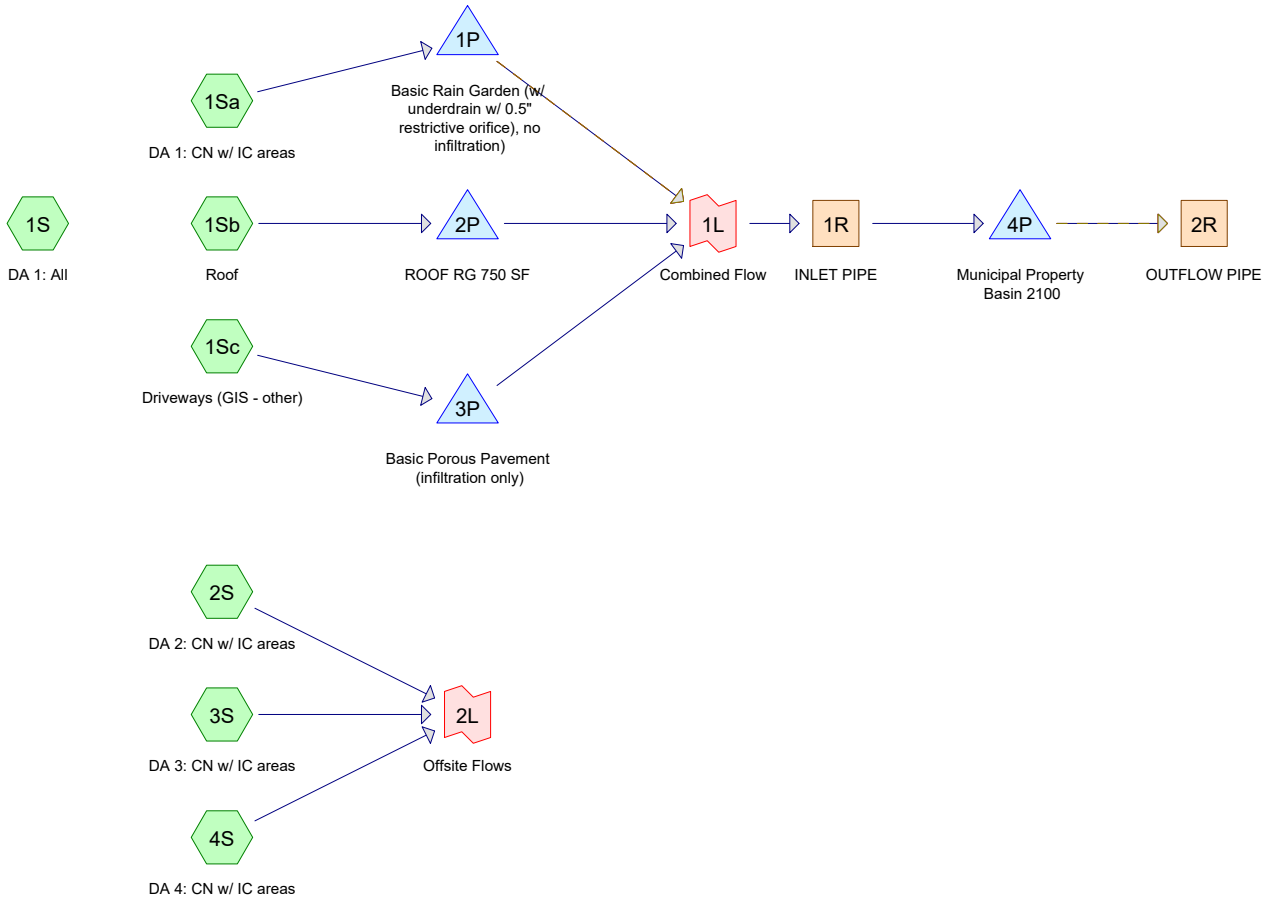


Subcat Reach Pond Link

Routing Diagram for Site 4_20240629

Prepared by Rutgers Cooperative Extension Water Resources Program, Printed 6/29/2024

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 6600 NJ Atlantic-C
Rainfall events imported from "NRCS-Rain.txt" for 7614 PA Chester-C
Rainfall events imported from "NRCS-Rain.txt" for 6617 NJ Somerset-C
Rainfall events imported from "20240207_PartridgeFarmRd_HCAD_175SF RG.hcp"

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year _Current	NOAA 24-hr	C	Default	24.00	1	3.34	2
2	2-Year _2100	NOAA 24-hr	C	Default	24.00	1	3.97	2
3	10-Year _Current	NOAA 24-hr	C	Default	24.00	1	5.16	2
4	10-Year _2100	NOAA 24-hr	C	Default	24.00	1	6.21	2
5	100-Year _Current	NOAA 24-hr	C	Default	24.00	1	8.95	2
6	100-Year _2100	NOAA 24-hr	C	Default	24.00	1	12.15	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
58,960	79	50-75% Grass cover, Fair, HSG C (4S)
6,320	84	50-75% Grass cover, Fair, HSG D (4S)
13	86	<50% Grass cover, Poor, HSG C (4S)
1,980,617	74	>75% Grass cover, Good, HSG C (1S, 1Sa, 2S, 3S, 4S)
6,758	80	>75% Grass cover, Good, HSG D (4S)
423,399	65	Brush, Good, HSG C (1S, 1Sa, 2S, 3S, 4S)
25,533	73	Brush, Good, HSG D (3S, 4S)
647,837	98	Impervious (1S, 1Sa, 2S, 3S, 4S)
156,064	98	Impervious Drivways (other) (1Sc)
69,839	98	Roof - Building GIS Layer (1Sb)
90,808	73	Woods, Fair, HSG C (4S)
225,083	70	Woods, Good, HSG C (1S, 1Sa, 3S, 4S)
5,323	72	Woods/grass comb., Good, HSG C (4S)
3,696,554	**78**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
2,784,203	HSG C	1S, 1Sa, 2S, 3S, 4S
38,611	HSG D	3S, 4S
873,740	Other	1S, 1Sa, 1Sb, 1Sc, 2S, 3S, 4S
3,696,554		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	S N
0	0	58,960	6,320	0	65,280	50-75% Grass cover, Fair	
0	0	13	0	0	13	<50% Grass cover, Poor	
0	0	1,980,617	6,758	0	1,987,375	>75% Grass cover, Good	
0	0	423,399	25,533	0	448,932	Brush, Good	
0	0	0	0	647,837	647,837	Impervious	
0	0	0	0	156,064	156,064	Impervious Drivways (other)	
0	0	0	0	69,839	69,839	Roof - Building GIS Layer	
0	0	90,808	0	0	90,808	Woods, Fair	
0	0	225,083	0	0	225,083	Woods, Good	
0	0	5,323	0	0	5,323	Woods/grass comb., Good	
0	**0**	**2,784,203**	**38,611**	**873,740**	**3,696,554**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	1R	66.00	65.00	50.0	0.0200	0.013	0.0	48.0	0.0
2	2R	62.00	60.50	75.0	0.0200	0.013	0.0	36.0	0.0
3	1P	94.17	94.12	10.0	0.0050	0.020	0.0	6.0	0.0
4	1P	94.33	94.17	32.0	0.0050	0.020	0.0	6.0	0.0

Time span=0.00-150.00 hrs, dt=0.05 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: DA 1: All Runoff Area=1,184,721 sf 30.92% Impervious Runoff Depth=1.74"
Tc=25.2 min CN=74/98 Runoff=32.93 cfs 171,957 cf

Subcatchment 1Sa: DA 1: CN w/ IC areas Runoff Area=958,817 sf 14.64% Impervious Runoff Depth=1.42"
Tc=25.2 min CN=74/98 Runoff=22.05 cfs 113,466 cf

Subcatchment 1Sb: Roof Runoff Area=69,839 sf 100.00% Impervious Runoff Depth=3.11"
Tc=6.0 min CN=0/98 Runoff=5.49 cfs 18,082 cf

Subcatchment 1Sc: Driveways (GIS - Runoff Area=156,064 sf 100.00% Impervious Runoff Depth=3.11"
Tc=6.0 min CN=0/98 Runoff=12.28 cfs 40,407 cf

Subcatchment 2S: DA 2: CN w/ IC areas Runoff Area=100,787 sf 8.36% Impervious Runoff Depth=1.30"
Tc=15.5 min CN=74/98 Runoff=2.67 cfs 10,885 cf

Subcatchment 3S: DA 3: CN w/ IC areas Runoff Area=150,325 sf 10.26% Impervious Runoff Depth=1.28"
Flow Length=329' Tc=17.3 min CN=73/98 Runoff=3.72 cfs 16,061 cf

Subcatchment 4S: DA 4: CN w/ IC areas Runoff Area=1,076,001 sf 10.91% Impervious Runoff Depth=1.15"
Tc=24.2 min CN=70/98 Runoff=19.78 cfs 103,147 cf

Reach 1R: INLET PIPE Avg. Flow Depth=0.74' Max Vel=9.46 fps Inflow=15.03 cfs 111,353 cf
48.0" Round Pipe n=0.013 L=50.0' S=0.0200 '/' Capacity=203.14 cfs Outflow=15.02 cfs 111,353 cf

Reach 2R: OUTFLOW PIPE Avg. Flow Depth=0.60' Max Vel=8.19 fps Inflow=8.18 cfs 102,920 cf
36.0" Round Pipe n=0.013 L=75.0' S=0.0200 '/' Capacity=94.33 cfs Outflow=8.18 cfs 102,920 cf

Pond 1P: Basic Rain Garden (w/ Peak Elev=96.77' Storage=15,633 cf Inflow=22.05 cfs 113,466 cf
Primary=15.03 cfs 111,353 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=15.03 cfs 111,353 cf

Pond 2P: ROOF RG 750 SF Peak Elev=99.53' Storage=8,878 cf Inflow=5.49 cfs 18,082 cf
Discarded=0.24 cfs 18,082 cf Primary=0.00 cfs 0 cf Outflow=0.24 cfs 18,082 cf

Pond 3P: Basic Porous Pavement Peak Elev=99.46' Storage=11,399 cf Inflow=12.28 cfs 40,407 cf
Discarded=1.81 cfs 40,407 cf Primary=0.00 cfs 0 cf Outflow=1.81 cfs 40,407 cf

Pond 4P: Municipal Property Basin 2100 Peak Elev=66.23' Storage=43,551 cf Inflow=15.02 cfs 111,353 cf
Primary=8.18 cfs 102,920 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=8.18 cfs 102,920 cf

Link 1L: Combined Flow Inflow=15.03 cfs 111,353 cf
Primary=15.03 cfs 111,353 cf

Link 2L: Offsite Flows Inflow=25.26 cfs 130,093 cf
Primary=25.26 cfs 130,093 cf

Total Runoff Area = 3,696,554 sf Runoff Volume = 474,006 cf Average Runoff Depth = 1.54"
76.36% Pervious = 2,822,814 sf 23.64% Impervious = 873,740 sf

Summary for Subcatchment 1S: DA 1: All

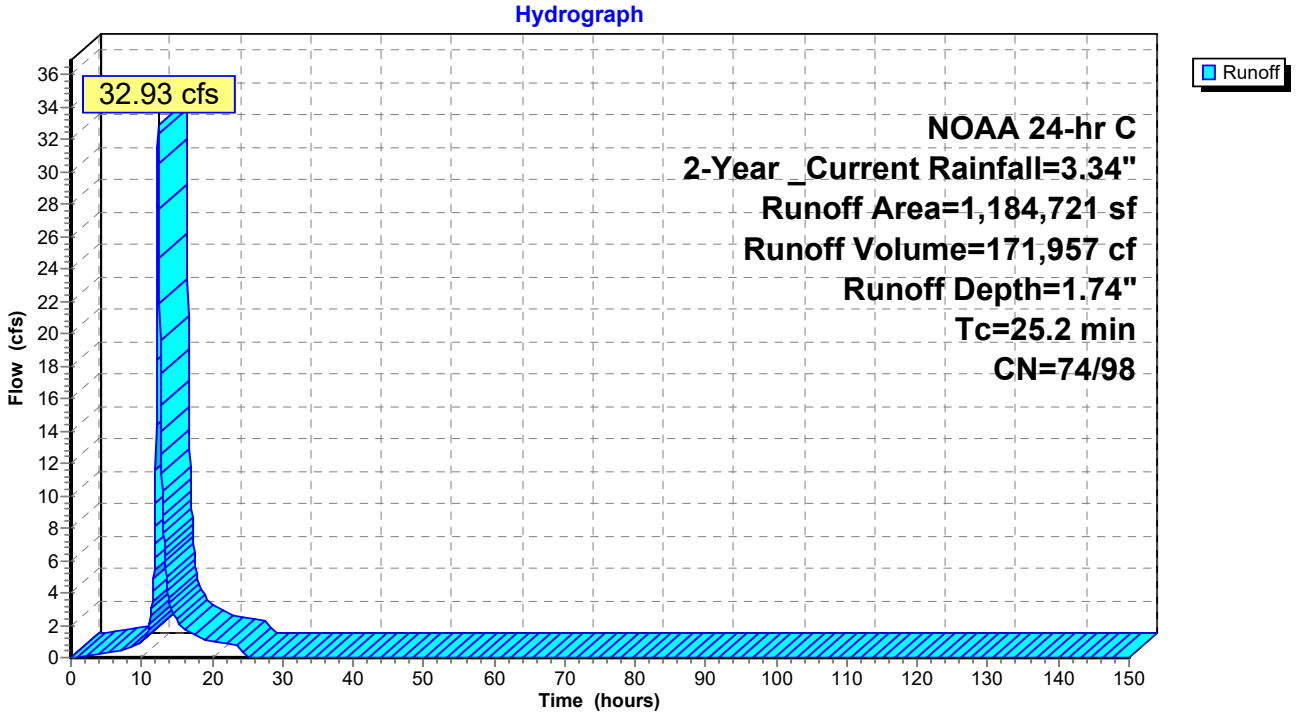
Runoff = 32.93 cfs @ 12.36 hrs, Volume= 171,957 cf, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 2-Year _Current Rainfall=3.34"

	Area (sf)	CN	Description
*	366,258	98	Impervious
	15,045	65	Brush, Good, HSG C
	794,453	74	>75% Grass cover, Good, HSG C
	8,965	70	Woods, Good, HSG C
	1,184,721	81	Weighted Average
	818,463	74	69.08% Pervious Area
	366,258	98	30.92% Impervious Area

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

Subcatchment 1S: DA 1: All



Summary for Subcatchment 1Sa: DA 1: CN w/ IC areas

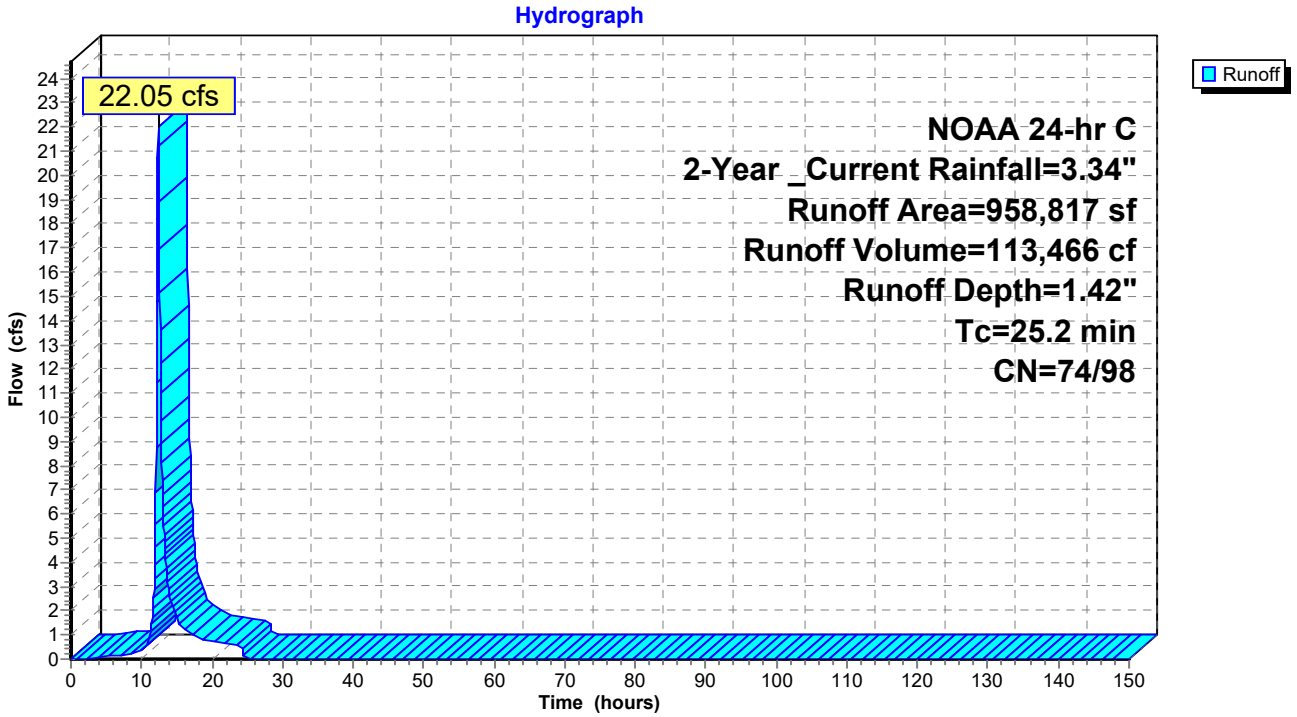
Runoff = 22.05 cfs @ 12.37 hrs, Volume= 113,466 cf, Depth= 1.42"
Routed to Pond 1P : Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 2-Year _Current Rainfall=3.34"

	Area (sf)	CN	Description
*	140,354	98	Impervious
	15,045	65	Brush, Good, HSG C
	794,453	74	>75% Grass cover, Good, HSG C
	8,965	70	Woods, Good, HSG C
	958,817	77	Weighted Average
	818,463	74	85.36% Pervious Area
	140,354	98	14.64% Impervious Area

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

Subcatchment 1Sa: DA 1: CN w/ IC areas



Summary for Subcatchment 1Sb: Roof

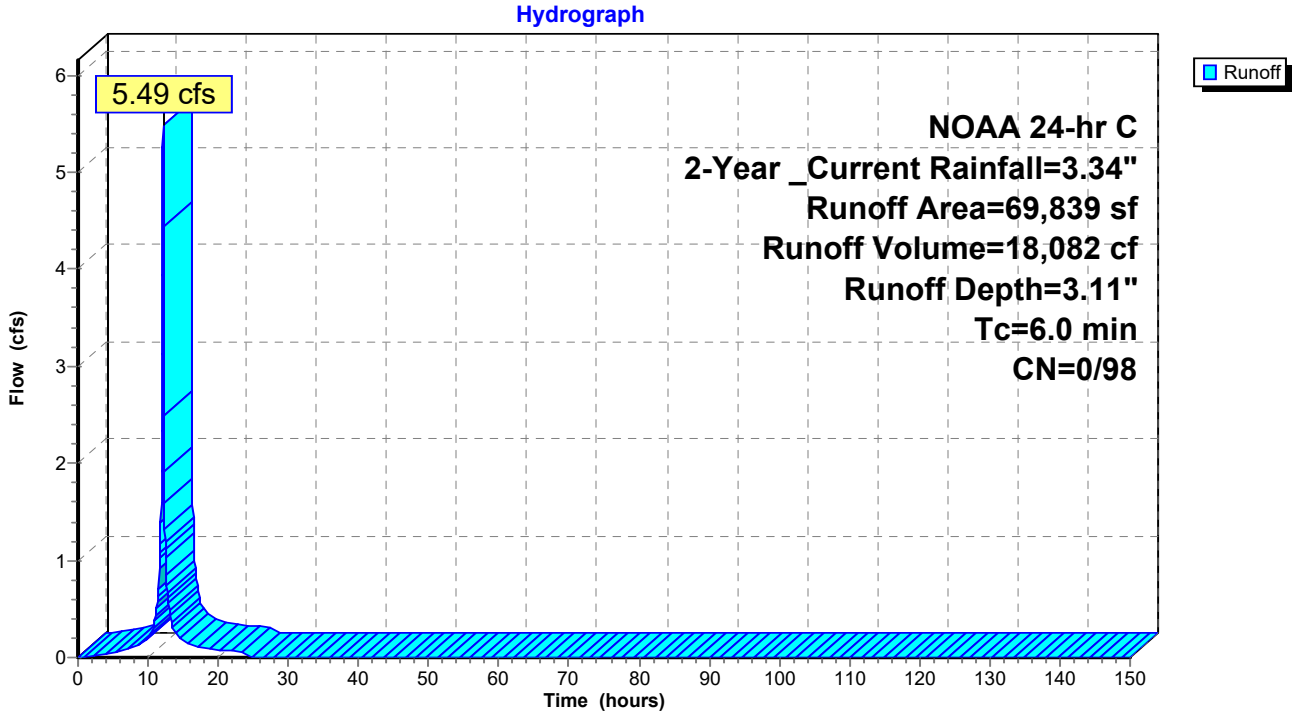
Runoff = 5.49 cfs @ 12.13 hrs, Volume= 18,082 cf, Depth= 3.11"
Routed to Pond 2P : ROOF RG 750 SF

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 2-Year _Current Rainfall=3.34"

	Area (sf)	CN	Description
*	69,839	98	Roof - Building GIS Layer
	69,839	98	100.00% Impervious Area

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

Subcatchment 1Sb: Roof



Summary for Subcatchment 1Sc: Driveways (GIS - other)

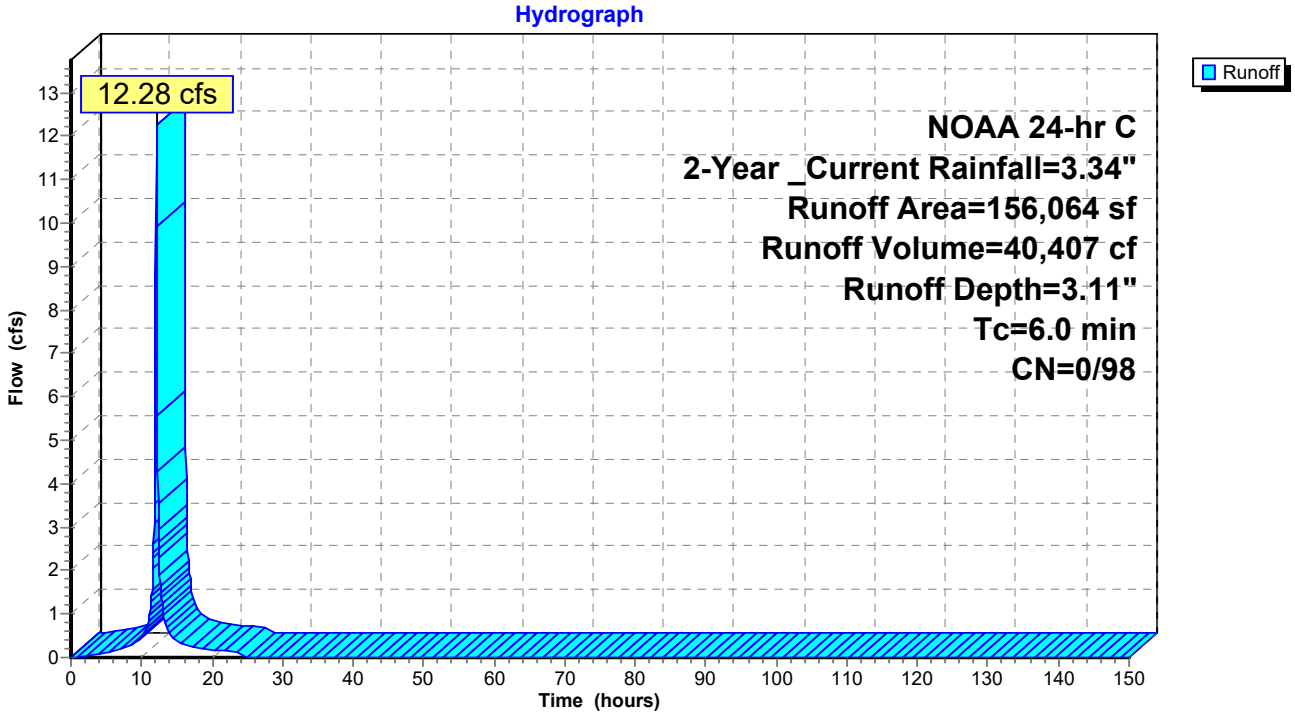
Runoff = 12.28 cfs @ 12.13 hrs, Volume= 40,407 cf, Depth= 3.11"
Routed to Pond 3P : Basic Porous Pavement (infiltration only)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 2-Year _Current Rainfall=3.34"

	Area (sf)	CN	Description
*	156,064	98	Impervious Drivways (other)
	156,064	98	100.00% Impervious Area

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

Subcatchment 1Sc: Driveways (GIS - other)



Summary for Subcatchment 2S: DA 2: CN w/ IC areas

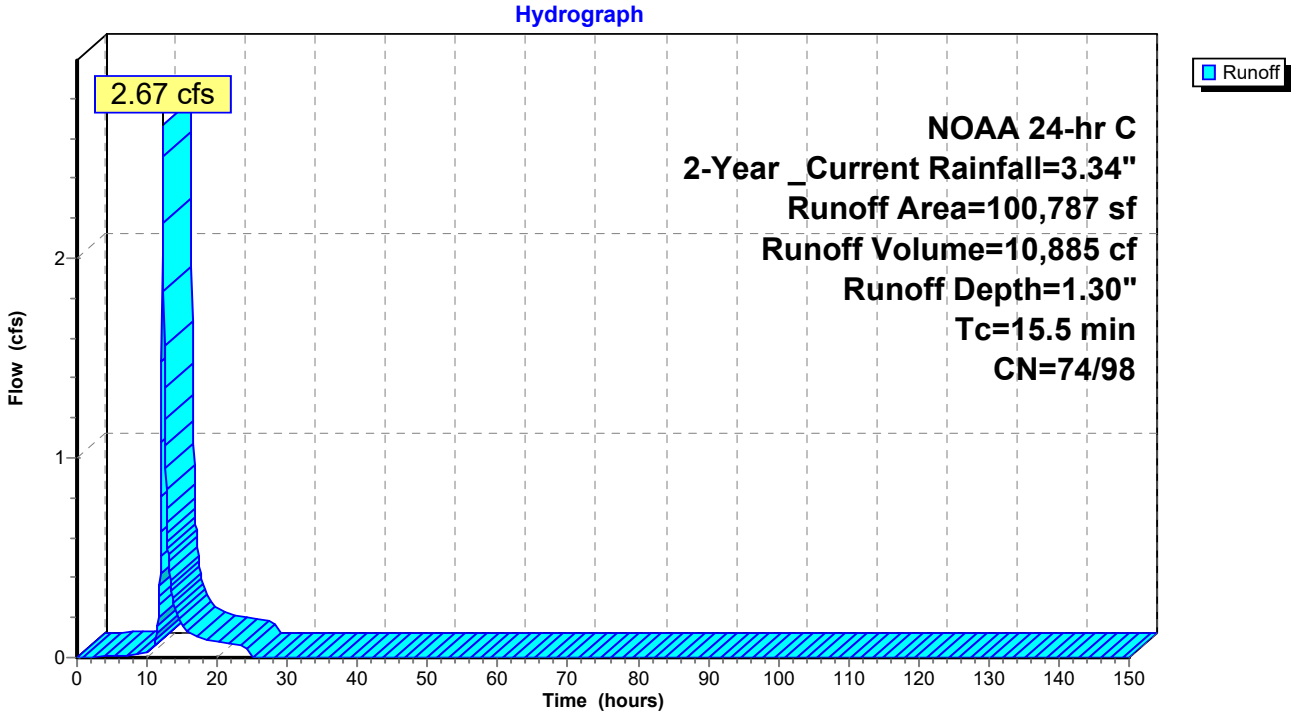
Runoff = 2.67 cfs @ 12.25 hrs, Volume= 10,885 cf, Depth= 1.30"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 2-Year _Current Rainfall=3.34"

	Area (sf)	CN	Description
*	8,425	98	Impervious
	86	65	Brush, Good, HSG C
	92,276	74	>75% Grass cover, Good, HSG C
	100,787	76	Weighted Average
	92,362	74	91.64% Pervious Area
	8,425	98	8.36% Impervious Area

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

Subcatchment 2S: DA 2: CN w/ IC areas



Summary for Subcatchment 3S: DA 3: CN w/ IC areas

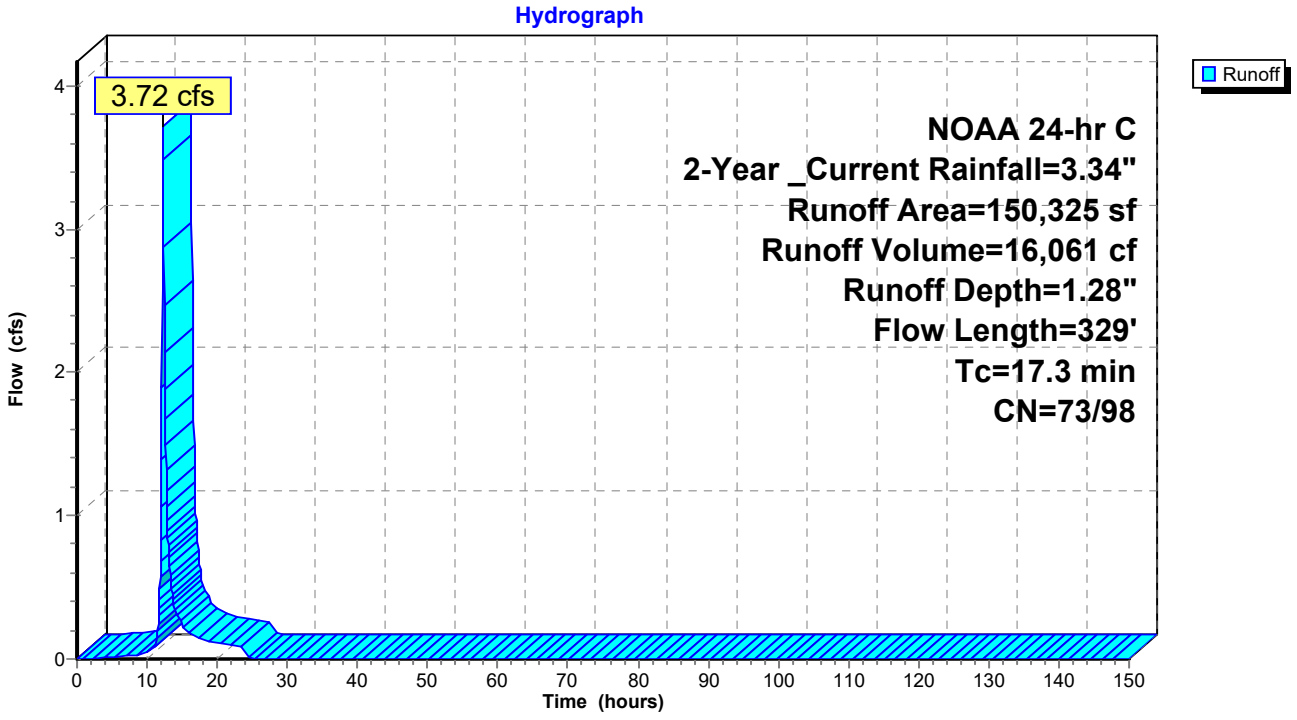
Runoff = 3.72 cfs @ 12.27 hrs, Volume= 16,061 cf, Depth= 1.28"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 2-Year _Current Rainfall=3.34"

	Area (sf)	CN	Description
*	15,427	98	Impervious
	17,213	65	Brush, Good, HSG C
	11,427	73	Brush, Good, HSG D
	99,487	74	>75% Grass cover, Good, HSG C
	6,771	70	Woods, Good, HSG C
	150,325	75	Weighted Average
	134,898	73	89.74% Pervious Area
	15,427	98	10.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0103	0.13		**Sheet Flow, Sheetflow** Grass: Short n= 0.150 P2= 3.34"
4.8	229	0.0129	0.80		**Shallow Concentrated Flow, SCF - Grass** Short Grass Pasture Kv= 7.0 fps
17.3	329	Total			

Subcatchment 3S: DA 3: CN w/ IC areas



Summary for Subcatchment 4S: DA 4: CN w/ IC areas

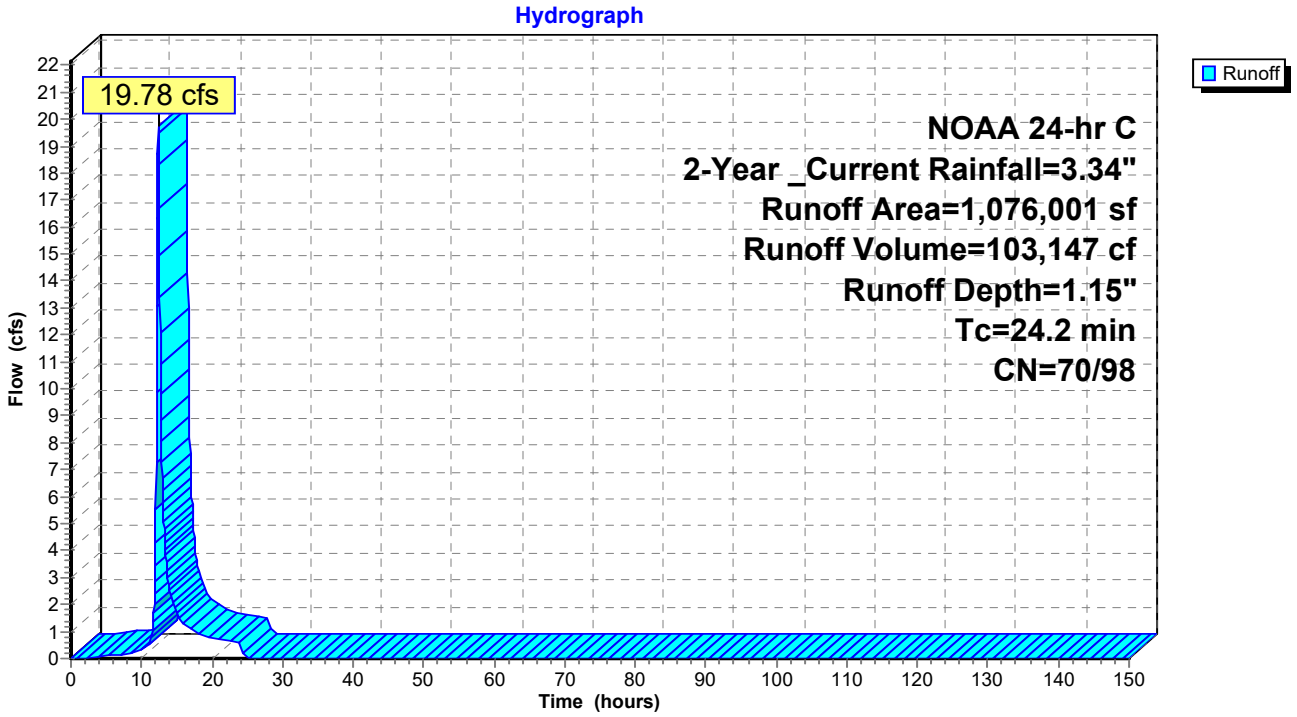
Runoff = 19.78 cfs @ 12.37 hrs, Volume= 103,147 cf, Depth= 1.15"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 2-Year _Current Rainfall=3.34"

	Area (sf)	CN	Description
*	117,373	98	Impervious
	376,010	65	Brush, Good, HSG C
	14,106	73	Brush, Good, HSG D
	58,960	79	50-75% Grass cover, Fair, HSG C
	6,320	84	50-75% Grass cover, Fair, HSG D
	199,948	74	>75% Grass cover, Good, HSG C
	6,758	80	>75% Grass cover, Good, HSG D
	13	86	<50% Grass cover, Poor, HSG C
	5,323	72	Woods/grass comb., Good, HSG C
	90,808	73	Woods, Fair, HSG C
	200,382	70	Woods, Good, HSG C
	1,076,001	73	Weighted Average
	958,628	70	89.09% Pervious Area
	117,373	98	10.91% Impervious Area

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

Subcatchment 4S: DA 4: CN w/ IC areas



Summary for Reach 1R: INLET PIPE

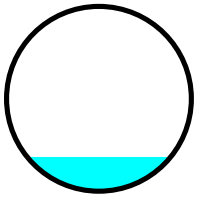
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 1.13" for 2-Year _Current event
Inflow = 15.03 cfs @ 12.61 hrs, Volume= 111,353 cf
Outflow = 15.02 cfs @ 12.61 hrs, Volume= 111,353 cf, Atten= 0%, Lag= 0.2 min
Routed to Pond 4P : Municipal Property Basin 2100

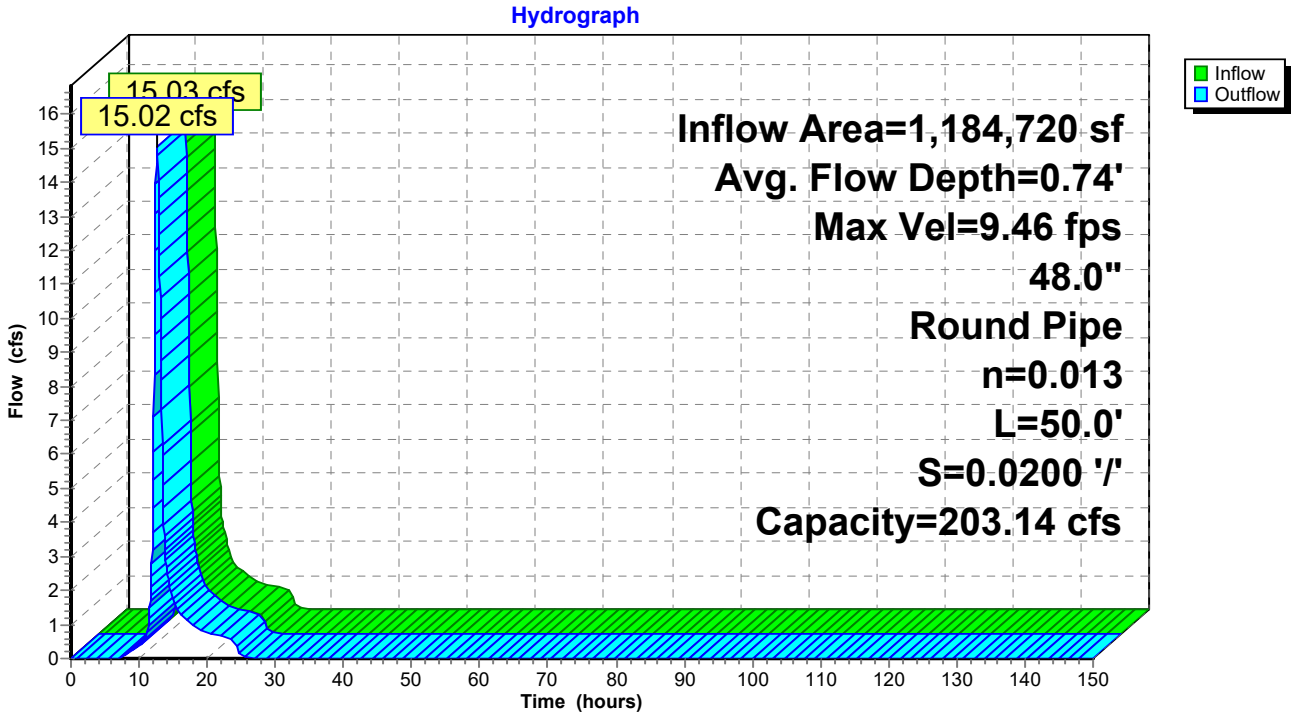
Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 9.46 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.67 fps, Avg. Travel Time= 0.2 min

Peak Storage= 79 cf @ 12.61 hrs
Average Depth at Peak Storage= 0.74' , Surface Width= 3.10'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 203.14 cfs

48.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 66.00', Outlet Invert= 65.00'



Reach 1R: INLET PIPE



Summary for Reach 2R: OUTFLOW PIPE

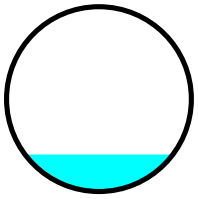
[52] Hint: Inlet/Outlet conditions not evaluated

