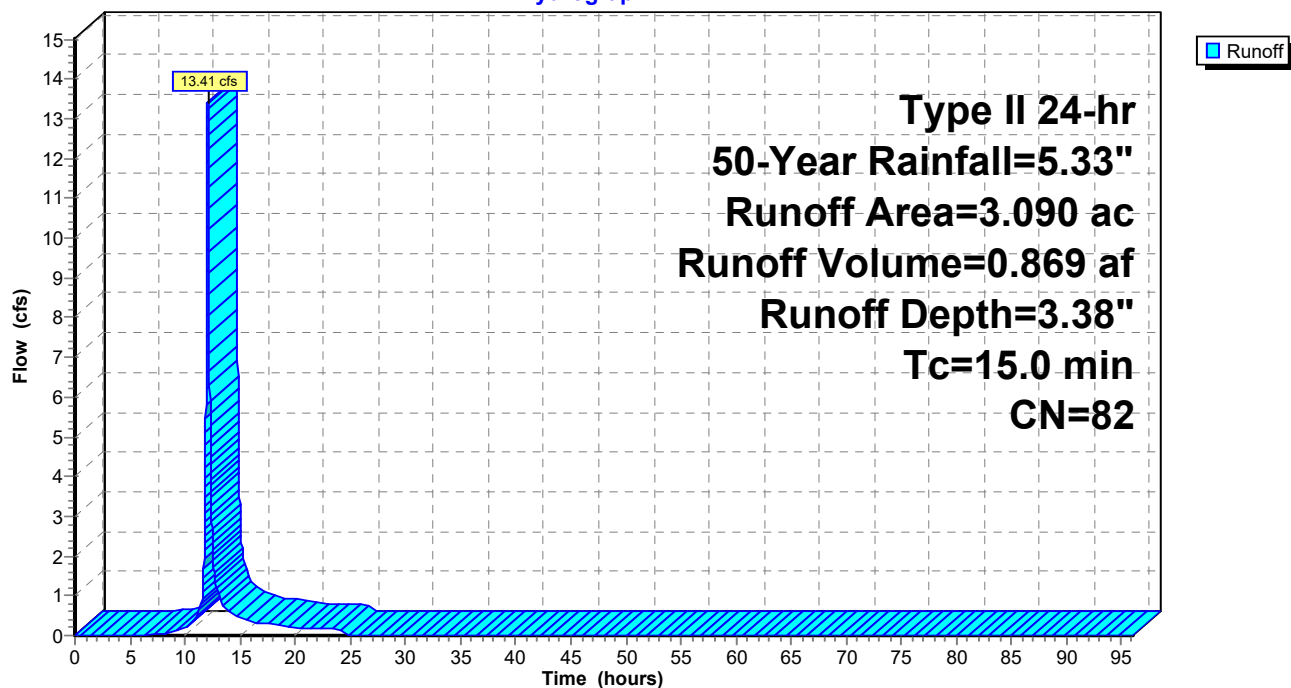
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=5.33"

Area (ac)	CN	Description
2.900	83	1/4 acre lots, 38% imp, HSG C
0.190	74	>75% Grass cover, Good, HSG C
3.090	82	Weighted Average
1.988		64.34% Pervious Area
1.102		35.66% Impervious Area

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

Subcatchment 2S: Developed NW

Hydrograph



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Type II 24-hr 50-Year Rainfall=5.33"

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Summary for Subcatchment 4S: Offsite

Runoff = 5.77 cfs @ 12.02 hrs, Volume= 0.314 af, Depth= 3.09"

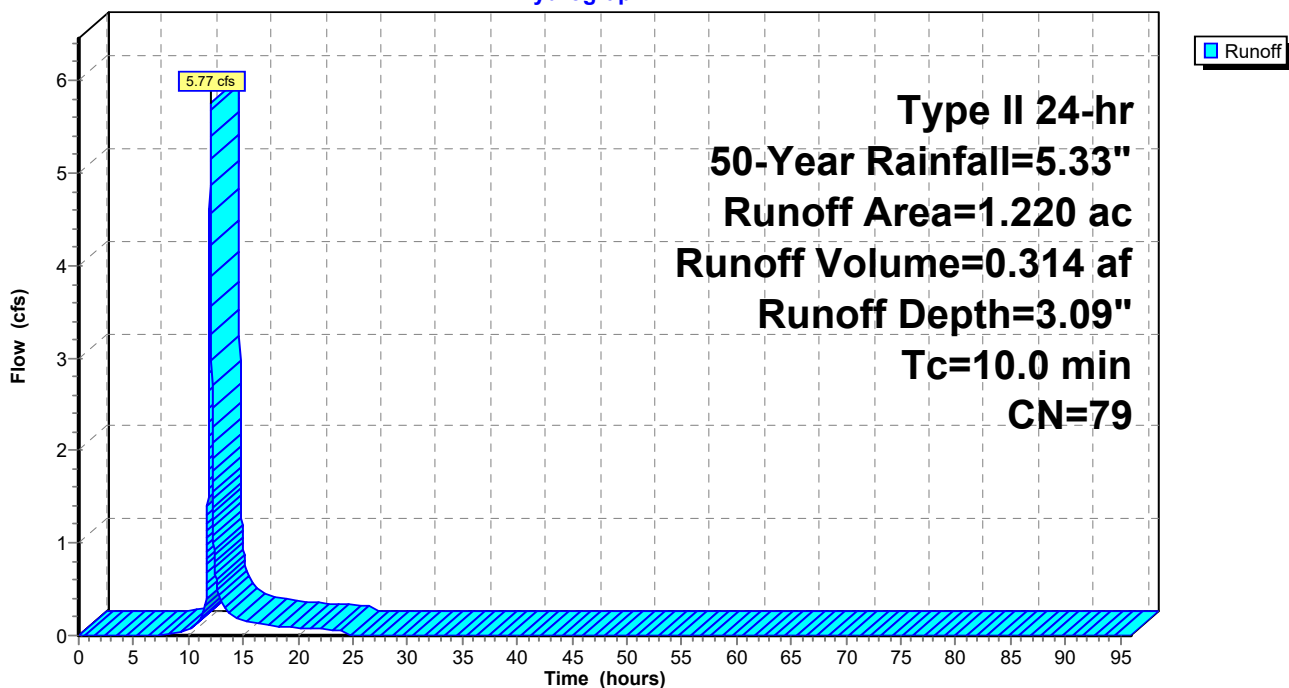
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=5.33"

Area (ac)	CN	Description
0.120	98	Roofs, HSG C
* 1.100	77	>75% Grass cover, Good, HSG D
1.220	79	Weighted Average
1.100		90.16% Pervious Area
0.120		9.84% Impervious Area

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

Subcatchment 4S: Offsite

Hydrograph



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Type II 24-hr 50-Year Rainfall=5.33"

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Summary for Subcatchment 8S: PreDeveloped SW

Runoff = 20.35 cfs @ 12.11 hrs, Volume= 1.432 af, Depth= 2.99"

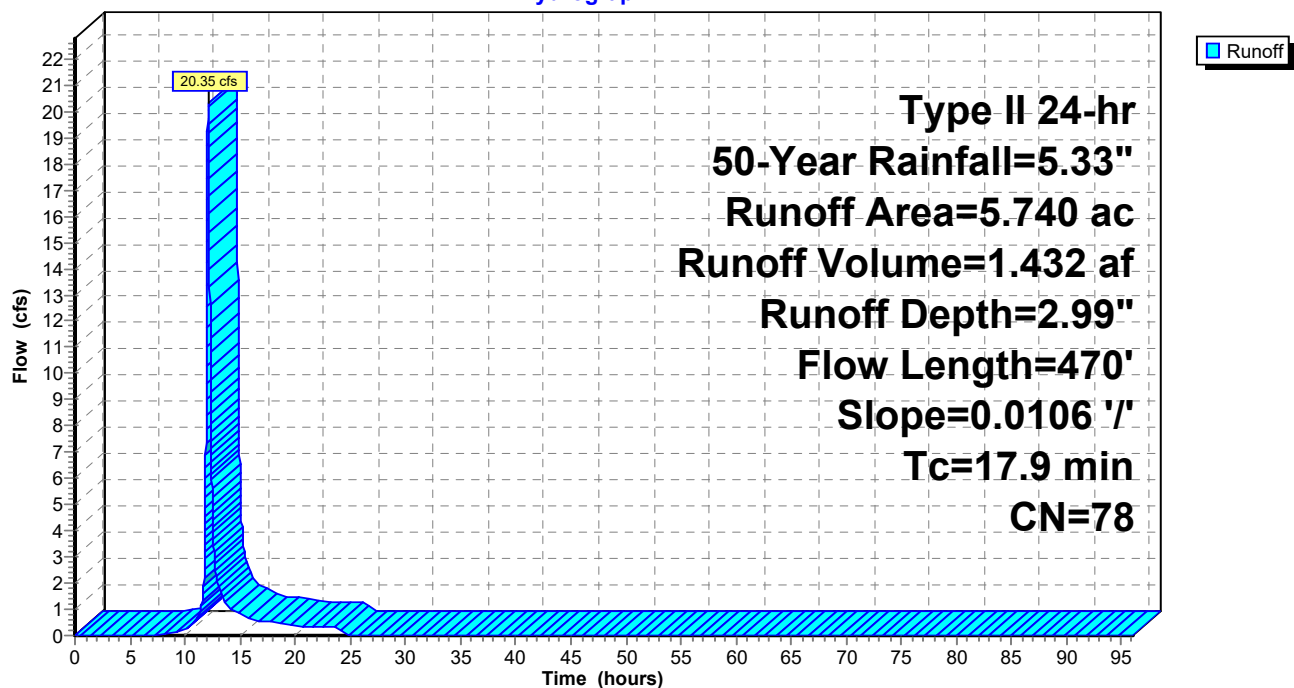
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=5.33"

Area (ac)	CN	Description
0.170	98	Roofs, HSG C
* 5.570	77	>75% Grass cover, Good, HSG D
5.740	78	Weighted Average
5.570		97.04% Pervious Area
0.170		2.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 8S: PreDeveloped SW

Hydrograph



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Type II 24-hr 50-Year Rainfall=5.33"

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Summary for Subcatchment 9S: Developed SW

Runoff = 28.52 cfs @ 12.04 hrs, Volume= 1.679 af, Depth= 3.47"

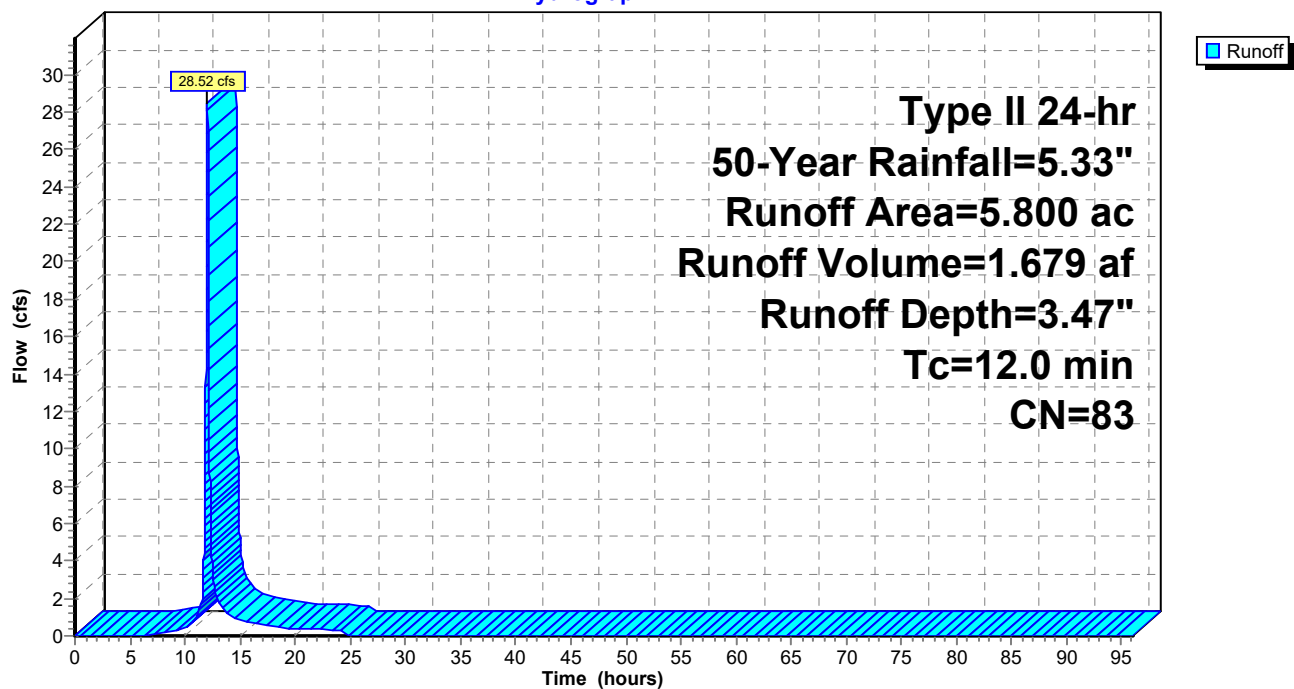
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=5.33"

Area (ac)	CN	Description
5.800	83	1/4 acre lots, 38% imp, HSG C
3.596		62.00% Pervious Area
2.204		38.00% Impervious Area

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

Subcatchment 9S: Developed SW

Hydrograph



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Summary for Subcatchment 11S: PreDeveloped NE

Runoff = 8.90 cfs @ 12.11 hrs, Volume= 0.626 af, Depth= 2.99"

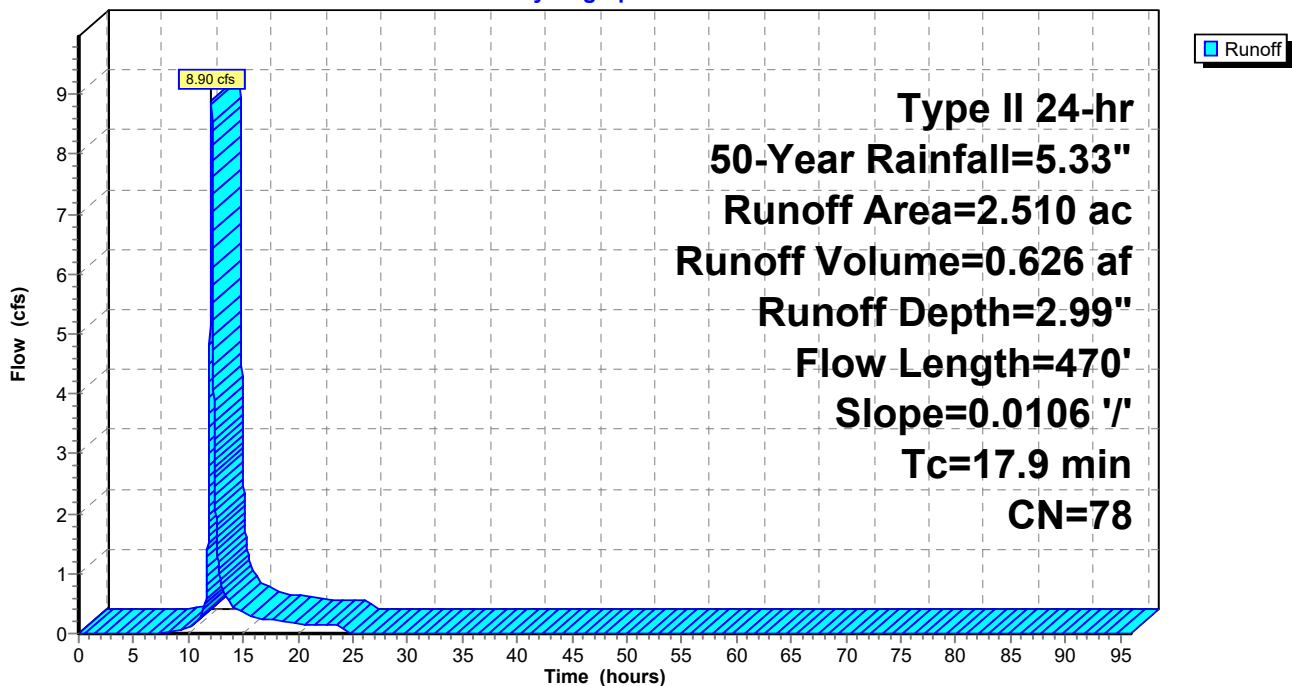
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=5.33"

Area (ac)	CN	Description
0.090	98	Roofs, HSG C
* 2.420	77	>75% Grass cover, Good, HSG D
2.510	78	Weighted Average
2.420		96.41% Pervious Area
0.090		3.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 11S: PreDeveloped NE

Hydrograph



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Summary for Subcatchment 12S: Developed SE

Runoff = 36.87 cfs @ 12.07 hrs, Volume= 2.379 af, Depth= 3.18"

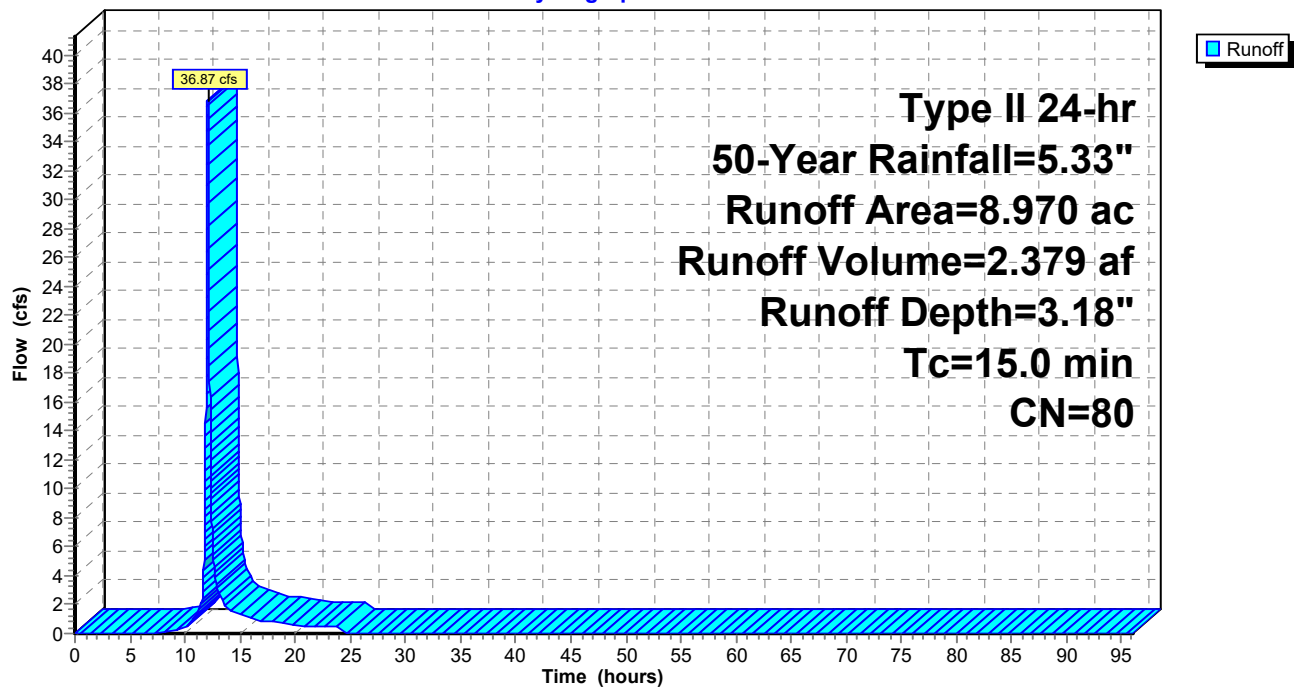
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=5.33"

Area (ac)	CN	Description
3.160	74	>75% Grass cover, Good, HSG C
5.810	83	1/4 acre lots, 38% imp, HSG C
8.970	80	Weighted Average
6.762		75.39% Pervious Area
2.208		24.61% Impervious Area

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

Subcatchment 12S: Developed SE

Hydrograph



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Type II 24-hr 50-Year Rainfall=5.33"

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Summary for Subcatchment 14S: PreDeveloped SE

Runoff = 18.75 cfs @ 12.13 hrs, Volume= 1.405 af, Depth= 2.90"