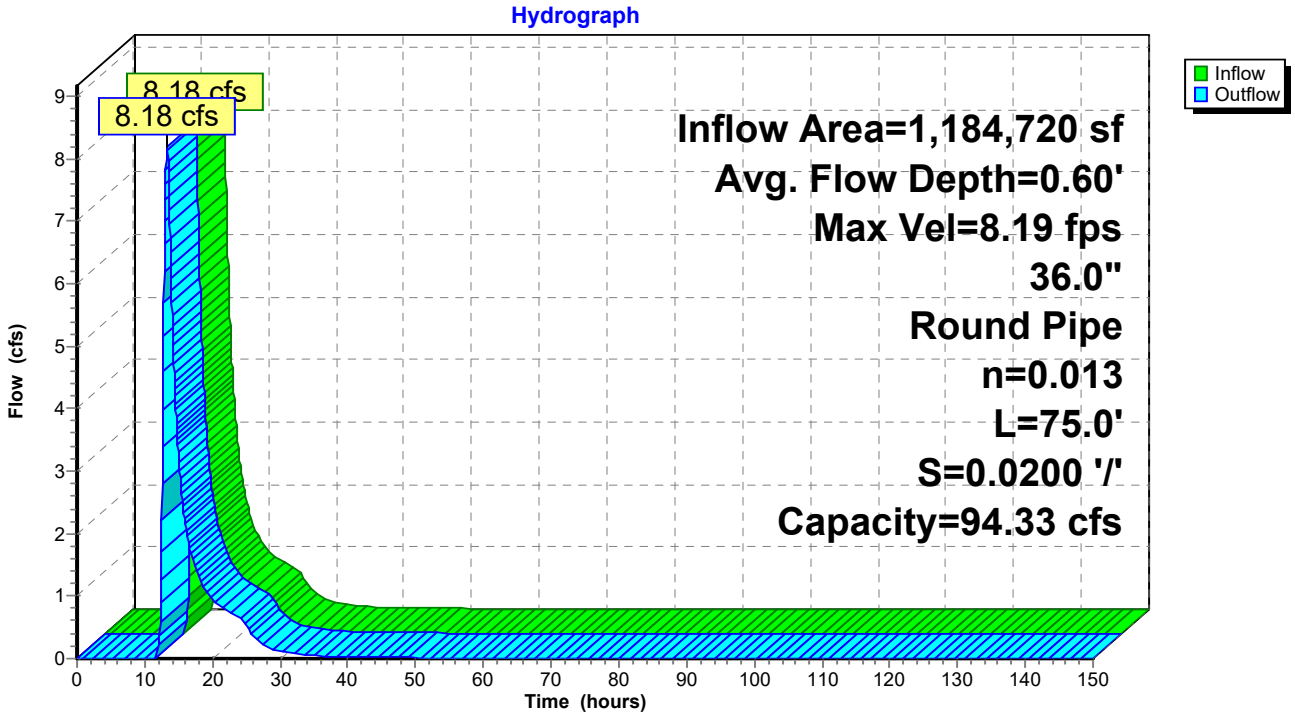
Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 1.04" for 2-Year _Current event
Inflow = 8.18 cfs @ 13.30 hrs, Volume= 102,920 cf
Outflow = 8.18 cfs @ 13.30 hrs, Volume= 102,920 cf, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.19 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.73 fps, Avg. Travel Time= 0.7 min

Peak Storage= 75 cf @ 13.30 hrs
Average Depth at Peak Storage= 0.60' , Surface Width= 2.40'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 94.33 cfs

36.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 75.0' Slope= 0.0200 '/'
Inlet Invert= 62.00', Outlet Invert= 60.50'





Summary for Pond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Inflow Area = 958,817 sf, 14.64% Impervious, Inflow Depth = 1.42" for 2-Year _Current event
Inflow = 22.05 cfs @ 12.37 hrs, Volume= 113,466 cf
Outflow = 15.03 cfs @ 12.61 hrs, Volume= 111,353 cf, Atten= 32%, Lag= 14.2 min
Primary = 15.03 cfs @ 12.61 hrs, Volume= 111,353 cf
Routed to Link 1L : Combined Flow
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 1L : Combined Flow
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 96.77' @ 12.61 hrs Surf.Area= 9,099 sf Storage= 15,633 cf

Plug-Flow detention time= 32.6 min calculated for 111,316 cf (98% of inflow)
Center-of-Mass det. time= 21.6 min (868.3 - 846.7)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	497 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
#2A	93.75'	689 cf	**15.75'W x 32.10'L x 4.50'H Field A** 2,275 cf Overall - 551 cf Embedded = 1,724 cf x 40.0% Voids
#3A	95.25'	551 cf	**ADS_StormTech SC-740 +Cap** x 12 Inside #2 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 3 Rows
		1,737 cf	x 18.00 = 31,271 cf Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
97.75	175	0.0	0	0	175
98.25	175	35.0	31	31	198
99.25	175	35.0	61	92	245
99.50	175	25.0	11	103	257
100.00	175	100.0	88	190	281
100.51	175	100.0	89	280	304
101.75	175	100.0	217	497	363

Device	Routing	Invert	Outlet Devices
#1	Primary	94.17'	**6.0" Round Culvert X 18.00** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 94.17' / 94.12' S= 0.0050 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.20 sf
#2	Device 1	94.33'	**6.0" Round 6" HDPE Underdrain X 18.00** L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 94.33' / 94.17' S= 0.0050 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.20 sf
#3	Secondary	100.00'	**3.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 18.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

#4	Tertiary	100.50'	**6.0' long Sharp-Crested Rectangular Weir X 18.00** 2 End Contraction(s)

Primary OutFlow Max=15.02 cfs @ 12.61 hrs HW=96.77' (Free Discharge)
└**1=Culvert** (Passes 15.02 cfs of 22.66 cfs potential flow)
└**2=6" HDPE Underdrain** (Barrel Controls 15.02 cfs @ 4.25 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=93.75' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=93.75' (Free Discharge)
└**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

ond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

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

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

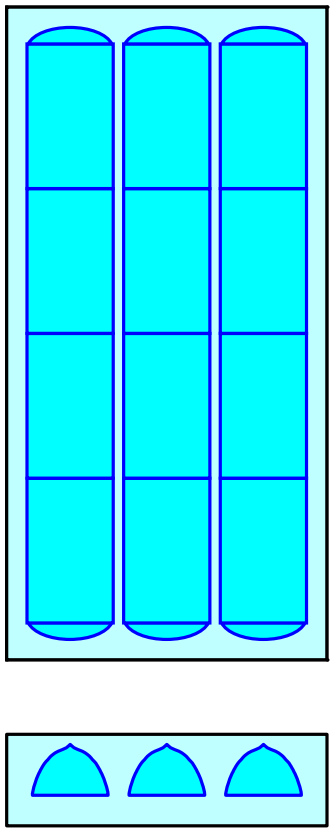
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

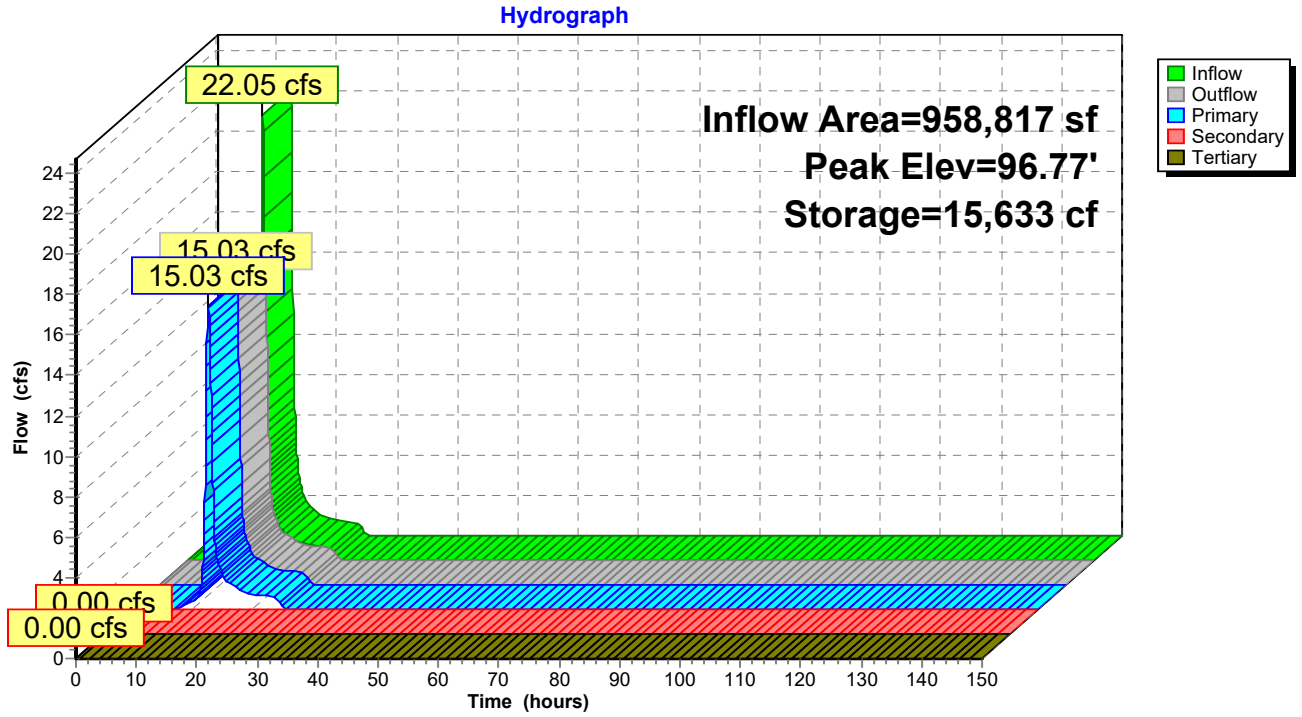
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af
Overall Storage Efficiency = 54.5%
Overall System Size = 32.10' x 15.75' x 4.50'

12 Chambers
84.3 cy Field
63.8 cy Stone



Pond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)



Summary for Pond 2P: ROOF RG 750 SF

Assumes infiltration through media is non-limiting.

Inflow Area = 69,839 sf,100.00% Impervious, Inflow Depth = 3.11" for 2-Year _Current event
Inflow = 5.49 cfs @ 12.13 hrs, Volume= 18,082 cf
Outflow = 0.24 cfs @ 14.06 hrs, Volume= 18,082 cf, Atten= 96%, Lag= 115.7 min
Discarded = 0.24 cfs @ 14.06 hrs, Volume= 18,082 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Peak Elev= 99.53' @ 14.06 hrs Surf.Area= 20,575 sf Storage= 8,878 cf

Plug-Flow detention time= 317.5 min calculated for 18,082 cf (100% of inflow)
Center-of-Mass det. time= 317.4 min (1,074.1 - 756.6)

Volume	Invert	Avail.Storage	Storage Description
#1	98.25'	735 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
		735 cf	x 37.00 = 27,209 cf Total Available Storage

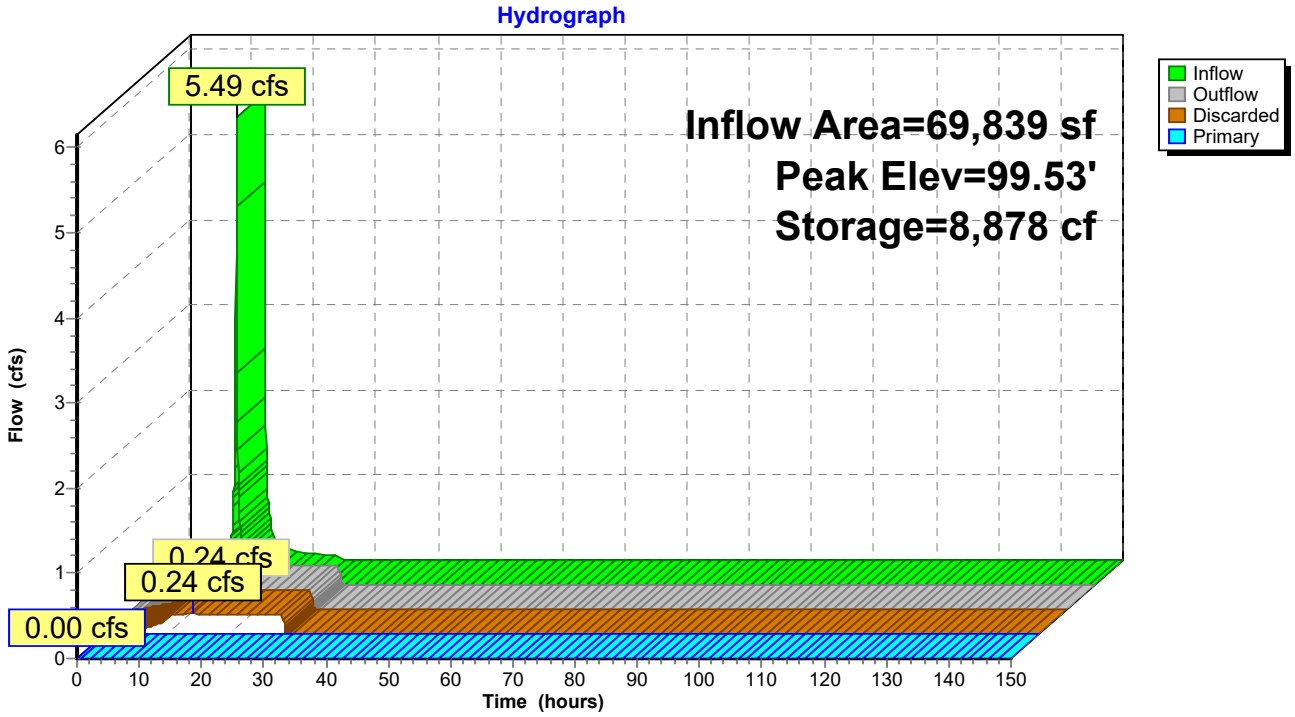
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
98.25	546	0.0	0	0	546
99.25	546	35.0	191	191	629
99.50	546	25.0	34	225	650
100.00	750	100.0	323	548	858
100.25	750	100.0	188	735	883

Device	Routing	Invert	Outlet Devices
#1	Discarded	98.25'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	100.00'	**2.0' long x 3.0' breadth Broad-Crested Rectangular Weir X 37.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.24 cfs @ 14.06 hrs HW=99.53' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.25' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: ROOF RG 750 SF



Summary for Pond 3P: Basic Porous Pavement (infiltration only)

Inflow Area = 156,064 sf,100.00% Impervious, Inflow Depth = 3.11" for 2-Year _Current event
Inflow = 12.28 cfs @ 12.13 hrs, Volume= 40,407 cf
Outflow = 1.81 cfs @ 11.65 hrs, Volume= 40,407 cf, Atten= 85%, Lag= 0.0 min
Discarded = 1.81 cfs @ 11.65 hrs, Volume= 40,407 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Peak Elev= 99.46' @ 12.62 hrs Surf.Area= 156,064 sf Storage= 11,399 cf

Plug-Flow detention time= 38.4 min calculated for 40,394 cf (100% of inflow)
Center-of-Mass det. time= 38.4 min (795.1 - 756.6)

Volume	Invert	Avail.Storage	Storage Description
#1	99.25'	72,180 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

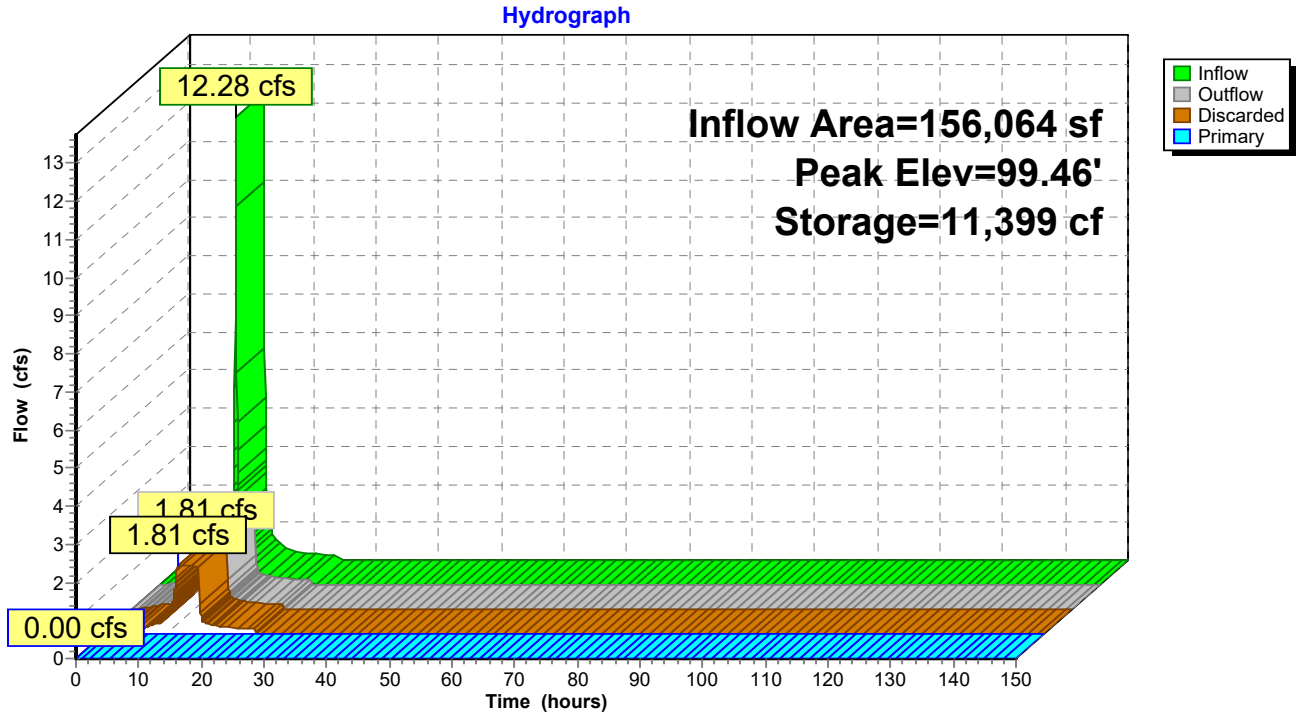
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.25	156,064	0.0	0	0
99.75	156,064	35.0	27,311	27,311
99.83	156,064	15.0	1,873	29,184
100.00	156,064	15.0	3,980	33,164
100.25	156,064	100.0	39,016	72,180

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.25'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	100.00'	**15.0' long x 1.0' breadth Edge of Porous Asphalt X 37.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=1.81 cfs @ 11.65 hrs HW=99.26' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 1.81 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=99.25' (Free Discharge)
↑—**2=Edge of Porous Asphalt** (Controls 0.00 cfs)

Pond 3P: Basic Porous Pavement (infiltration only)



Summary for Pond 4P: Municipal Property Basin 2100

[62] Hint: Exceeded Reach 1R OUTLET depth by 0.78' @ 13.60 hrs

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 1.13" for 2-Year _Current event
Inflow = 15.02 cfs @ 12.61 hrs, Volume= 111,353 cf
Outflow = 8.18 cfs @ 13.30 hrs, Volume= 102,920 cf, Atten= 46%, Lag= 41.2 min
Primary = 8.18 cfs @ 13.30 hrs, Volume= 102,920 cf
Routed to Reach 2R : OUTFLOW PIPE
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach 2R : OUTFLOW PIPE
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach 2R : OUTFLOW PIPE

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 66.23' @ 13.30 hrs Surf.Area= 37,839 sf Storage= 43,551 cf

Plug-Flow detention time= 209.3 min calculated for 102,886 cf (92% of inflow)
Center-of-Mass det. time= 170.4 min (1,038.9 - 868.6)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	213,105 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	33,242	0	0
70.00	52,000	213,105	213,105

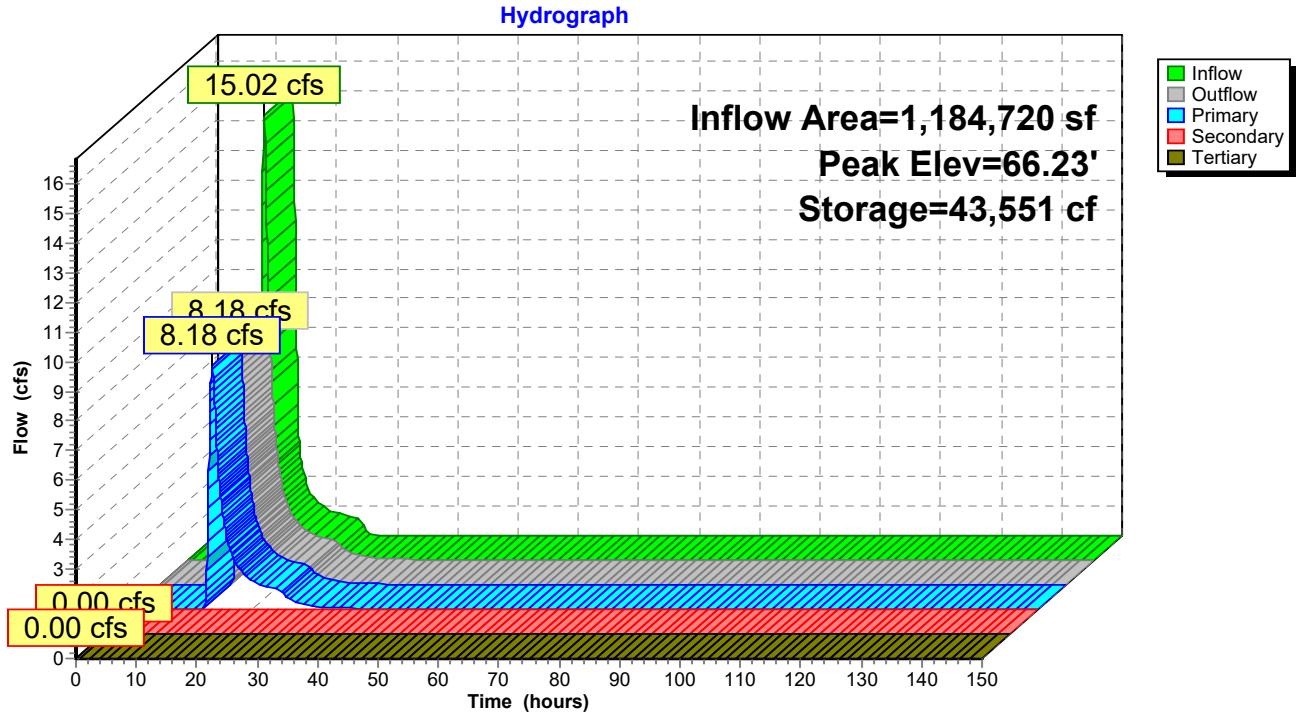
Device	Routing	Invert	Outlet Devices
#1	Primary	65.25'	**18.0" Vert. Low Flow Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	67.25'	**24.0" W x 18.0" H Vert. 2-YR Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	69.50'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=8.18 cfs @ 13.30 hrs HW=66.23' (Free Discharge)
1=Low Flow Orifice (Orifice Controls 8.18 cfs @ 3.36 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.00' (Free Discharge)
2=2-YR Orifice (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.00' (Free Discharge)
3=Orifice/Grate (Controls 0.00 cfs)

Pond 4P: Municipal Property Basin 2100

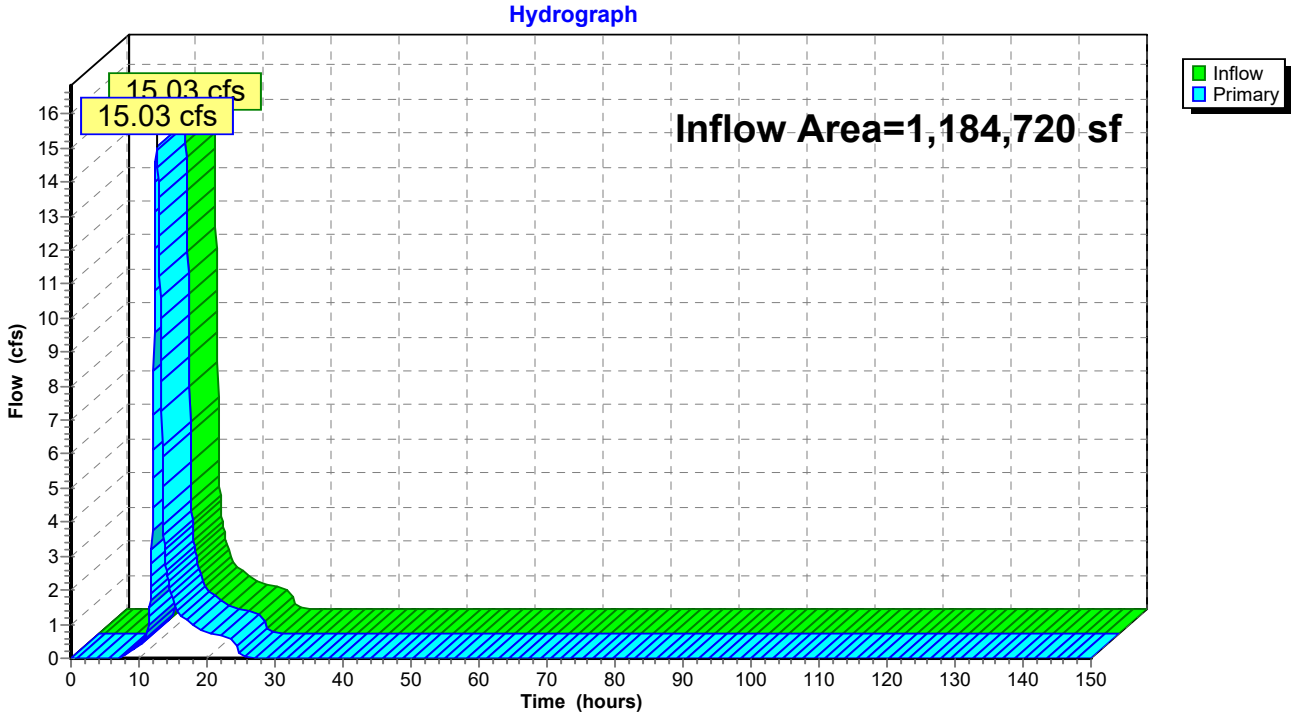


Summary for Link 1L: Combined Flow

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 1.13" for 2-Year _Current event
Inflow = 15.03 cfs @ 12.61 hrs, Volume= 111,353 cf
Primary = 15.03 cfs @ 12.61 hrs, Volume= 111,353 cf, Atten= 0%, Lag= 0.0 min
Routed to Reach 1R : INLET PIPE

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs

Link 1L: Combined Flow

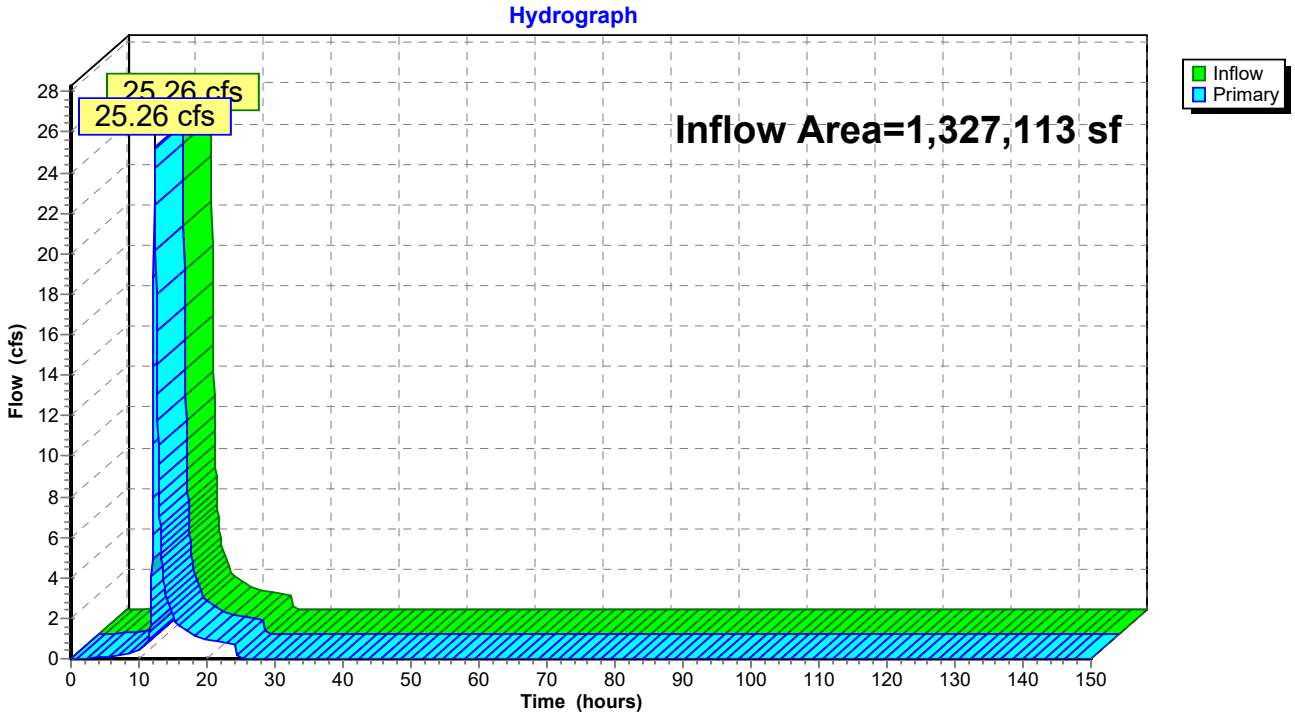


Summary for Link 2L: Offsite Flows

Inflow Area = 1,327,113 sf, 10.64% Impervious, Inflow Depth = 1.18" for 2-Year _Current event
Inflow = 25.26 cfs @ 12.34 hrs, Volume= 130,093 cf
Primary = 25.26 cfs @ 12.34 hrs, Volume= 130,093 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs

Link 2L: Offsite Flows



Time span=0.00-150.00 hrs, dt=0.05 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: DA 1: All Runoff Area=1,184,721 sf 30.92% Impervious Runoff Depth=2.24"
Tc=25.2 min CN=74/98 Runoff=42.90 cfs 221,381 cf

Subcatchment 1Sa: DA 1: CN w/ IC areas Runoff Area=958,817 sf 14.64% Impervious Runoff Depth=1.89"
Tc=25.2 min CN=74/98 Runoff=29.91 cfs 151,065 cf

Subcatchment 1Sb: Roof Runoff Area=69,839 sf 100.00% Impervious Runoff Depth=3.74"
Tc=6.0 min CN=0/98 Runoff=6.55 cfs 21,738 cf

Subcatchment 1Sc: Driveways (GIS - Runoff Area=156,064 sf 100.00% Impervious Runoff Depth=3.74"
Tc=6.0 min CN=0/98 Runoff=14.64 cfs 48,577 cf

Subcatchment 2S: DA 2: CN w/ IC areas Runoff Area=100,787 sf 8.36% Impervious Runoff Depth=1.75"
Tc=15.5 min CN=74/98 Runoff=3.68 cfs 14,740 cf

Subcatchment 3S: DA 3: CN w/ IC areas Runoff Area=150,325 sf 10.26% Impervious Runoff Depth=1.73"
Flow Length=329' Tc=17.3 min CN=73/98 Runoff=5.15 cfs 21,731 cf

Subcatchment 4S: DA 4: CN w/ IC areas Runoff Area=1,076,001 sf 10.91% Impervious Runoff Depth=1.57"
Tc=24.2 min CN=70/98 Runoff=27.99 cfs 141,160 cf

Reach 1R: INLET PIPE Avg. Flow Depth=0.84' Max Vel=10.22 fps Inflow=19.58 cfs 148,967 cf
48.0" Round Pipe n=0.013 L=50.0' S=0.0200 '/' Capacity=203.14 cfs Outflow=19.57 cfs 148,968 cf

Reach 2R: OUTFLOW PIPE Avg. Flow Depth=0.71' Max Vel=9.07 fps Inflow=11.63 cfs 140,539 cf
36.0" Round Pipe n=0.013 L=75.0' S=0.0200 '/' Capacity=94.33 cfs Outflow=11.63 cfs 140,539 cf

Pond 1P: Basic Rain Garden (w/ Peak Elev=98.24' Storage=22,845 cf Inflow=29.91 cfs 151,065 cf
Primary=19.58 cfs 148,967 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=19.58 cfs 148,967 cf

Pond 2P: ROOF RG 750 SF Peak Elev=99.63' Storage=11,163 cf Inflow=6.55 cfs 21,738 cf
Discarded=0.26 cfs 21,738 cf Primary=0.00 cfs 0 cf Outflow=0.26 cfs 21,738 cf

Pond 3P: Basic Porous Pavement Peak Elev=99.52' Storage=14,922 cf Inflow=14.64 cfs 48,577 cf
Discarded=1.81 cfs 48,577 cf Primary=0.00 cfs 0 cf Outflow=1.81 cfs 48,577 cf

Pond 4P: Municipal Property Basin 2100 Peak Elev=66.47' Storage=53,072 cf Inflow=19.57 cfs 148,968 cf
Primary=11.63 cfs 140,539 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=11.63 cfs 140,539 cf

Link 1L: Combined Flow Inflow=19.58 cfs 148,967 cf
Primary=19.58 cfs 148,967 cf

Link 2L: Offsite Flows Inflow=35.59 cfs 177,631 cf
Primary=35.59 cfs 177,631 cf

Total Runoff Area = 3,696,554 sf Runoff Volume = 620,392 cf Average Runoff Depth = 2.01"
76.36% Pervious = 2,822,814 sf 23.64% Impervious = 873,740 sf

Summary for Subcatchment 1S: DA 1: All

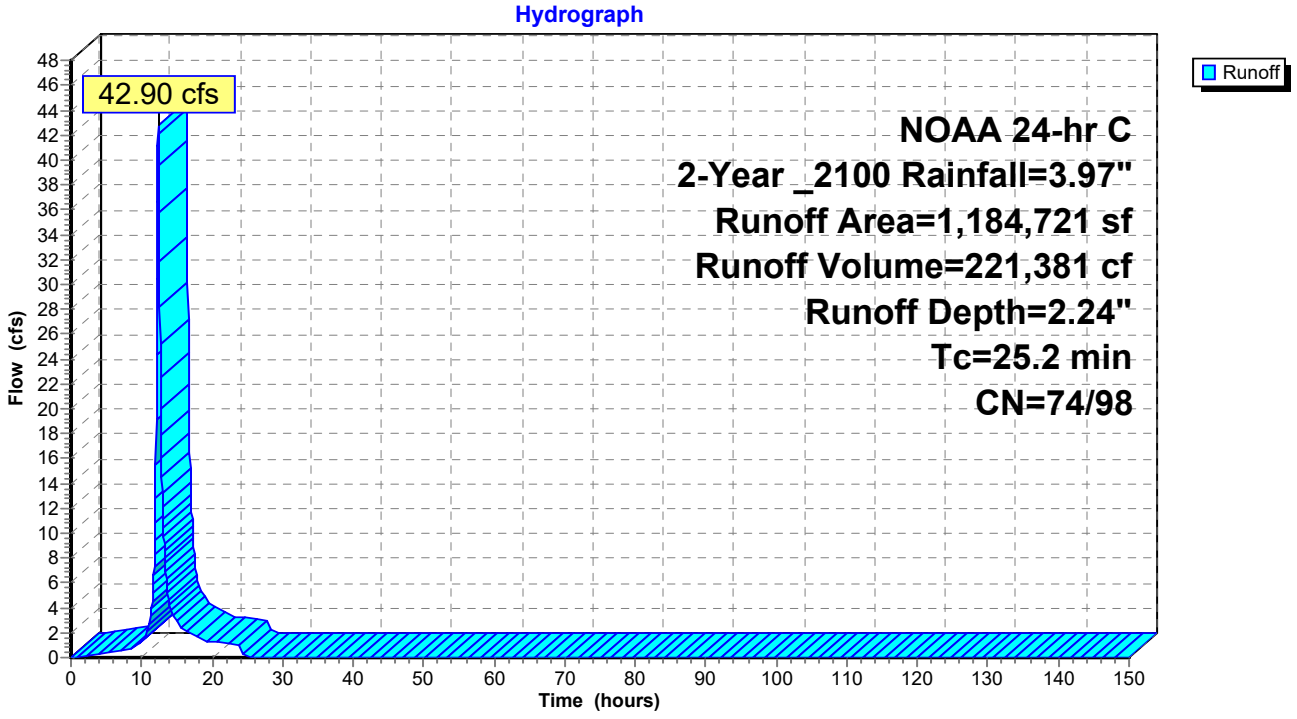
Runoff = 42.90 cfs @ 12.36 hrs, Volume= 221,381 cf, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

	Area (sf)	CN	Description
*	366,258	98	Impervious
	15,045	65	Brush, Good, HSG C
	794,453	74	>75% Grass cover, Good, HSG C
	8,965	70	Woods, Good, HSG C
	1,184,721	81	Weighted Average
	818,463	74	69.08% Pervious Area
	366,258	98	30.92% Impervious Area

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

Subcatchment 1S: DA 1: All



Summary for Subcatchment 1Sa: DA 1: CN w/ IC areas

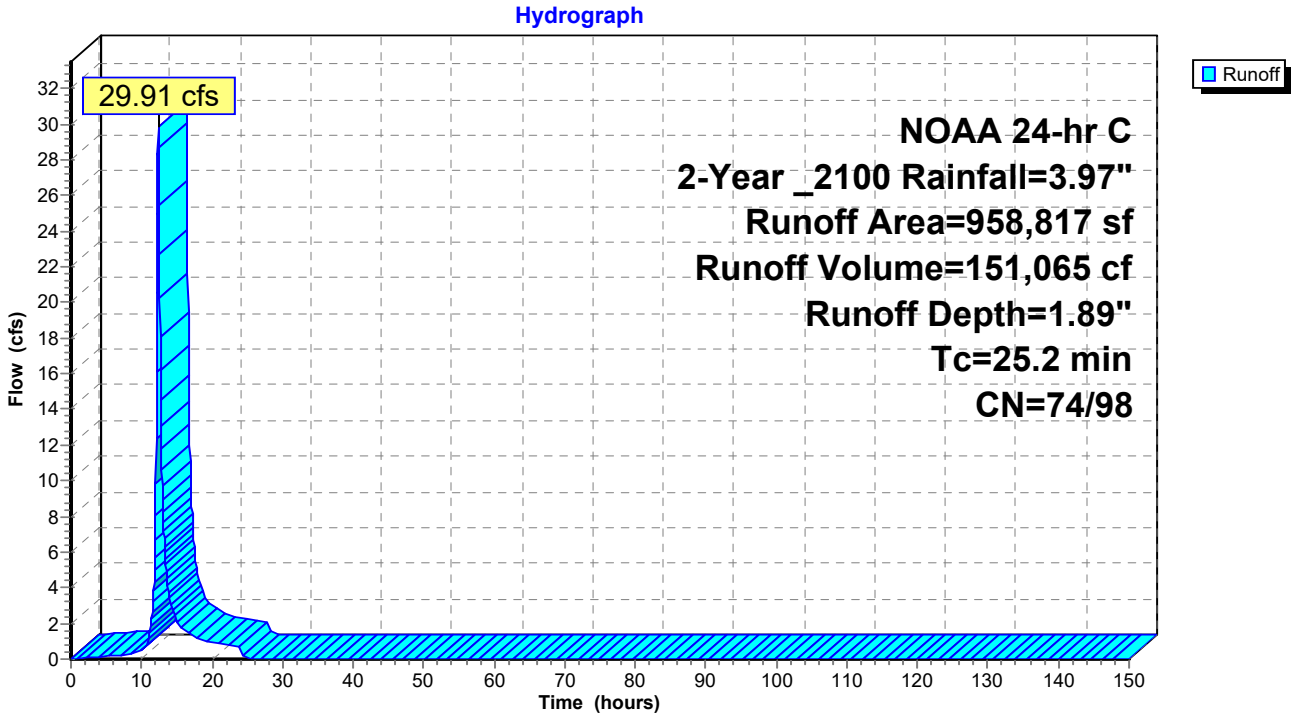
Runoff = 29.91 cfs @ 12.37 hrs, Volume= 151,065 cf, Depth= 1.89"
Routed to Pond 1P : Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

	Area (sf)	CN	Description
*	140,354	98	Impervious
	15,045	65	Brush, Good, HSG C
	794,453	74	>75% Grass cover, Good, HSG C
	8,965	70	Woods, Good, HSG C
	958,817	77	Weighted Average
	818,463	74	85.36% Pervious Area
	140,354	98	14.64% Impervious Area

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

Subcatchment 1Sa: DA 1: CN w/ IC areas



Summary for Subcatchment 1Sb: Roof

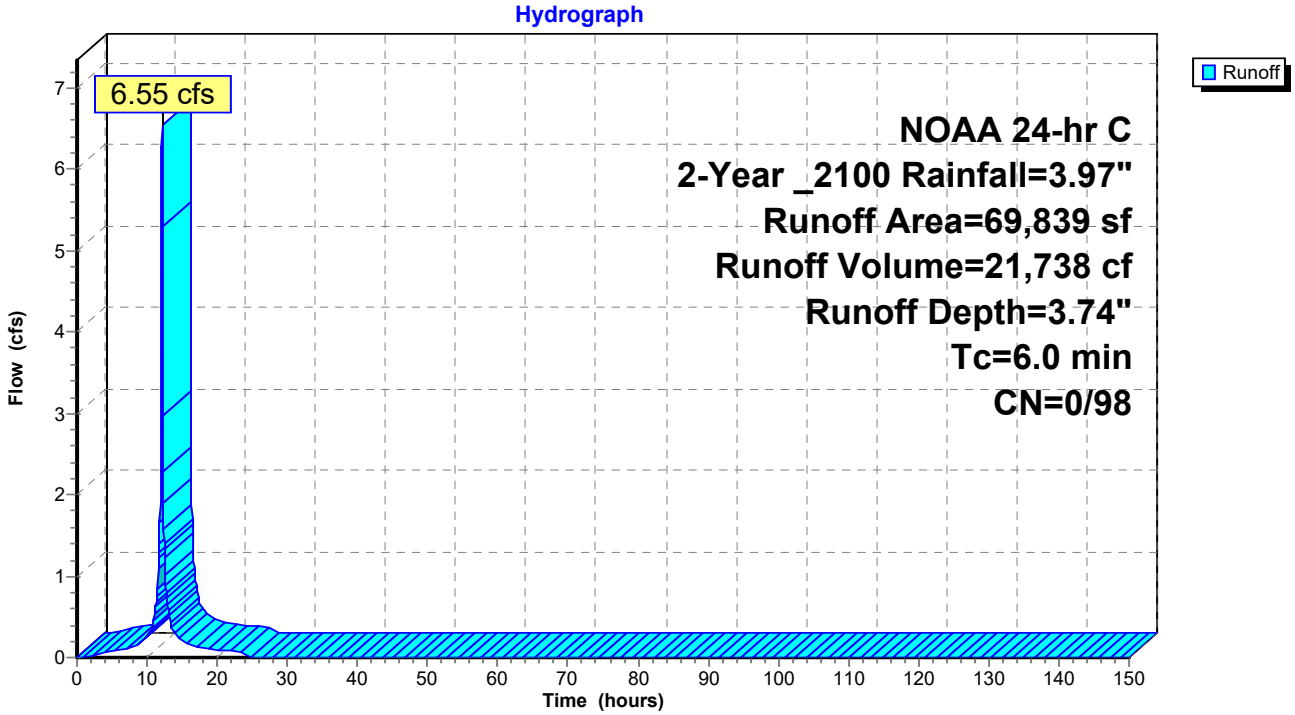
Runoff = 6.55 cfs @ 12.13 hrs, Volume= 21,738 cf, Depth= 3.74"
Routed to Pond 2P : ROOF RG 750 SF