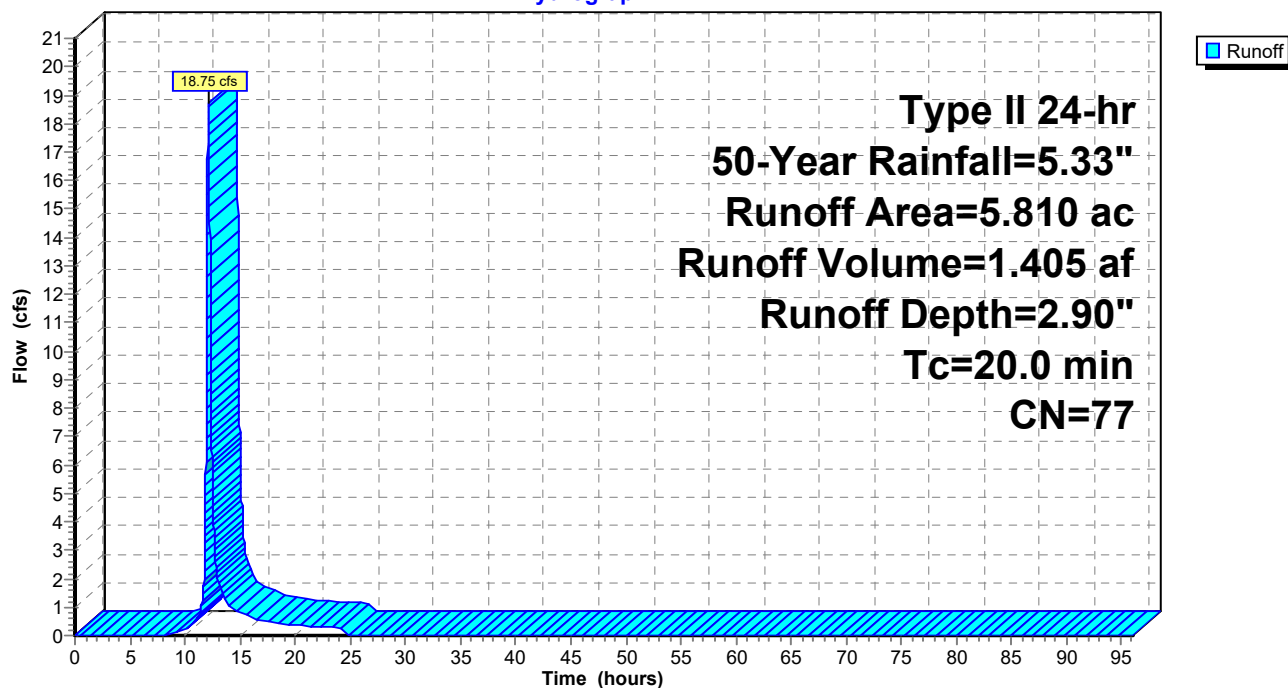
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-Year Rainfall=5.33"

Area (ac)	CN	Description
0.070	98	Roofs, HSG C
* 5.740	77	>75% Grass cover, Good, HSG D
5.810	77	Weighted Average
5.740		98.80% Pervious Area
0.070		1.20% Impervious Area

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

Subcatchment 14S: PreDeveloped SE

Hydrograph



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Type II 24-hr 50-Year Rainfall=5.33"

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Summary for Pond 3P: Retention Pond NW

Inflow Area = 4.310 ac, 28.35% Impervious, Inflow Depth = 3.29" for 50-Year event
 Inflow = 18.67 cfs @ 12.05 hrs, Volume= 1.183 af
 Outflow = 4.79 cfs @ 12.33 hrs, Volume= 1.180 af, Atten= 74%, Lag= 17.2 min
 Primary = 4.79 cfs @ 12.33 hrs, Volume= 1.180 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 956.19' @ 12.33 hrs Surf.Area= 8,450 sf Storage= 23,703 cf

Plug-Flow detention time= 674.0 min calculated for 1.179 af (100% of inflow)
 Center-of-Mass det. time= 672.4 min (1,492.3 - 819.8)

Volume	Invert	Avail.Storage	Storage Description
#1	952.00'	30,994 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
952.00	3,137	0	0
953.00	4,241	3,689	3,689
954.00	5,446	4,844	8,533
955.00	6,751	6,099	14,631
956.00	8,156	7,454	22,085
957.00	9,663	8,910	30,994

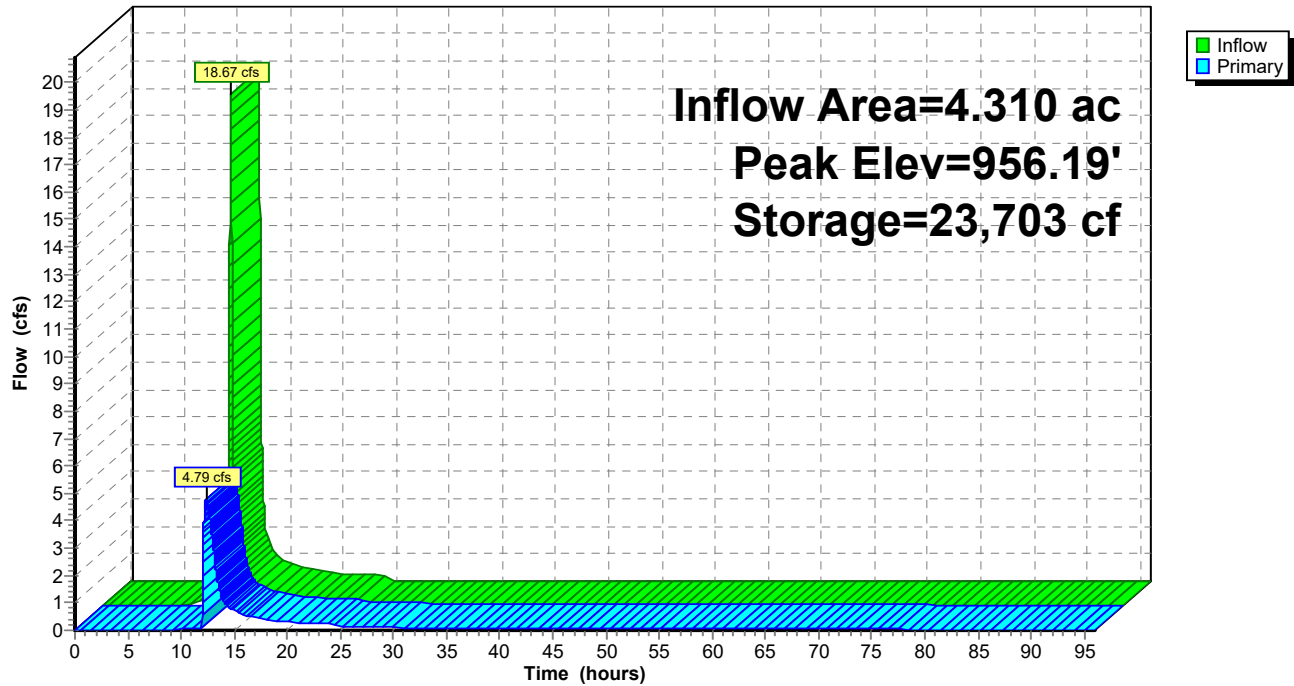
Device	Routing	Invert	Outlet Devices
#1	Primary	952.00'	12.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 952.00' / 951.00' S= 0.0100 ' / ' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	952.00'	1.5" Vert. Orifice/Grate C= 0.600
#3	Primary	955.00'	24.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=4.79 cfs @ 12.33 hrs HW=956.19' (Free Discharge)

1=Culvert (Passes 0.12 cfs of 5.99 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.12 cfs @ 9.79 fps)
 3=Orifice/Grate (Orifice Controls 4.67 cfs @ 4.67 fps)

Pond 3P: Retention Pond NW

Hydrograph



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Type II 24-hr 50-Year Rainfall=5.33"

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Summary for Pond 10P: Retention Pond SW

Inflow Area = 5.800 ac, 38.00% Impervious, Inflow Depth = 3.47" for 50-Year event
 Inflow = 28.52 cfs @ 12.04 hrs, Volume= 1.679 af
 Outflow = 3.66 cfs @ 12.49 hrs, Volume= 1.508 af, Atten= 87%, Lag= 27.3 min
 Primary = 3.66 cfs @ 12.49 hrs, Volume= 1.508 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 957.25' @ 12.49 hrs Surf.Area= 12,525 sf Storage= 40,063 cf

Plug-Flow detention time= 748.1 min calculated for 1.508 af (90% of inflow)
 Center-of-Mass det. time= 696.3 min (1,509.7 - 813.4)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	49,908 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
953.00	6,620	0	0
954.00	7,843	7,232	7,232
955.00	9,167	8,505	15,737
956.00	10,598	9,883	25,619
957.00	12,118	11,358	36,977
958.00	13,744	12,931	49,908

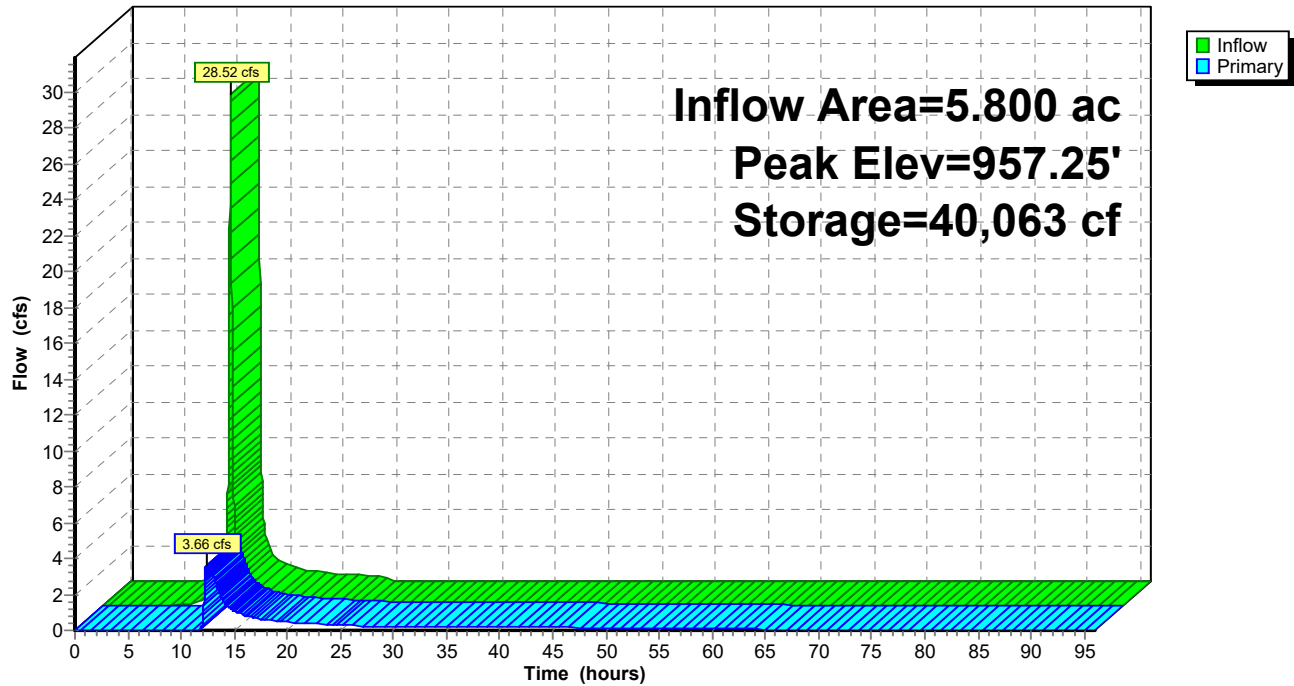
Device	Routing	Invert	Outlet Devices
#1	Primary	954.00'	12.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 954.00' / 953.50' S= 0.0100 ' /' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	954.00'	2.5" Vert. Orifice/Grate C= 0.600
#3	Primary	956.50'	24.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=3.66 cfs @ 12.49 hrs HW=957.25' (Free Discharge)

1=Culvert (Passes 0.29 cfs of 5.97 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.29 cfs @ 8.54 fps)
 3=Orifice/Grate (Orifice Controls 3.37 cfs @ 3.37 fps)

Pond 10P: Retention Pond SW

Hydrograph



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Type II 24-hr 50-Year Rainfall=5.33"

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Summary for Pond 13P: Retention Pond SE

Inflow Area = 8.970 ac, 24.61% Impervious, Inflow Depth = 3.18" for 50-Year event
 Inflow = 36.87 cfs @ 12.07 hrs, Volume= 2.379 af
 Outflow = 4.24 cfs @ 12.67 hrs, Volume= 2.366 af, Atten= 89%, Lag= 35.8 min
 Primary = 4.24 cfs @ 12.67 hrs, Volume= 2.366 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 961.55' @ 12.67 hrs Surf.Area= 21,101 sf Storage= 56,484 cf

Plug-Flow detention time= 894.4 min calculated for 2.366 af (99% of inflow)
 Center-of-Mass det. time= 891.4 min (1,715.7 - 824.3)

Volume	Invert	Avail.Storage	Storage Description
#1	958.00'	38,742 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	958.00'	27,604 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		66,346 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	6,743	0	0
959.00	8,123	7,433	7,433
960.00	9,608	8,866	16,299
961.00	11,197	10,403	26,701
962.00	12,885	12,041	38,742

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	4,423	0	0
959.00	5,571	4,997	4,997
960.00	6,823	6,197	11,194
961.00	8,179	7,501	18,695
962.00	9,639	8,909	27,604

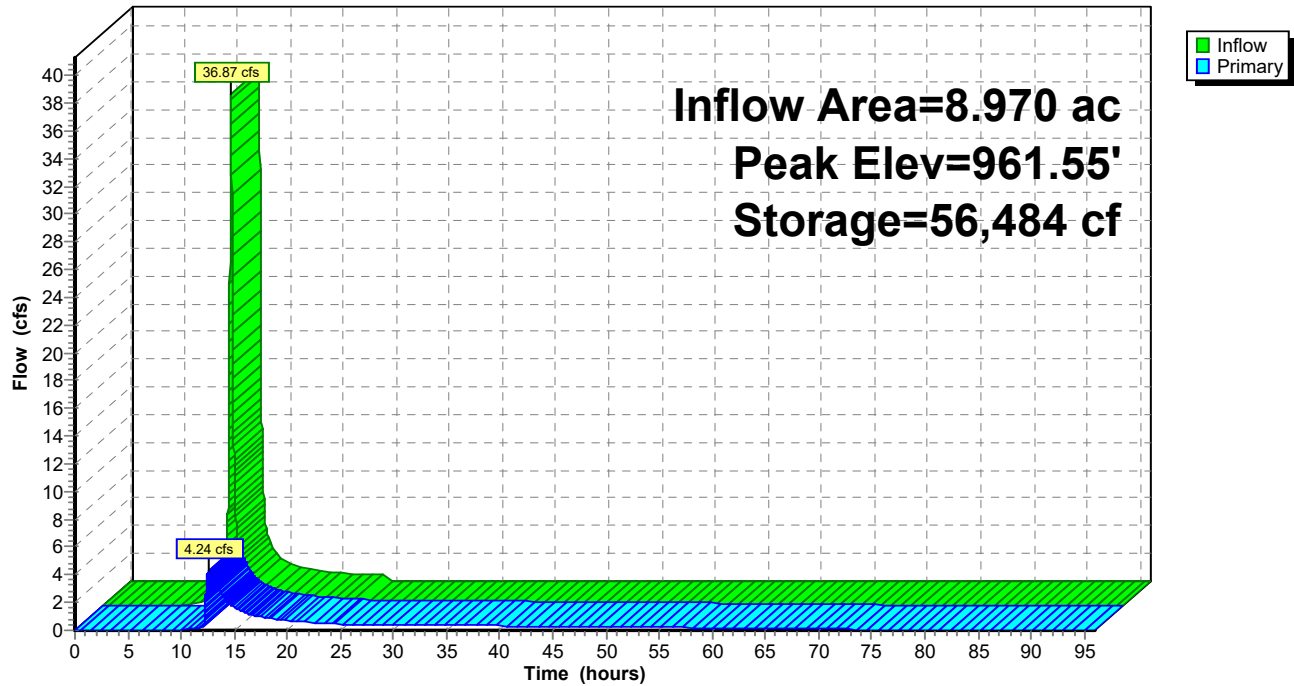
Device	Routing	Invert	Outlet Devices
#1	Primary	958.00'	12.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 958.00' / 957.00' S= 0.0100' /' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	958.00'	3.0" Vert. Orifice/Grate C= 0.600
#3	Primary	961.00'	36.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=4.24 cfs @ 12.67 hrs HW=961.55' (Free Discharge)

- 1=Culvert (Passes 0.44 cfs of 5.51 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.44 cfs @ 8.91 fps)
 3=Orifice/Grate (Orifice Controls 3.80 cfs @ 2.54 fps)

Pond 13P: Retention Pond SE

Hydrograph



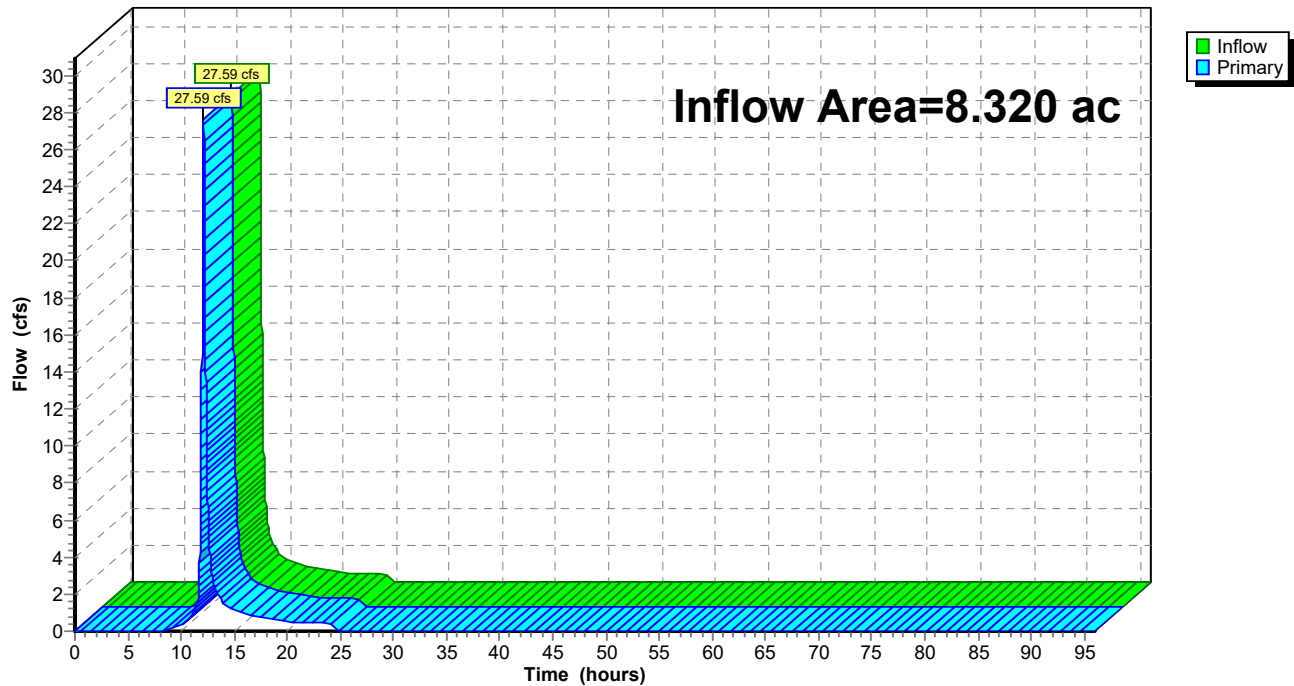
Summary for Link 15L: Link

Inflow Area = 8.320 ac, 1.92% Impervious, Inflow Depth = 2.93" for 50-Year event
 Inflow = 27.59 cfs @ 12.11 hrs, Volume= 2.031 af
 Primary = 27.59 cfs @ 12.11 hrs, Volume= 2.031 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 15L: Link

Hydrograph



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Type II 24-hr 100-Year Rainfall=6.06"

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Summary for Subcatchment 1S: PreDeveloped NW

Runoff = 13.26 cfs @ 12.11 hrs, Volume= 0.935 af, Depth= 3.63"

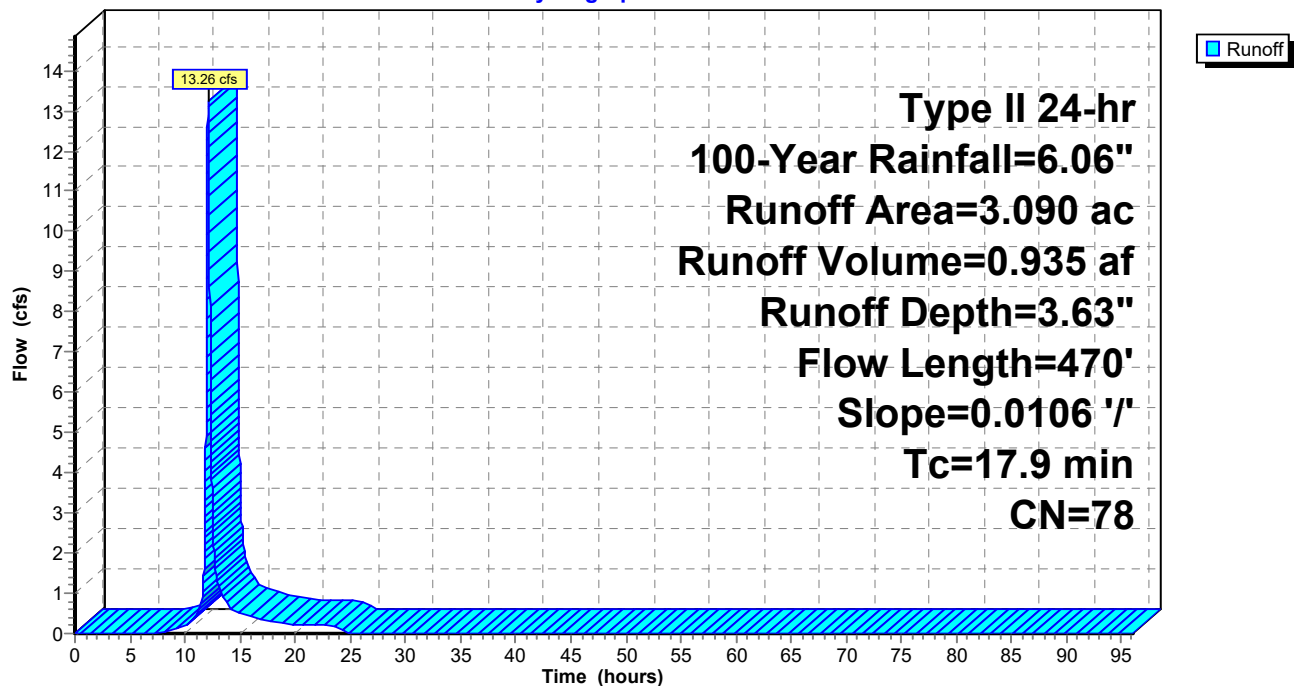
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=6.06"