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

	Area (sf)	CN	Description
*	69,839	98	Roof - Building GIS Layer
	69,839	98	100.00% Impervious Area

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

Subcatchment 1Sb: Roof



Summary for Subcatchment 1Sc: Driveways (GIS - other)

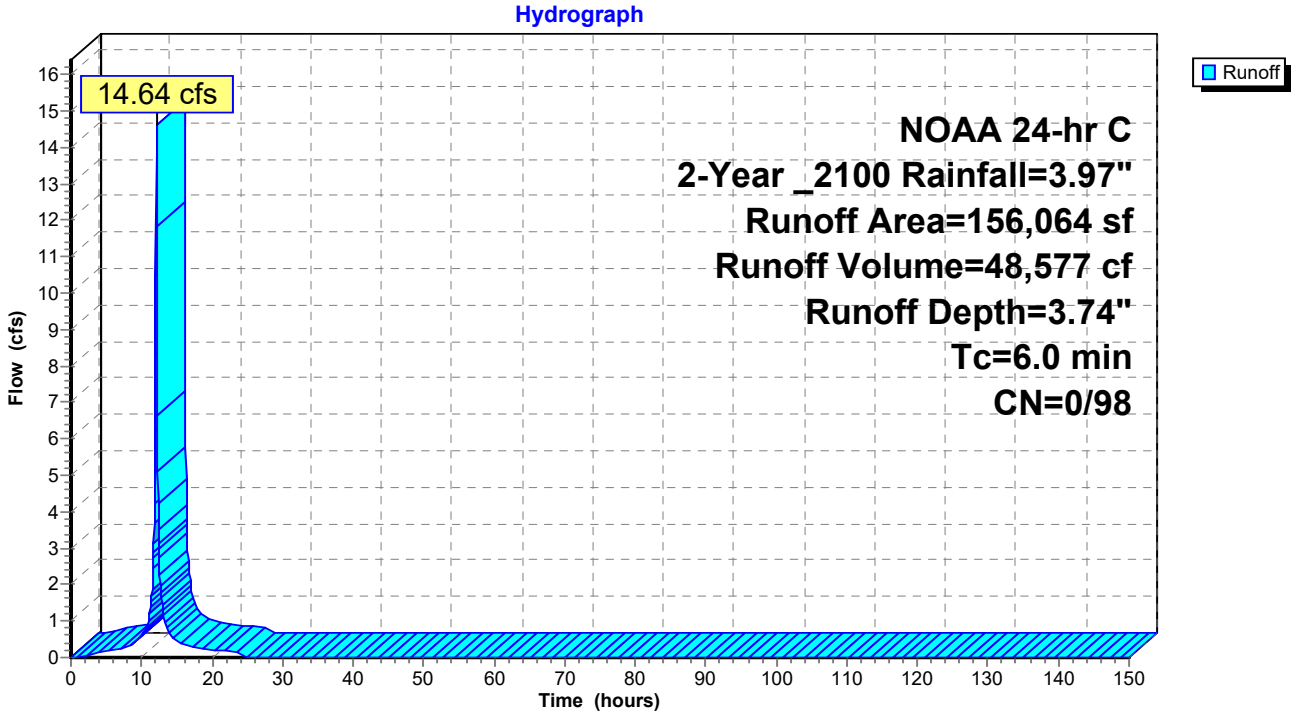
Runoff = 14.64 cfs @ 12.13 hrs, Volume= 48,577 cf, Depth= 3.74"
Routed to Pond 3P : Basic Porous Pavement (infiltration only)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

	Area (sf)	CN	Description
*	156,064	98	Impervious Drivways (other)
	156,064	98	100.00% Impervious Area

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

Subcatchment 1Sc: Driveways (GIS - other)



Summary for Subcatchment 2S: DA 2: CN w/ IC areas

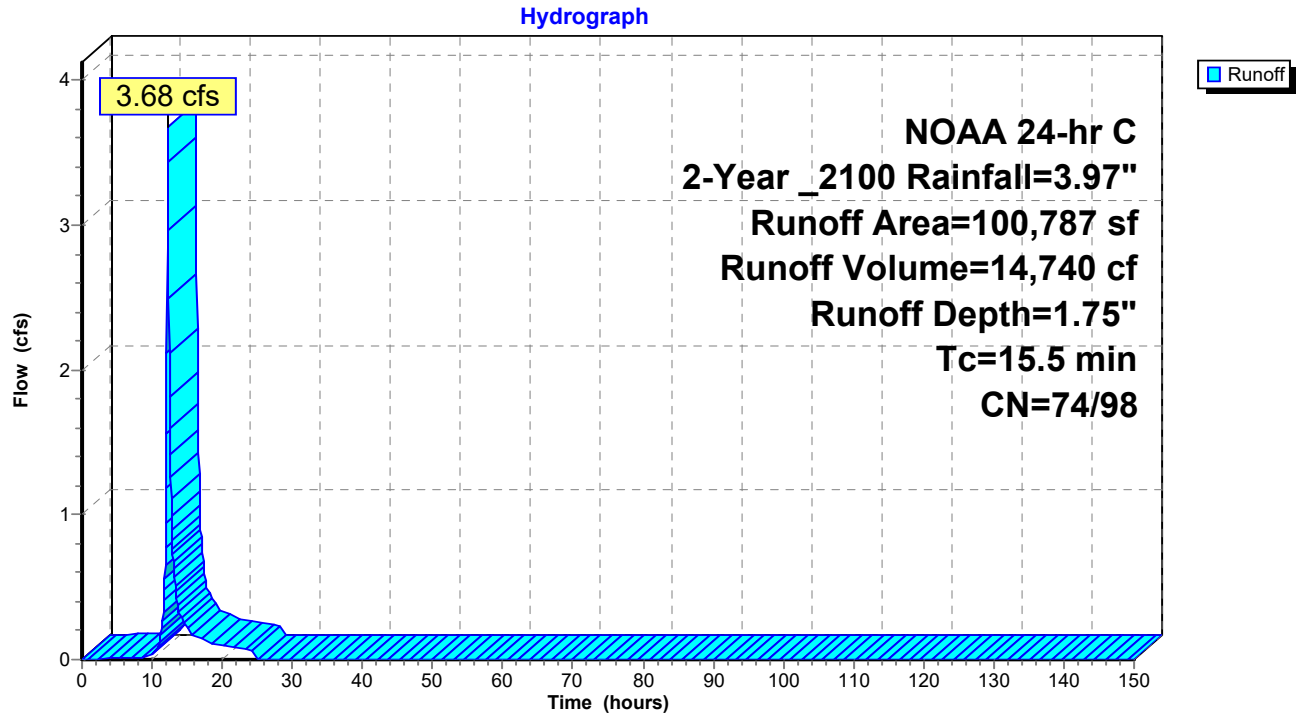
Runoff = 3.68 cfs @ 12.25 hrs, Volume= 14,740 cf, Depth= 1.75"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

	Area (sf)	CN	Description
*	8,425	98	Impervious
	86	65	Brush, Good, HSG C
	92,276	74	>75% Grass cover, Good, HSG C
	100,787	76	Weighted Average
	92,362	74	91.64% Pervious Area
	8,425	98	8.36% Impervious Area

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

Subcatchment 2S: DA 2: CN w/ IC areas



Summary for Subcatchment 3S: DA 3: CN w/ IC areas

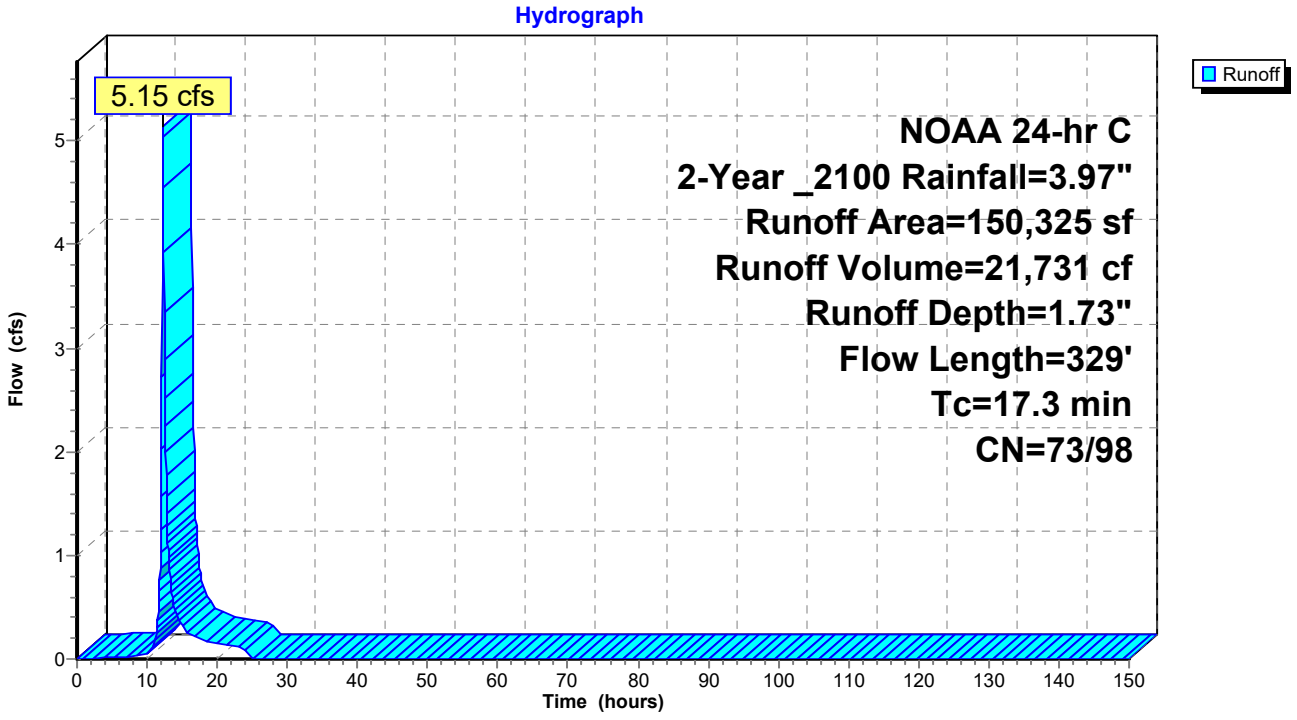
Runoff = 5.15 cfs @ 12.27 hrs, Volume= 21,731 cf, Depth= 1.73"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

	Area (sf)	CN	Description
*	15,427	98	Impervious
	17,213	65	Brush, Good, HSG C
	11,427	73	Brush, Good, HSG D
	99,487	74	>75% Grass cover, Good, HSG C
	6,771	70	Woods, Good, HSG C
	150,325	75	Weighted Average
	134,898	73	89.74% Pervious Area
	15,427	98	10.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0103	0.13		**Sheet Flow, Sheetflow** Grass: Short n= 0.150 P2= 3.34"
4.8	229	0.0129	0.80		**Shallow Concentrated Flow, SCF - Grass** Short Grass Pasture Kv= 7.0 fps
17.3	329	Total			

Subcatchment 3S: DA 3: CN w/ IC areas



Summary for Subcatchment 4S: DA 4: CN w/ IC areas

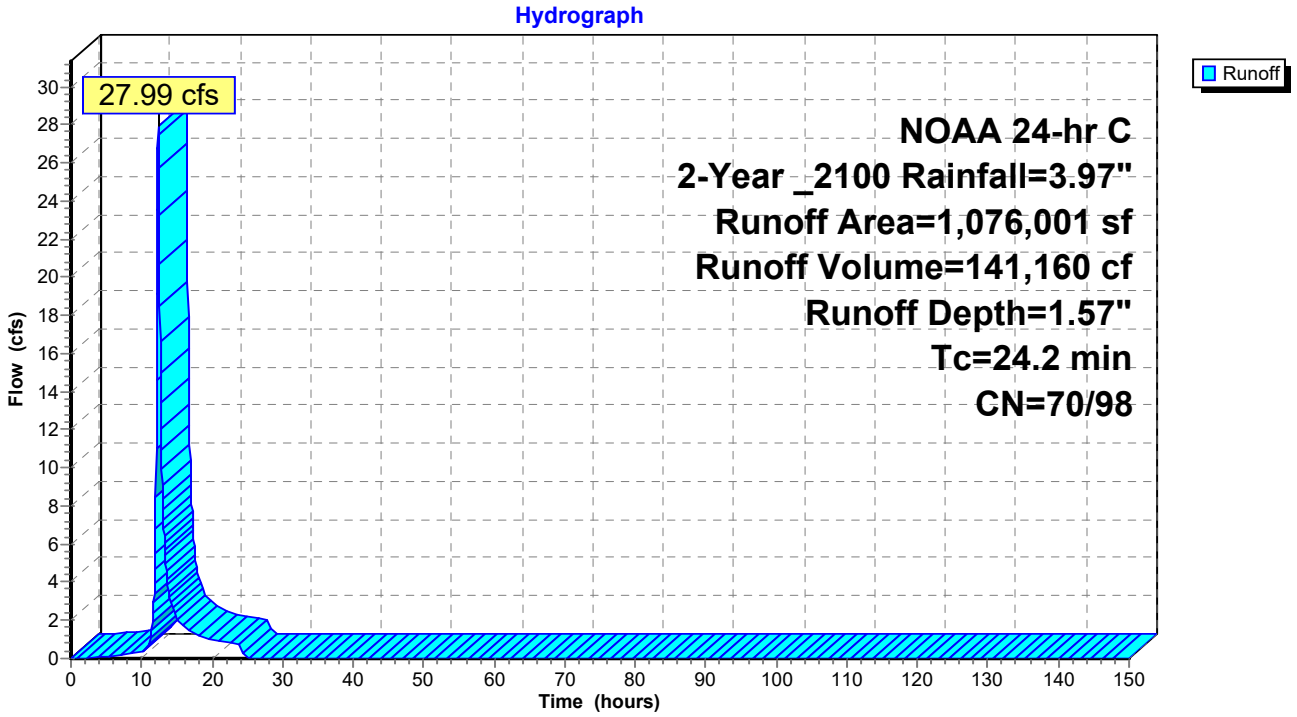
Runoff = 27.99 cfs @ 12.36 hrs, Volume= 141,160 cf, Depth= 1.57"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

	Area (sf)	CN	Description
*	117,373	98	Impervious
	376,010	65	Brush, Good, HSG C
	14,106	73	Brush, Good, HSG D
	58,960	79	50-75% Grass cover, Fair, HSG C
	6,320	84	50-75% Grass cover, Fair, HSG D
	199,948	74	>75% Grass cover, Good, HSG C
	6,758	80	>75% Grass cover, Good, HSG D
	13	86	<50% Grass cover, Poor, HSG C
	5,323	72	Woods/grass comb., Good, HSG C
	90,808	73	Woods, Fair, HSG C
	200,382	70	Woods, Good, HSG C
	1,076,001	73	Weighted Average
	958,628	70	89.09% Pervious Area
	117,373	98	10.91% Impervious Area

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

Subcatchment 4S: DA 4: CN w/ IC areas



Summary for Reach 1R: INLET PIPE

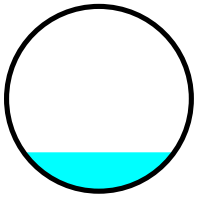
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 1.51" for 2-Year _2100 event
Inflow = 19.58 cfs @ 12.62 hrs, Volume= 148,967 cf
Outflow = 19.57 cfs @ 12.62 hrs, Volume= 148,968 cf, Atten= 0%, Lag= 0.1 min
Routed to Pond 4P : Municipal Property Basin 2100

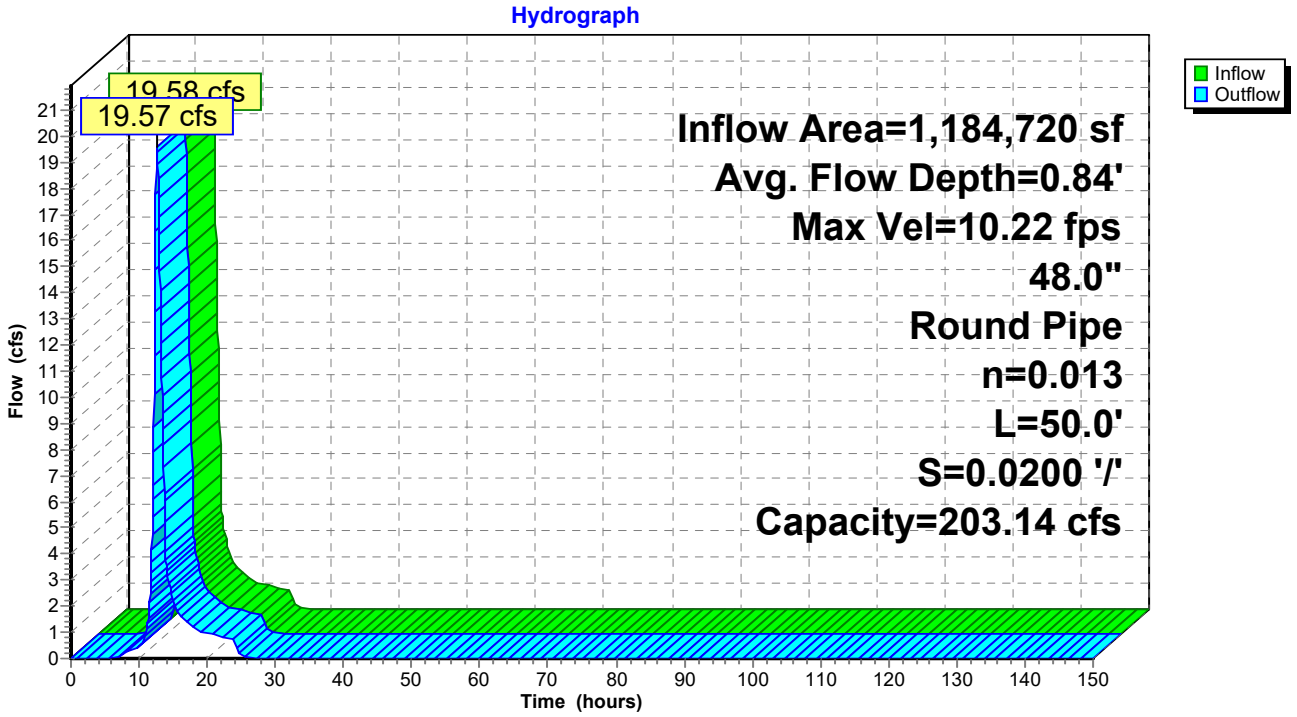
Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 10.22 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.91 fps, Avg. Travel Time= 0.2 min

Peak Storage= 96 cf @ 12.62 hrs
Average Depth at Peak Storage= 0.84' , Surface Width= 3.26'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 203.14 cfs

48.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 66.00', Outlet Invert= 65.00'



Reach 1R: INLET PIPE



Summary for Reach 2R: OUTFLOW PIPE

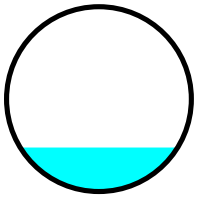
[52] Hint: Inlet/Outlet conditions not evaluated

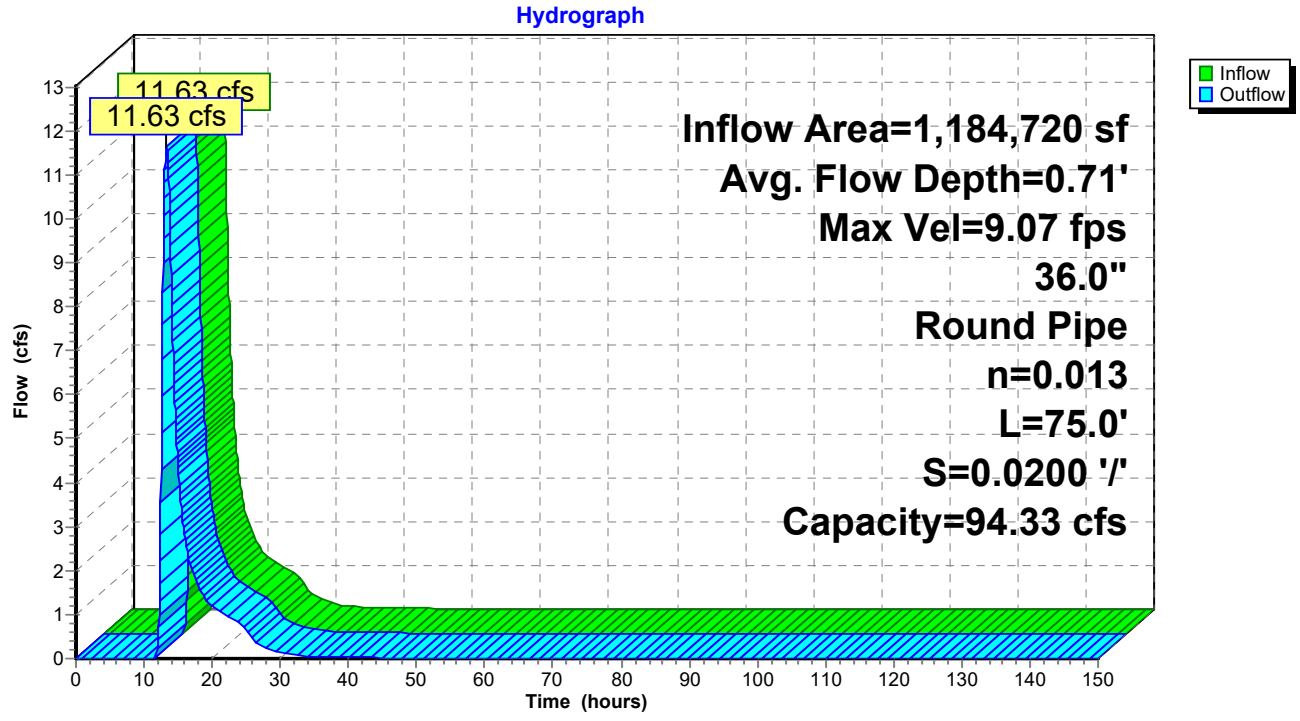
Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 1.42" for 2-Year _2100 event
Inflow = 11.63 cfs @ 13.28 hrs, Volume= 140,539 cf
Outflow = 11.63 cfs @ 13.29 hrs, Volume= 140,539 cf, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.07 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.78 fps, Avg. Travel Time= 0.7 min

Peak Storage= 96 cf @ 13.28 hrs
Average Depth at Peak Storage= 0.71' , Surface Width= 2.55'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 94.33 cfs

36.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 75.0' Slope= 0.0200 '/'
Inlet Invert= 62.00', Outlet Invert= 60.50'





Summary for Pond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Inflow Area = 958,817 sf, 14.64% Impervious, Inflow Depth = 1.89" for 2-Year _2100 event
Inflow = 29.91 cfs @ 12.37 hrs, Volume= 151,065 cf
Outflow = 19.58 cfs @ 12.62 hrs, Volume= 148,967 cf, Atten= 35%, Lag= 15.0 min
Primary = 19.58 cfs @ 12.62 hrs, Volume= 148,967 cf
Routed to Link 1L : Combined Flow
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 1L : Combined Flow
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 98.24' @ 12.62 hrs Surf.Area= 12,249 sf Storage= 22,845 cf

Plug-Flow detention time= 29.9 min calculated for 148,967 cf (99% of inflow)
Center-of-Mass det. time= 20.4 min (862.2 - 841.8)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	497 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
#2A	93.75'	689 cf	**15.75'W x 32.10'L x 4.50'H Field A** 2,275 cf Overall - 551 cf Embedded = 1,724 cf x 40.0% Voids
#3A	95.25'	551 cf	**ADS_StormTech SC-740 +Cap** x 12 Inside #2 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 3 Rows
		1,737 cf	x 18.00 = 31,271 cf Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
97.75	175	0.0	0	0	175
98.25	175	35.0	31	31	198
99.25	175	35.0	61	92	245
99.50	175	25.0	11	103	257
100.00	175	100.0	88	190	281
100.51	175	100.0	89	280	304
101.75	175	100.0	217	497	363

Device	Routing	Invert	Outlet Devices
#1	Primary	94.17'	**6.0" Round Culvert X 18.00** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 94.17' / 94.12' S= 0.0050 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.20 sf
#2	Device 1	94.33'	**6.0" Round 6" HDPE Underdrain X 18.00** L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 94.33' / 94.17' S= 0.0050 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.20 sf
#3	Secondary	100.00'	**3.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 18.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

#4	Tertiary	100.50'	**6.0' long Sharp-Crested Rectangular Weir X 18.00** 2 End Contraction(s)

Primary OutFlow Max=19.56 cfs @ 12.62 hrs HW=98.23' (Free Discharge)
└─**1=Culvert** (Passes 19.56 cfs of 29.35 cfs potential flow)
└─**2=6" HDPE Underdrain** (Barrel Controls 19.56 cfs @ 5.53 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=93.75' (Free Discharge)
└─**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=93.75' (Free Discharge)
└─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

ond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

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

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

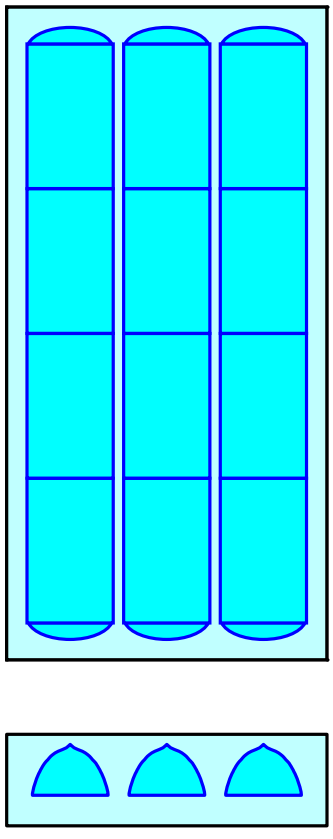
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

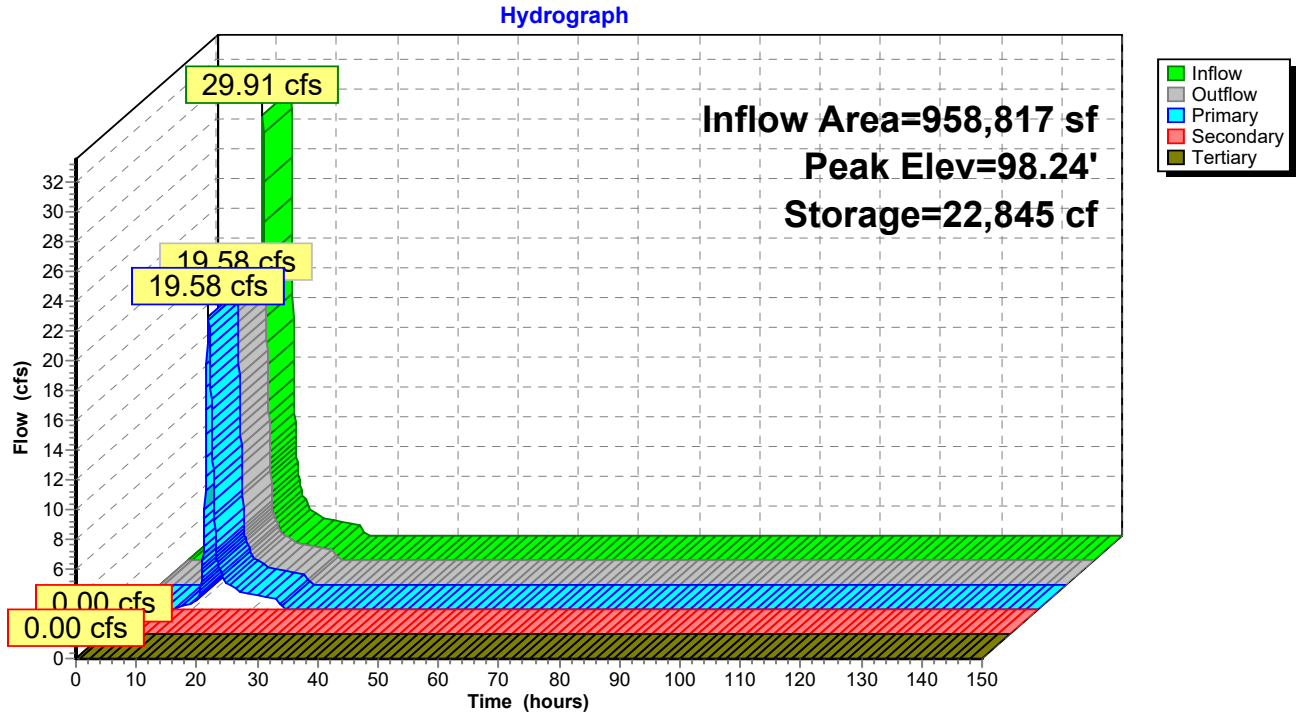
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af
Overall Storage Efficiency = 54.5%
Overall System Size = 32.10' x 15.75' x 4.50'

12 Chambers
84.3 cy Field
63.8 cy Stone



Pond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)



Summary for Pond 2P: ROOF RG 750 SF

Assumes infiltration through media is non-limiting.

Inflow Area = 69,839 sf,100.00% Impervious, Inflow Depth = 3.74" for 2-Year _2100 event
Inflow = 6.55 cfs @ 12.13 hrs, Volume= 21,738 cf
Outflow = 0.26 cfs @ 14.34 hrs, Volume= 21,738 cf, Atten= 96%, Lag= 133.0 min
Discarded = 0.26 cfs @ 14.34 hrs, Volume= 21,738 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Peak Elev= 99.63' @ 14.34 hrs Surf.Area= 22,105 sf Storage= 11,163 cf

Plug-Flow detention time= 390.6 min calculated for 21,731 cf (100% of inflow)
Center-of-Mass det. time= 390.7 min (1,143.7 - 753.1)

Volume	Invert	Avail.Storage	Storage Description
#1	98.25'	735 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
		735 cf	x 37.00 = 27,209 cf Total Available Storage

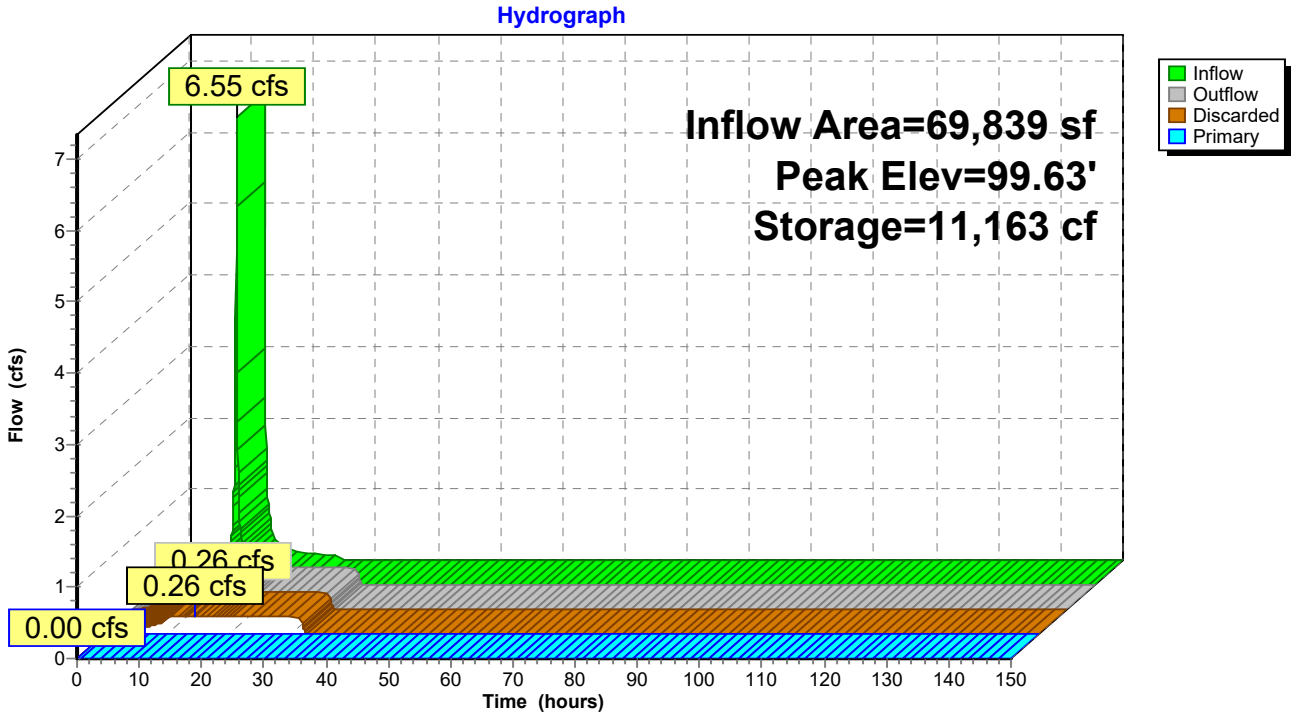
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
98.25	546	0.0	0	0	546
99.25	546	35.0	191	191	629
99.50	546	25.0	34	225	650
100.00	750	100.0	323	548	858
100.25	750	100.0	188	735	883

Device	Routing	Invert	Outlet Devices
#1	Discarded	98.25'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	100.00'	**2.0' long x 3.0' breadth Broad-Crested Rectangular Weir X 37.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.26 cfs @ 14.34 hrs HW=99.63' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.26 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.25' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: ROOF RG 750 SF



Summary for Pond 3P: Basic Porous Pavement (infiltration only)

Inflow Area = 156,064 sf,100.00% Impervious, Inflow Depth = 3.74" for 2-Year _2100 event
Inflow = 14.64 cfs @ 12.13 hrs, Volume= 48,577 cf
Outflow = 1.81 cfs @ 11.60 hrs, Volume= 48,577 cf, Atten= 88%, Lag= 0.0 min
Discarded = 1.81 cfs @ 11.60 hrs, Volume= 48,577 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Peak Elev= 99.52' @ 12.71 hrs Surf.Area= 156,064 sf Storage= 14,922 cf

Plug-Flow detention time= 52.0 min calculated for 48,561 cf (100% of inflow)
Center-of-Mass det. time= 52.0 min (805.0 - 753.1)

Volume	Invert	Avail.Storage	Storage Description
#1	99.25'	72,180 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

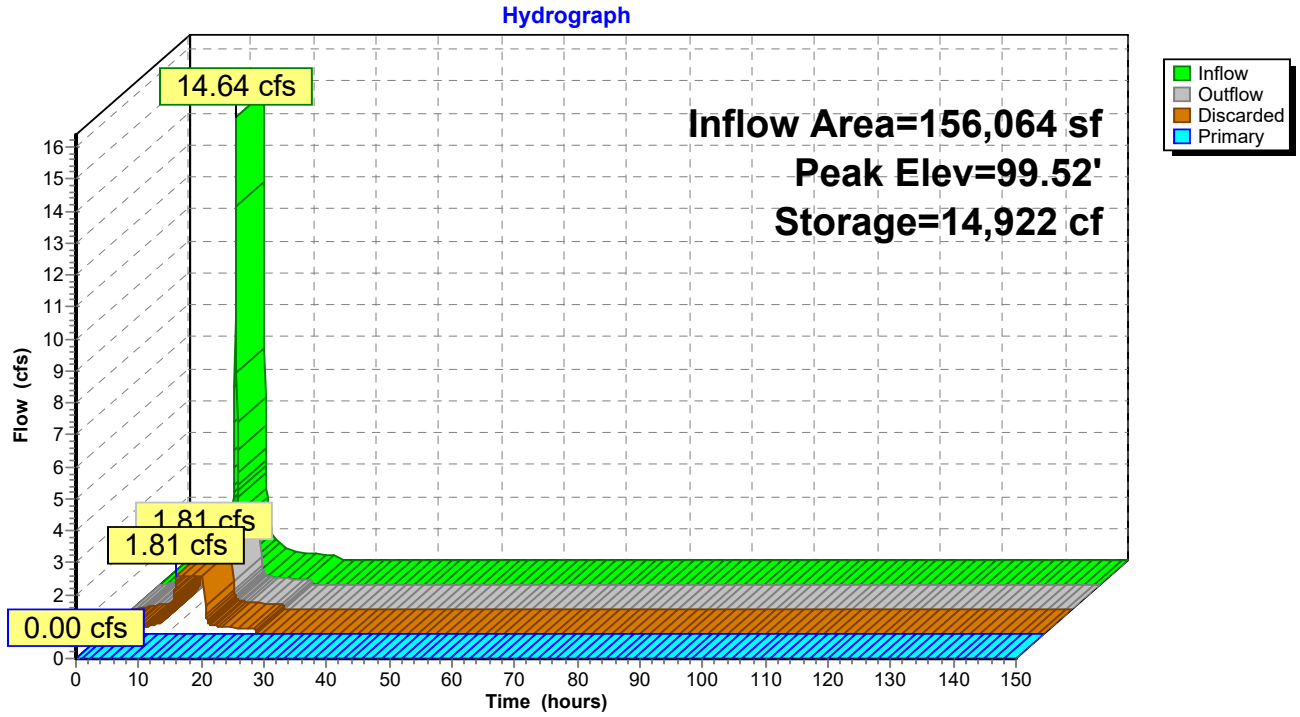
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.25	156,064	0.0	0	0
99.75	156,064	35.0	27,311	27,311
99.83	156,064	15.0	1,873	29,184
100.00	156,064	15.0	3,980	33,164
100.25	156,064	100.0	39,016	72,180

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.25'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	100.00'	**15.0' long x 1.0' breadth Edge of Porous Asphalt X 37.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=1.81 cfs @ 11.60 hrs HW=99.26' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 1.81 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=99.25' (Free Discharge)
↑—**2=Edge of Porous Asphalt** (Controls 0.00 cfs)

Pond 3P: Basic Porous Pavement (infiltration only)



Summary for Pond 4P: Municipal Property Basin 2100

[62] Hint: Exceeded Reach 1R OUTLET depth by 0.92' @ 13.80 hrs

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 1.51" for 2-Year _2100 event
Inflow = 19.57 cfs @ 12.62 hrs, Volume= 148,968 cf
Outflow = 11.63 cfs @ 13.28 hrs, Volume= 140,539 cf, Atten= 41%, Lag= 39.8 min
Primary = 11.63 cfs @ 13.28 hrs, Volume= 140,539 cf
Routed to Reach 2R : OUTFLOW PIPE
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach 2R : OUTFLOW PIPE
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach 2R : OUTFLOW PIPE

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 66.47' @ 13.28 hrs Surf.Area= 38,772 sf Storage= 53,072 cf

Plug-Flow detention time= 173.8 min calculated for 140,492 cf (94% of inflow)
Center-of-Mass det. time= 144.1 min (1,006.5 - 862.4)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	213,105 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	33,242	0	0
70.00	52,000	213,105	213,105