Area (ac)	CN	Description
0.210	98	Roofs, HSG C
* 2.880	77	>75% Grass cover, Good, HSG D
3.090	78	Weighted Average
2.880		93.20% Pervious Area
0.210		6.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 1S: PreDeveloped NW

Hydrograph



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Type II 24-hr 100-Year Rainfall=6.06"

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Summary for Subcatchment 2S: Developed NW

Runoff = 15.97 cfs @ 12.07 hrs, Volume= 1.041 af, Depth= 4.04"

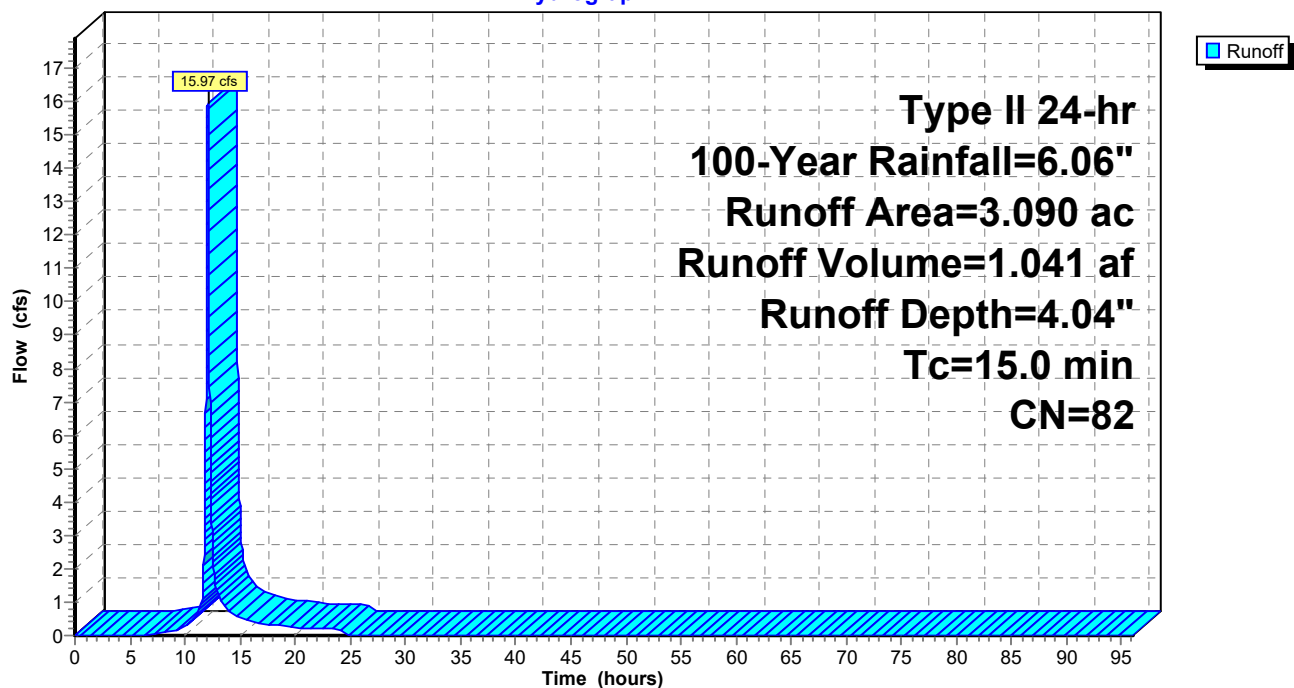
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=6.06"

Area (ac)	CN	Description
2.900	83	1/4 acre lots, 38% imp, HSG C
0.190	74	>75% Grass cover, Good, HSG C
3.090	82	Weighted Average
1.988		64.34% Pervious Area
1.102		35.66% Impervious Area

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

Subcatchment 2S: Developed NW

Hydrograph



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Type II 24-hr 100-Year Rainfall=6.06"

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Summary for Subcatchment 4S: Offsite

Runoff = 6.94 cfs @ 12.01 hrs, Volume= 0.380 af, Depth= 3.73"

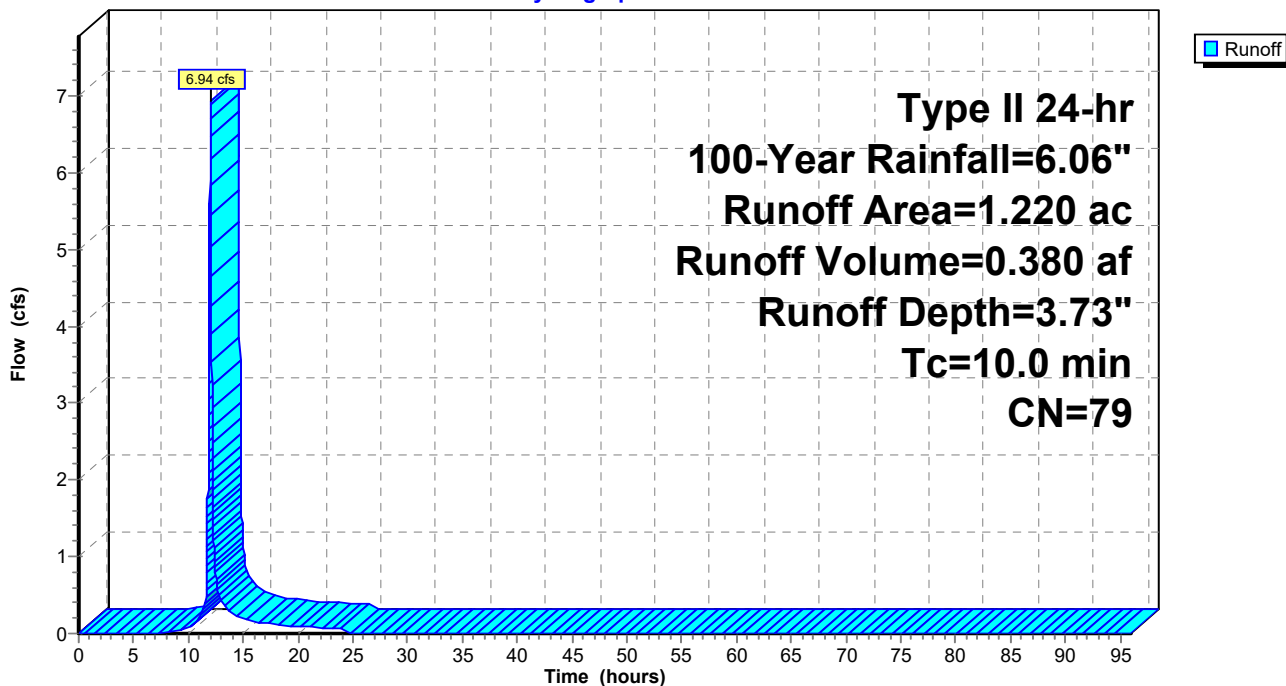
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=6.06"

Area (ac)	CN	Description
0.120	98	Roofs, HSG C
* 1.100	77	>75% Grass cover, Good, HSG D
1.220	79	Weighted Average
1.100		90.16% Pervious Area
0.120		9.84% Impervious Area

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

Subcatchment 4S: Offsite

Hydrograph



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Type II 24-hr 100-Year Rainfall=6.06"

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Summary for Subcatchment 8S: PreDeveloped SW

Runoff = 24.64 cfs @ 12.11 hrs, Volume= 1.737 af, Depth= 3.63"

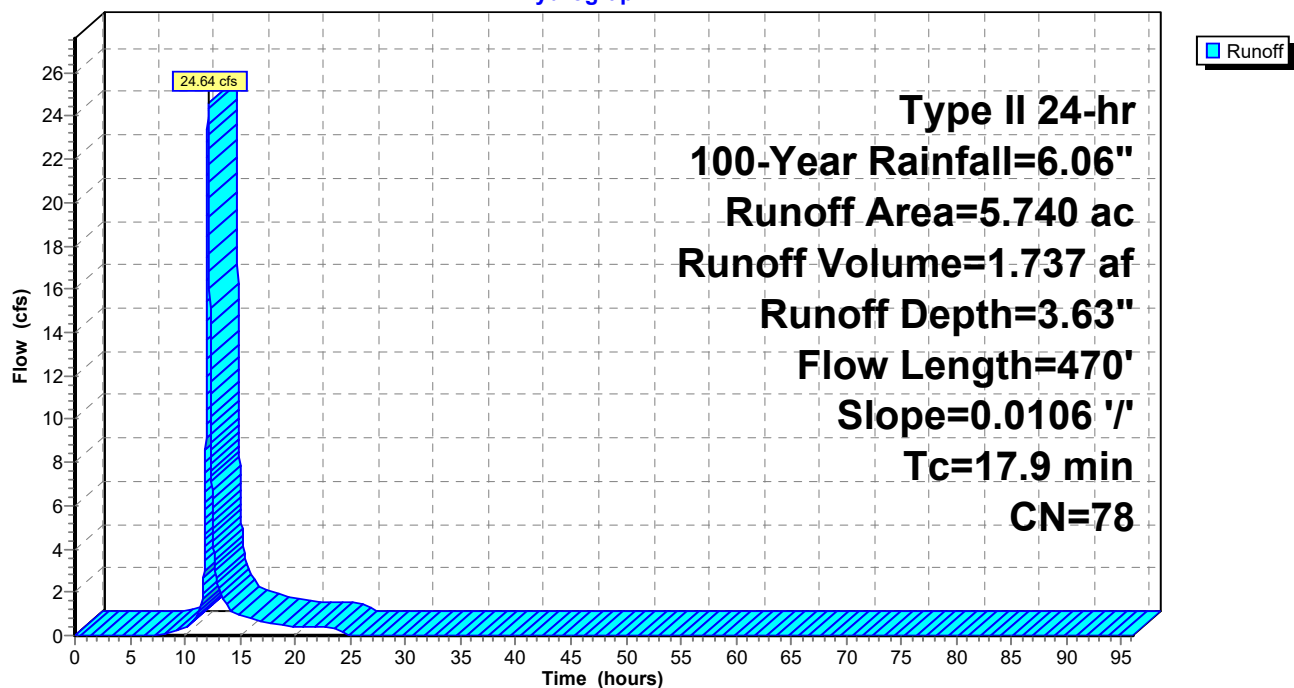
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=6.06"

Area (ac)	CN	Description
0.170	98	Roofs, HSG C
* 5.570	77	>75% Grass cover, Good, HSG D
5.740	78	Weighted Average
5.570		97.04% Pervious Area
0.170		2.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 8S: PreDeveloped SW

Hydrograph



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Type II 24-hr 100-Year Rainfall=6.06"

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Summary for Subcatchment 9S: Developed SW

Runoff = 33.80 cfs @ 12.04 hrs, Volume= 2.004 af, Depth= 4.15"

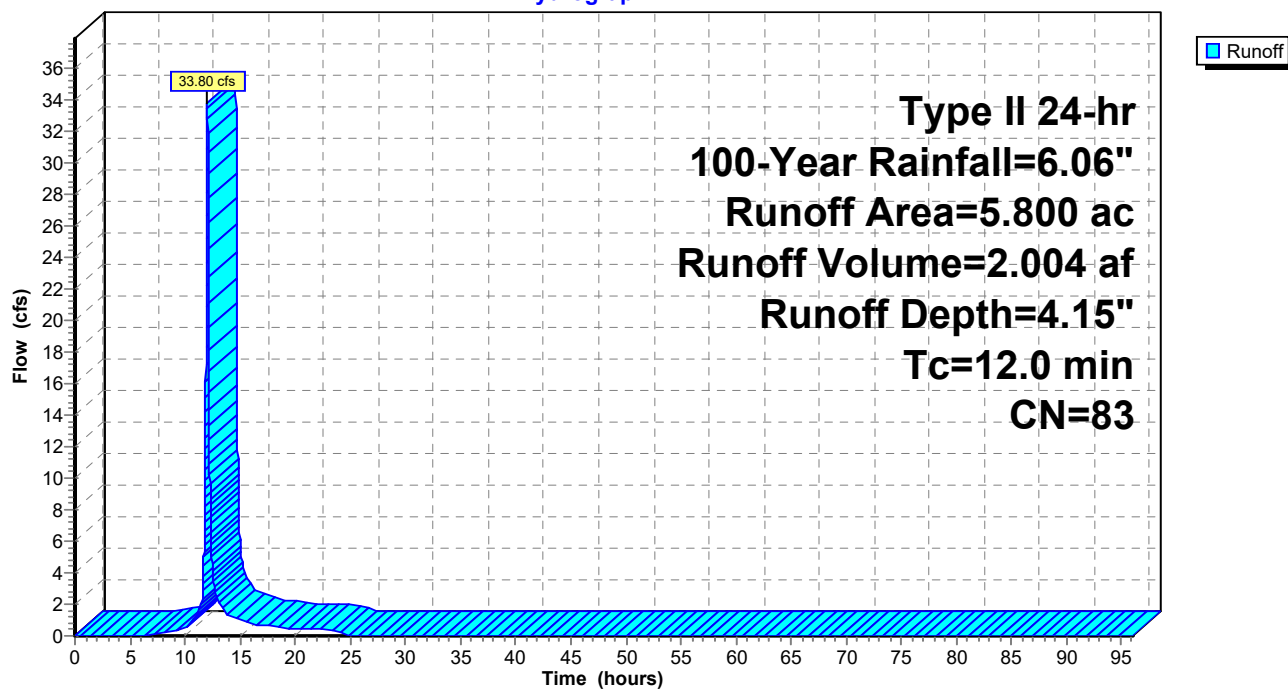
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=6.06"

Area (ac)	CN	Description
5.800	83	1/4 acre lots, 38% imp, HSG C
3.596		62.00% Pervious Area
2.204		38.00% Impervious Area

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

Subcatchment 9S: Developed SW

Hydrograph



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Type II 24-hr 100-Year Rainfall=6.06"

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Summary for Subcatchment 11S: PreDeveloped NE

Runoff = 10.77 cfs @ 12.11 hrs, Volume= 0.760 af, Depth= 3.63"

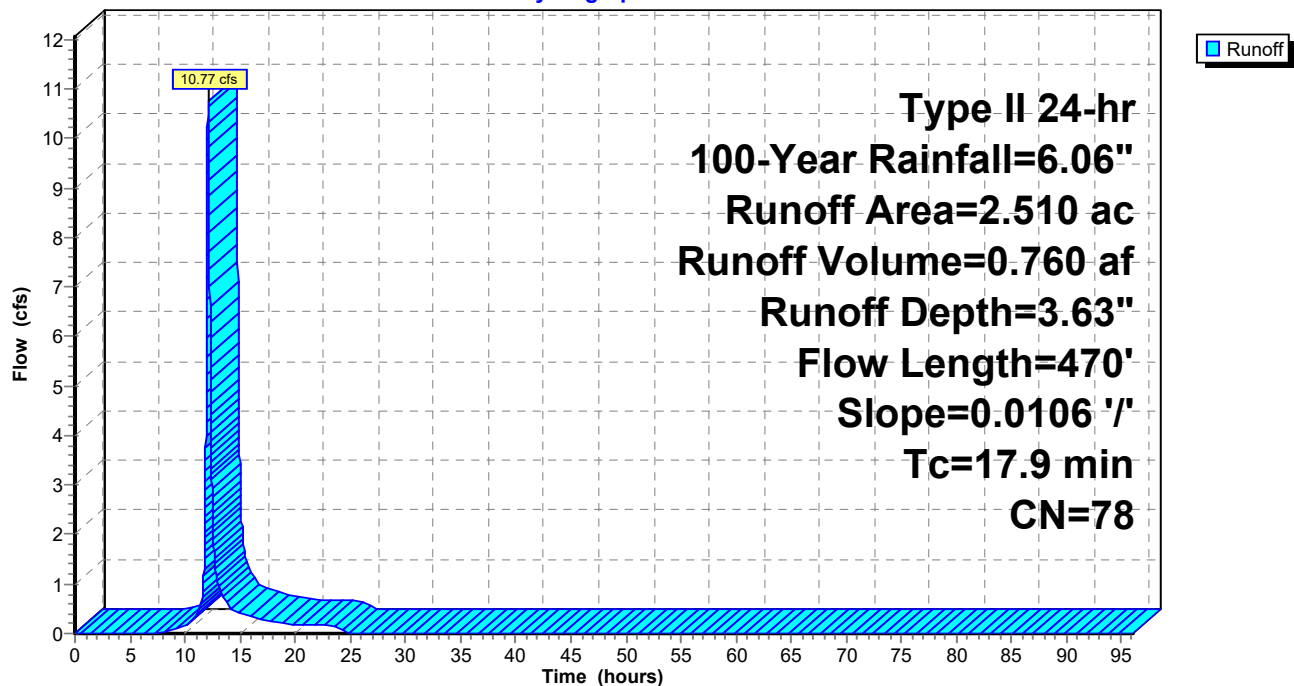
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=6.06"

Area (ac)	CN	Description
0.090	98	Roofs, HSG C
* 2.420	77	>75% Grass cover, Good, HSG D
2.510	78	Weighted Average
2.420		96.41% Pervious Area
0.090		3.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	470	0.0106	0.44		Lag/CN Method,

Subcatchment 11S: PreDeveloped NE

Hydrograph



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Type II 24-hr 100-Year Rainfall=6.06"

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Summary for Subcatchment 12S: Developed SE

Runoff = 44.24 cfs @ 12.07 hrs, Volume= 2.867 af, Depth= 3.84"

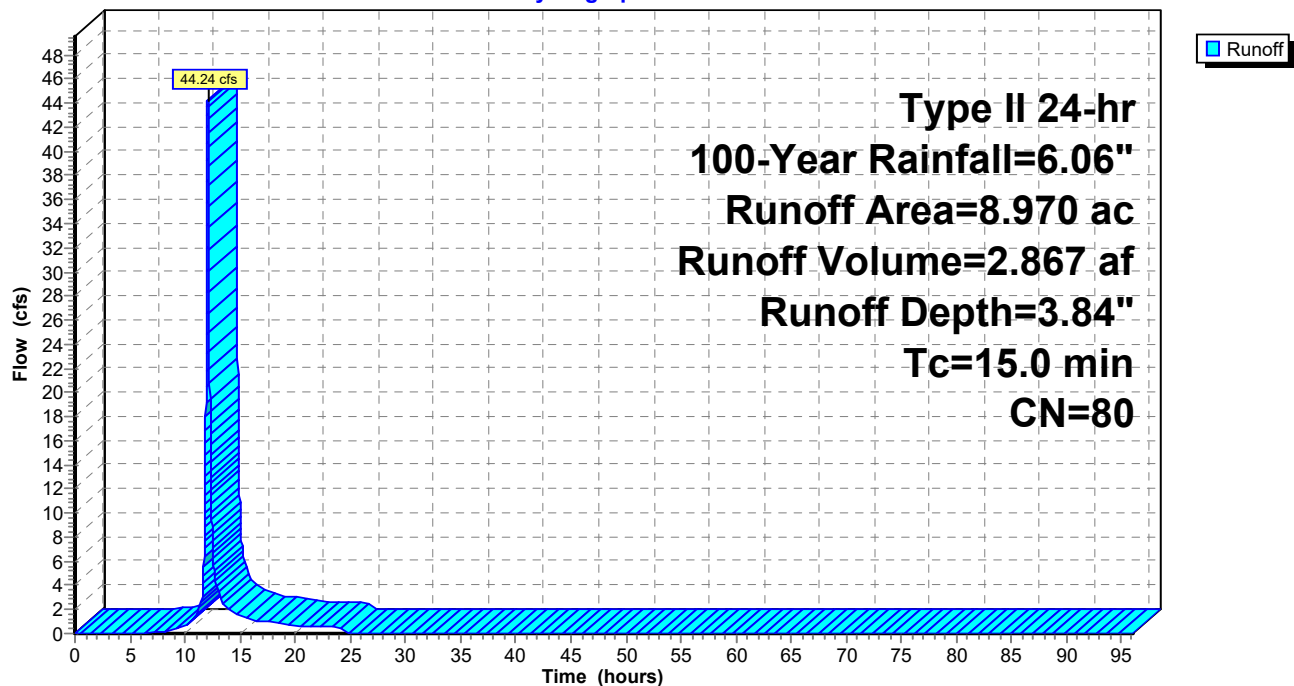
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=6.06"