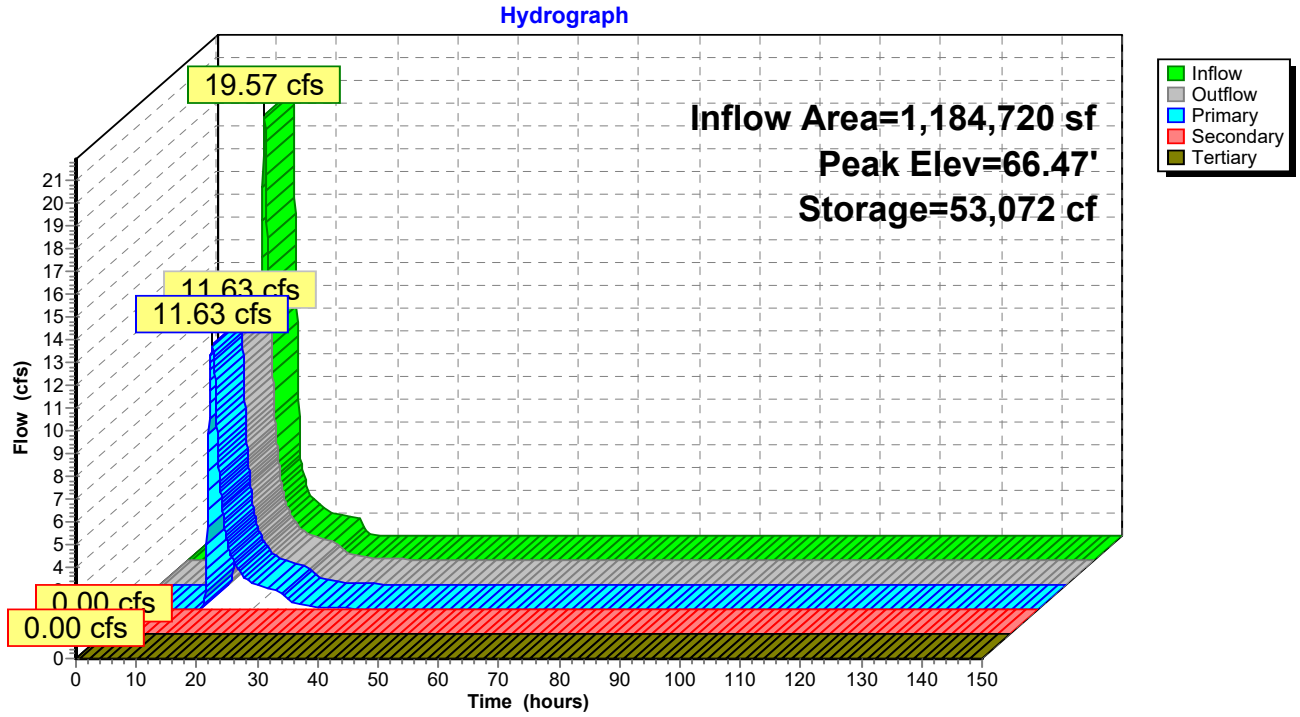
Device	Routing	Invert	Outlet Devices
#1	Primary	65.25'	**18.0" Vert. Low Flow Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	67.25'	**24.0" W x 18.0" H Vert. 2-YR Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	69.50'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=11.63 cfs @ 13.28 hrs HW=66.47' (Free Discharge)
1=Low Flow Orifice (Orifice Controls 11.63 cfs @ 3.77 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.00' (Free Discharge)
2=2-YR Orifice (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.00' (Free Discharge)
3=Orifice/Grate (Controls 0.00 cfs)

Pond 4P: Municipal Property Basin 2100

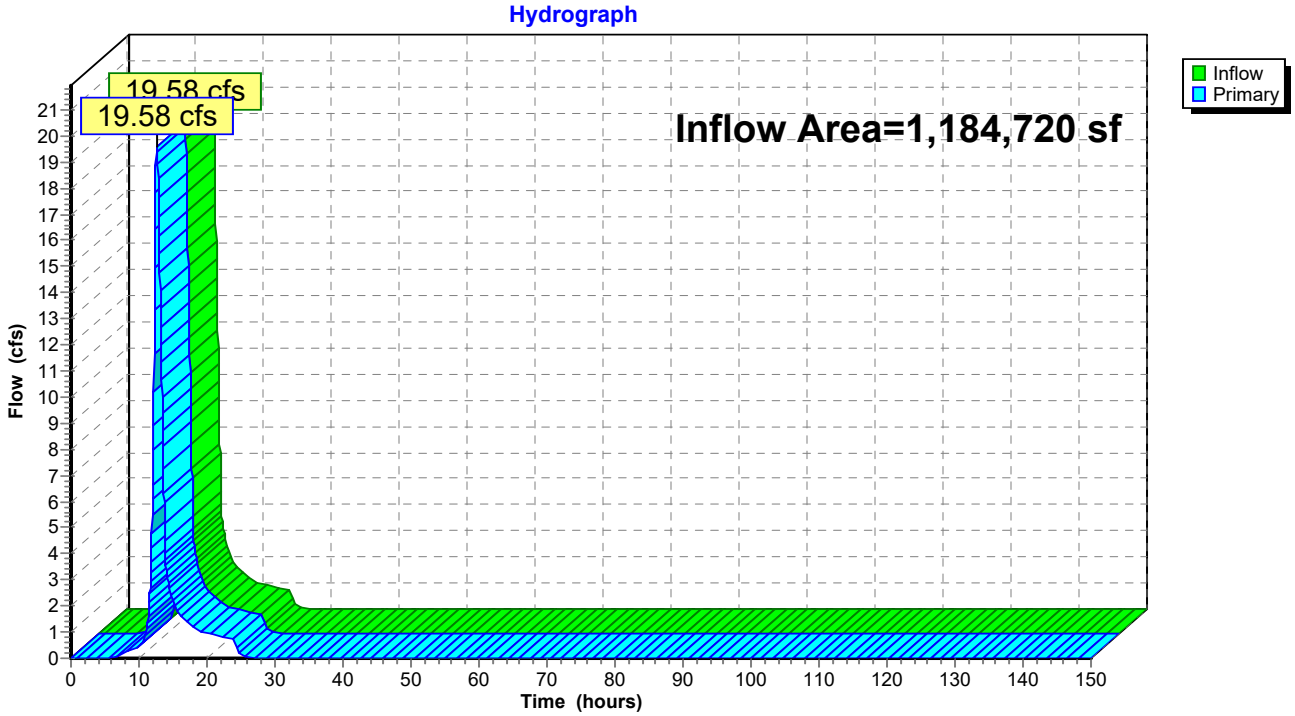


Summary for Link 1L: Combined Flow

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 1.51" for 2-Year _2100 event
Inflow = 19.58 cfs @ 12.62 hrs, Volume= 148,967 cf
Primary = 19.58 cfs @ 12.62 hrs, Volume= 148,967 cf, Atten= 0%, Lag= 0.0 min
Routed to Reach 1R : INLET PIPE

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs

Link 1L: Combined Flow

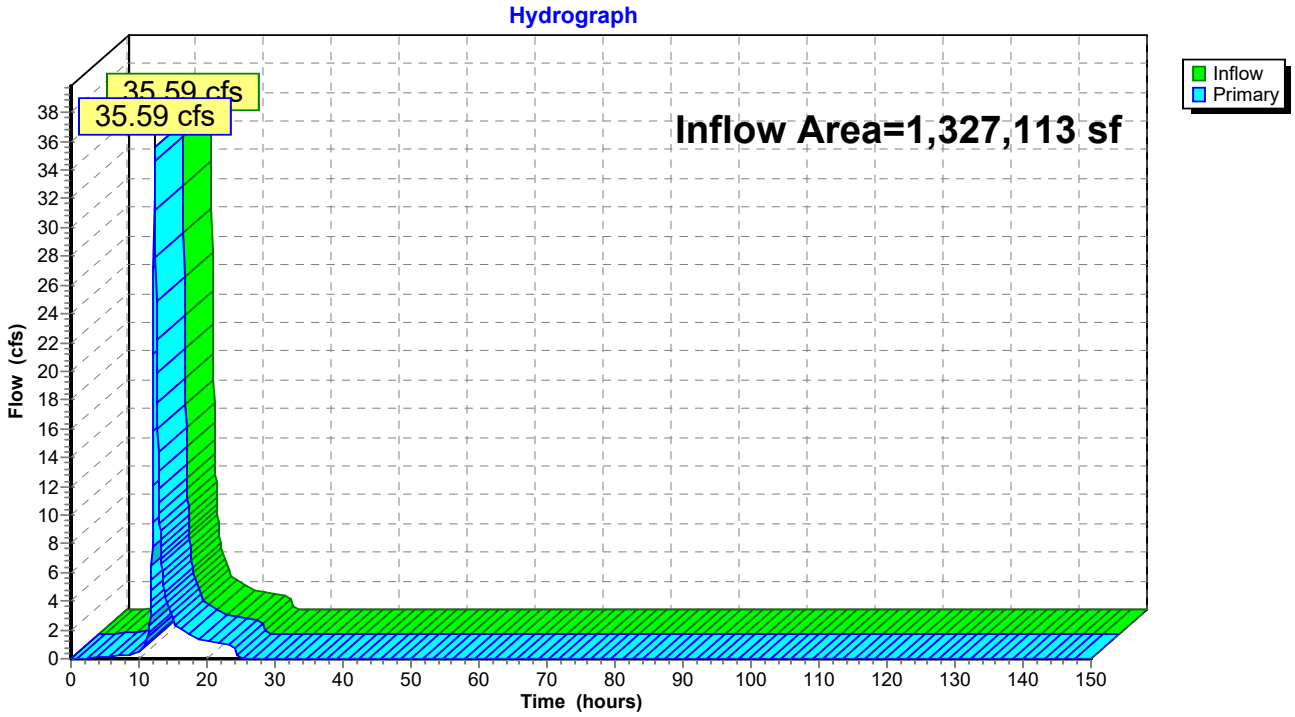


Summary for Link 2L: Offsite Flows

Inflow Area = 1,327,113 sf, 10.64% Impervious, Inflow Depth = 1.61" for 2-Year _2100 event
Inflow = 35.59 cfs @ 12.33 hrs, Volume= 177,631 cf
Primary = 35.59 cfs @ 12.33 hrs, Volume= 177,631 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs

Link 2L: Offsite Flows



Time span=0.00-150.00 hrs, dt=0.05 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: DA 1: All Runoff Area=1,184,721 sf 30.92% Impervious Runoff Depth=3.24"
Tc=25.2 min CN=74/98 Runoff=62.74 cfs 320,259 cf

Subcatchment 1Sa: DA 1: CN w/ IC areas Runoff Area=958,817 sf 14.64% Impervious Runoff Depth=2.85"
Tc=25.2 min CN=74/98 Runoff=45.77 cfs 227,583 cf

Subcatchment 1Sb: Roof Runoff Area=69,839 sf 100.00% Impervious Runoff Depth=4.92"
Tc=6.0 min CN=0/98 Runoff=8.54 cfs 28,651 cf

Subcatchment 1Sc: Driveways (GIS - Runoff Area=156,064 sf 100.00% Impervious Runoff Depth=4.92"
Tc=6.0 min CN=0/98 Runoff=19.09 cfs 64,024 cf

Subcatchment 2S: DA 2: CN w/ IC areas Runoff Area=100,787 sf 8.36% Impervious Runoff Depth=2.70"
Tc=15.5 min CN=74/98 Runoff=5.74 cfs 22,641 cf

Subcatchment 3S: DA 3: CN w/ IC areas Runoff Area=150,325 sf 10.26% Impervious Runoff Depth=2.66"
Flow Length=329' Tc=17.3 min CN=73/98 Runoff=8.05 cfs 33,382 cf

Subcatchment 4S: DA 4: CN w/ IC areas Runoff Area=1,076,001 sf 10.91% Impervious Runoff Depth=2.46"
Tc=24.2 min CN=70/98 Runoff=45.01 cfs 220,363 cf

Reach 1R: INLET PIPE Avg. Flow Depth=1.31' Max Vel=12.99 fps Inflow=46.89 cfs 224,539 cf
48.0" Round Pipe n=0.013 L=50.0' S=0.0200 '/' Capacity=203.14 cfs Outflow=46.49 cfs 224,580 cf

Reach 2R: OUTFLOW PIPE Avg. Flow Depth=0.86' Max Vel=10.08 fps Inflow=16.81 cfs 216,150 cf
36.0" Round Pipe n=0.013 L=75.0' S=0.0200 '/' Capacity=94.33 cfs Outflow=16.81 cfs 216,150 cf

Pond 1P: Basic Rain Garden (w/ Peak Elev=100.28' Storage=26,636 cf Inflow=45.77 cfs 227,583 cf
Primary=24.54 cfs 210,749 cf Secondary=22.30 cfs 13,790 cf Tertiary=0.00 cfs 0 cf Outflow=46.89 cfs 224,539 cf

Pond 2P: ROOF RG 750 SF Peak Elev=99.82' Storage=15,649 cf Inflow=8.54 cfs 28,651 cf
Discarded=0.29 cfs 28,651 cf Primary=0.00 cfs 0 cf Outflow=0.29 cfs 28,651 cf

Pond 3P: Basic Porous Pavement Peak Elev=99.66' Storage=22,242 cf Inflow=19.09 cfs 64,024 cf
Discarded=1.81 cfs 64,024 cf Primary=0.00 cfs 0 cf Outflow=1.81 cfs 64,024 cf

Pond 4P: Municipal Property Basin 2100 Peak Elev=66.98' Storage=72,987 cf Inflow=46.49 cfs 224,580 cf
Primary=16.81 cfs 216,150 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=16.81 cfs 216,150 cf

Link 1L: Combined Flow Inflow=46.89 cfs 224,539 cf
Primary=46.89 cfs 224,539 cf

Link 2L: Offsite Flows Inflow=56.93 cfs 276,386 cf
Primary=56.93 cfs 276,386 cf

Total Runoff Area = 3,696,554 sf Runoff Volume = 916,904 cf Average Runoff Depth = 2.98"
76.36% Pervious = 2,822,814 sf 23.64% Impervious = 873,740 sf

Summary for Subcatchment 1S: DA 1: All

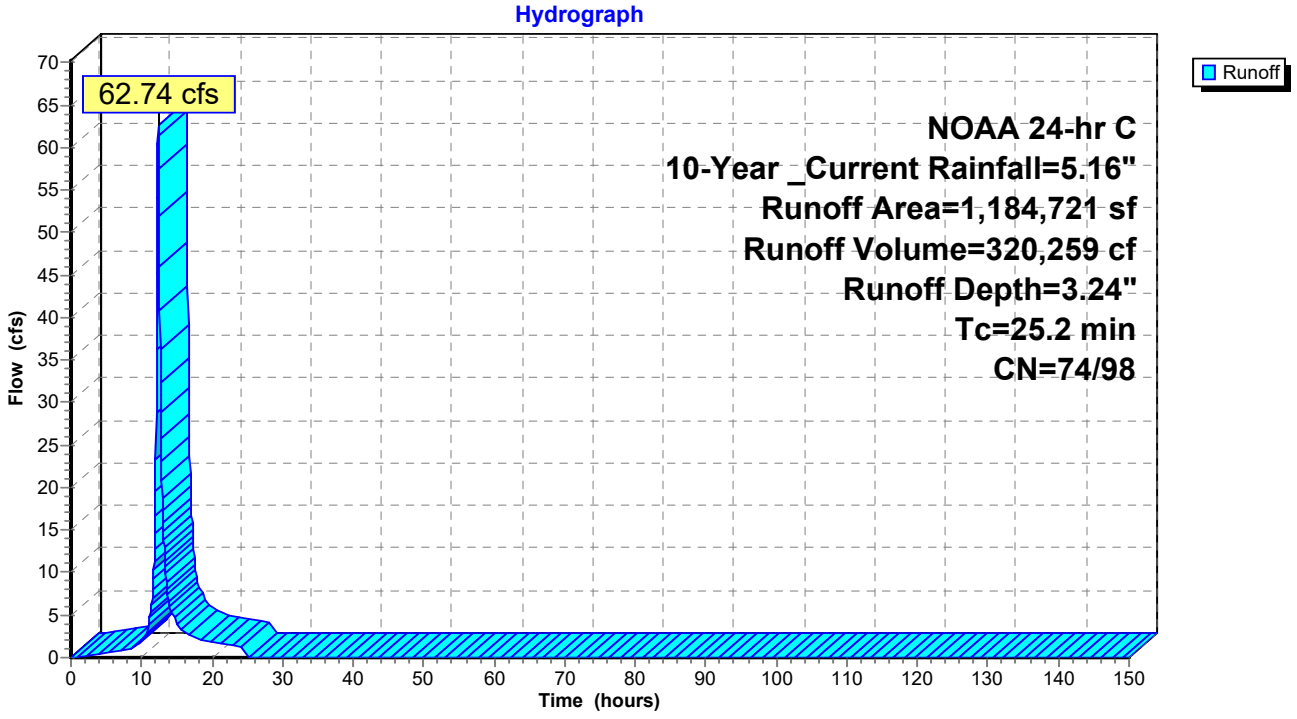
Runoff = 62.74 cfs @ 12.36 hrs, Volume= 320,259 cf, Depth= 3.24"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 10-Year _Current Rainfall=5.16"

	Area (sf)	CN	Description
*	366,258	98	Impervious
	15,045	65	Brush, Good, HSG C
	794,453	74	>75% Grass cover, Good, HSG C
	8,965	70	Woods, Good, HSG C
	1,184,721	81	Weighted Average
	818,463	74	69.08% Pervious Area
	366,258	98	30.92% Impervious Area

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

Subcatchment 1S: DA 1: All



Summary for Subcatchment 1Sa: DA 1: CN w/ IC areas

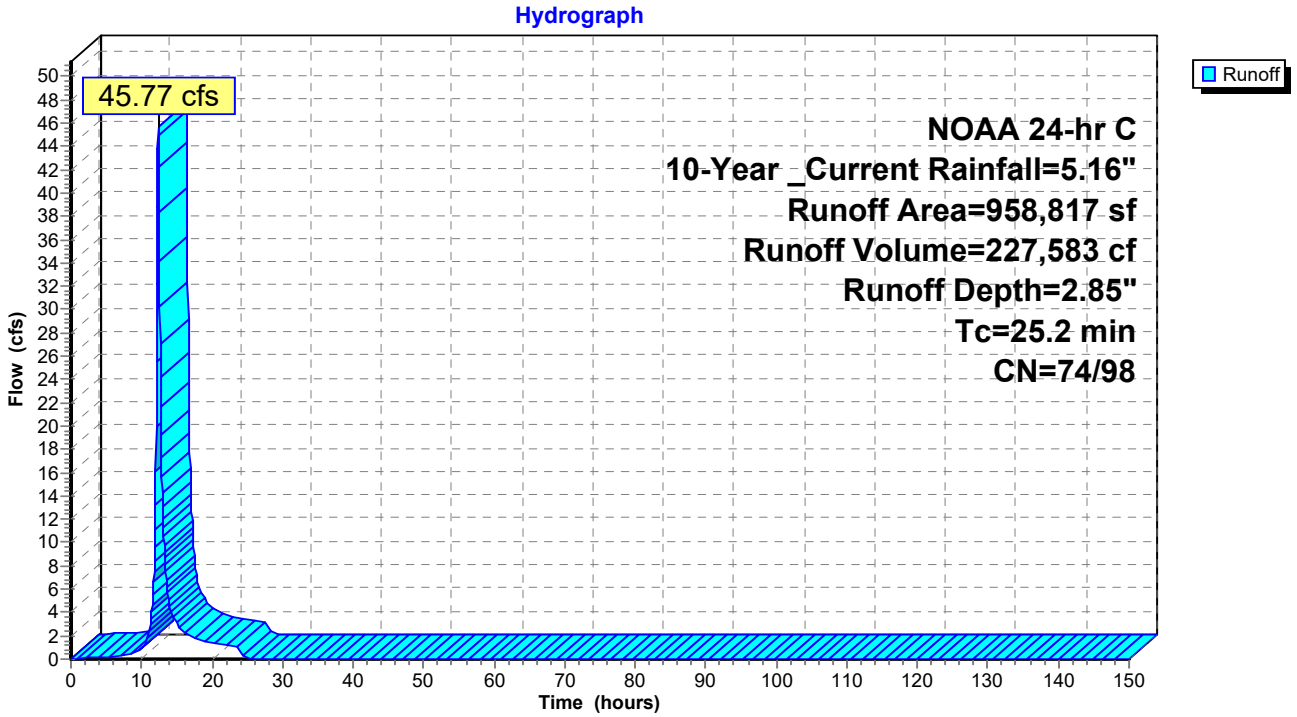
Runoff = 45.77 cfs @ 12.36 hrs, Volume= 227,583 cf, Depth= 2.85"
Routed to Pond 1P : Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 10-Year _Current Rainfall=5.16"

	Area (sf)	CN	Description
*	140,354	98	Impervious
	15,045	65	Brush, Good, HSG C
	794,453	74	>75% Grass cover, Good, HSG C
	8,965	70	Woods, Good, HSG C
	958,817	77	Weighted Average
	818,463	74	85.36% Pervious Area
	140,354	98	14.64% Impervious Area

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

Subcatchment 1Sa: DA 1: CN w/ IC areas



Summary for Subcatchment 1Sb: Roof

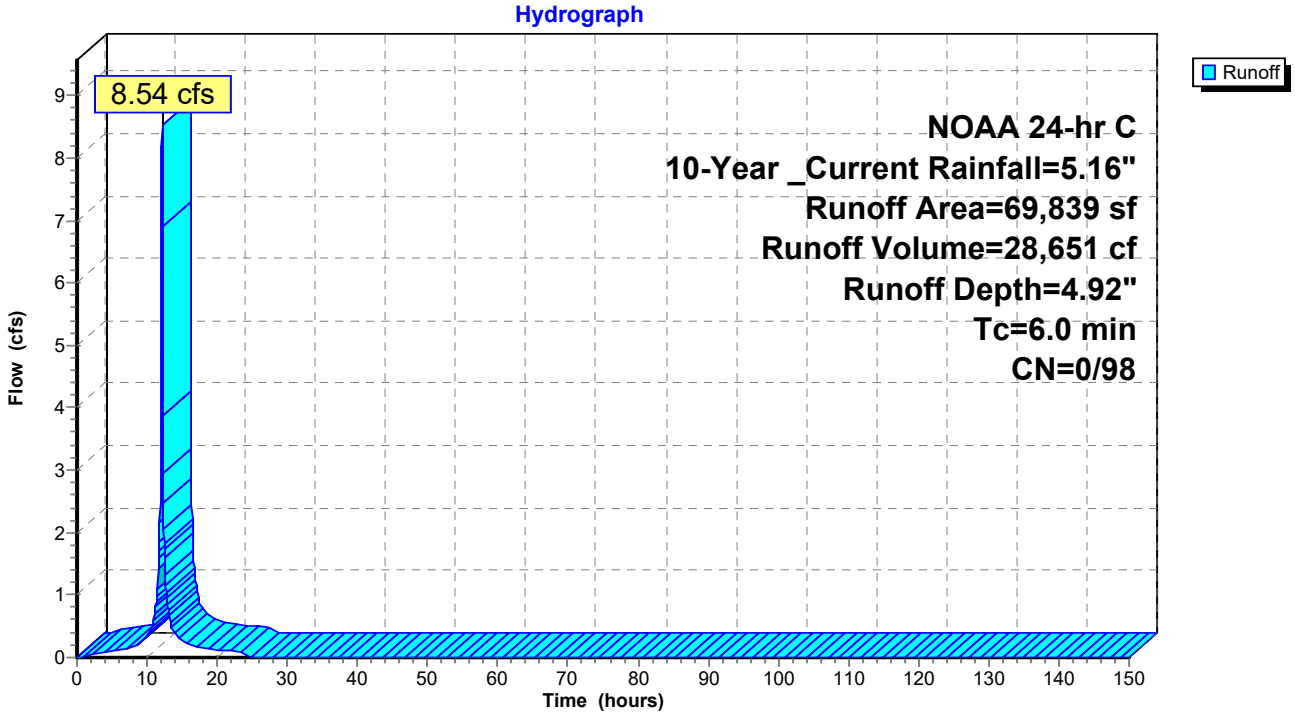
Runoff = 8.54 cfs @ 12.13 hrs, Volume= 28,651 cf, Depth= 4.92"
Routed to Pond 2P : ROOF RG 750 SF

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 10-Year _Current Rainfall=5.16"

	Area (sf)	CN	Description
*	69,839	98	Roof - Building GIS Layer
	69,839	98	100.00% Impervious Area

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

Subcatchment 1Sb: Roof



Summary for Subcatchment 1Sc: Driveways (GIS - other)

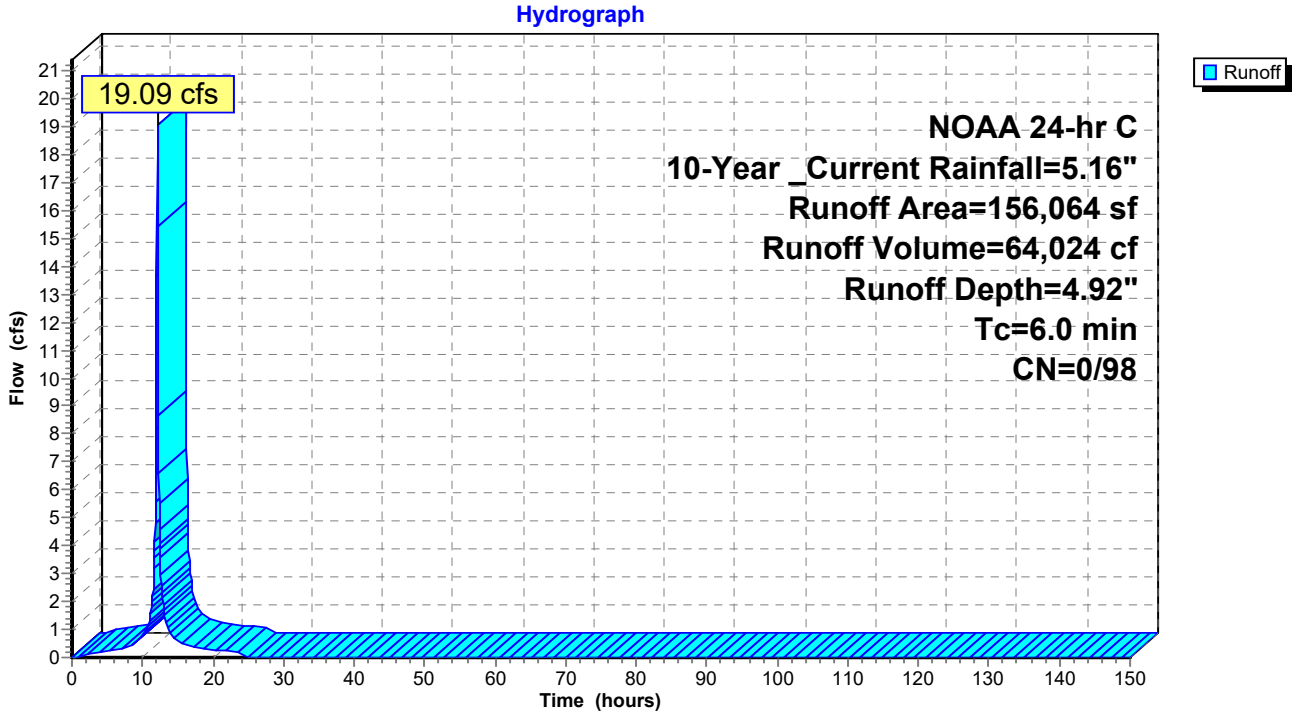
Runoff = 19.09 cfs @ 12.13 hrs, Volume= 64,024 cf, Depth= 4.92"
Routed to Pond 3P : Basic Porous Pavement (infiltration only)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 10-Year _Current Rainfall=5.16"

	Area (sf)	CN	Description
*	156,064	98	Impervious Drivways (other)
	156,064	98	100.00% Impervious Area

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

Subcatchment 1Sc: Driveways (GIS - other)



Summary for Subcatchment 2S: DA 2: CN w/ IC areas

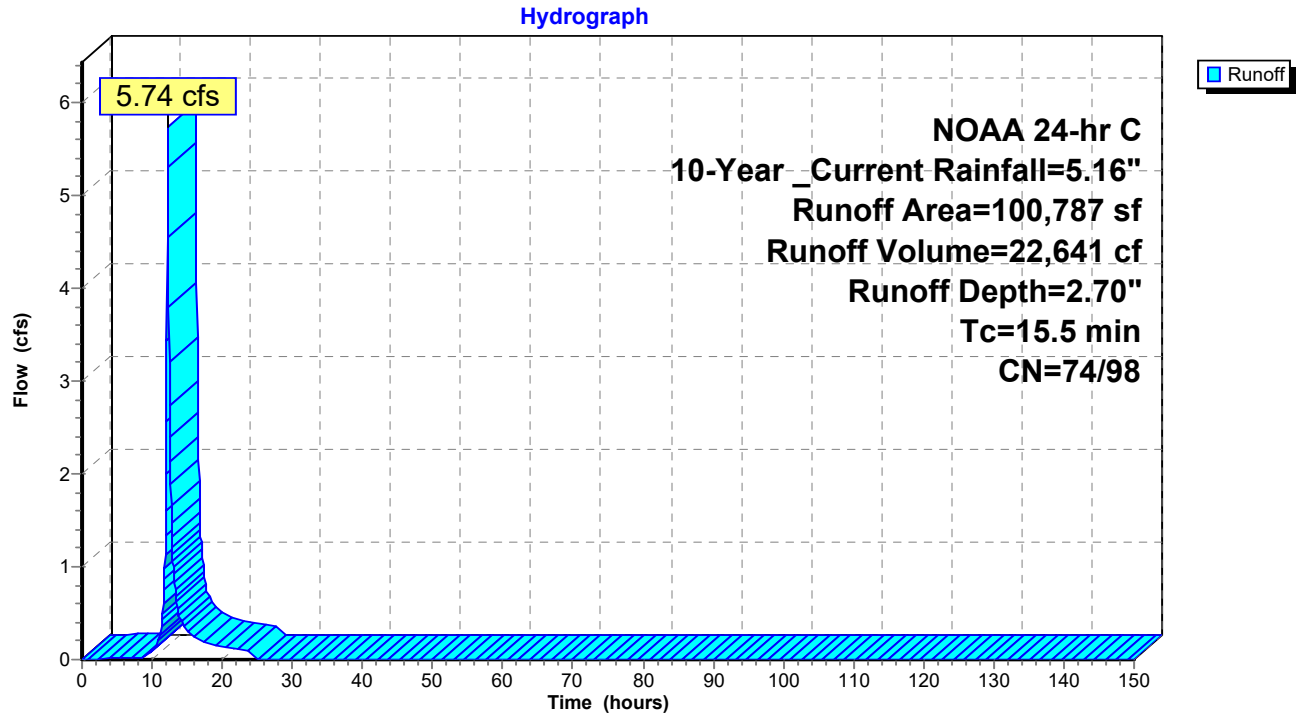
Runoff = 5.74 cfs @ 12.24 hrs, Volume= 22,641 cf, Depth= 2.70"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 10-Year _Current Rainfall=5.16"

	Area (sf)	CN	Description
*	8,425	98	Impervious
	86	65	Brush, Good, HSG C
	92,276	74	>75% Grass cover, Good, HSG C
	100,787	76	Weighted Average
	92,362	74	91.64% Pervious Area
	8,425	98	8.36% Impervious Area

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

Subcatchment 2S: DA 2: CN w/ IC areas



Summary for Subcatchment 3S: DA 3: CN w/ IC areas

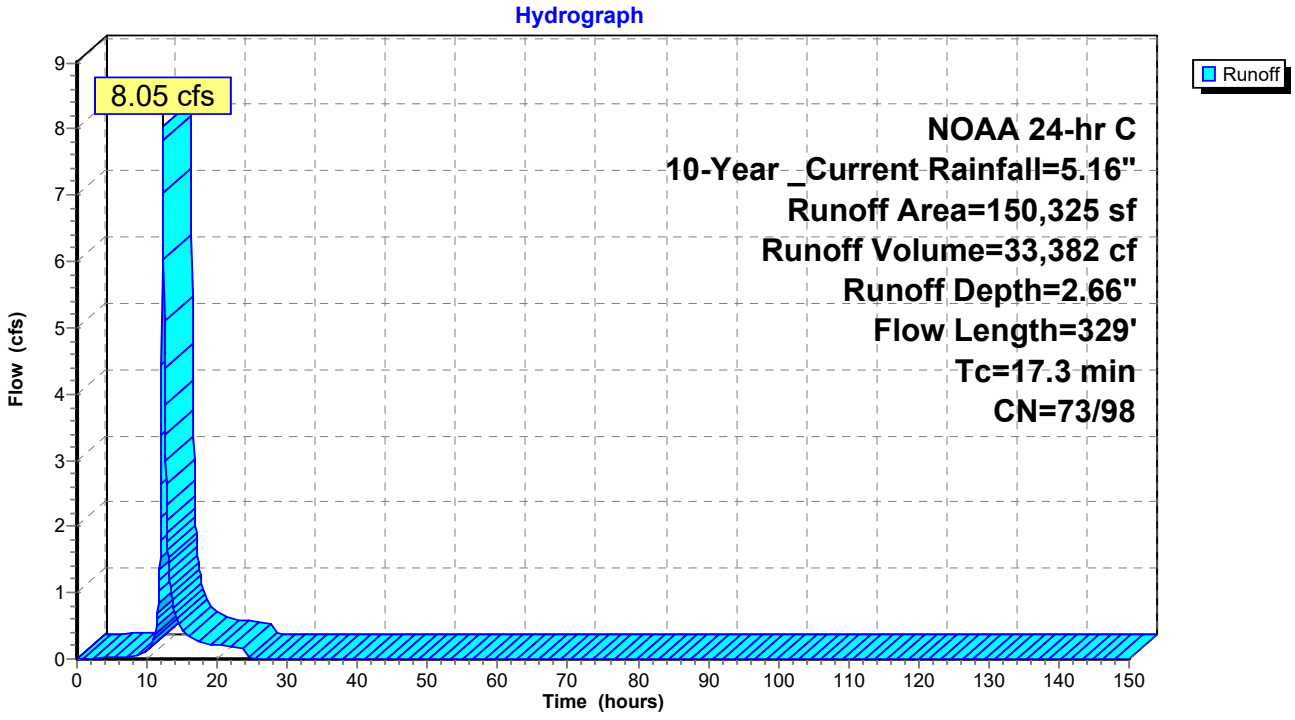
Runoff = 8.05 cfs @ 12.27 hrs, Volume= 33,382 cf, Depth= 2.66"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 10-Year _Current Rainfall=5.16"

	Area (sf)	CN	Description
*	15,427	98	Impervious
	17,213	65	Brush, Good, HSG C
	11,427	73	Brush, Good, HSG D
	99,487	74	>75% Grass cover, Good, HSG C
	6,771	70	Woods, Good, HSG C
	150,325	75	Weighted Average
	134,898	73	89.74% Pervious Area
	15,427	98	10.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0103	0.13		**Sheet Flow, Sheetflow** Grass: Short n= 0.150 P2= 3.34"
4.8	229	0.0129	0.80		**Shallow Concentrated Flow, SCF - Grass** Short Grass Pasture Kv= 7.0 fps
17.3	329	Total			

Subcatchment 3S: DA 3: CN w/ IC areas



Summary for Subcatchment 4S: DA 4: CN w/ IC areas

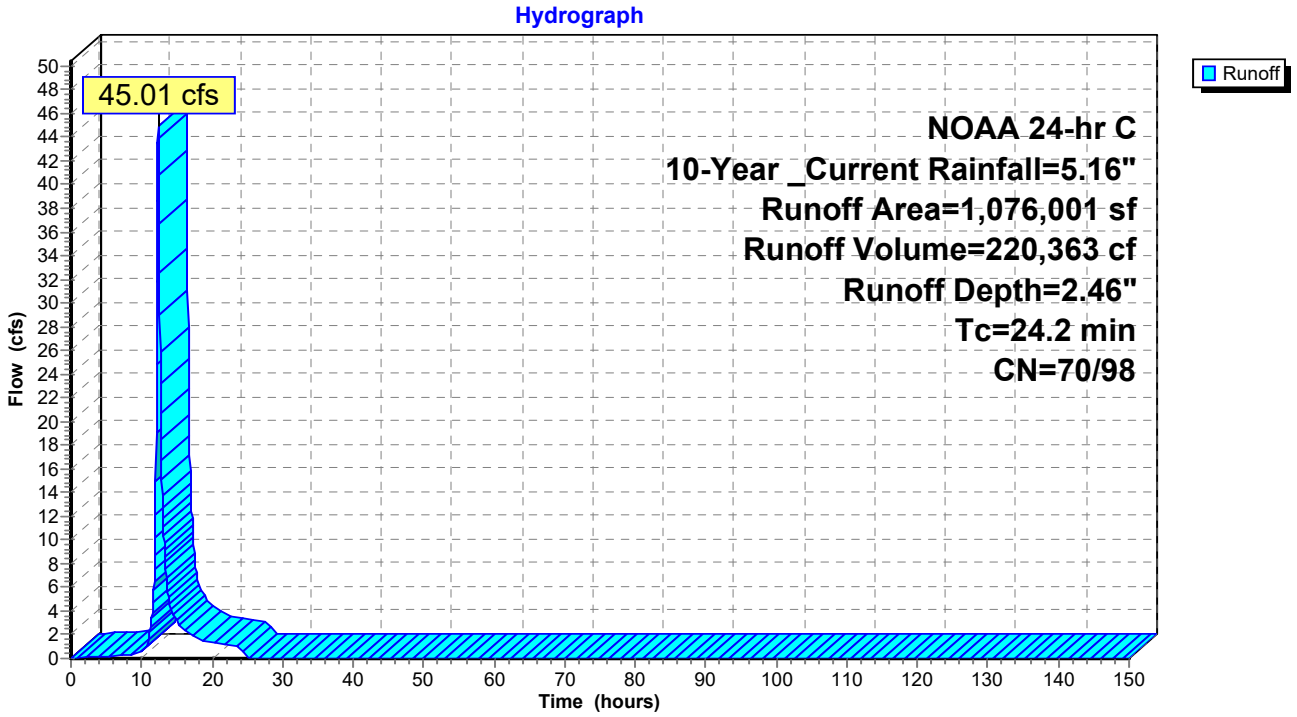
Runoff = 45.01 cfs @ 12.35 hrs, Volume= 220,363 cf, Depth= 2.46"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 10-Year _Current Rainfall=5.16"

	Area (sf)	CN	Description
*	117,373	98	Impervious
	376,010	65	Brush, Good, HSG C
	14,106	73	Brush, Good, HSG D
	58,960	79	50-75% Grass cover, Fair, HSG C
	6,320	84	50-75% Grass cover, Fair, HSG D
	199,948	74	>75% Grass cover, Good, HSG C
	6,758	80	>75% Grass cover, Good, HSG D
	13	86	<50% Grass cover, Poor, HSG C
	5,323	72	Woods/grass comb., Good, HSG C
	90,808	73	Woods, Fair, HSG C
	200,382	70	Woods, Good, HSG C
	1,076,001	73	Weighted Average
	958,628	70	89.09% Pervious Area
	117,373	98	10.91% Impervious Area

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

Subcatchment 4S: DA 4: CN w/ IC areas



Summary for Reach 1R: INLET PIPE

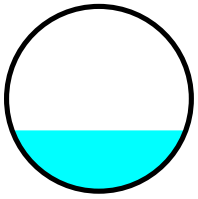
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 2.27" for 10-Year _Current event
Inflow = 46.89 cfs @ 12.42 hrs, Volume= 224,539 cf
Outflow = 46.49 cfs @ 12.42 hrs, Volume= 224,580 cf, Atten= 1%, Lag= 0.1 min
Routed to Pond 4P : Municipal Property Basin 2100

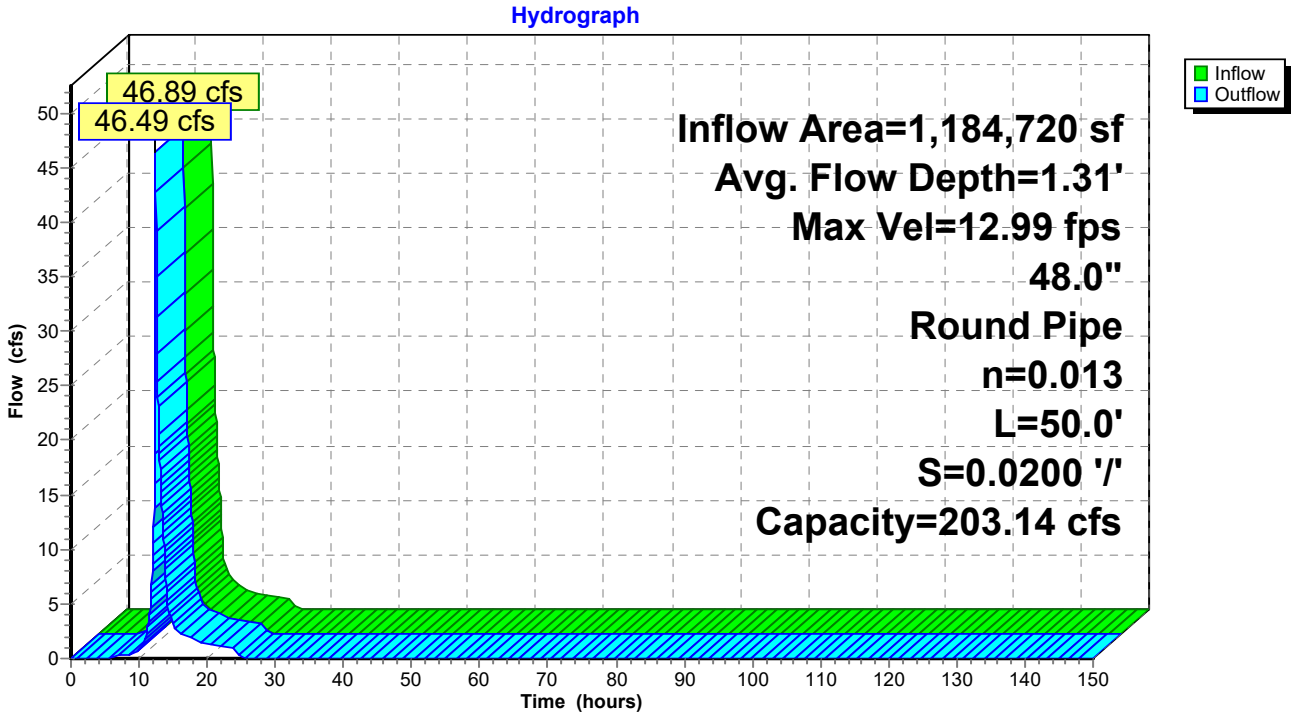
Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 12.99 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.27 fps, Avg. Travel Time= 0.2 min