Area (ac)	CN	Description
3.160	74	>75% Grass cover, Good, HSG C
5.810	83	1/4 acre lots, 38% imp, HSG C
8.970	80	Weighted Average
6.762		75.39% Pervious Area
2.208		24.61% Impervious Area

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

Subcatchment 12S: Developed SE

Hydrograph



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Type II 24-hr 100-Year Rainfall=6.06"

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Summary for Subcatchment 14S: PreDeveloped SE

Runoff = 22.82 cfs @ 12.13 hrs, Volume= 1.710 af, Depth= 3.53"

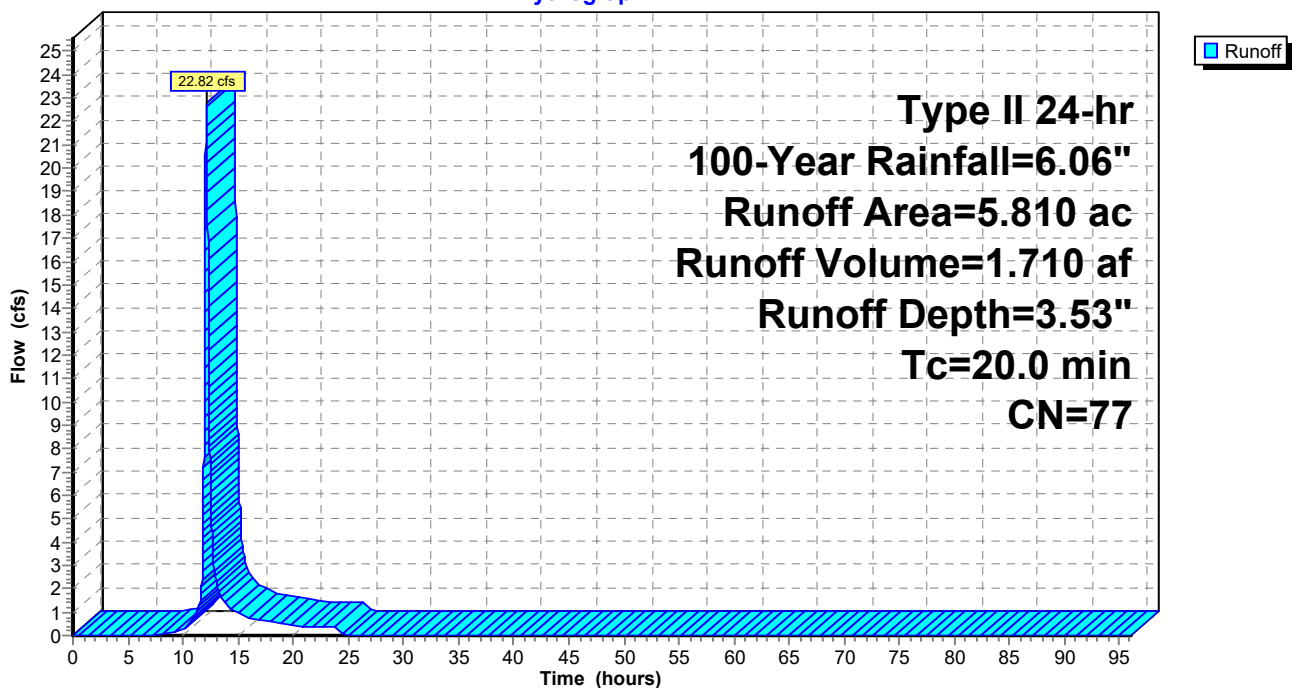
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-Year Rainfall=6.06"

Area (ac)	CN	Description
0.070	98	Roofs, HSG C
* 5.740	77	>75% Grass cover, Good, HSG D
5.810	77	Weighted Average
5.740		98.80% Pervious Area
0.070		1.20% Impervious Area

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

Subcatchment 14S: PreDeveloped SE

Hydrograph



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Type II 24-hr 100-Year Rainfall=6.06"

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Summary for Pond 3P: Retention Pond NW

Inflow Area = 4.310 ac, 28.35% Impervious, Inflow Depth = 3.95" for 100-Year event
 Inflow = 22.30 cfs @ 12.05 hrs, Volume= 1.420 af
 Outflow = 5.92 cfs @ 12.32 hrs, Volume= 1.417 af, Atten= 73%, Lag= 16.6 min
 Primary = 5.92 cfs @ 12.32 hrs, Volume= 1.417 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 956.70' @ 12.32 hrs Surf.Area= 9,211 sf Storage= 28,165 cf

Plug-Flow detention time= 572.0 min calculated for 1.417 af (100% of inflow)
 Center-of-Mass det. time= 570.8 min (1,385.4 - 814.6)

Volume	Invert	Avail.Storage	Storage Description
#1	952.00'	30,994 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
952.00	3,137	0	0
953.00	4,241	3,689	3,689
954.00	5,446	4,844	8,533
955.00	6,751	6,099	14,631
956.00	8,156	7,454	22,085
957.00	9,663	8,910	30,994

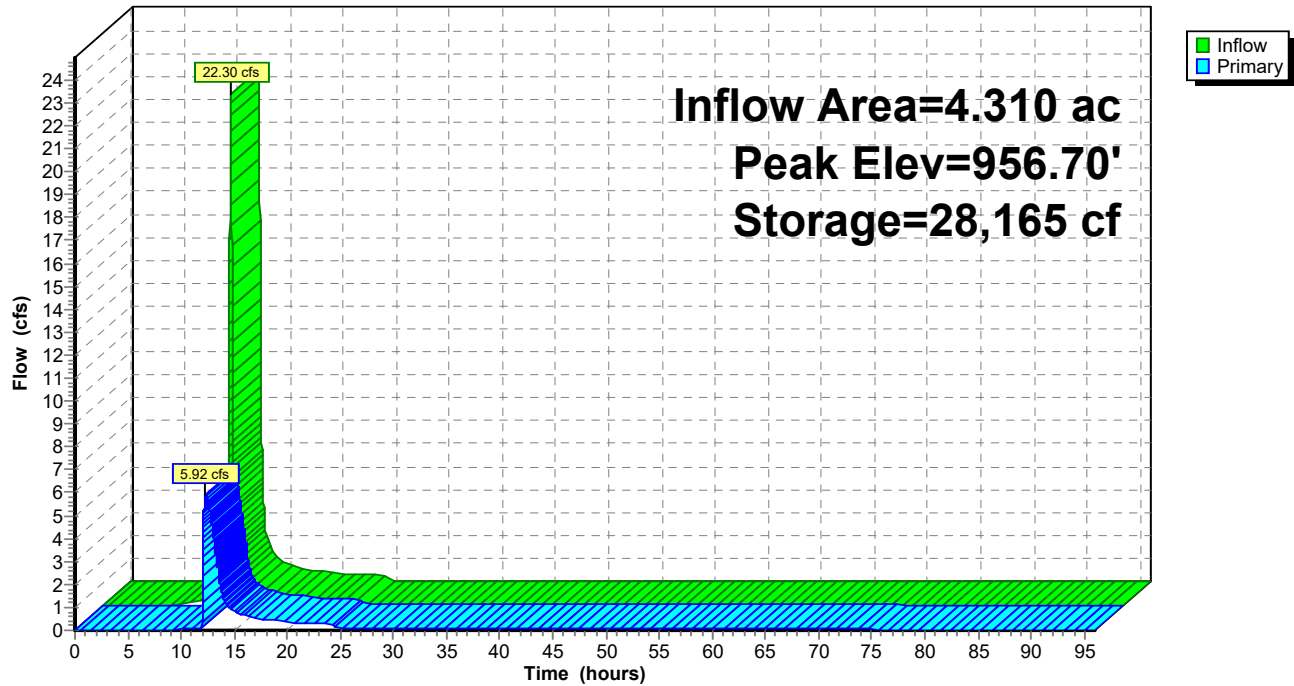
Device	Routing	Invert	Outlet Devices
#1	Primary	952.00'	12.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 952.00' / 951.00' S= 0.0100 ' / ' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	952.00'	1.5" Vert. Orifice/Grate C= 0.600
#3	Primary	955.00'	24.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=5.92 cfs @ 12.32 hrs HW=956.70' (Free Discharge)

1=Culvert (Passes 0.13 cfs of 6.34 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.13 cfs @ 10.37 fps)
 3=Orifice/Grate (Orifice Controls 5.79 cfs @ 5.79 fps)

Pond 3P: Retention Pond NW

Hydrograph



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Type II 24-hr 100-Year Rainfall=6.06"

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Summary for Pond 10P: Retention Pond SW

Inflow Area = 5.800 ac, 38.00% Impervious, Inflow Depth = 4.15" for 100-Year event
 Inflow = 33.80 cfs @ 12.04 hrs, Volume= 2.004 af
 Outflow = 5.14 cfs @ 12.42 hrs, Volume= 1.833 af, Atten= 85%, Lag= 22.8 min
 Primary = 5.14 cfs @ 12.42 hrs, Volume= 1.833 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 957.76' @ 12.42 hrs Surf.Area= 13,351 sf Storage= 46,631 cf

Plug-Flow detention time= 634.1 min calculated for 1.833 af (91% of inflow)
 Center-of-Mass det. time= 589.0 min (1,397.3 - 808.3)

Volume	Invert	Avail.Storage	Storage Description
#1	953.00'	49,908 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
953.00	6,620	0	0
954.00	7,843	7,232	7,232
955.00	9,167	8,505	15,737
956.00	10,598	9,883	25,619
957.00	12,118	11,358	36,977
958.00	13,744	12,931	49,908