Peak Storage= 179 cf @ 12.42 hrs
Average Depth at Peak Storage= 1.31' , Surface Width= 3.76'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 203.14 cfs

48.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 66.00', Outlet Invert= 65.00'



Reach 1R: INLET PIPE



Summary for Reach 2R: OUTFLOW PIPE

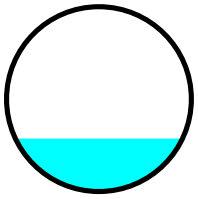
[52] Hint: Inlet/Outlet conditions not evaluated

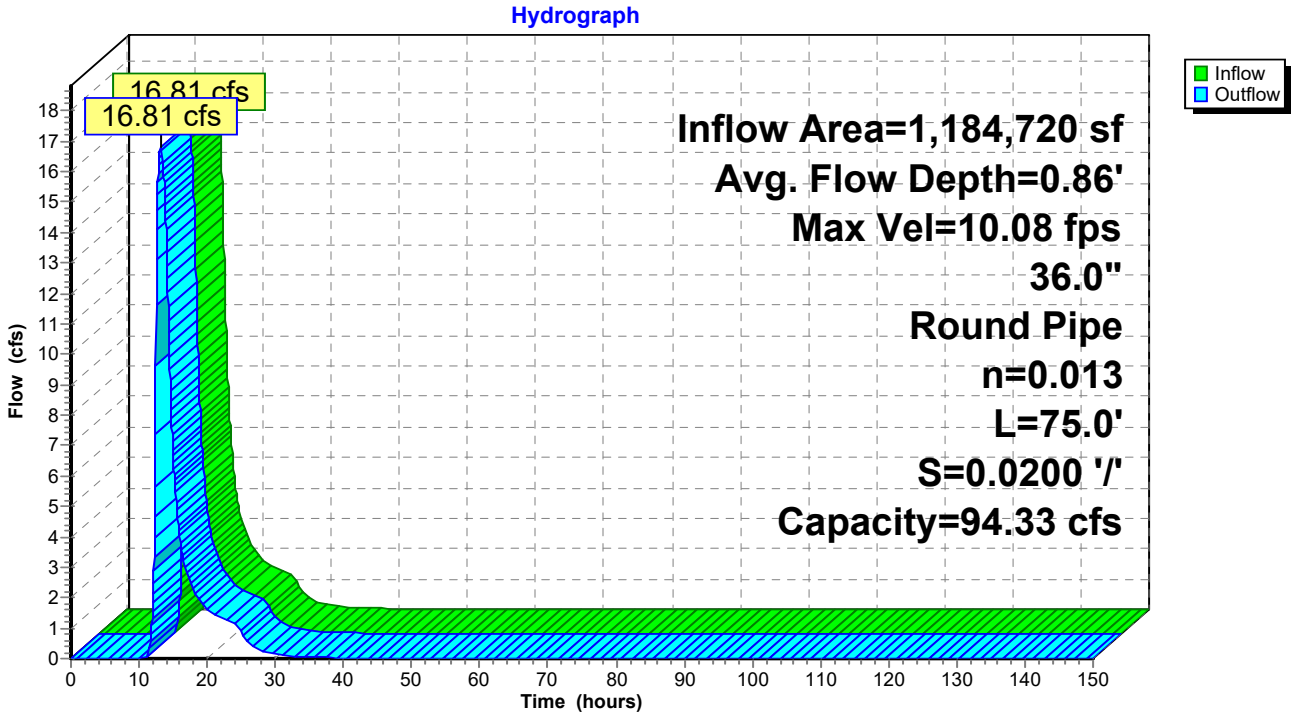
Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 2.19" for 10-Year _Current event
Inflow = 16.81 cfs @ 13.14 hrs, Volume= 216,150 cf
Outflow = 16.81 cfs @ 13.14 hrs, Volume= 216,150 cf, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.08 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.88 fps, Avg. Travel Time= 0.7 min

Peak Storage= 125 cf @ 13.14 hrs
Average Depth at Peak Storage= 0.86' , Surface Width= 2.71'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 94.33 cfs

36.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 75.0' Slope= 0.0200 '/'
Inlet Invert= 62.00', Outlet Invert= 60.50'





Summary for Pond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 958,817 sf, 14.64% Impervious, Inflow Depth = 2.85" for 10-Year _Current event
Inflow = 45.77 cfs @ 12.36 hrs, Volume= 227,583 cf
Outflow = 46.89 cfs @ 12.42 hrs, Volume= 224,539 cf, Atten= 0%, Lag= 3.5 min
Primary = 24.54 cfs @ 12.40 hrs, Volume= 210,749 cf
Routed to Link 1L : Combined Flow
Secondary = 22.30 cfs @ 12.42 hrs, Volume= 13,790 cf
Routed to Link 1L : Combined Flow
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 100.28' @ 12.40 hrs Surf.Area= 12,249 sf Storage= 26,636 cf

Plug-Flow detention time= 26.0 min calculated for 224,539 cf (99% of inflow)
Center-of-Mass det. time= 17.7 min (851.7 - 834.0)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	497 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
#2A	93.75'	689 cf	**15.75'W x 32.10'L x 4.50'H Field A** 2,275 cf Overall - 551 cf Embedded = 1,724 cf x 40.0% Voids
#3A	95.25'	551 cf	**ADS_StormTech SC-740 +Cap** x 12 Inside #2 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 3 Rows
		1,737 cf	x 18.00 = 31,271 cf Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
97.75	175	0.0	0	0	175
98.25	175	35.0	31	31	198
99.25	175	35.0	61	92	245
99.50	175	25.0	11	103	257
100.00	175	100.0	88	190	281
100.51	175	100.0	89	280	304
101.75	175	100.0	217	497	363

Device	Routing	Invert	Outlet Devices
#1	Primary	94.17'	**6.0" Round Culvert X 18.00** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 94.17' / 94.12' S= 0.0050 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.20 sf
#2	Device 1	94.33'	**6.0" Round 6" HDPE Underdrain X 18.00** L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 94.33' / 94.17' S= 0.0050 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.20 sf
#3	Secondary	100.00'	**3.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 18.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50

			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#4	Tertiary	100.50'	**6.0' long Sharp-Crested Rectangular Weir X 18.00** 2 End Contraction(s)

Primary OutFlow Max=24.54 cfs @ 12.40 hrs HW=100.28' (Free Discharge)
↑—**1=Culvert** (Passes 24.54 cfs of 36.74 cfs potential flow)
↑—**2=6" HDPE Underdrain** (Barrel Controls 24.54 cfs @ 6.94 fps)

Secondary OutFlow Max=19.45 cfs @ 12.42 hrs HW=100.27' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Weir Controls 19.45 cfs @ 1.33 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=93.75' (Free Discharge)
↑—**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

ond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

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

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

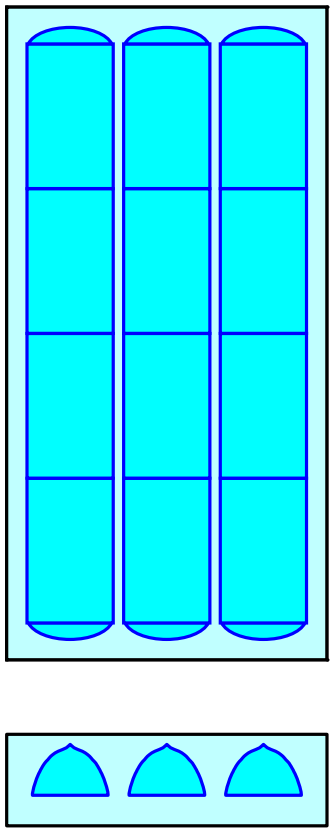
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

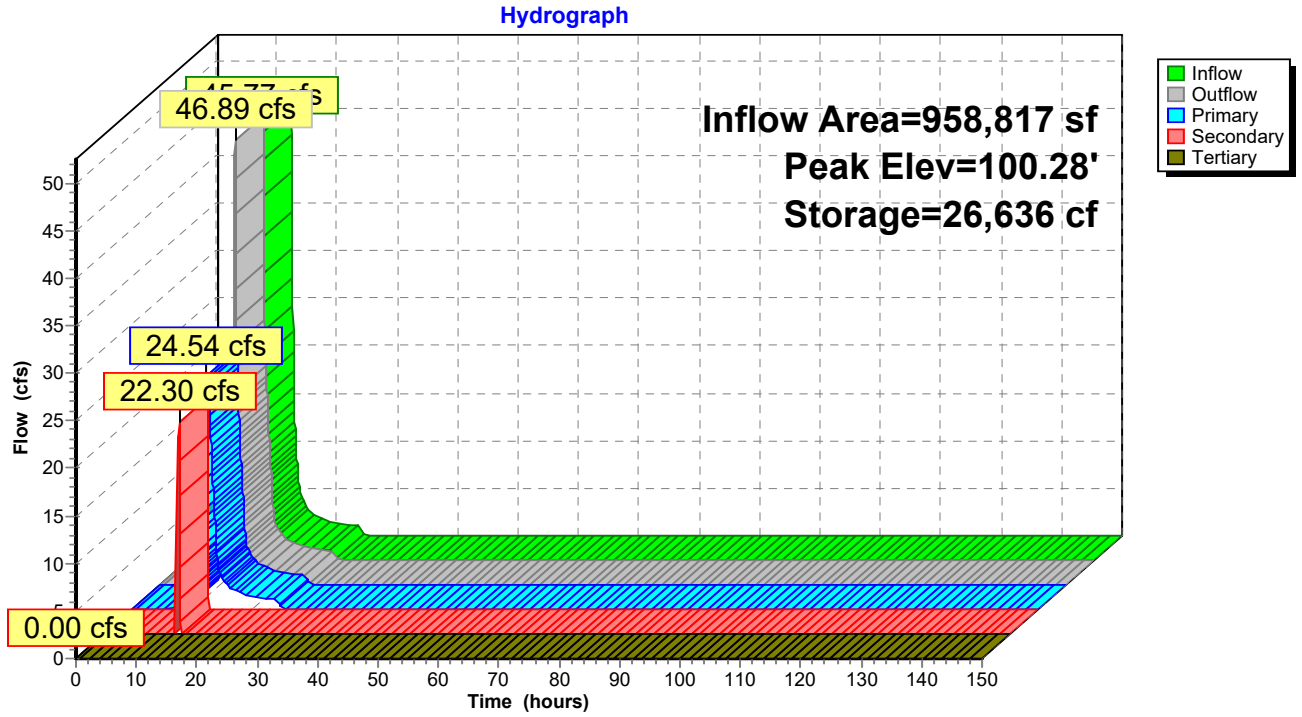
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af
Overall Storage Efficiency = 54.5%
Overall System Size = 32.10' x 15.75' x 4.50'

12 Chambers
84.3 cy Field
63.8 cy Stone



Pond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)



Summary for Pond 2P: ROOF RG 750 SF

Assumes infiltration through media is non-limiting.

Inflow Area = 69,839 sf,100.00% Impervious, Inflow Depth = 4.92" for 10-Year _Current event
Inflow = 8.54 cfs @ 12.13 hrs, Volume= 28,651 cf
Outflow = 0.29 cfs @ 14.70 hrs, Volume= 28,651 cf, Atten= 97%, Lag= 154.2 min
Discarded = 0.29 cfs @ 14.70 hrs, Volume= 28,651 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Peak Elev= 99.82' @ 14.70 hrs Surf.Area= 24,965 sf Storage= 15,649 cf

Plug-Flow detention time= 508.6 min calculated for 28,641 cf (100% of inflow)
Center-of-Mass det. time= 508.7 min (1,257.0 - 748.3)

Volume	Invert	Avail.Storage	Storage Description
#1	98.25'	735 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
		735 cf	x 37.00 = 27,209 cf Total Available Storage

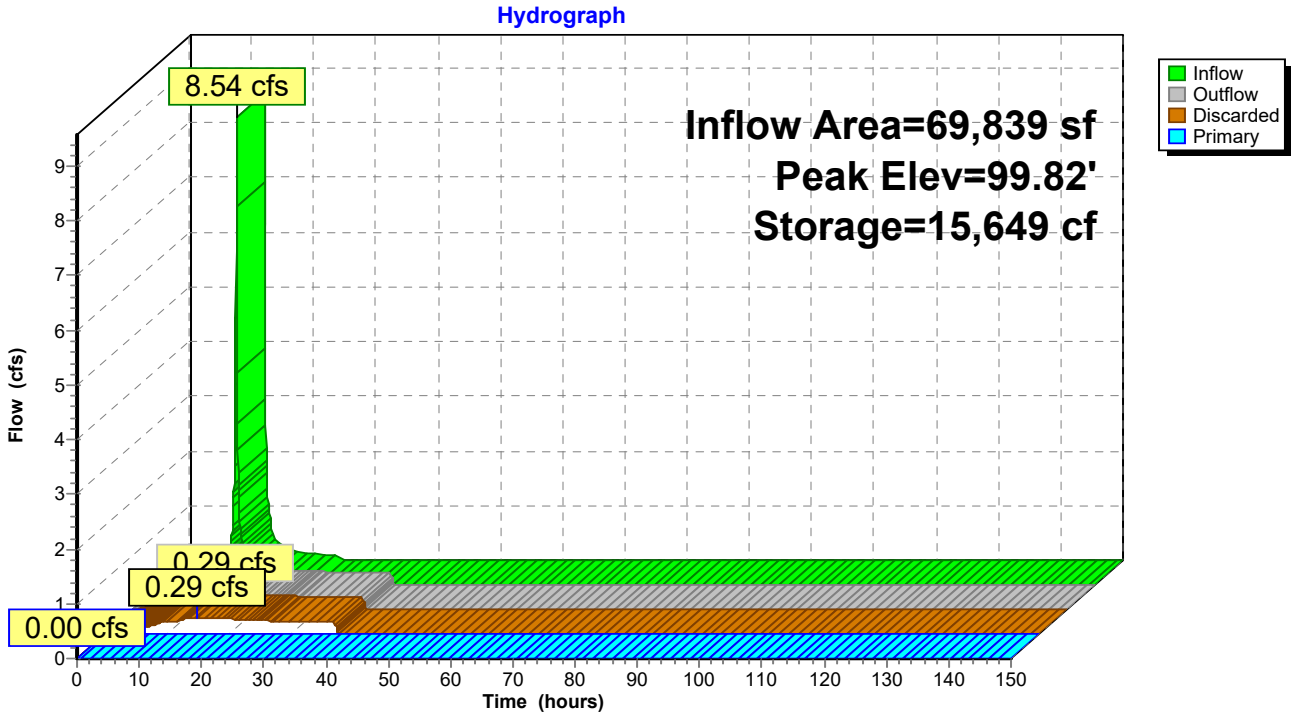
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
98.25	546	0.0	0	0	546
99.25	546	35.0	191	191	629
99.50	546	25.0	34	225	650
100.00	750	100.0	323	548	858
100.25	750	100.0	188	735	883

Device	Routing	Invert	Outlet Devices
#1	Discarded	98.25'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	100.00'	**2.0' long x 3.0' breadth Broad-Crested Rectangular Weir X 37.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.29 cfs @ 14.70 hrs HW=99.82' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.29 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.25' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: ROOF RG 750 SF



Summary for Pond 3P: Basic Porous Pavement (infiltration only)

Inflow Area = 156,064 sf,100.00% Impervious, Inflow Depth = 4.92" for 10-Year _Current event
Inflow = 19.09 cfs @ 12.13 hrs, Volume= 64,024 cf
Outflow = 1.81 cfs @ 11.35 hrs, Volume= 64,024 cf, Atten= 91%, Lag= 0.0 min
Discarded = 1.81 cfs @ 11.35 hrs, Volume= 64,024 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Peak Elev= 99.66' @ 12.98 hrs Surf.Area= 156,064 sf Storage= 22,242 cf

Plug-Flow detention time= 81.9 min calculated for 64,003 cf (100% of inflow)
Center-of-Mass det. time= 81.9 min (830.2 - 748.3)

Volume	Invert	Avail.Storage	Storage Description
#1	99.25'	72,180 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

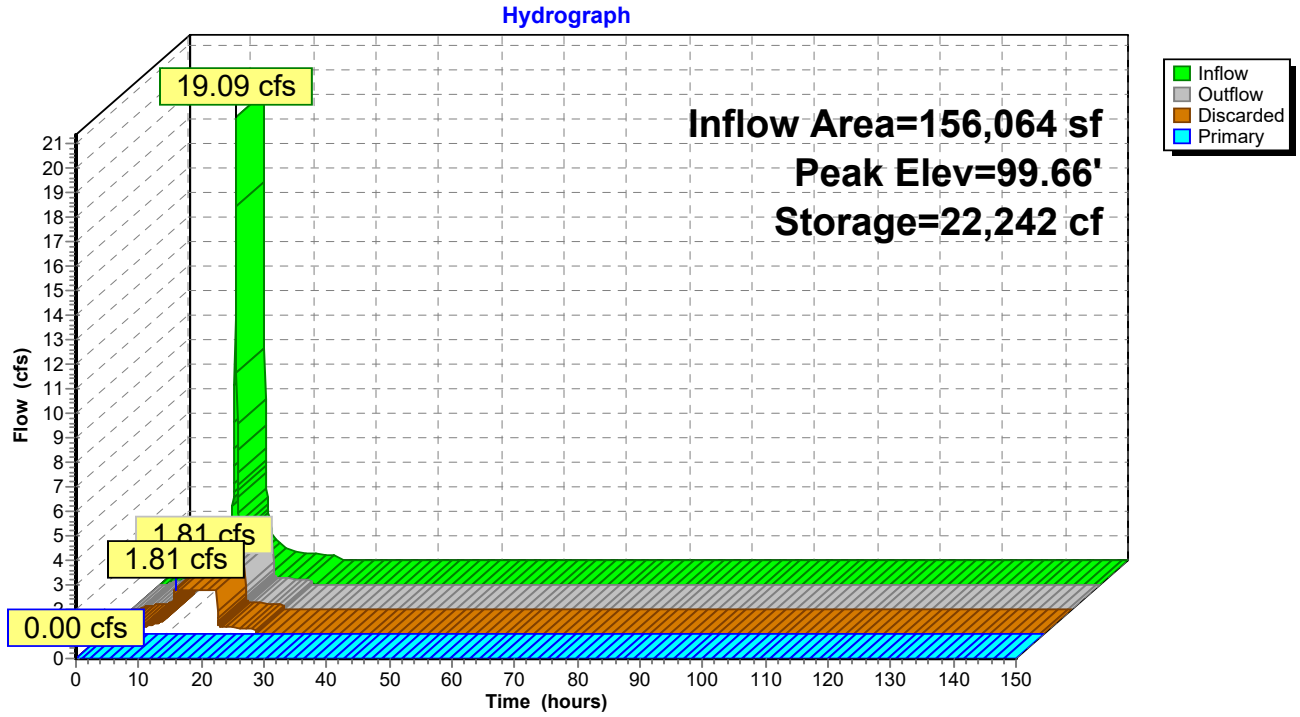
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.25	156,064	0.0	0	0
99.75	156,064	35.0	27,311	27,311
99.83	156,064	15.0	1,873	29,184
100.00	156,064	15.0	3,980	33,164
100.25	156,064	100.0	39,016	72,180

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.25'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	100.00'	**15.0' long x 1.0' breadth Edge of Porous Asphalt X 37.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=1.81 cfs @ 11.35 hrs HW=99.26' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 1.81 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=99.25' (Free Discharge)
↑—**2=Edge of Porous Asphalt** (Controls 0.00 cfs)

Pond 3P: Basic Porous Pavement (infiltration only)



Summary for Pond 4P: Municipal Property Basin 2100

[63] Warning: Exceeded Reach 1R INLET depth by 0.24' @ 13.45 hrs

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 2.27" for 10-Year _Current event
Inflow = 46.49 cfs @ 12.42 hrs, Volume= 224,580 cf
Outflow = 16.81 cfs @ 13.14 hrs, Volume= 216,150 cf, Atten= 64%, Lag= 42.9 min
Primary = 16.81 cfs @ 13.14 hrs, Volume= 216,150 cf
Routed to Reach 2R : OUTFLOW PIPE
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach 2R : OUTFLOW PIPE
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach 2R : OUTFLOW PIPE

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 66.98' @ 13.14 hrs Surf.Area= 40,653 sf Storage= 72,987 cf

Plug-Flow detention time= 141.0 min calculated for 216,150 cf (96% of inflow)
Center-of-Mass det. time= 118.9 min (970.8 - 851.9)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	213,105 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	33,242	0	0
70.00	52,000	213,105	213,105

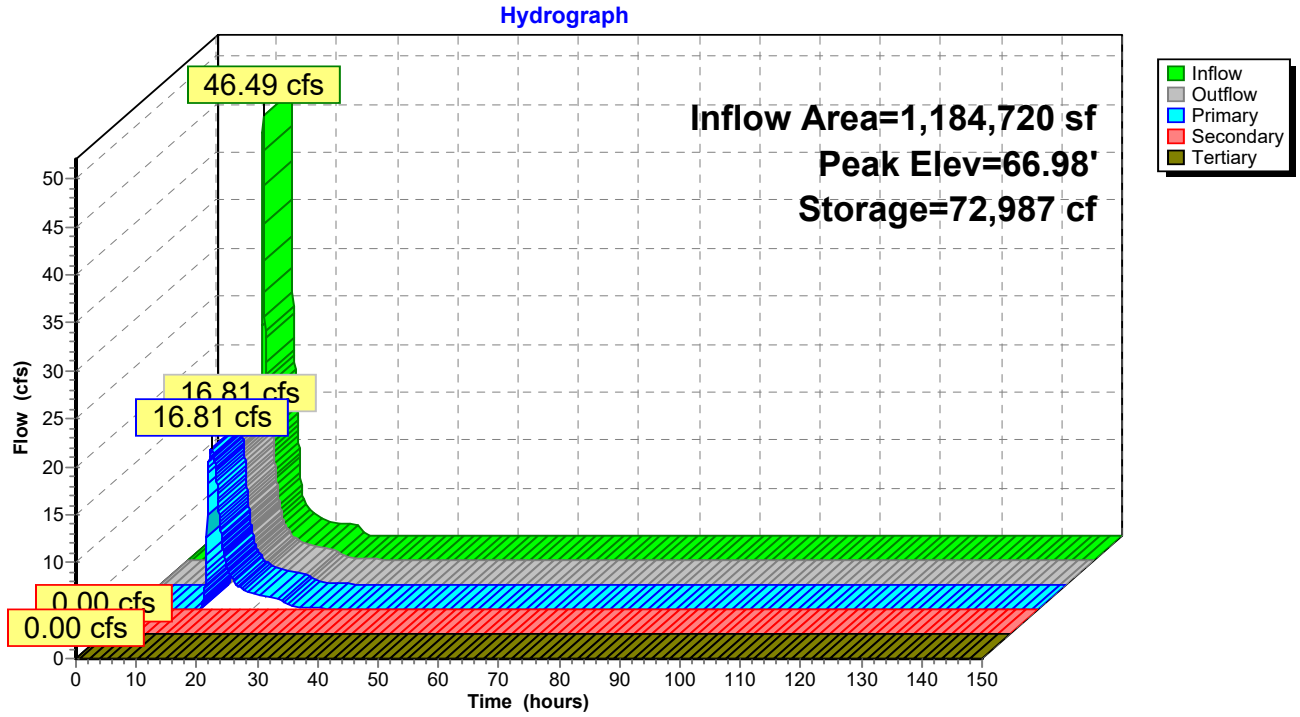
Device	Routing	Invert	Outlet Devices
#1	Primary	65.25'	**18.0" Vert. Low Flow Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	67.25'	**24.0" W x 18.0" H Vert. 2-YR Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	69.50'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=16.80 cfs @ 13.14 hrs HW=66.98' (Free Discharge)
1=Low Flow Orifice (Orifice Controls 16.80 cfs @ 4.75 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.00' (Free Discharge)
2=2-YR Orifice (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.00' (Free Discharge)
3=Orifice/Grate (Controls 0.00 cfs)

Pond 4P: Municipal Property Basin 2100

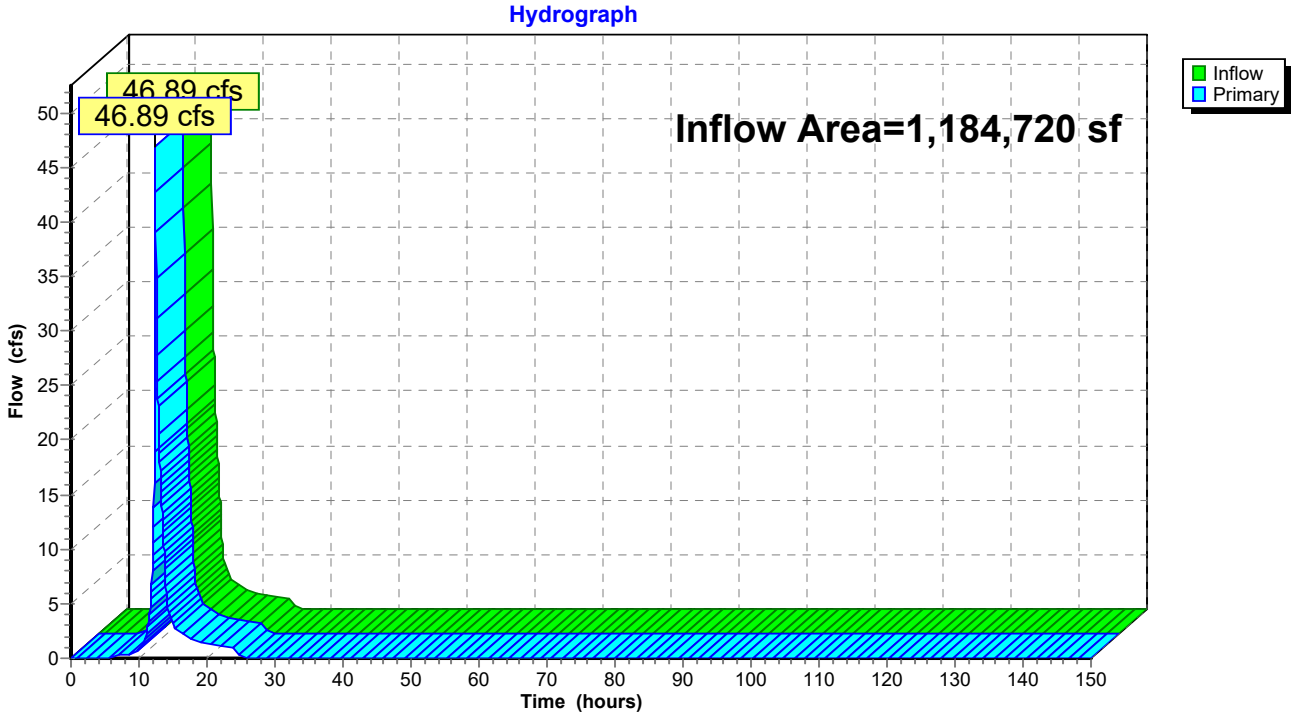


Summary for Link 1L: Combined Flow

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 2.27" for 10-Year _Current event
Inflow = 46.89 cfs @ 12.42 hrs, Volume= 224,539 cf
Primary = 46.89 cfs @ 12.42 hrs, Volume= 224,539 cf, Atten= 0%, Lag= 0.0 min
Routed to Reach 1R : INLET PIPE

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs

Link 1L: Combined Flow

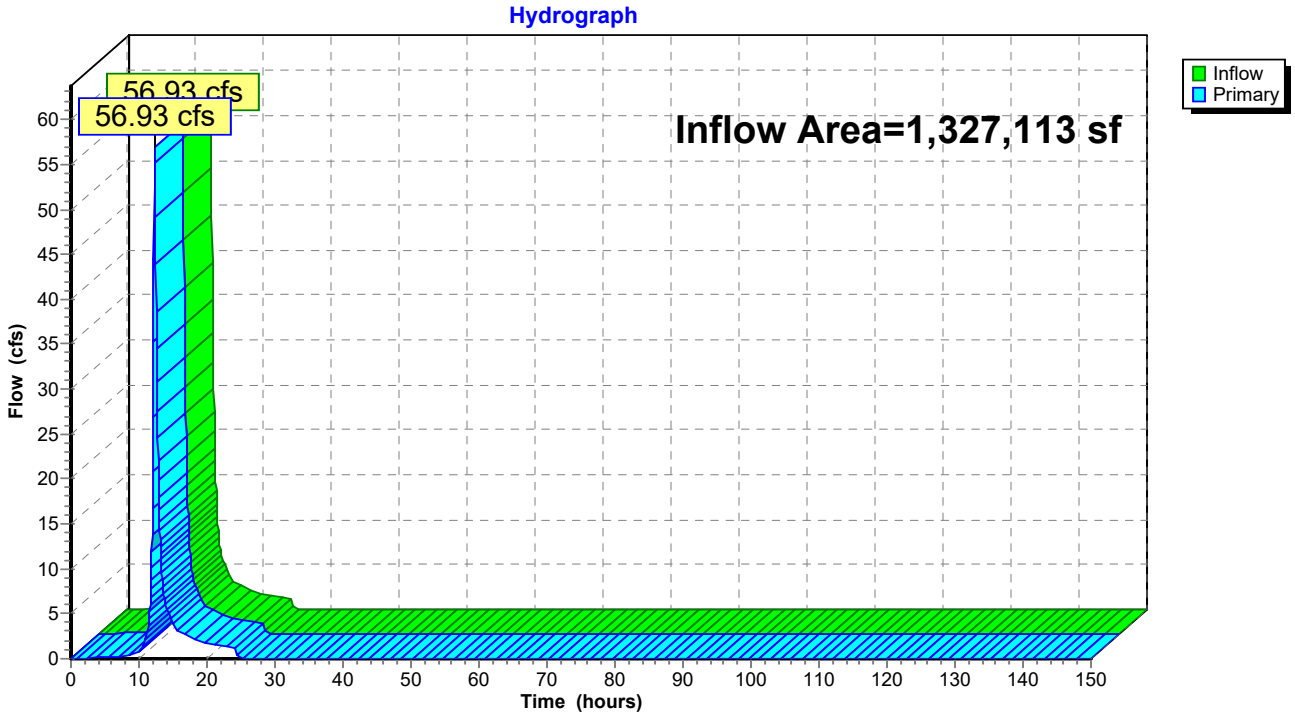


Summary for Link 2L: Offsite Flows

Inflow Area = 1,327,113 sf, 10.64% Impervious, Inflow Depth = 2.50" for 10-Year _Current event
Inflow = 56.93 cfs @ 12.33 hrs, Volume= 276,386 cf
Primary = 56.93 cfs @ 12.33 hrs, Volume= 276,386 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs

Link 2L: Offsite Flows



Time span=0.00-150.00 hrs, dt=0.05 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: DA 1: All Runoff Area=1,184,721 sf 30.92% Impervious Runoff Depth=4.17"
Tc=25.2 min CN=74/98 Runoff=80.91 cfs 411,587 cf

Subcatchment 1Sa: DA 1: CN w/ IC areas Runoff Area=958,817 sf 14.64% Impervious Runoff Depth=3.74"
Tc=25.2 min CN=74/98 Runoff=60.44 cfs 299,169 cf

Subcatchment 1Sb: Roof Runoff Area=69,839 sf 100.00% Impervious Runoff Depth=5.97"
Tc=6.0 min CN=0/98 Runoff=10.30 cfs 34,754 cf

Subcatchment 1Sc: Driveways (GIS - Runoff Area=156,064 sf 100.00% Impervious Runoff Depth=5.97"
Tc=6.0 min CN=0/98 Runoff=23.01 cfs 77,663 cf

Subcatchment 2S: DA 2: CN w/ IC areas Runoff Area=100,787 sf 8.36% Impervious Runoff Depth=3.58"
Tc=15.5 min CN=74/98 Runoff=7.64 cfs 30,071 cf

Subcatchment 3S: DA 3: CN w/ IC areas Runoff Area=150,325 sf 10.26% Impervious Runoff Depth=3.54"
Flow Length=329' Tc=17.3 min CN=73/98 Runoff=10.75 cfs 44,365 cf

Subcatchment 4S: DA 4: CN w/ IC areas Runoff Area=1,076,001 sf 10.91% Impervious Runoff Depth=3.30"
Tc=24.2 min CN=70/98 Runoff=61.11 cfs 295,889 cf

Reach 1R: INLET PIPE Avg. Flow Depth=1.49' Max Vel=14.07 fps Inflow=60.27 cfs 296,713 cf
48.0" Round Pipe n=0.013 L=50.0' S=0.0200 '/' Capacity=203.14 cfs Outflow=60.25 cfs 296,801 cf

Reach 2R: OUTFLOW PIPE Avg. Flow Depth=1.01' Max Vel=11.04 fps Inflow=23.18 cfs 288,378 cf
36.0" Round Pipe n=0.013 L=75.0' S=0.0200 '/' Capacity=94.33 cfs Outflow=23.18 cfs 288,378 cf

Pond 1P: Basic Rain Garden (w/ Peak Elev=100.40' Storage=27,010 cf Inflow=60.44 cfs 299,169 cf
Primary=24.80 cfs 256,604 cf Secondary=35.47 cfs 40,109 cf Tertiary=0.00 cfs 0 cf Outflow=60.27 cfs 296,713 cf

Pond 2P: ROOF RG 750 SF Peak Elev=99.98' Storage=19,759 cf Inflow=10.30 cfs 34,754 cf
Discarded=0.32 cfs 34,754 cf Primary=0.00 cfs 0 cf Outflow=0.32 cfs 34,754 cf

Pond 3P: Basic Porous Pavement Peak Elev=99.83' Storage=29,277 cf Inflow=23.01 cfs 77,663 cf
Discarded=1.81 cfs 77,663 cf Primary=0.00 cfs 0 cf Outflow=1.81 cfs 77,663 cf

Pond 4P: Municipal Property Basin 2100 Peak Elev=67.50' Storage=94,683 cf Inflow=60.25 cfs 296,801 cf
Primary=20.82 cfs 283,237 cf Secondary=2.36 cfs 5,142 cf Tertiary=0.00 cfs 0 cf Outflow=23.18 cfs 288,378 cf

Link 1L: Combined Flow Inflow=60.27 cfs 296,713 cf
Primary=60.27 cfs 296,713 cf

Link 2L: Offsite Flows Inflow=77.25 cfs 370,326 cf
Primary=77.25 cfs 370,326 cf

Total Runoff Area = 3,696,554 sf Runoff Volume = 1,193,500 cf Average Runoff Depth = 3.87"
76.36% Pervious = 2,822,814 sf 23.64% Impervious = 873,740 sf

Summary for Subcatchment 1S: DA 1: All

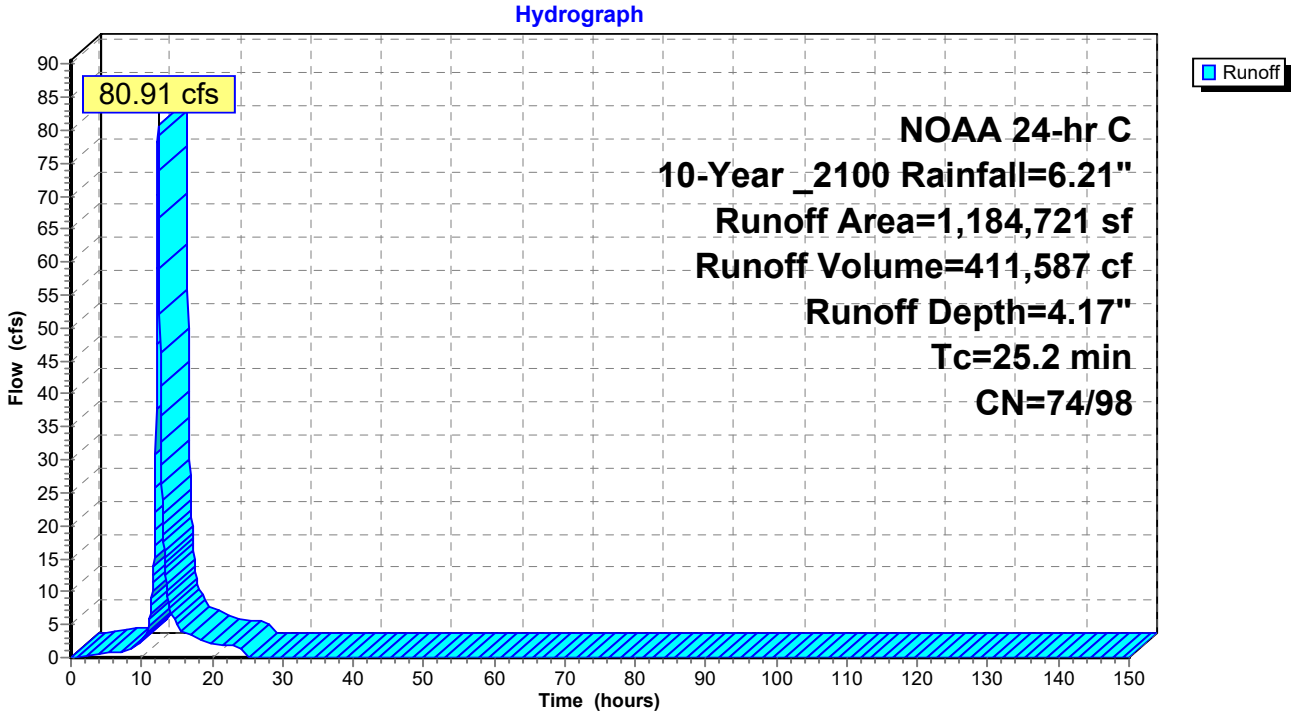
Runoff = 80.91 cfs @ 12.36 hrs, Volume= 411,587 cf, Depth= 4.17"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

	Area (sf)	CN	Description
*	366,258	98	Impervious
	15,045	65	Brush, Good, HSG C
	794,453	74	>75% Grass cover, Good, HSG C
	8,965	70	Woods, Good, HSG C
	1,184,721	81	Weighted Average
	818,463	74	69.08% Pervious Area
	366,258	98	30.92% Impervious Area

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

Subcatchment 1S: DA 1: All



Summary for Subcatchment 1Sa: DA 1: CN w/ IC areas

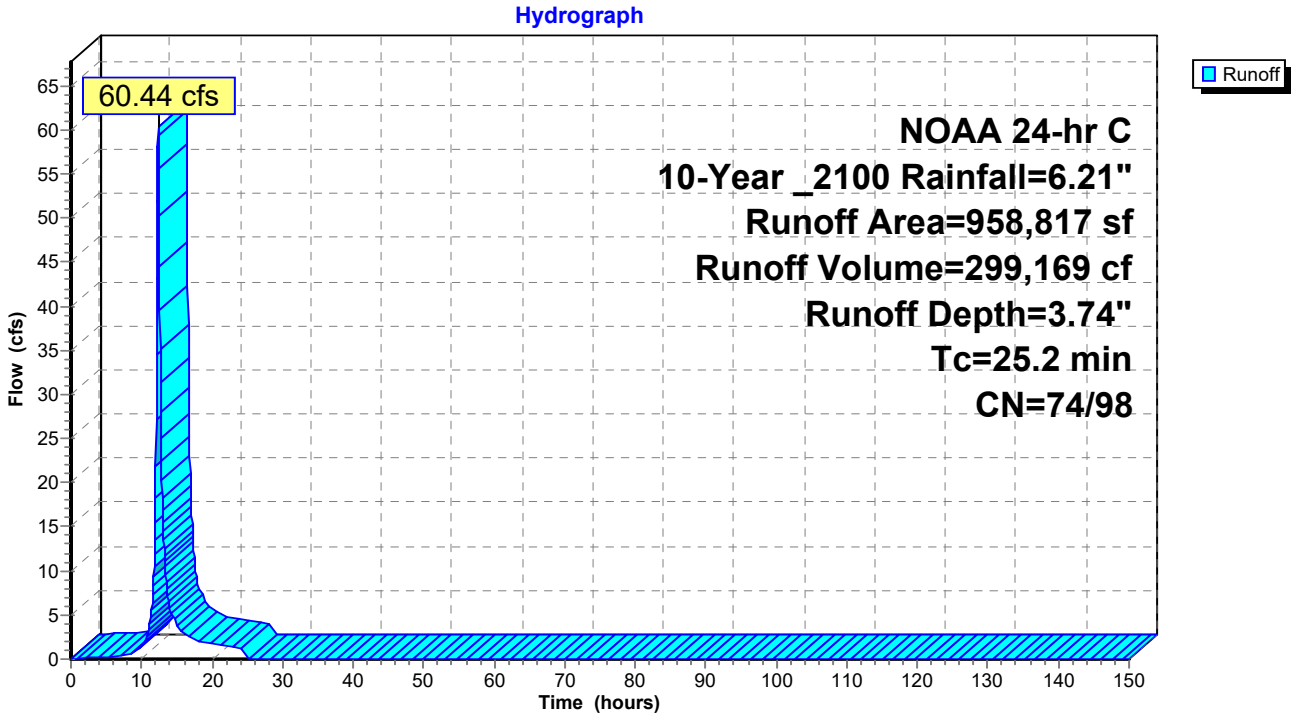
Runoff = 60.44 cfs @ 12.36 hrs, Volume= 299,169 cf, Depth= 3.74"
Routed to Pond 1P : Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

	Area (sf)	CN	Description
*	140,354	98	Impervious
	15,045	65	Brush, Good, HSG C
	794,453	74	>75% Grass cover, Good, HSG C
	8,965	70	Woods, Good, HSG C
	958,817	77	Weighted Average
	818,463	74	85.36% Pervious Area
	140,354	98	14.64% Impervious Area

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

Subcatchment 1Sa: DA 1: CN w/ IC areas



Summary for Subcatchment 1Sb: Roof

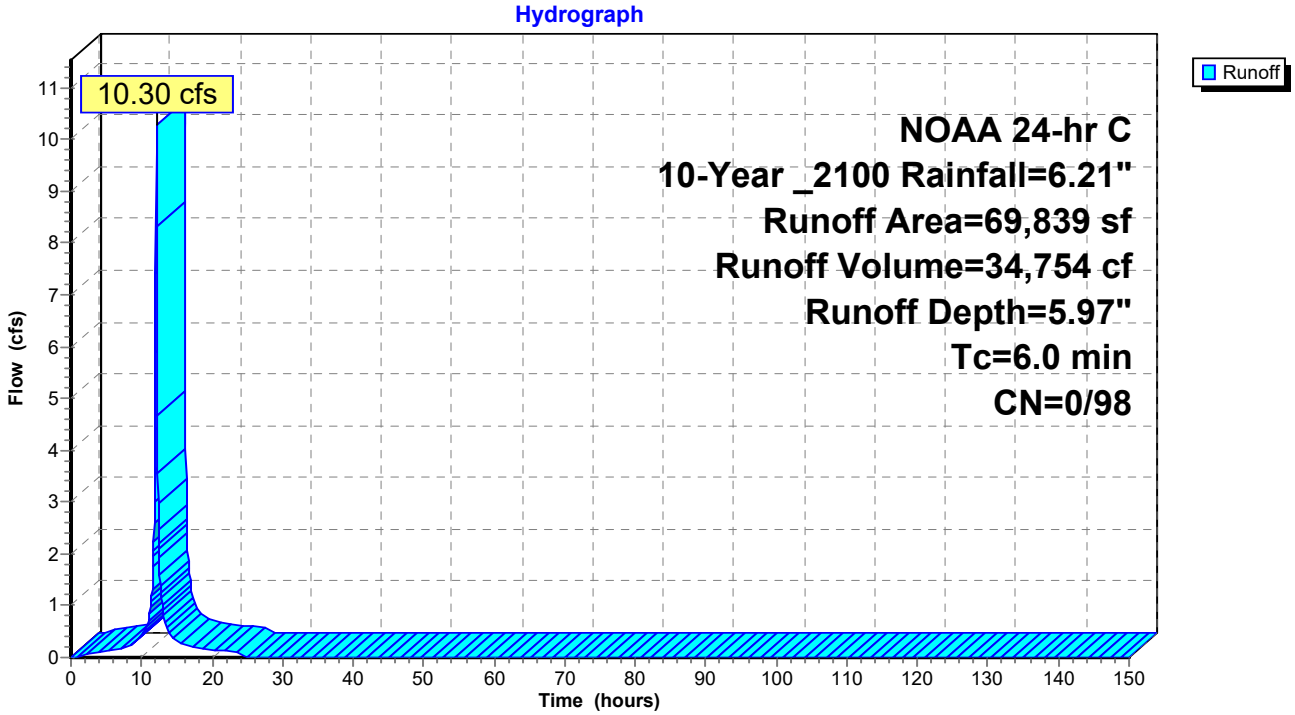
Runoff = 10.30 cfs @ 12.13 hrs, Volume= 34,754 cf, Depth= 5.97"
Routed to Pond 2P : ROOF RG 750 SF

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

	Area (sf)	CN	Description
*	69,839	98	Roof - Building GIS Layer
	69,839	98	100.00% Impervious Area

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

Subcatchment 1Sb: Roof



Summary for Subcatchment 1Sc: Driveways (GIS - other)

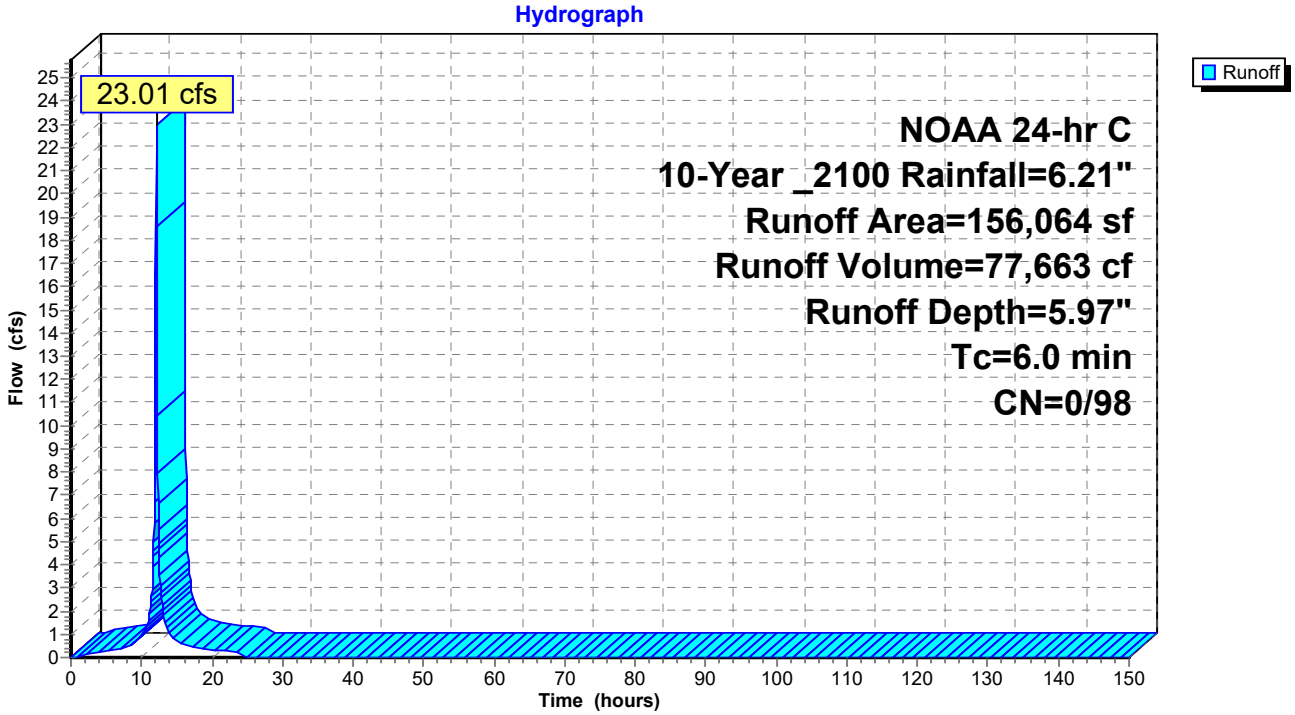
Runoff = 23.01 cfs @ 12.13 hrs, Volume= 77,663 cf, Depth= 5.97"
Routed to Pond 3P : Basic Porous Pavement (infiltration only)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

	Area (sf)	CN	Description
*	156,064	98	Impervious Drivways (other)
	156,064	98	100.00% Impervious Area

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

Subcatchment 1Sc: Driveways (GIS - other)



Summary for Subcatchment 2S: DA 2: CN w/ IC areas

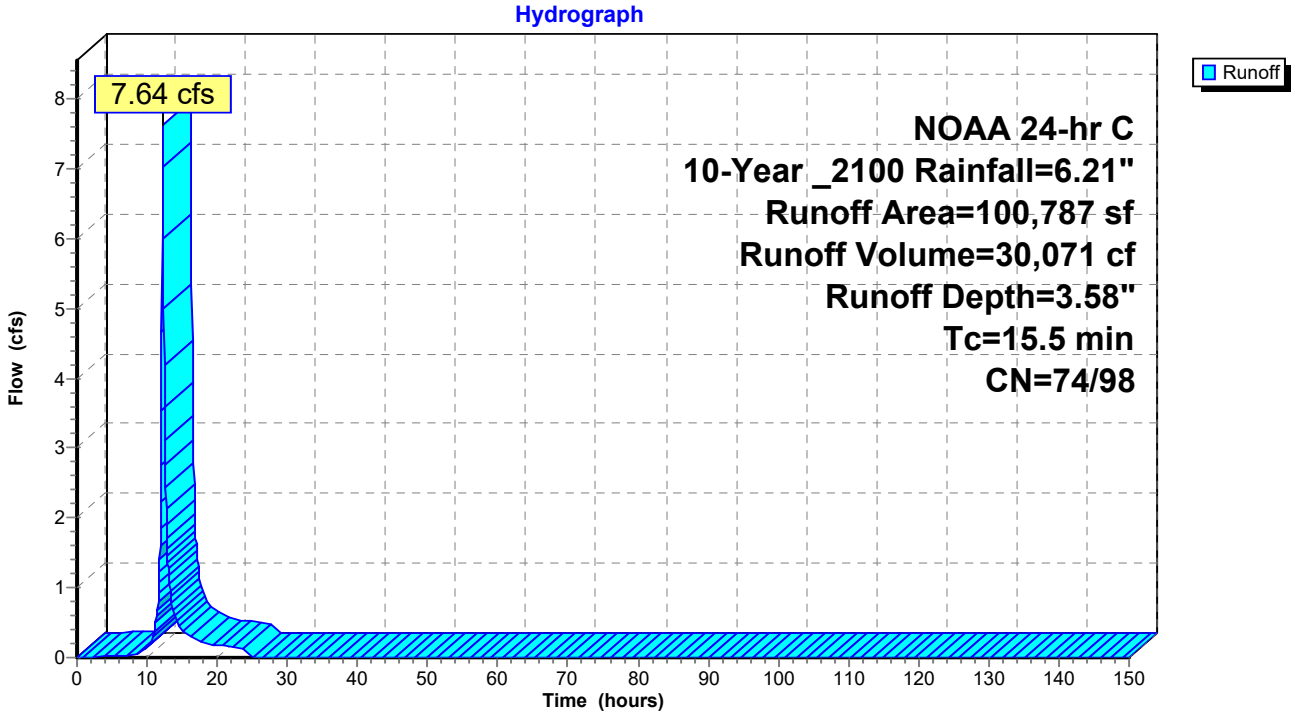
Runoff = 7.64 cfs @ 12.24 hrs, Volume= 30,071 cf, Depth= 3.58"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

	Area (sf)	CN	Description
*	8,425	98	Impervious
	86	65	Brush, Good, HSG C
	92,276	74	>75% Grass cover, Good, HSG C
	100,787	76	Weighted Average
	92,362	74	91.64% Pervious Area
	8,425	98	8.36% Impervious Area

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

Subcatchment 2S: DA 2: CN w/ IC areas



Summary for Subcatchment 3S: DA 3: CN w/ IC areas

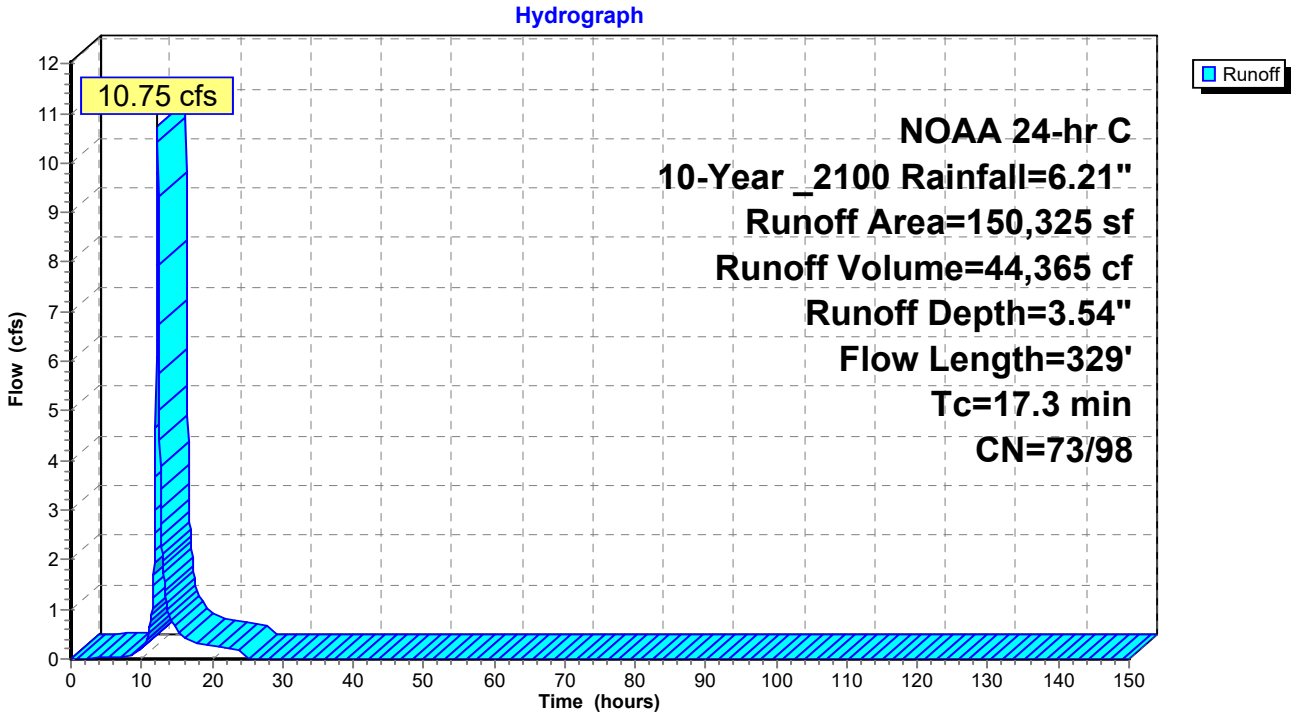
Runoff = 10.75 cfs @ 12.26 hrs, Volume= 44,365 cf, Depth= 3.54"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

	Area (sf)	CN	Description
*	15,427	98	Impervious
	17,213	65	Brush, Good, HSG C
	11,427	73	Brush, Good, HSG D
	99,487	74	>75% Grass cover, Good, HSG C
	6,771	70	Woods, Good, HSG C
	150,325	75	Weighted Average
	134,898	73	89.74% Pervious Area
	15,427	98	10.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0103	0.13		**Sheet Flow, Sheetflow** Grass: Short n= 0.150 P2= 3.34"
4.8	229	0.0129	0.80		**Shallow Concentrated Flow, SCF - Grass** Short Grass Pasture Kv= 7.0 fps
17.3	329	Total			

Subcatchment 3S: DA 3: CN w/ IC areas



Summary for Subcatchment 4S: DA 4: CN w/ IC areas

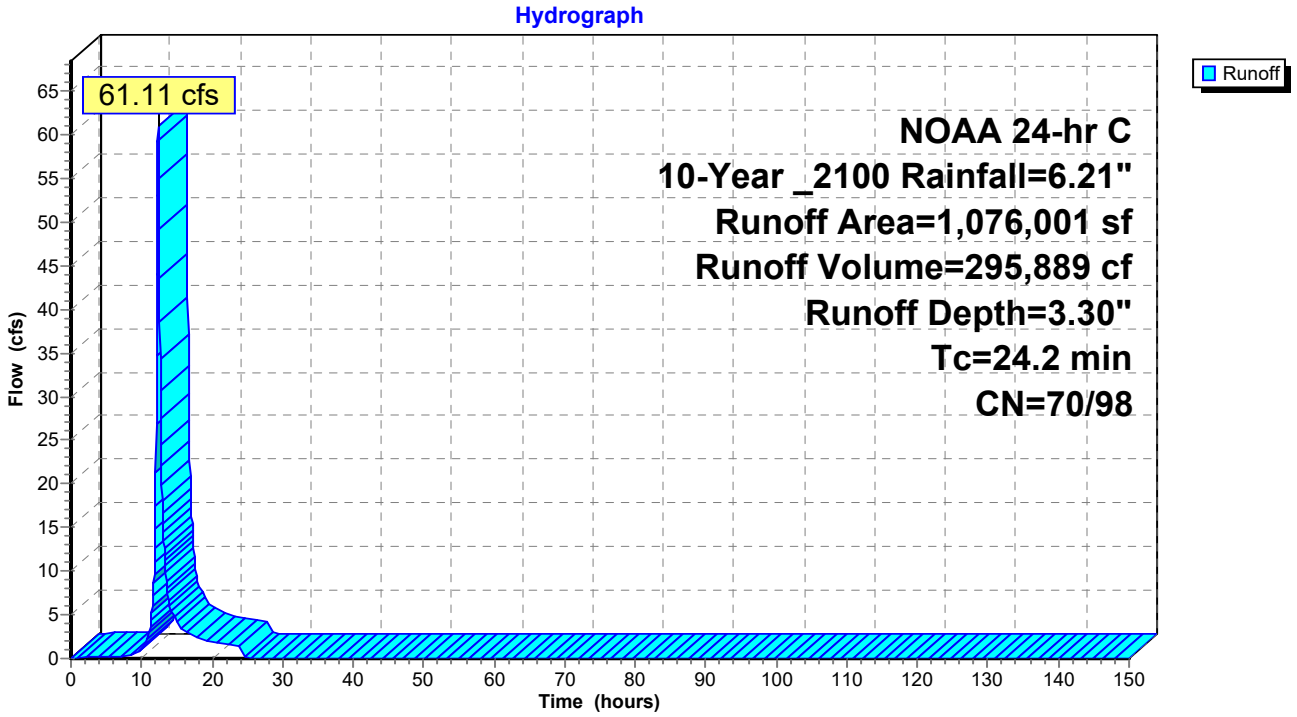
Runoff = 61.11 cfs @ 12.35 hrs, Volume= 295,889 cf, Depth= 3.30"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

	Area (sf)	CN	Description
*	117,373	98	Impervious
	376,010	65	Brush, Good, HSG C
	14,106	73	Brush, Good, HSG D
	58,960	79	50-75% Grass cover, Fair, HSG C
	6,320	84	50-75% Grass cover, Fair, HSG D
	199,948	74	>75% Grass cover, Good, HSG C
	6,758	80	>75% Grass cover, Good, HSG D
	13	86	<50% Grass cover, Poor, HSG C
	5,323	72	Woods/grass comb., Good, HSG C
	90,808	73	Woods, Fair, HSG C
	200,382	70	Woods, Good, HSG C
	1,076,001	73	Weighted Average
	958,628	70	89.09% Pervious Area
	117,373	98	10.91% Impervious Area

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

Subcatchment 4S: DA 4: CN w/ IC areas



Summary for Reach 1R: INLET PIPE

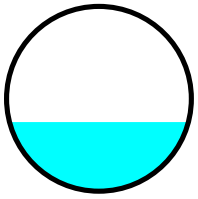
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 3.01" for 10-Year _2100 event
Inflow = 60.27 cfs @ 12.37 hrs, Volume= 296,713 cf
Outflow = 60.25 cfs @ 12.37 hrs, Volume= 296,801 cf, Atten= 0%, Lag= 0.1 min
Routed to Pond 4P : Municipal Property Basin 2100

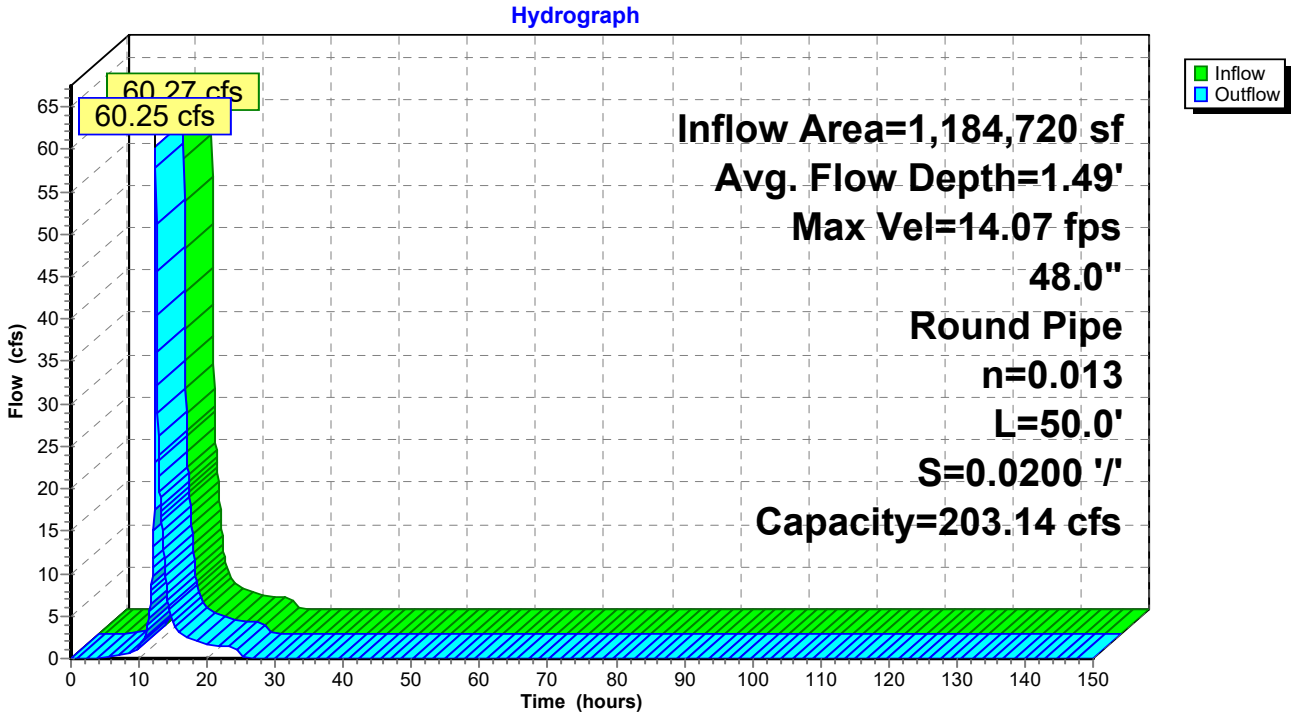
Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 14.07 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.54 fps, Avg. Travel Time= 0.2 min

Peak Storage= 214 cf @ 12.37 hrs
Average Depth at Peak Storage= 1.49' , Surface Width= 3.87'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 203.14 cfs

48.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 66.00', Outlet Invert= 65.00'



Reach 1R: INLET PIPE



Summary for Reach 2R: OUTFLOW PIPE

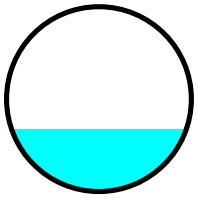
[52] Hint: Inlet/Outlet conditions not evaluated

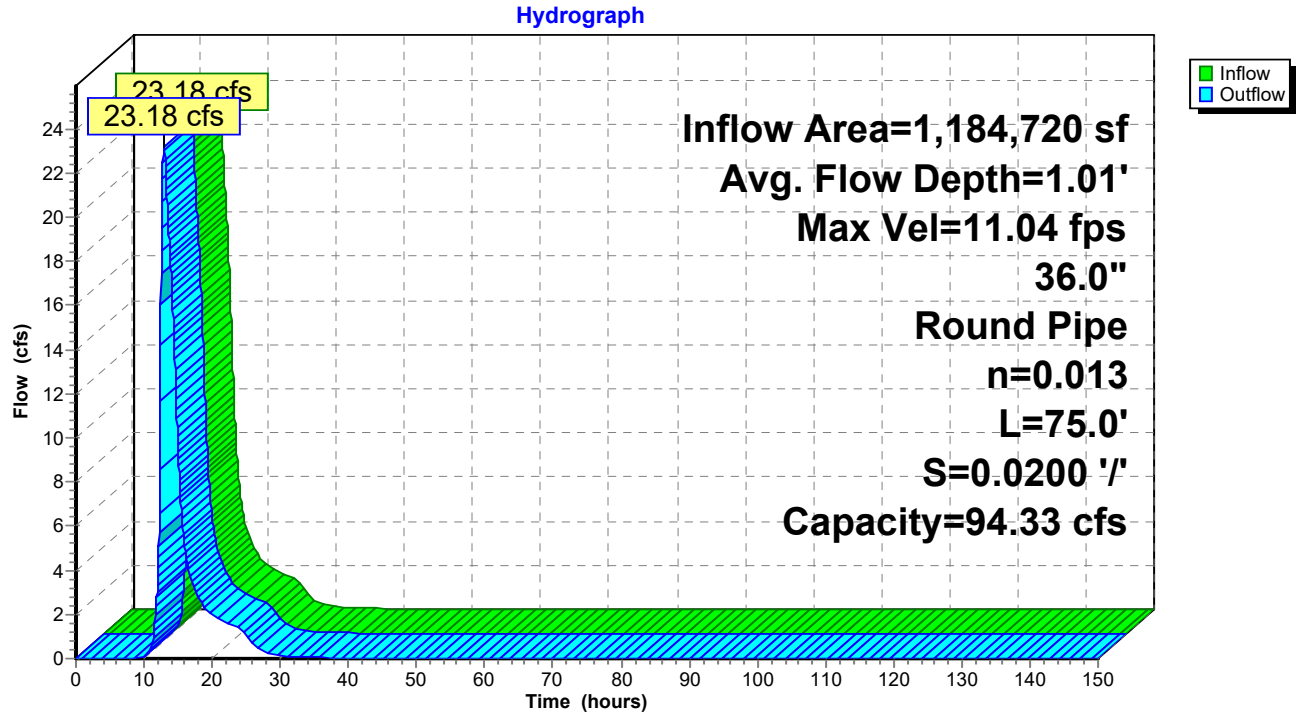
Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 2.92" for 10-Year _2100 event
Inflow = 23.18 cfs @ 12.93 hrs, Volume= 288,378 cf
Outflow = 23.18 cfs @ 12.93 hrs, Volume= 288,378 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.04 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.95 fps, Avg. Travel Time= 0.6 min

Peak Storage= 157 cf @ 12.93 hrs
Average Depth at Peak Storage= 1.01' , Surface Width= 2.84'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 94.33 cfs

36.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 75.0' Slope= 0.0200 '/'
Inlet Invert= 62.00', Outlet Invert= 60.50'





Summary for Pond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Inflow Area = 958,817 sf, 14.64% Impervious, Inflow Depth = 3.74" for 10-Year _2100 event
Inflow = 60.44 cfs @ 12.36 hrs, Volume= 299,169 cf
Outflow = 60.27 cfs @ 12.37 hrs, Volume= 296,713 cf, Atten= 0%, Lag= 0.4 min
Primary = 24.80 cfs @ 12.35 hrs, Volume= 256,604 cf
Routed to Link 1L : Combined Flow
Secondary = 35.47 cfs @ 12.37 hrs, Volume= 40,109 cf
Routed to Link 1L : Combined Flow
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 100.40' @ 12.35 hrs Surf.Area= 12,249 sf Storage= 27,010 cf

Plug-Flow detention time= 20.2 min calculated for 296,615 cf (99% of inflow)
Center-of-Mass det. time= 15.1 min (843.5 - 828.4)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	497 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
#2A	93.75'	689 cf	**15.75'W x 32.10'L x 4.50'H Field A** 2,275 cf Overall - 551 cf Embedded = 1,724 cf x 40.0% Voids
#3A	95.25'	551 cf	**ADS_StormTech SC-740 +Cap** x 12 Inside #2 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 3 Rows
		1,737 cf	x 18.00 = 31,271 cf Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
97.75	175	0.0	0	0	175
98.25	175	35.0	31	31	198
99.25	175	35.0	61	92	245
99.50	175	25.0	11	103	257
100.00	175	100.0	88	190	281
100.51	175	100.0	89	280	304
101.75	175	100.0	217	497	363

Device	Routing	Invert	Outlet Devices
#1	Primary	94.17'	**6.0" Round Culvert X 18.00** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 94.17' / 94.12' S= 0.0050 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.20 sf
#2	Device 1	94.33'	**6.0" Round 6" HDPE Underdrain X 18.00** L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 94.33' / 94.17' S= 0.0050 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.20 sf
#3	Secondary	100.00'	**3.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 18.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

#4	Tertiary	100.50'	**6.0' long Sharp-Crested Rectangular Weir X 18.00** 2 End Contraction(s)

Primary OutFlow Max=24.80 cfs @ 12.35 hrs HW=100.40' (Free Discharge)
└─**1=Culvert** (Passes 24.80 cfs of 37.12 cfs potential flow)
└─**2=6" HDPE Underdrain** (Barrel Controls 24.80 cfs @ 7.02 fps)

Secondary OutFlow Max=35.07 cfs @ 12.37 hrs HW=100.40' (Free Discharge)
└─**3=Broad-Crested Rectangular Weir** (Weir Controls 35.07 cfs @ 1.64 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=93.75' (Free Discharge)
└─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

ond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

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

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

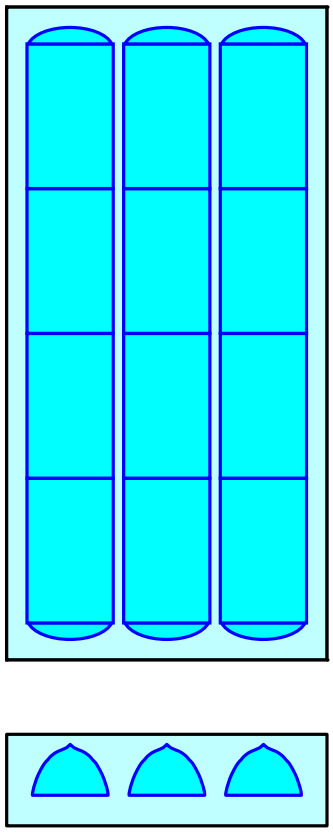
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

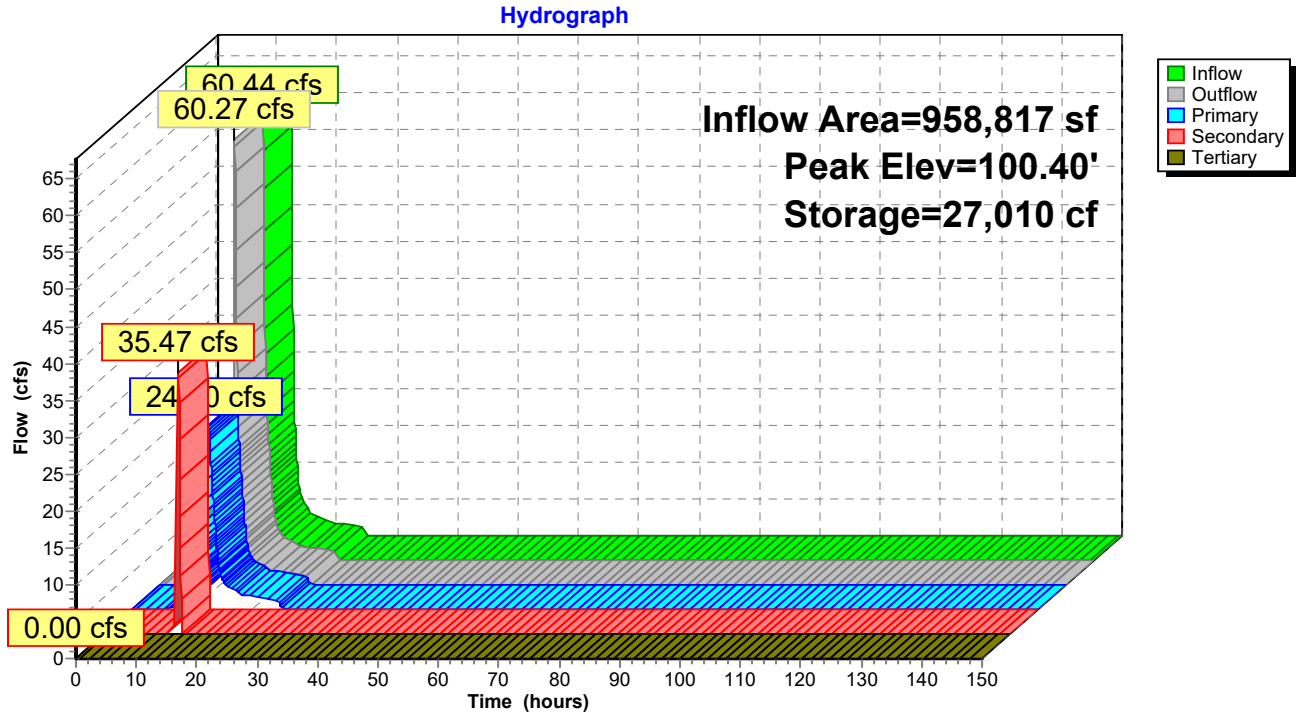
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af
Overall Storage Efficiency = 54.5%
Overall System Size = 32.10' x 15.75' x 4.50'

12 Chambers
84.3 cy Field
63.8 cy Stone



Pond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)



Summary for Pond 2P: ROOF RG 750 SF

Assumes infiltration through media is non-limiting.

Inflow Area = 69,839 sf,100.00% Impervious, Inflow Depth = 5.97" for 10-Year _2100 event
Inflow = 10.30 cfs @ 12.13 hrs, Volume= 34,754 cf
Outflow = 0.32 cfs @ 14.90 hrs, Volume= 34,754 cf, Atten= 97%, Lag= 166.4 min
Discarded = 0.32 cfs @ 14.90 hrs, Volume= 34,754 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Peak Elev= 99.98' @ 14.90 hrs Surf.Area= 27,448 sf Storage= 19,759 cf

Plug-Flow detention time= 601.2 min calculated for 34,743 cf (100% of inflow)
Center-of-Mass det. time= 601.3 min (1,346.7 - 745.3)

Volume	Invert	Avail.Storage	Storage Description
#1	98.25'	735 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
		735 cf	x 37.00 = 27,209 cf Total Available Storage

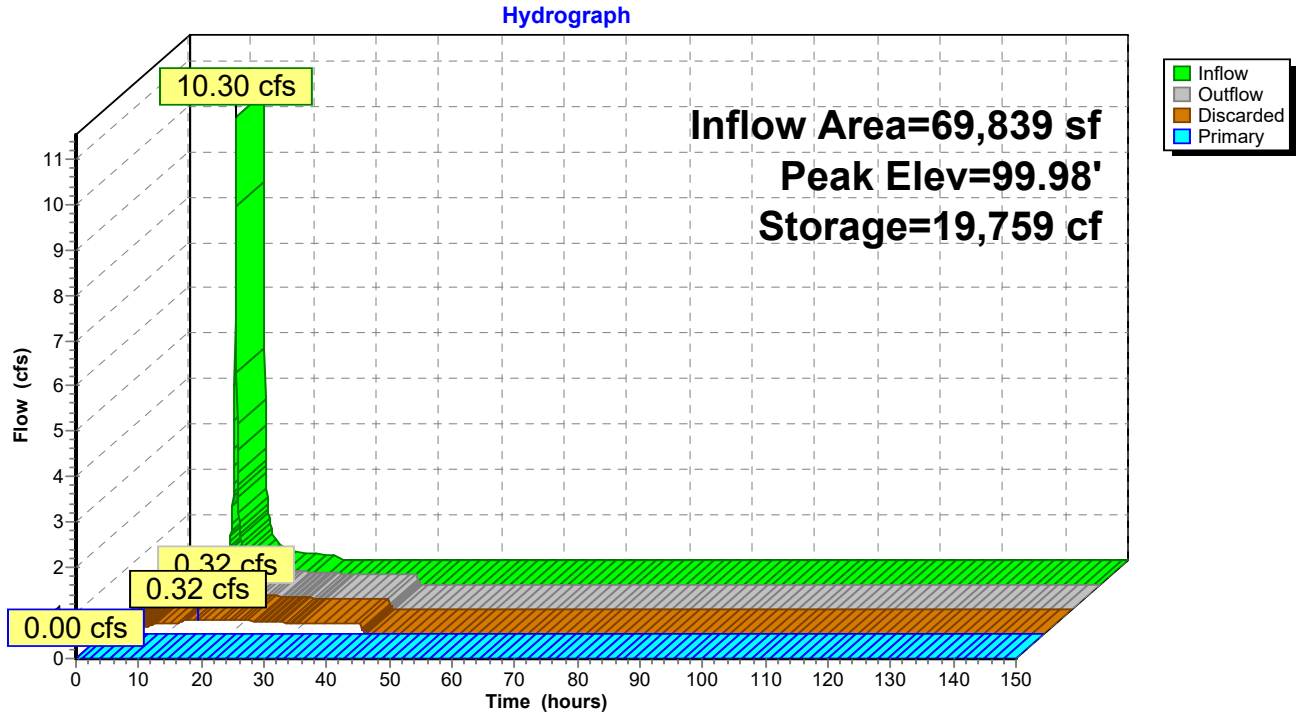
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
98.25	546	0.0	0	0	546
99.25	546	35.0	191	191	629
99.50	546	25.0	34	225	650
100.00	750	100.0	323	548	858
100.25	750	100.0	188	735	883

Device	Routing	Invert	Outlet Devices
#1	Discarded	98.25'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	100.00'	**2.0' long x 3.0' breadth Broad-Crested Rectangular Weir X 37.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.32 cfs @ 14.90 hrs HW=99.98' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.32 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.25' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: ROOF RG 750 SF



Summary for Pond 3P: Basic Porous Pavement (infiltration only)

Inflow Area = 156,064 sf,100.00% Impervious, Inflow Depth = 5.97" for 10-Year _2100 event
Inflow = 23.01 cfs @ 12.13 hrs, Volume= 77,663 cf
Outflow = 1.81 cfs @ 11.15 hrs, Volume= 77,663 cf, Atten= 92%, Lag= 0.0 min
Discarded = 1.81 cfs @ 11.15 hrs, Volume= 77,663 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Peak Elev= 99.83' @ 13.14 hrs Surf.Area= 156,064 sf Storage= 29,277 cf

Plug-Flow detention time= 112.7 min calculated for 77,663 cf (100% of inflow)
Center-of-Mass det. time= 112.6 min (858.0 - 745.3)

Volume	Invert	Avail.Storage	Storage Description
#1	99.25'	72,180 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

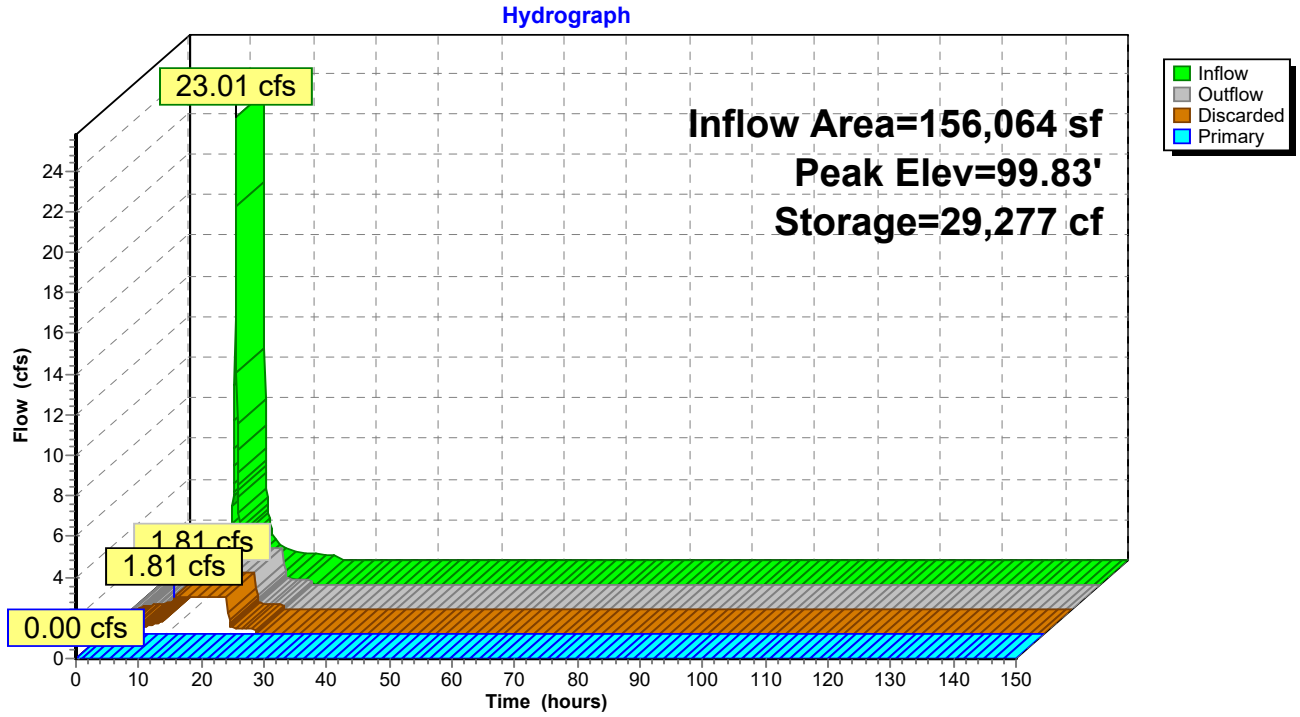
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.25	156,064	0.0	0	0
99.75	156,064	35.0	27,311	27,311
99.83	156,064	15.0	1,873	29,184
100.00	156,064	15.0	3,980	33,164
100.25	156,064	100.0	39,016	72,180

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.25'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	100.00'	**15.0' long x 1.0' breadth Edge of Porous Asphalt X 37.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=1.81 cfs @ 11.15 hrs HW=99.26' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 1.81 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=99.25' (Free Discharge)
↑—**2=Edge of Porous Asphalt** (Controls 0.00 cfs)

Pond 3P: Basic Porous Pavement (infiltration only)