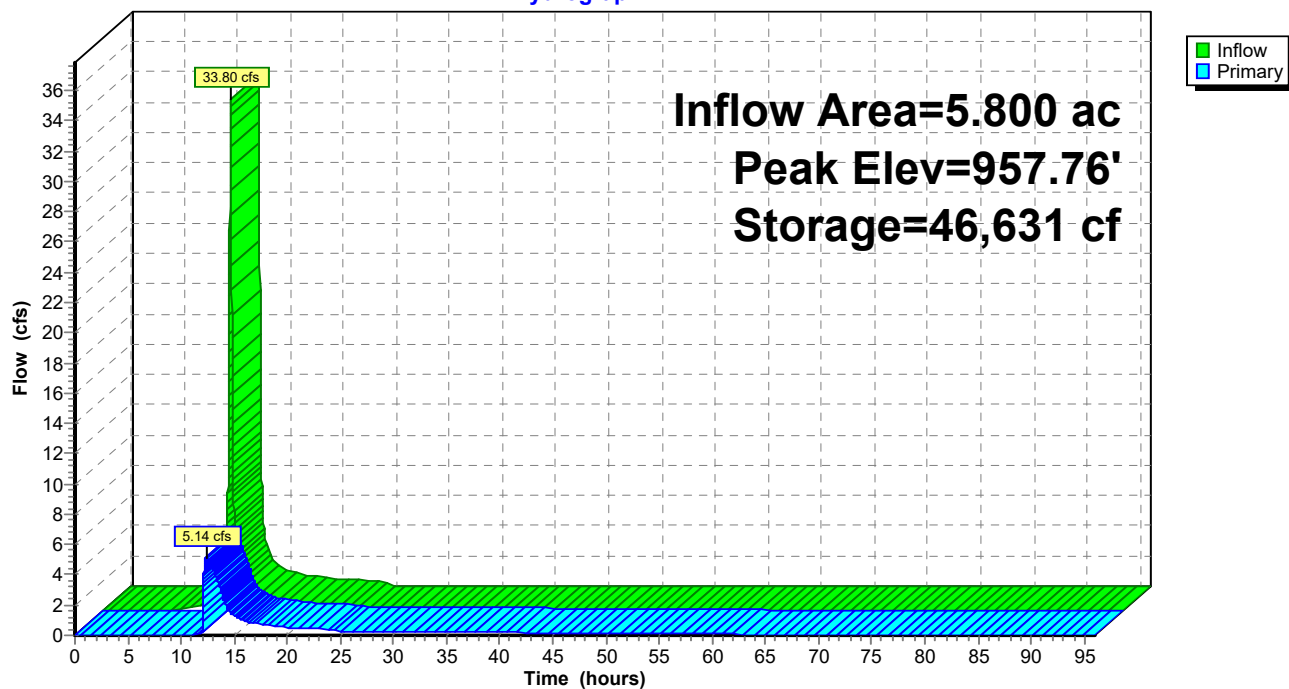
Device	Routing	Invert	Outlet Devices
#1	Primary	954.00'	12.0" Round Culvert L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 954.00' / 953.50' S= 0.0100 ' /' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	954.00'	2.5" Vert. Orifice/Grate C= 0.600
#3	Primary	956.50'	24.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=5.14 cfs @ 12.42 hrs HW=957.76' (Free Discharge)

1=Culvert (Passes 0.31 cfs of 6.49 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.31 cfs @ 9.20 fps)
 3=Orifice/Grate (Orifice Controls 4.82 cfs @ 4.82 fps)

Pond 10P: Retention Pond SW

Hydrograph



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Type II 24-hr 100-Year Rainfall=6.06"

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Summary for Pond 13P: Retention Pond SE

Inflow Area = 8.970 ac, 24.61% Impervious, Inflow Depth = 3.84" for 100-Year event
 Inflow = 44.24 cfs @ 12.07 hrs, Volume= 2.867 af
 Outflow = 6.48 cfs @ 12.55 hrs, Volume= 2.854 af, Atten= 85%, Lag= 28.9 min
 Primary = 6.48 cfs @ 12.55 hrs, Volume= 2.854 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 2
 Peak Elev= 961.95' @ 12.55 hrs Surf.Area= 22,373 sf Storage= 65,272 cf

Plug-Flow detention time= 758.2 min calculated for 2.854 af (100% of inflow)
 Center-of-Mass det. time= 755.7 min (1,574.7 - 819.0)

Volume	Invert	Avail.Storage	Storage Description
#1	958.00'	38,742 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	958.00'	27,604 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		66,346 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	6,743	0	0
959.00	8,123	7,433	7,433
960.00	9,608	8,866	16,299
961.00	11,197	10,403	26,701
962.00	12,885	12,041	38,742

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
958.00	4,423	0	0
959.00	5,571	4,997	4,997
960.00	6,823	6,197	11,194
961.00	8,179	7,501	18,695
962.00	9,639	8,909	27,604

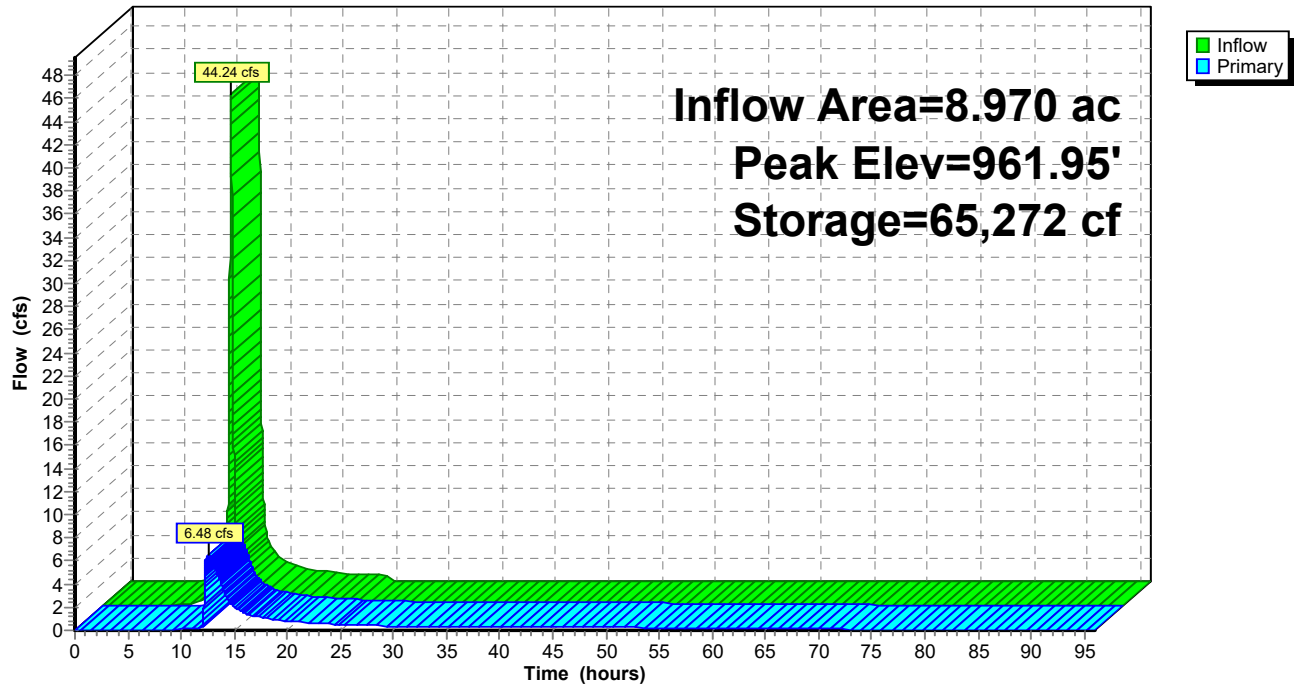
Device	Routing	Invert	Outlet Devices
#1	Primary	958.00'	12.0" Round Culvert L= 100.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 958.00' / 957.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	958.00'	3.0" Vert. Orifice/Grate C= 0.600
#3	Primary	961.00'	36.0" W x 6.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=6.48 cfs @ 12.55 hrs HW=961.95' (Free Discharge)

- 1=Culvert (Passes 0.46 cfs of 5.82 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.46 cfs @ 9.42 fps)
 3=Orifice/Grate (Orifice Controls 6.02 cfs @ 4.01 fps)

Pond 13P: Retention Pond SE

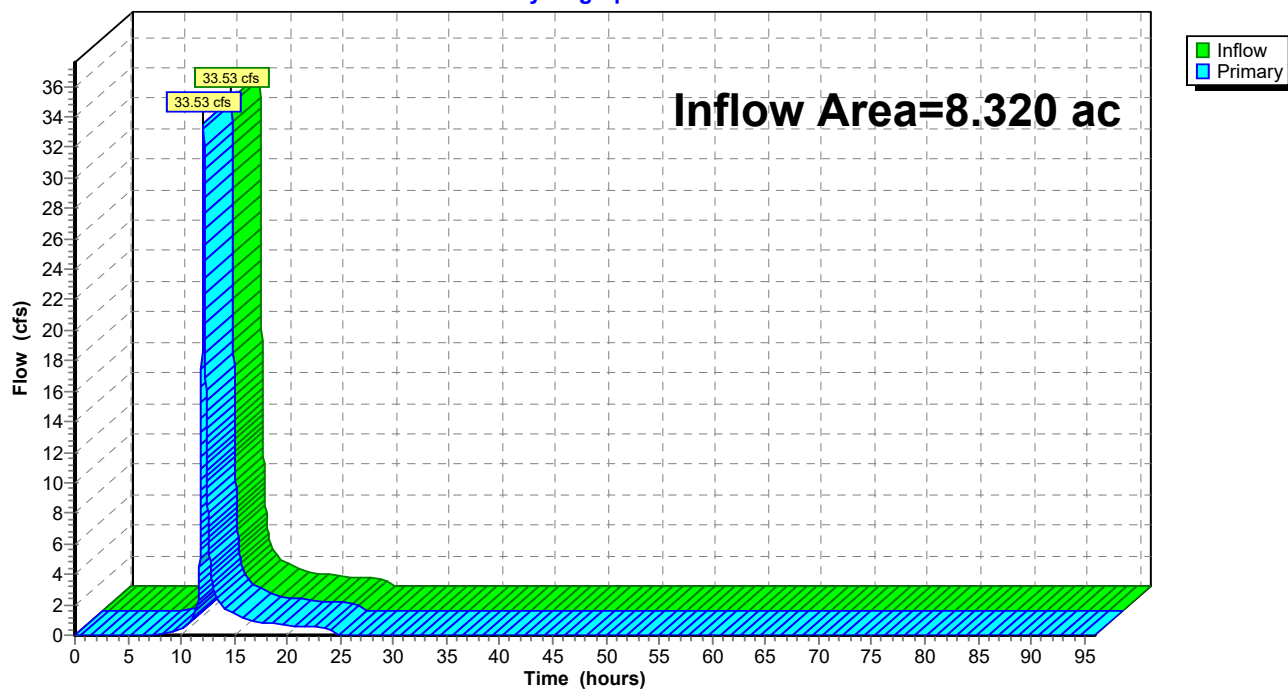
Hydrograph



Summary for Link 15L: Link

Inflow Area = 8.320 ac, 1.92% Impervious, Inflow Depth = 3.56" for 100-Year event
Inflow = 33.53 cfs @ 12.11 hrs, Volume= 2.470 af
Primary = 33.53 cfs @ 12.11 hrs, Volume= 2.470 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 15L: Link**Hydrograph**

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