Summary for Pond 4P: Municipal Property Basin 2100

[63] Warning: Exceeded Reach 1R INLET depth by 0.64' @ 13.05 hrs

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 3.01" for 10-Year _2100 event
Inflow = 60.25 cfs @ 12.37 hrs, Volume= 296,801 cf
Outflow = 23.18 cfs @ 12.93 hrs, Volume= 288,378 cf, Atten= 62%, Lag= 34.0 min
Primary = 20.82 cfs @ 12.93 hrs, Volume= 283,237 cf
Routed to Reach 2R : OUTFLOW PIPE
Secondary = 2.36 cfs @ 12.93 hrs, Volume= 5,142 cf
Routed to Reach 2R : OUTFLOW PIPE
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach 2R : OUTFLOW PIPE

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 67.50' @ 12.93 hrs Surf.Area= 42,608 sf Storage= 94,683 cf

Plug-Flow detention time= 122.7 min calculated for 288,282 cf (97% of inflow)
Center-of-Mass det. time= 107.4 min (951.0 - 843.7)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	213,105 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	33,242	0	0
70.00	52,000	213,105	213,105

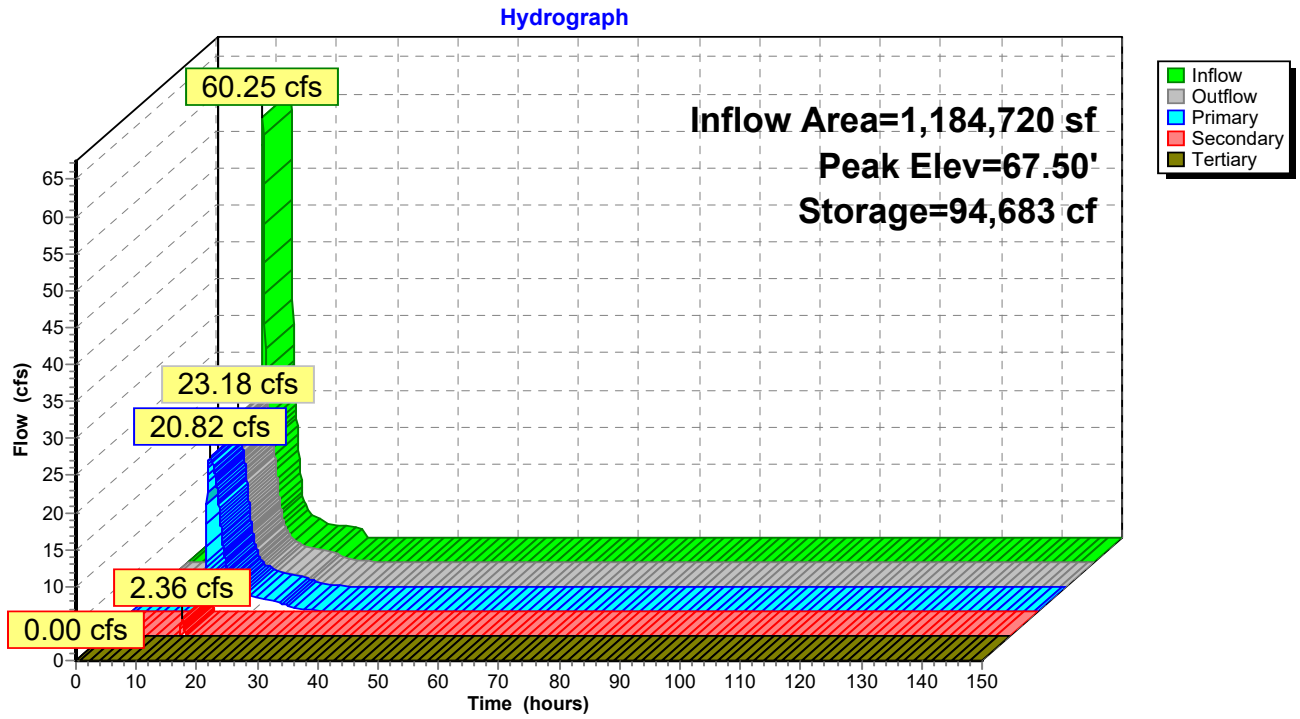
Device	Routing	Invert	Outlet Devices
#1	Primary	65.25'	**18.0" Vert. Low Flow Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	67.25'	**24.0" W x 18.0" H Vert. 2-YR Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	69.50'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=20.82 cfs @ 12.93 hrs HW=67.50' (Free Discharge)
↑—**1=Low Flow Orifice** (Orifice Controls 20.82 cfs @ 5.89 fps)

Secondary OutFlow Max=2.35 cfs @ 12.93 hrs HW=67.50' (Free Discharge)
↑—**2=2-YR Orifice** (Orifice Controls 2.35 cfs @ 1.59 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.00' (Free Discharge)
↑—**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 4P: Municipal Property Basin 2100

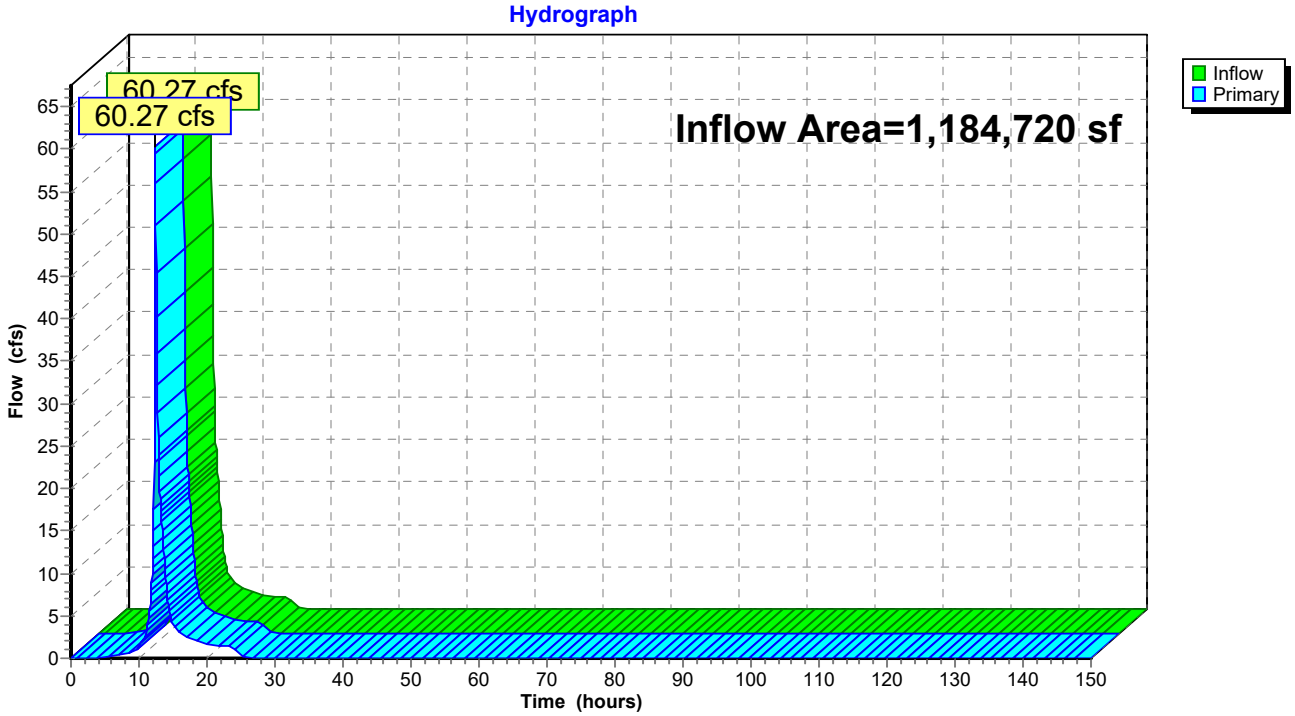


Summary for Link 1L: Combined Flow

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 3.01" for 10-Year _2100 event
Inflow = 60.27 cfs @ 12.37 hrs, Volume= 296,713 cf
Primary = 60.27 cfs @ 12.37 hrs, Volume= 296,713 cf, Atten= 0%, Lag= 0.0 min
Routed to Reach 1R : INLET PIPE

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs

Link 1L: Combined Flow

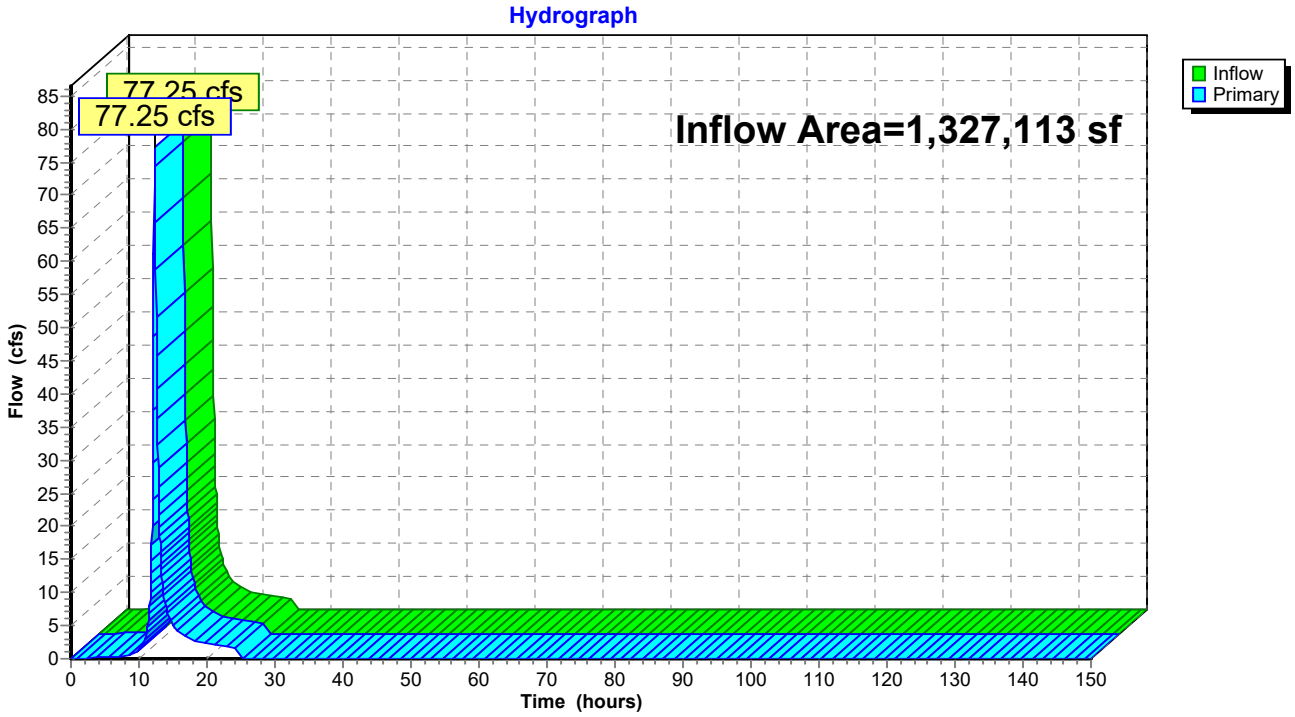


Summary for Link 2L: Offsite Flows

Inflow Area = 1,327,113 sf, 10.64% Impervious, Inflow Depth = 3.35" for 10-Year _2100 event
Inflow = 77.25 cfs @ 12.32 hrs, Volume= 370,326 cf
Primary = 77.25 cfs @ 12.32 hrs, Volume= 370,326 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs

Link 2L: Offsite Flows



Time span=0.00-150.00 hrs, dt=0.05 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: DA 1: All Runoff Area=1,184,721 sf 30.92% Impervious Runoff Depth=6.69"
Tc=25.2 min CN=74/98 Runoff=129.69 cfs 660,293 cf

Subcatchment 1Sa: DA 1: CN w/ IC areas Runoff Area=958,817 sf 14.64% Impervious Runoff Depth=6.21"
Tc=25.2 min CN=74/98 Runoff=100.09 cfs 496,331 cf

Subcatchment 1Sb: Roof Runoff Area=69,839 sf 100.00% Impervious Runoff Depth=8.71"
Tc=6.0 min CN=0/98 Runoff=14.87 cfs 50,690 cf

Subcatchment 1Sc: Driveways (GIS - Runoff Area=156,064 sf 100.00% Impervious Runoff Depth=8.71"
Tc=6.0 min CN=0/98 Runoff=33.22 cfs 113,272 cf

Subcatchment 2S: DA 2: CN w/ IC areas Runoff Area=100,787 sf 8.36% Impervious Runoff Depth=6.03"
Tc=15.5 min CN=74/98 Runoff=12.78 cfs 50,629 cf

Subcatchment 3S: DA 3: CN w/ IC areas Runoff Area=150,325 sf 10.26% Impervious Runoff Depth=5.97"
Flow Length=329' Tc=17.3 min CN=73/98 Runoff=18.08 cfs 74,828 cf

Subcatchment 4S: DA 4: CN w/ IC areas Runoff Area=1,076,001 sf 10.91% Impervious Runoff Depth=5.66"
Tc=24.2 min CN=70/98 Runoff=105.51 cfs 507,861 cf

Reach 1R: INLET PIPE Avg. Flow Depth=2.11' Max Vel=16.54 fps Inflow=111.59 cfs 520,753 cf
48.0" Round Pipe n=0.013 L=50.0' S=0.0200 '/' Capacity=203.14 cfs Outflow=111.44 cfs 520,860 cf

Reach 2R: OUTFLOW PIPE Avg. Flow Depth=1.77' Max Vel=14.22 fps Inflow=61.75 cfs 512,421 cf
36.0" Round Pipe n=0.013 L=75.0' S=0.0200 '/' Capacity=94.33 cfs Outflow=61.71 cfs 512,421 cf

Pond 1P: Basic Rain Garden (w/ Peak Elev=100.59' Storage=27,623 cf Inflow=100.09 cfs 496,331 cf
Primary=25.22 cfs 367,317 cf Secondary=64.26 cfs 118,549 cf Tertiary=10.50 cfs 7,427 cf Outflow=99.98 cfs 493,292 cf

Pond 2P: ROOF RG 750 SF Peak Elev=100.08' Storage=22,498 cf Inflow=14.87 cfs 50,690 cf
Discarded=0.32 cfs 39,037 cf Primary=4.13 cfs 11,653 cf Outflow=4.45 cfs 50,690 cf

Pond 3P: Basic Porous Pavement Peak Elev=100.03' Storage=37,731 cf Inflow=33.22 cfs 113,272 cf
Discarded=1.81 cfs 97,464 cf Primary=7.50 cfs 15,808 cf Outflow=9.31 cfs 113,272 cf

Pond 4P: Municipal Property Basin Peak Elev=68.70' Storage=148,864 cf Inflow=111.44 cfs 520,860 cf
Primary=27.98 cfs 415,208 cf Secondary=33.77 cfs 97,213 cf Tertiary=0.00 cfs 0 cf Outflow=61.75 cfs 512,421 cf

Link 1L: Combined Flow Inflow=111.59 cfs 520,753 cf
Primary=111.59 cfs 520,753 cf

Link 2L: Offsite Flows Inflow=132.74 cfs 633,318 cf
Primary=132.74 cfs 633,318 cf

Total Runoff Area = 3,696,554 sf Runoff Volume = 1,953,903 cf Average Runoff Depth = 6.34"
76.36% Pervious = 2,822,814 sf 23.64% Impervious = 873,740 sf

Summary for Subcatchment 1S: DA 1: All

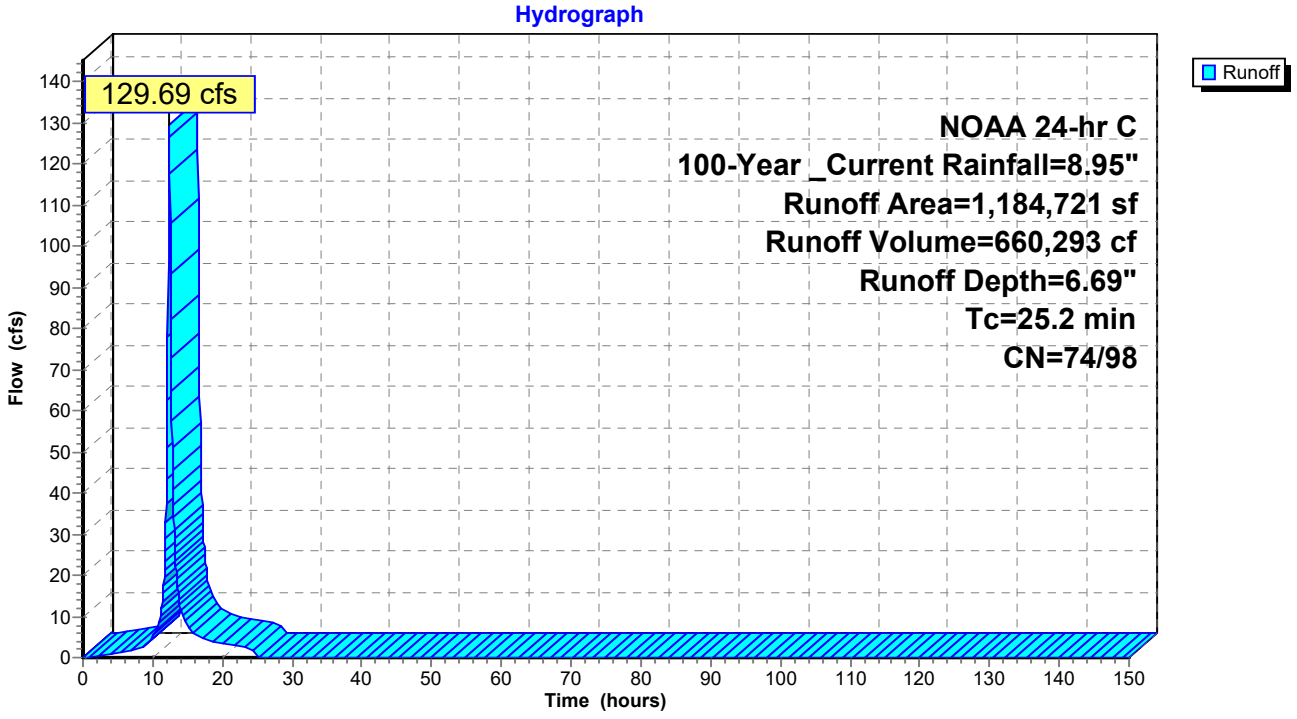
Runoff = 129.69 cfs @ 12.35 hrs, Volume= 660,293 cf, Depth= 6.69"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description
*	366,258	98	Impervious
	15,045	65	Brush, Good, HSG C
	794,453	74	>75% Grass cover, Good, HSG C
	8,965	70	Woods, Good, HSG C
	1,184,721	81	Weighted Average
	818,463	74	69.08% Pervious Area
	366,258	98	30.92% Impervious Area

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

Subcatchment 1S: DA 1: All



Summary for Subcatchment 1Sa: DA 1: CN w/ IC areas

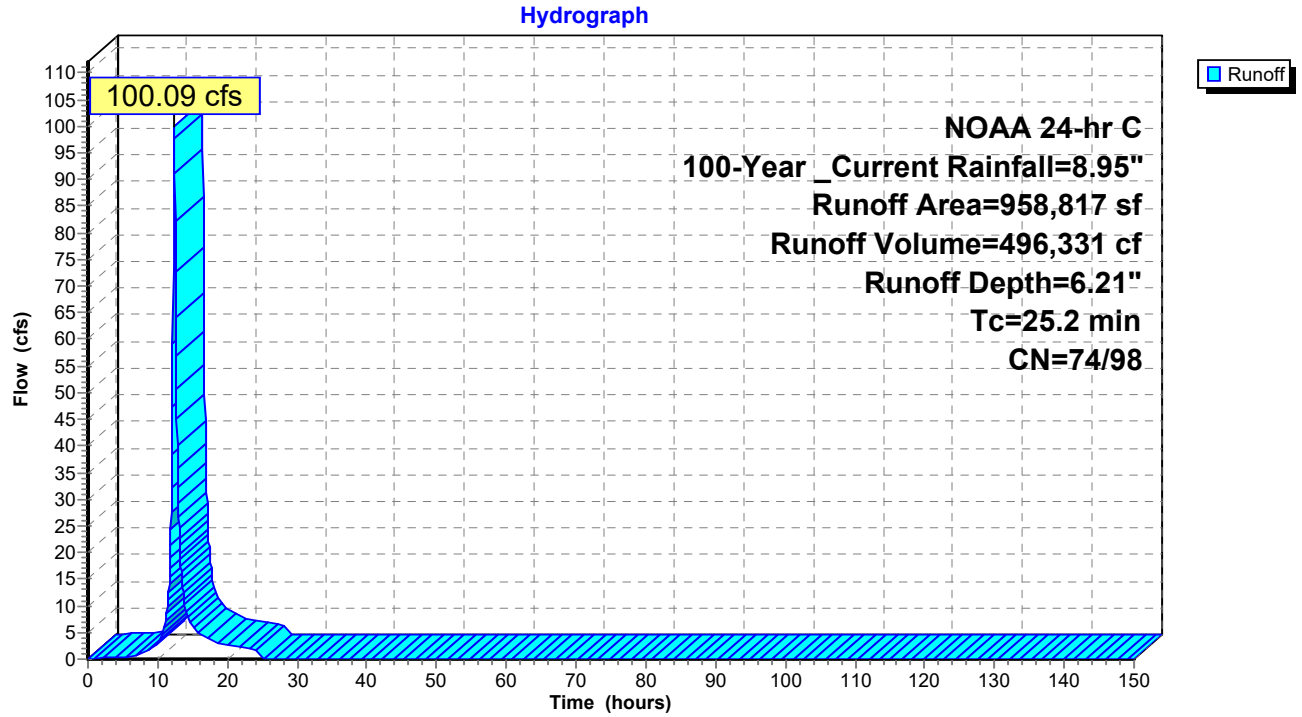
Runoff = 100.09 cfs @ 12.35 hrs, Volume= 496,331 cf, Depth= 6.21"
Routed to Pond 1P : Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description
*	140,354	98	Impervious
	15,045	65	Brush, Good, HSG C
	794,453	74	>75% Grass cover, Good, HSG C
	8,965	70	Woods, Good, HSG C
	958,817	77	Weighted Average
	818,463	74	85.36% Pervious Area
	140,354	98	14.64% Impervious Area

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

Subcatchment 1Sa: DA 1: CN w/ IC areas



Summary for Subcatchment 1Sb: Roof

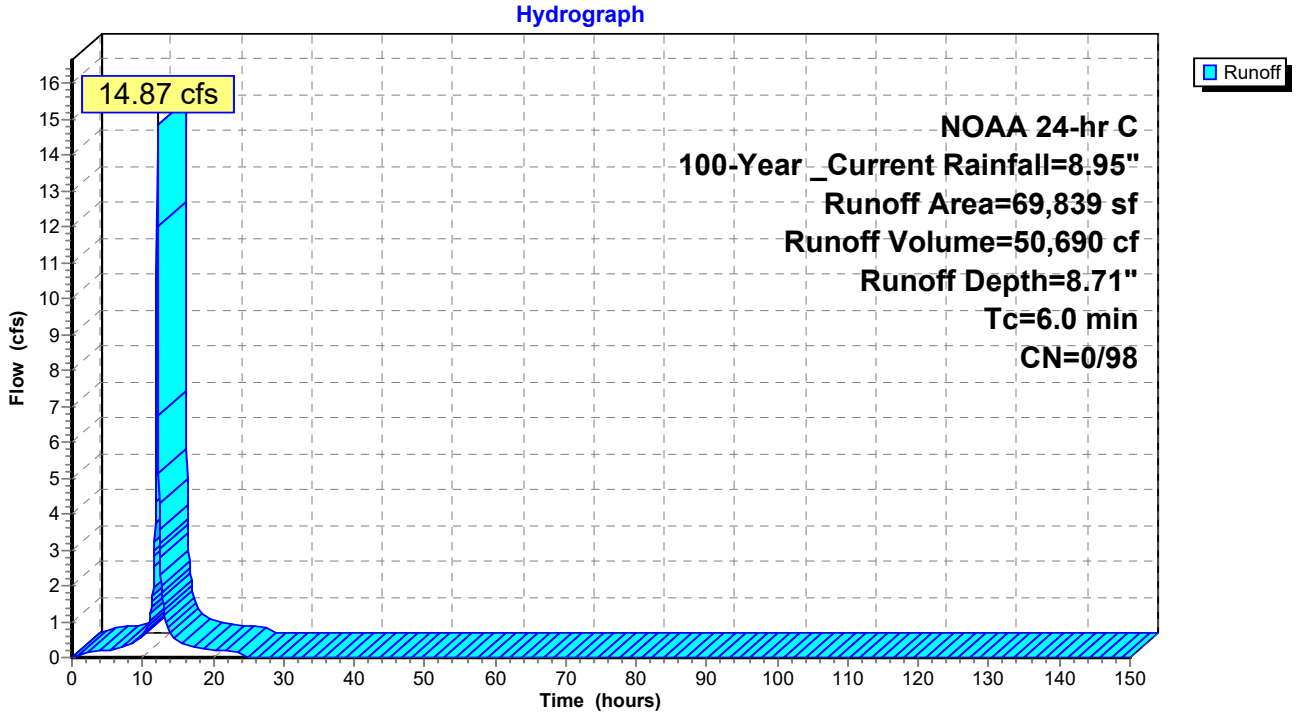
Runoff = 14.87 cfs @ 12.13 hrs, Volume= 50,690 cf, Depth= 8.71"
Routed to Pond 2P : ROOF RG 750 SF

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description
*	69,839	98	Roof - Building GIS Layer
	69,839	98	100.00% Impervious Area

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

Subcatchment 1Sb: Roof



Summary for Subcatchment 1Sc: Driveways (GIS - other)

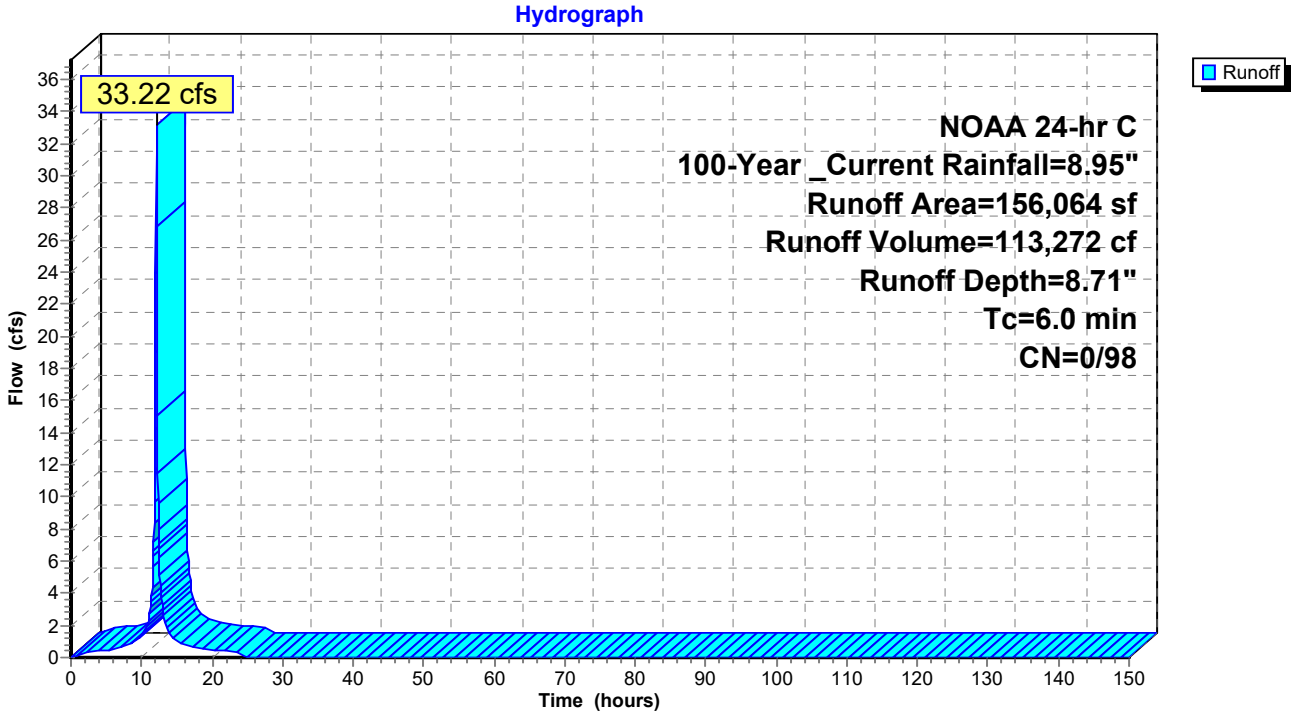
Runoff = 33.22 cfs @ 12.13 hrs, Volume= 113,272 cf, Depth= 8.71"
Routed to Pond 3P : Basic Porous Pavement (infiltration only)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description
*	156,064	98	Impervious Drivways (other)
	156,064	98	100.00% Impervious Area

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

Subcatchment 1Sc: Driveways (GIS - other)



Summary for Subcatchment 2S: DA 2: CN w/ IC areas

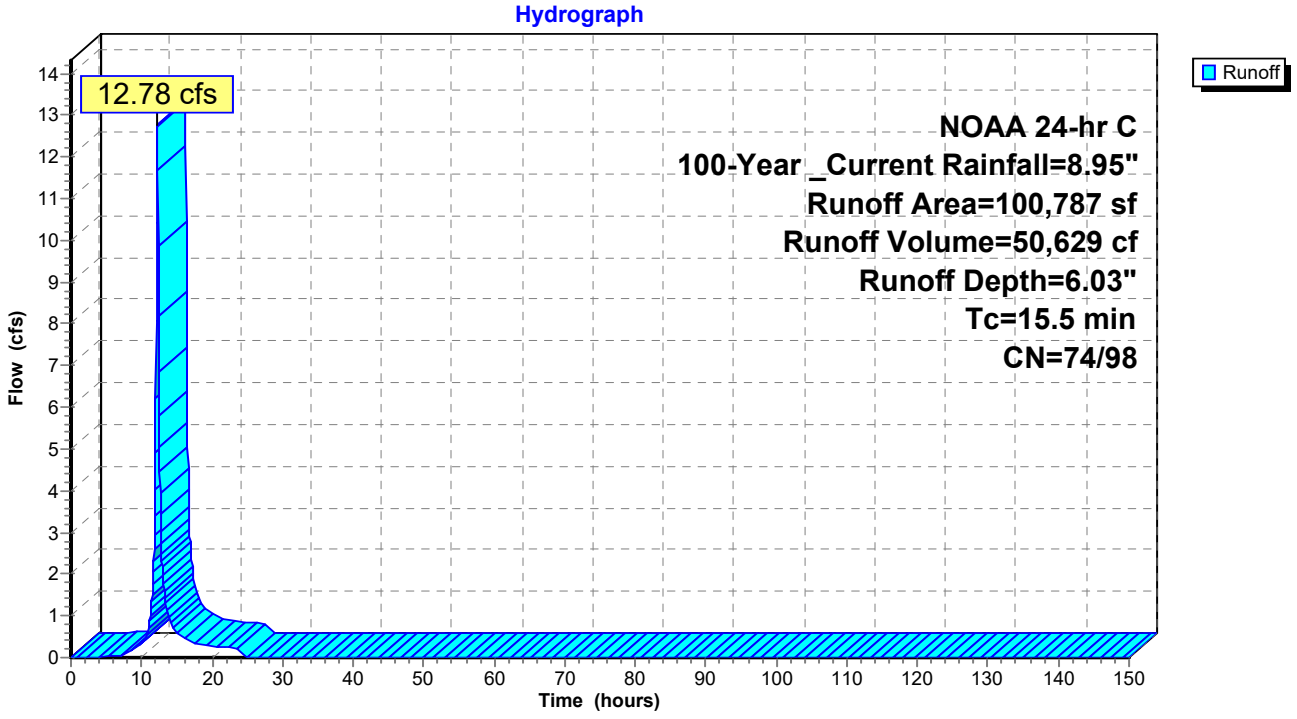
Runoff = 12.78 cfs @ 12.24 hrs, Volume= 50,629 cf, Depth= 6.03"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description
*	8,425	98	Impervious
	86	65	Brush, Good, HSG C
	92,276	74	>75% Grass cover, Good, HSG C
	100,787	76	Weighted Average
	92,362	74	91.64% Pervious Area
	8,425	98	8.36% Impervious Area

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

Subcatchment 2S: DA 2: CN w/ IC areas



Summary for Subcatchment 3S: DA 3: CN w/ IC areas

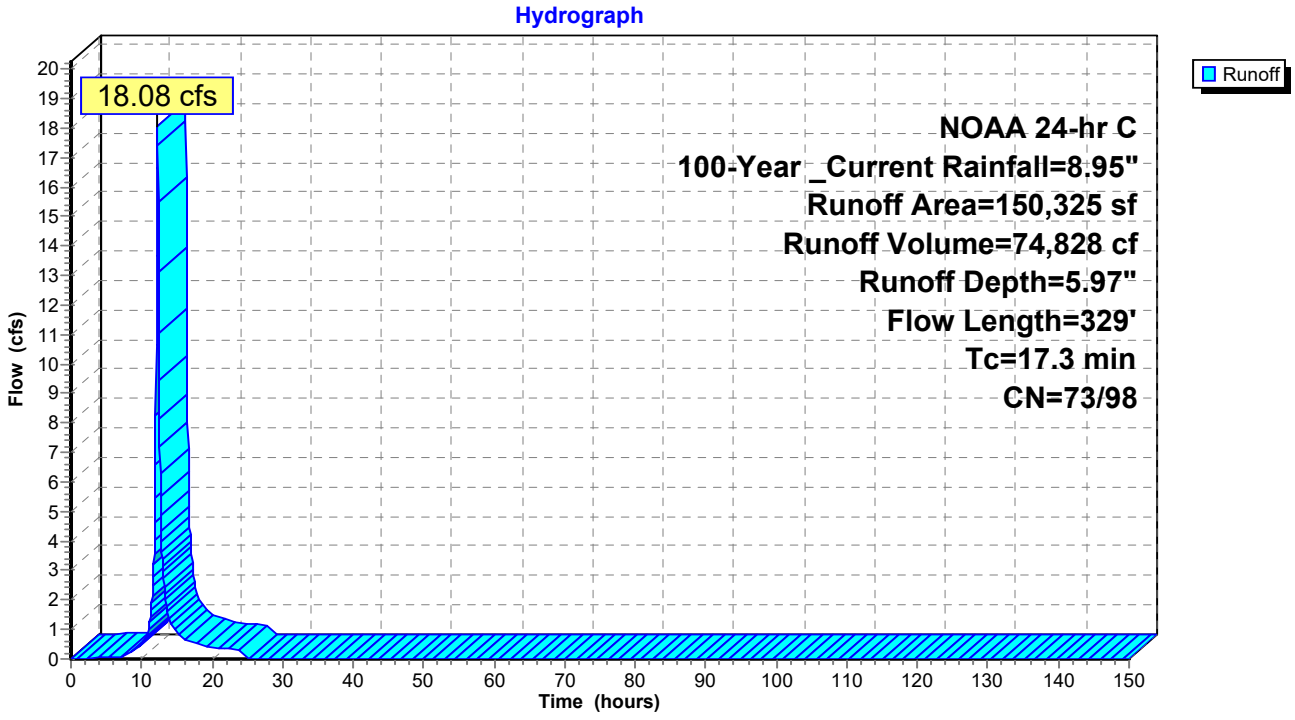
Runoff = 18.08 cfs @ 12.26 hrs, Volume= 74,828 cf, Depth= 5.97"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description
*	15,427	98	Impervious
	17,213	65	Brush, Good, HSG C
	11,427	73	Brush, Good, HSG D
	99,487	74	>75% Grass cover, Good, HSG C
	6,771	70	Woods, Good, HSG C
	150,325	75	Weighted Average
	134,898	73	89.74% Pervious Area
	15,427	98	10.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0103	0.13		**Sheet Flow, Sheetflow** Grass: Short n= 0.150 P2= 3.34"
4.8	229	0.0129	0.80		**Shallow Concentrated Flow, SCF - Grass** Short Grass Pasture Kv= 7.0 fps
17.3	329	Total			

Subcatchment 3S: DA 3: CN w/ IC areas



Summary for Subcatchment 4S: DA 4: CN w/ IC areas

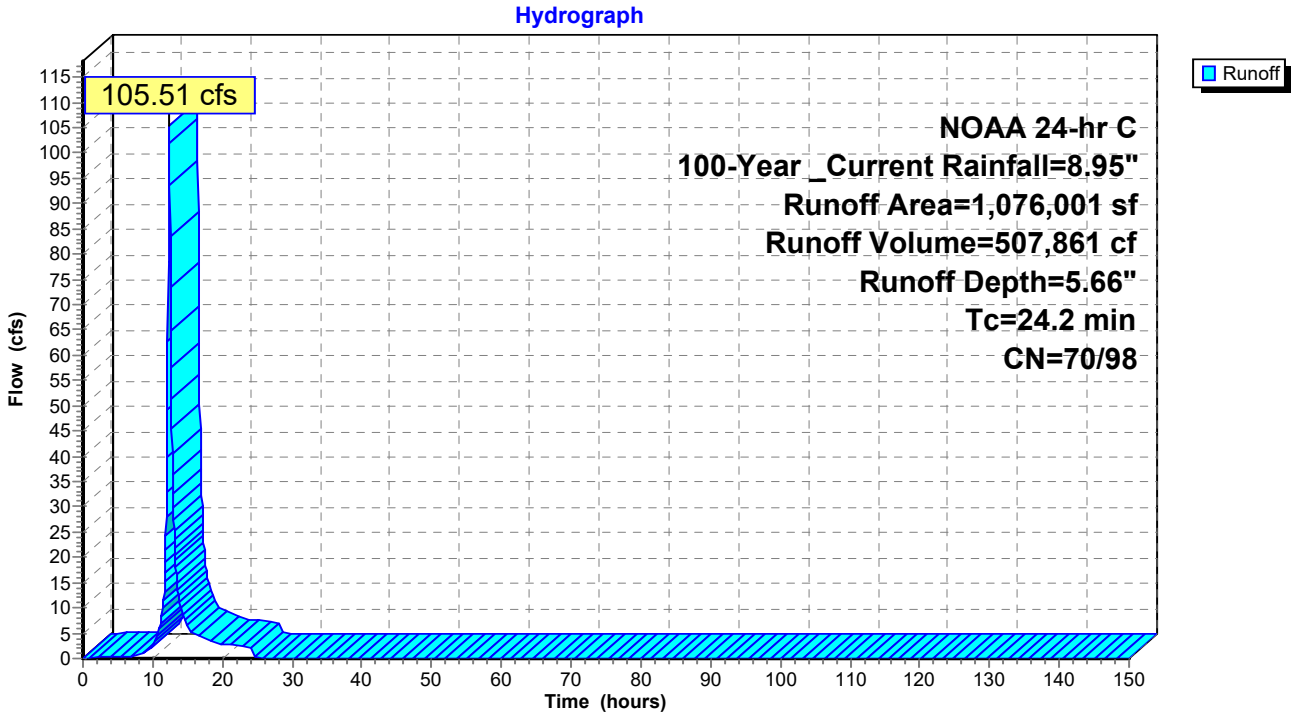
Runoff = 105.51 cfs @ 12.34 hrs, Volume= 507,861 cf, Depth= 5.66"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description
*	117,373	98	Impervious
	376,010	65	Brush, Good, HSG C
	14,106	73	Brush, Good, HSG D
	58,960	79	50-75% Grass cover, Fair, HSG C
	6,320	84	50-75% Grass cover, Fair, HSG D
	199,948	74	>75% Grass cover, Good, HSG C
	6,758	80	>75% Grass cover, Good, HSG D
	13	86	<50% Grass cover, Poor, HSG C
	5,323	72	Woods/grass comb., Good, HSG C
	90,808	73	Woods, Fair, HSG C
	200,382	70	Woods, Good, HSG C
	1,076,001	73	Weighted Average
	958,628	70	89.09% Pervious Area
	117,373	98	10.91% Impervious Area

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

Subcatchment 4S: DA 4: CN w/ IC areas



Summary for Reach 1R: INLET PIPE

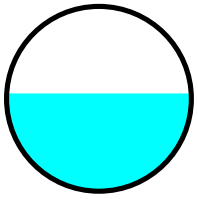
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 5.27" for 100-Year _Current event
Inflow = 111.59 cfs @ 12.36 hrs, Volume= 520,753 cf
Outflow = 111.44 cfs @ 12.36 hrs, Volume= 520,860 cf, Atten= 0%, Lag= 0.1 min
Routed to Pond 4P : Municipal Property Basin 2100

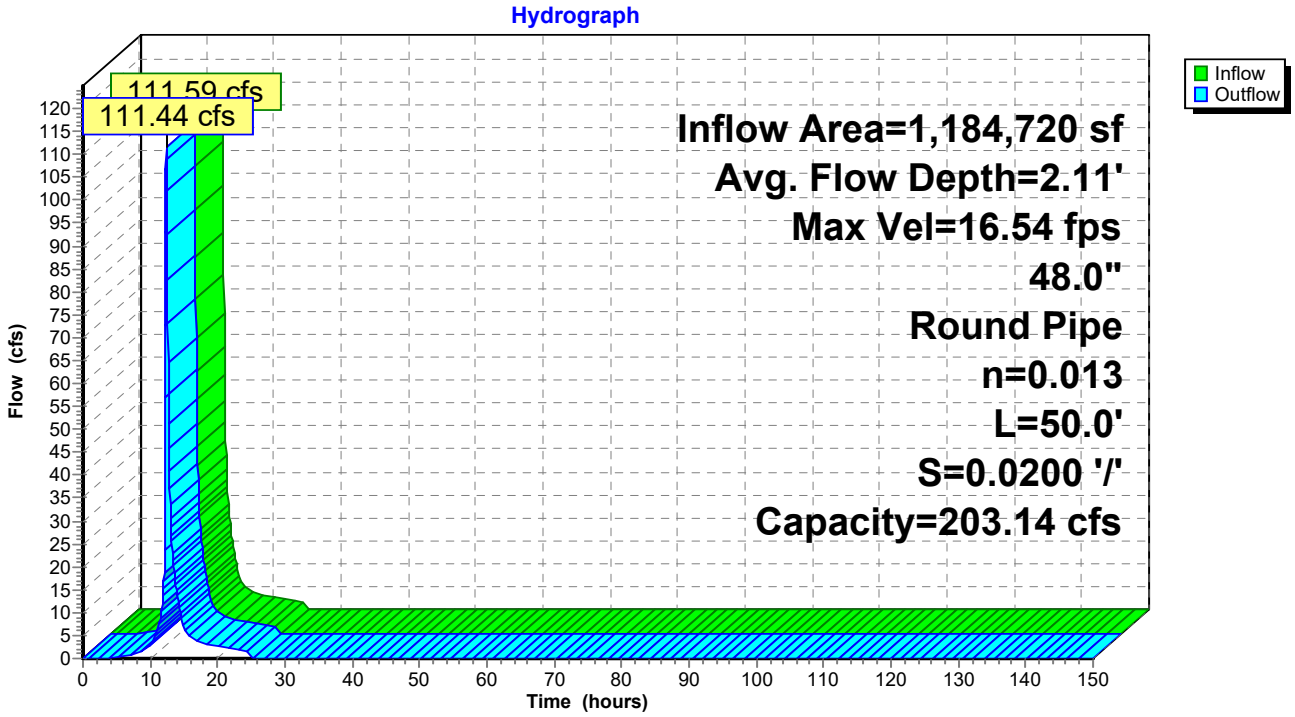
Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 16.54 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 5.17 fps, Avg. Travel Time= 0.2 min

Peak Storage= 337 cf @ 12.36 hrs
Average Depth at Peak Storage= 2.11' , Surface Width= 3.99'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 203.14 cfs

48.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 66.00', Outlet Invert= 65.00'



Reach 1R: INLET PIPE



Summary for Reach 2R: OUTFLOW PIPE

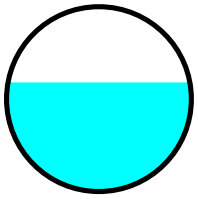
[52] Hint: Inlet/Outlet conditions not evaluated

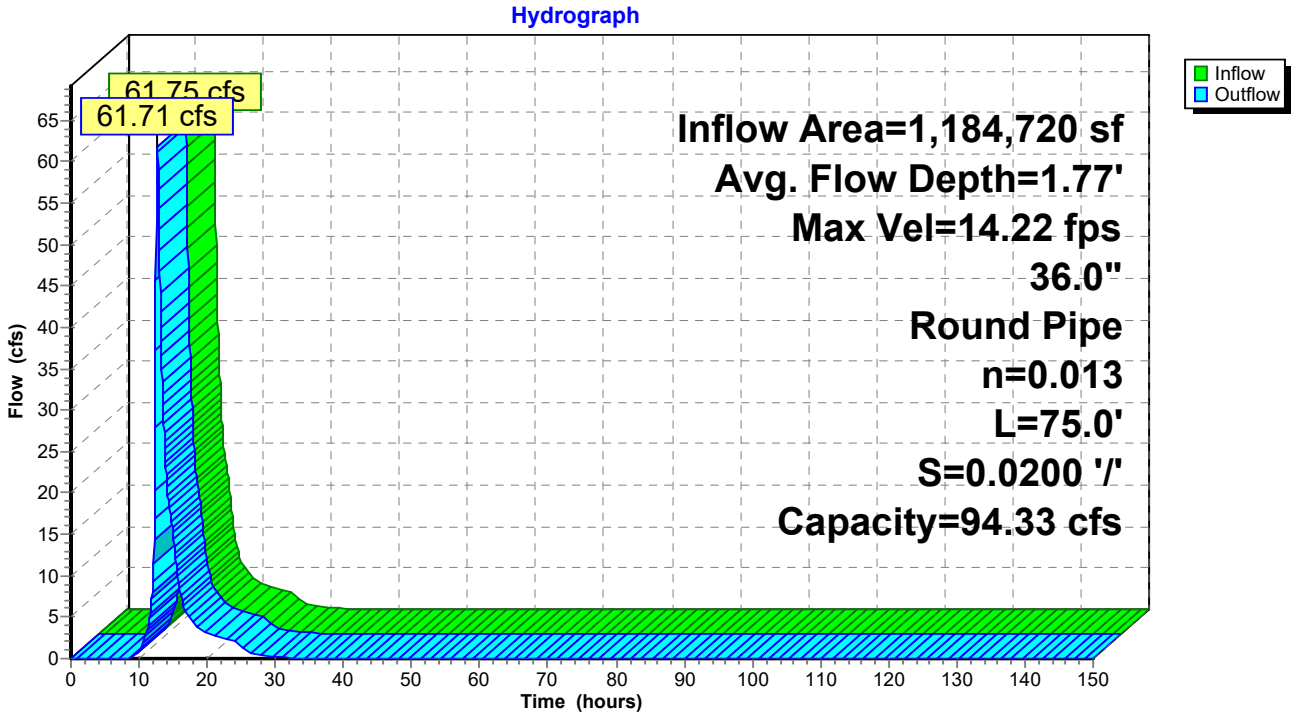
Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 5.19" for 100-Year _Current event
Inflow = 61.75 cfs @ 12.67 hrs, Volume= 512,421 cf
Outflow = 61.71 cfs @ 12.68 hrs, Volume= 512,421 cf, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Max. Velocity= 14.22 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.12 fps, Avg. Travel Time= 0.6 min

Peak Storage= 325 cf @ 12.68 hrs
Average Depth at Peak Storage= 1.77' , Surface Width= 2.95'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 94.33 cfs

36.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 75.0' Slope= 0.0200 '/'
Inlet Invert= 62.00', Outlet Invert= 60.50'





Summary for Pond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Inflow Area = 958,817 sf, 14.64% Impervious, Inflow Depth = 6.21" for 100-Year _Current event
Inflow = 100.09 cfs @ 12.35 hrs, Volume= 496,331 cf
Outflow = 99.98 cfs @ 12.36 hrs, Volume= 493,292 cf, Atten= 0%, Lag= 0.2 min
Primary = 25.22 cfs @ 12.36 hrs, Volume= 367,317 cf
Routed to Link 1L : Combined Flow
Secondary = 64.26 cfs @ 12.36 hrs, Volume= 118,549 cf
Routed to Link 1L : Combined Flow
Tertiary = 10.50 cfs @ 12.36 hrs, Volume= 7,427 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 100.59' @ 12.36 hrs Surf.Area= 12,249 sf Storage= 27,623 cf

Plug-Flow detention time= 15.8 min calculated for 493,128 cf (99% of inflow)
Center-of-Mass det. time= 11.9 min (829.2 - 817.3)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	497 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
#2A	93.75'	689 cf	**15.75'W x 32.10'L x 4.50'H Field A** 2,275 cf Overall - 551 cf Embedded = 1,724 cf x 40.0% Voids
#3A	95.25'	551 cf	**ADS_StormTech SC-740 +Cap** x 12 Inside #2 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 3 Rows
		1,737 cf	x 18.00 = 31,271 cf Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
97.75	175	0.0	0	0	175
98.25	175	35.0	31	31	198
99.25	175	35.0	61	92	245
99.50	175	25.0	11	103	257
100.00	175	100.0	88	190	281
100.51	175	100.0	89	280	304
101.75	175	100.0	217	497	363

Device	Routing	Invert	Outlet Devices
#1	Primary	94.17'	**6.0" Round Culvert X 18.00** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 94.17' / 94.12' S= 0.0050 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.20 sf
#2	Device 1	94.33'	**6.0" Round 6" HDPE Underdrain X 18.00** L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 94.33' / 94.17' S= 0.0050 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.20 sf
#3	Secondary	100.00'	**3.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 18.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

#4	Tertiary	100.50'	**6.0' long Sharp-Crested Rectangular Weir X 18.00** 2 End Contraction(s)

Primary OutFlow Max=25.22 cfs @ 12.36 hrs HW=100.59' (Free Discharge)
└**1=Culvert** (Passes 25.22 cfs of 37.74 cfs potential flow)
└**2=6" HDPE Underdrain** (Barrel Controls 25.22 cfs @ 7.13 fps)

Secondary OutFlow Max=63.99 cfs @ 12.36 hrs HW=100.59' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 63.99 cfs @ 2.01 fps)

Tertiary OutFlow Max=9.62 cfs @ 12.36 hrs HW=100.59' (Free Discharge)
└**4=Sharp-Crested Rectangular Weir** (Weir Controls 9.62 cfs @ 0.98 fps)

ond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

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

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

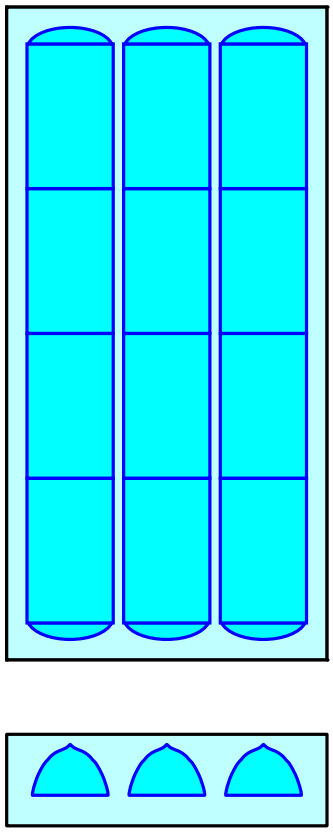
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

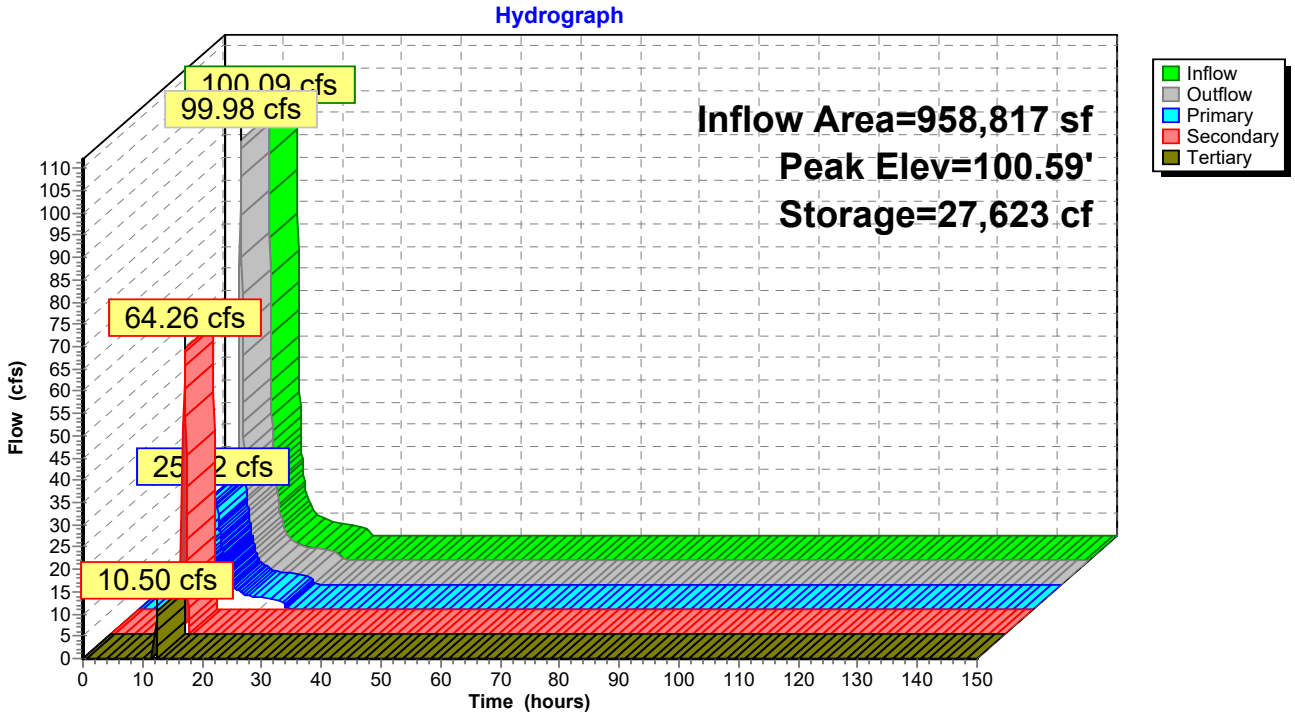
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af
Overall Storage Efficiency = 54.5%
Overall System Size = 32.10' x 15.75' x 4.50'

12 Chambers
84.3 cy Field
63.8 cy Stone



Pond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)



Summary for Pond 2P: ROOF RG 750 SF

Assumes infiltration through media is non-limiting.

Inflow Area = 69,839 sf,100.00% Impervious, Inflow Depth = 8.71" for 100-Year _Current event
Inflow = 14.87 cfs @ 12.13 hrs, Volume= 50,690 cf
Outflow = 4.45 cfs @ 12.35 hrs, Volume= 50,690 cf, Atten= 70%, Lag= 13.3 min
Discarded = 0.32 cfs @ 12.20 hrs, Volume= 39,037 cf
Primary = 4.13 cfs @ 12.35 hrs, Volume= 11,653 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Peak Elev= 100.08' @ 12.35 hrs Surf.Area= 27,750 sf Storage= 22,498 cf

Plug-Flow detention time= 488.2 min calculated for 50,673 cf (100% of inflow)
Center-of-Mass det. time= 488.4 min (1,228.8 - 740.4)

Volume	Invert	Avail.Storage	Storage Description
#1	98.25'	735 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
		735 cf	x 37.00 = 27,209 cf Total Available Storage

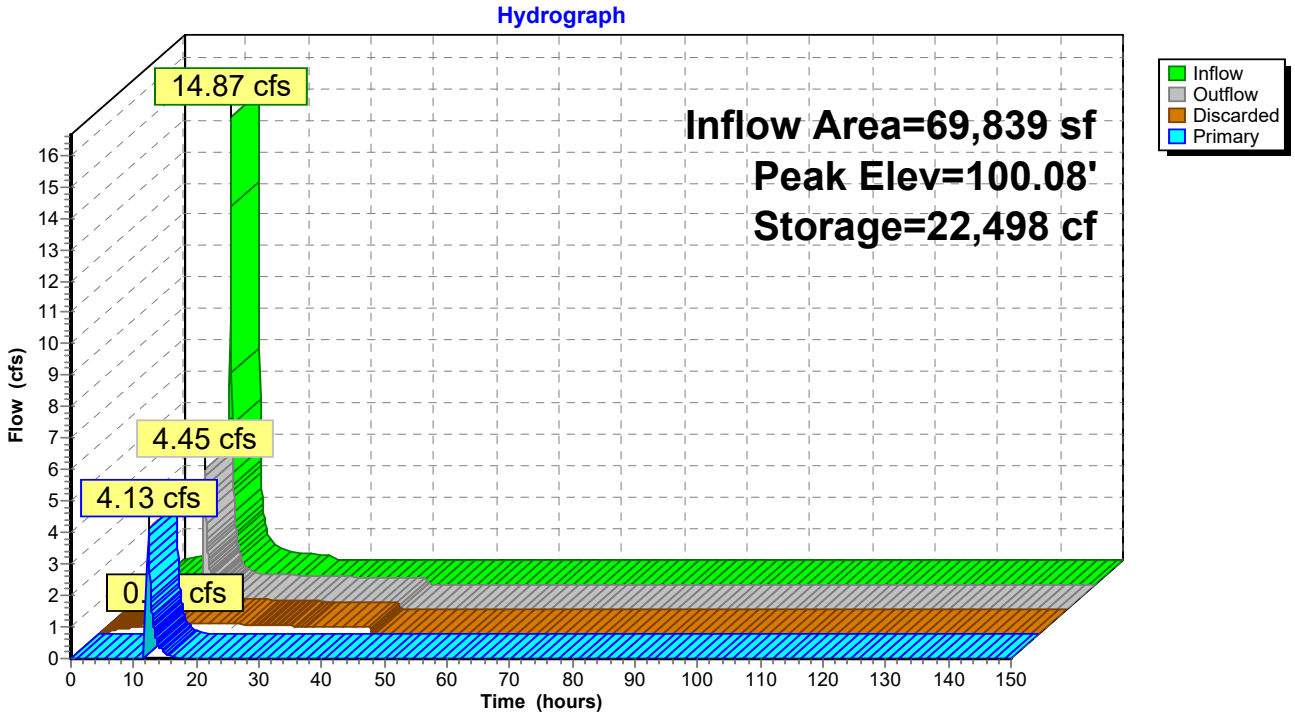
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
98.25	546	0.0	0	0	546
99.25	546	35.0	191	191	629
99.50	546	25.0	34	225	650
100.00	750	100.0	323	548	858
100.25	750	100.0	188	735	883

Device	Routing	Invert	Outlet Devices
#1	Discarded	98.25'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	100.00'	**2.0' long x 3.0' breadth Broad-Crested Rectangular Weir X 37.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.32 cfs @ 12.20 hrs HW=100.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.32 cfs)

Primary OutFlow Max=4.10 cfs @ 12.35 hrs HW=100.08' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 4.10 cfs @ 0.69 fps)

Pond 2P: ROOF RG 750 SF



Summary for Pond 3P: Basic Porous Pavement (infiltration only)

Inflow Area = 156,064 sf,100.00% Impervious, Inflow Depth = 8.71" for 100-Year _Current event
Inflow = 33.22 cfs @ 12.13 hrs, Volume= 113,272 cf
Outflow = 9.31 cfs @ 12.37 hrs, Volume= 113,272 cf, Atten= 72%, Lag= 14.3 min
Discarded = 1.81 cfs @ 10.75 hrs, Volume= 97,464 cf
Primary = 7.50 cfs @ 12.37 hrs, Volume= 15,808 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Peak Elev= 100.03' @ 12.37 hrs Surf.Area= 156,064 sf Storage= 37,731 cf

Plug-Flow detention time= 118.1 min calculated for 113,234 cf (100% of inflow)
Center-of-Mass det. time= 118.1 min (858.5 - 740.4)

Volume	Invert	Avail.Storage	Storage Description
#1	99.25'	72,180 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

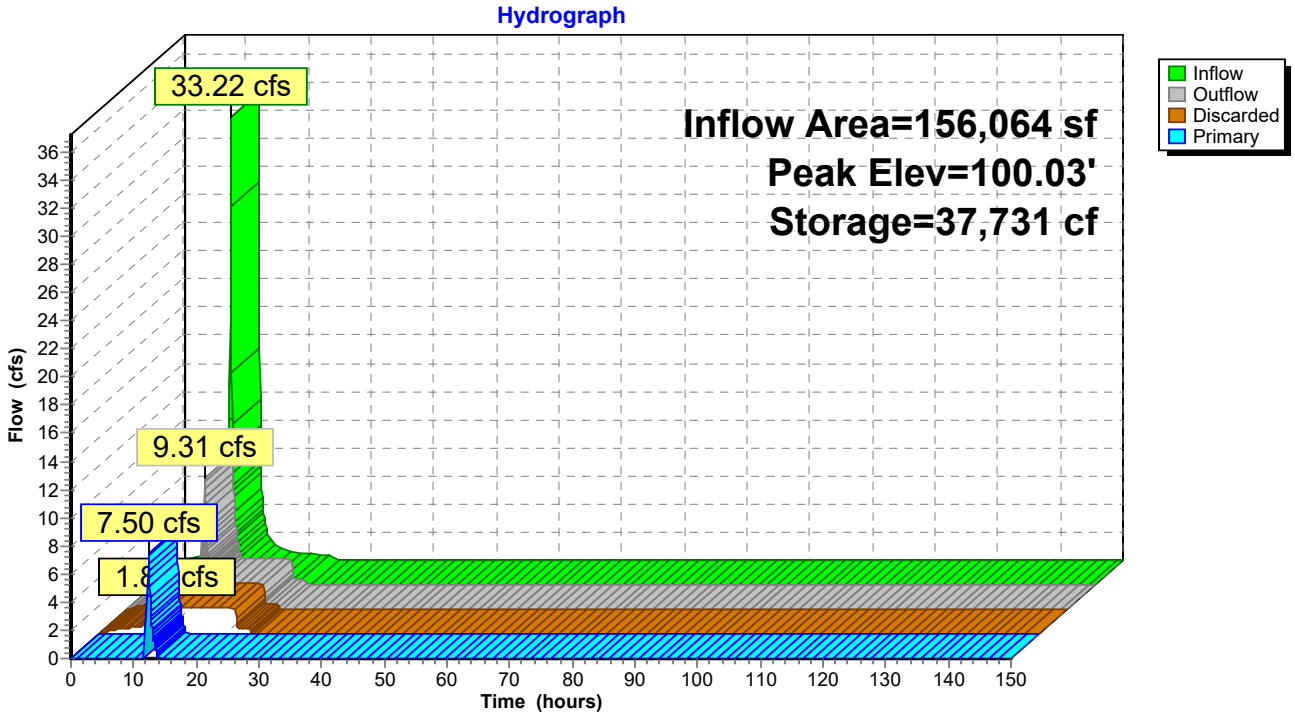
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.25	156,064	0.0	0	0
99.75	156,064	35.0	27,311	27,311
99.83	156,064	15.0	1,873	29,184
100.00	156,064	15.0	3,980	33,164
100.25	156,064	100.0	39,016	72,180

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.25'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	100.00'	**15.0' long x 1.0' breadth Edge of Porous Asphalt X 37.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=1.81 cfs @ 10.75 hrs HW=99.26' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 1.81 cfs)

Primary OutFlow Max=7.38 cfs @ 12.37 hrs HW=100.03' (Free Discharge)
↑—**2=Edge of Porous Asphalt** (Weir Controls 7.38 cfs @ 0.46 fps)

Pond 3P: Basic Porous Pavement (infiltration only)



Summary for Pond 4P: Municipal Property Basin 2100

[63] Warning: Exceeded Reach 1R INLET depth by 1.36' @ 12.90 hrs

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 5.28" for 100-Year _Current event
Inflow = 111.44 cfs @ 12.36 hrs, Volume= 520,860 cf
Outflow = 61.75 cfs @ 12.67 hrs, Volume= 512,421 cf, Atten= 45%, Lag= 18.8 min
Primary = 27.98 cfs @ 12.67 hrs, Volume= 415,208 cf
Routed to Reach 2R : OUTFLOW PIPE
Secondary = 33.77 cfs @ 12.67 hrs, Volume= 97,213 cf
Routed to Reach 2R : OUTFLOW PIPE
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach 2R : OUTFLOW PIPE

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 68.70' @ 12.67 hrs Surf.Area= 47,138 sf Storage= 148,864 cf

Plug-Flow detention time= 91.0 min calculated for 512,250 cf (98% of inflow)
Center-of-Mass det. time= 82.3 min (908.4 - 826.2)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	213,105 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	33,242	0	0
70.00	52,000	213,105	213,105

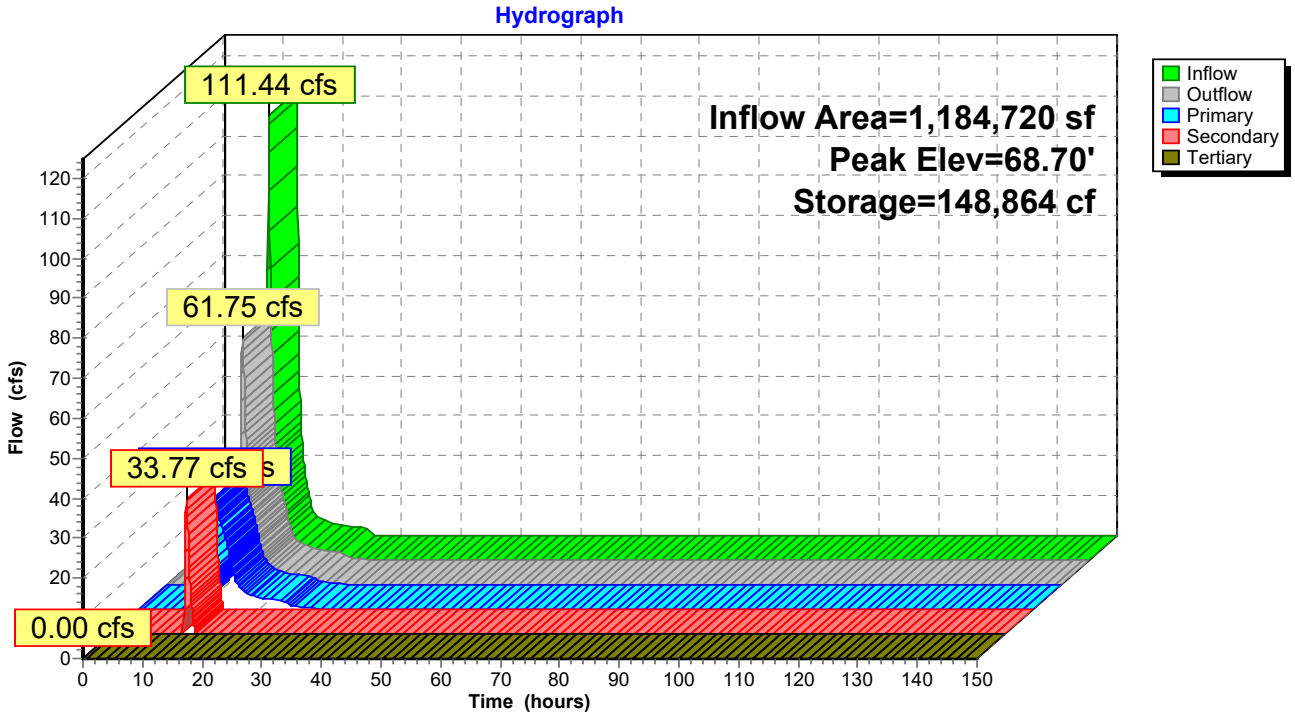
Device	Routing	Invert	Outlet Devices
#1	Primary	65.25'	**18.0" Vert. Low Flow Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	67.25'	**24.0" W x 18.0" H Vert. 2-YR Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	69.50'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=27.96 cfs @ 12.67 hrs HW=68.70' (Free Discharge)
↑**1=Low Flow Orifice** (Orifice Controls 27.96 cfs @ 7.91 fps)

Secondary OutFlow Max=33.63 cfs @ 12.67 hrs HW=68.70' (Free Discharge)
↑**2=2-YR Orifice** (Orifice Controls 33.63 cfs @ 3.87 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=65.00' (Free Discharge)
↑**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 4P: Municipal Property Basin 2100

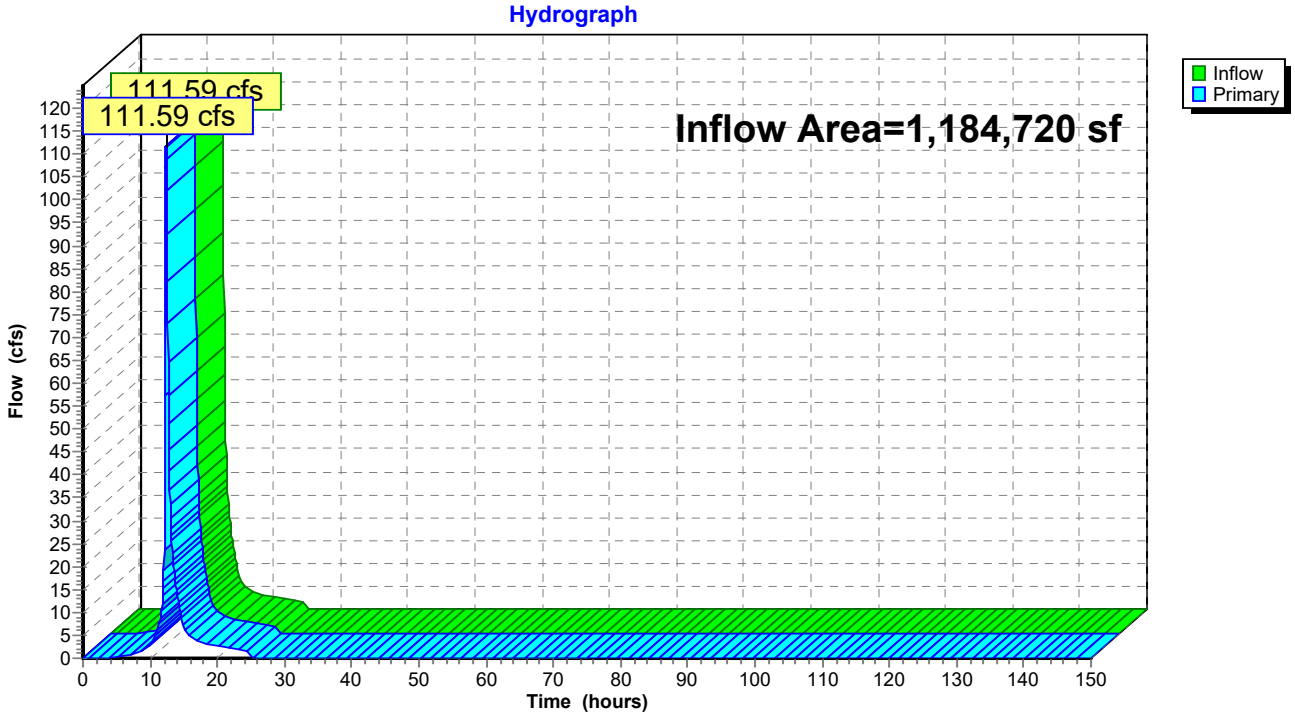


Summary for Link 1L: Combined Flow

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 5.27" for 100-Year _Current event
Inflow = 111.59 cfs @ 12.36 hrs, Volume= 520,753 cf
Primary = 111.59 cfs @ 12.36 hrs, Volume= 520,753 cf, Atten= 0%, Lag= 0.0 min
Routed to Reach 1R : INLET PIPE

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs

Link 1L: Combined Flow

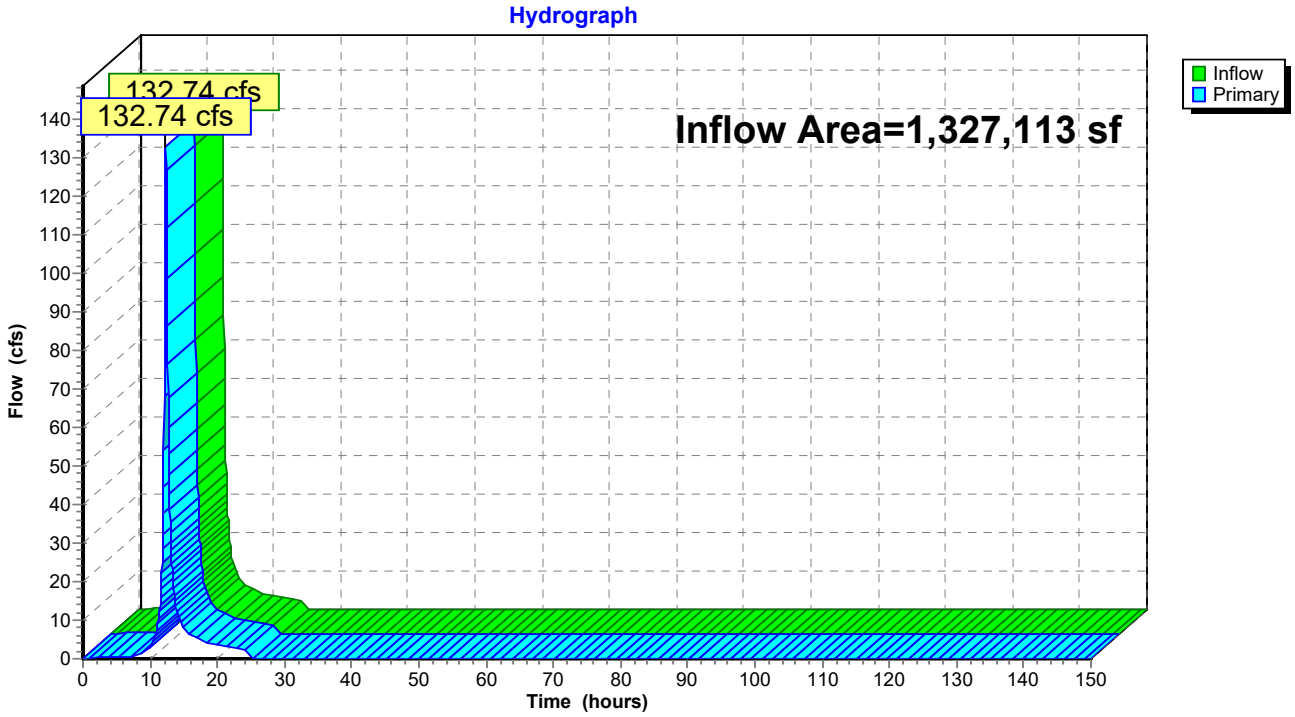


Summary for Link 2L: Offsite Flows

Inflow Area = 1,327,113 sf, 10.64% Impervious, Inflow Depth = 5.73" for 100-Year _Current event
Inflow = 132.74 cfs @ 12.32 hrs, Volume= 633,318 cf
Primary = 132.74 cfs @ 12.32 hrs, Volume= 633,318 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs

Link 2L: Offsite Flows



Time span=0.00-150.00 hrs, dt=0.05 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: DA 1: All Runoff Area=1,184,721 sf 30.92% Impervious Runoff Depth=9.73"
Tc=25.2 min CN=74/98 Runoff=187.41 cfs 960,869 cf

Subcatchment 1Sa: DA 1: CN w/ IC areas Runoff Area=958,817 sf 14.64% Impervious Runoff Depth=9.22"
Tc=25.2 min CN=74/98 Runoff=147.18 cfs 736,688 cf

Subcatchment 1Sb: Roof Runoff Area=69,839 sf 100.00% Impervious Runoff Depth=11.91"
Tc=6.0 min CN=0/98 Runoff=20.20 cfs 69,306 cf

Subcatchment 1Sc: Driveways (GIS - Runoff Area=156,064 sf 100.00% Impervious Runoff Depth=11.91"
Tc=6.0 min CN=0/98 Runoff=45.14 cfs 154,874 cf

Subcatchment 2S: DA 2: CN w/ IC areas Runoff Area=100,787 sf 8.36% Impervious Runoff Depth=9.02"
Tc=15.5 min CN=74/98 Runoff=18.89 cfs 75,777 cf

Subcatchment 3S: DA 3: CN w/ IC areas Runoff Area=150,325 sf 10.26% Impervious Runoff Depth=8.95"
Flow Length=329' Tc=17.3 min CN=73/98 Runoff=26.82 cfs 112,178 cf

Subcatchment 4S: DA 4: CN w/ IC areas Runoff Area=1,076,001 sf 10.91% Impervious Runoff Depth=8.59"
Tc=24.2 min CN=70/98 Runoff=159.15 cfs 770,434 cf

Reach 1R: INLET PIPE Avg. Flow Depth=2.84' Max Vel=18.15 fps Inflow=173.56 cfs 803,463 cf
48.0" Round Pipe n=0.013 L=50.0' S=0.0200 '/' Capacity=203.14 cfs Outflow=173.34 cfs 803,525 cf

Reach 2R: OUTFLOW PIPE Avg. Flow Depth=3.00' Max Vel=15.21 fps Inflow=110.80 cfs 795,104 cf
36.0" Round Pipe n=0.013 L=75.0' S=0.0200 '/' Capacity=94.33 cfs Outflow=100.65 cfs 795,104 cf

Pond 1P: Basic Rain Garden (w/ Peak Elev=100.72' Storage=28,021 cf Inflow=147.18 cfs 736,688 cf
Primary=25.49 cfs 486,774 cf Secondary=85.67 cfs 208,092 cf Tertiary=35.95 cfs 39,624 cf Outflow=147.10 cfs 734,490 cf

Pond 2P: ROOF RG 750 SF Peak Elev=100.19' Storage=25,493 cf Inflow=20.20 cfs 69,306 cf
Discarded=0.32 cfs 41,853 cf Primary=14.74 cfs 27,453 cf Outflow=15.06 cfs 69,306 cf

Pond 3P: Basic Porous Pavement Peak Elev=100.07' Storage=43,887 cf Inflow=45.14 cfs 154,874 cf
Discarded=1.81 cfs 113,354 cf Primary=26.88 cfs 41,519 cf Outflow=28.69 cfs 154,874 cf

Pond 4P: Municipal Property Basin Peak Elev=69.96' Storage=211,253 cf Inflow=173.34 cfs 803,525 cf
Primary=33.88 cfs 550,508 cf Secondary=60.36 cfs 228,170 cf Tertiary=16.56 cfs 16,426 cf Outflow=110.80 cfs 795,104 cf

Link 1L: Combined Flow Inflow=173.56 cfs 803,463 cf
Primary=173.56 cfs 803,463 cf

Link 2L: Offsite Flows Inflow=199.60 cfs 958,389 cf
Primary=199.60 cfs 958,389 cf

Total Runoff Area = 3,696,554 sf Runoff Volume = 2,880,127 cf Average Runoff Depth = 9.35"
76.36% Pervious = 2,822,814 sf 23.64% Impervious = 873,740 sf

Summary for Subcatchment 1S: DA 1: All

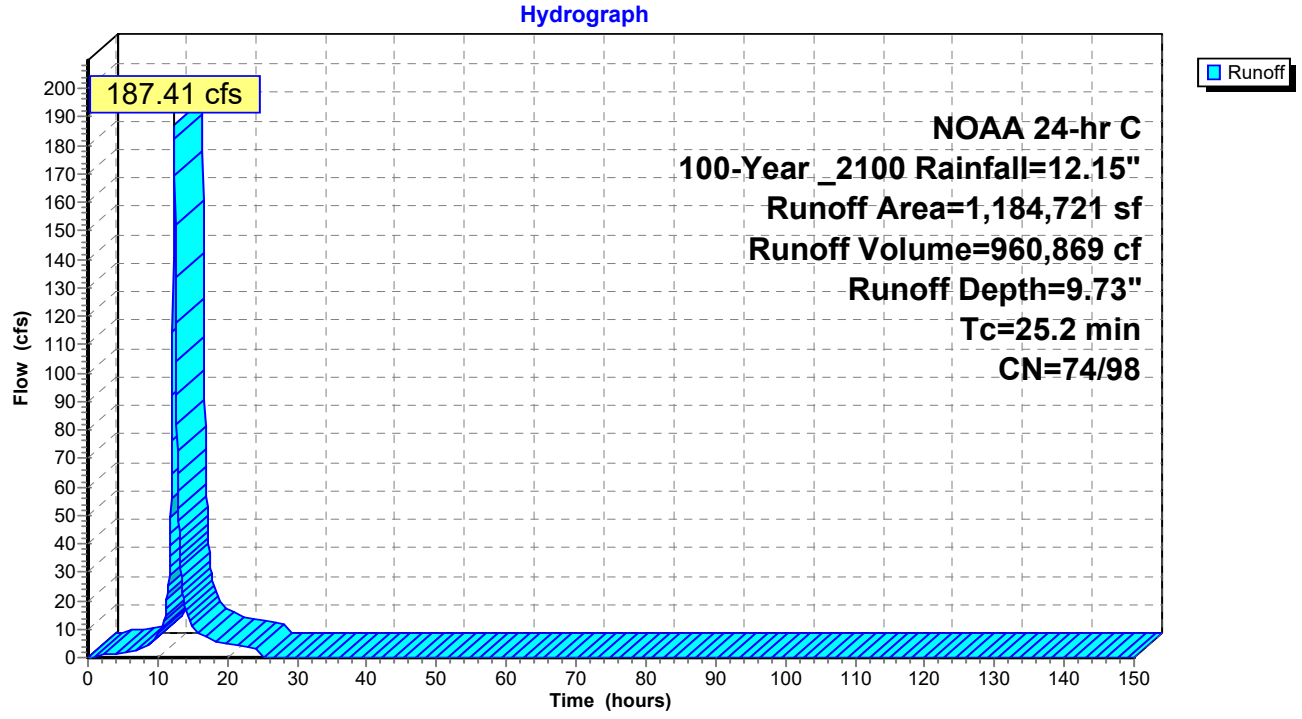
Runoff = 187.41 cfs @ 12.35 hrs, Volume= 960,869 cf, Depth= 9.73"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

	Area (sf)	CN	Description
*	366,258	98	Impervious
	15,045	65	Brush, Good, HSG C
	794,453	74	>75% Grass cover, Good, HSG C
	8,965	70	Woods, Good, HSG C
	1,184,721	81	Weighted Average
	818,463	74	69.08% Pervious Area
	366,258	98	30.92% Impervious Area

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

Subcatchment 1S: DA 1: All



Summary for Subcatchment 1Sa: DA 1: CN w/ IC areas

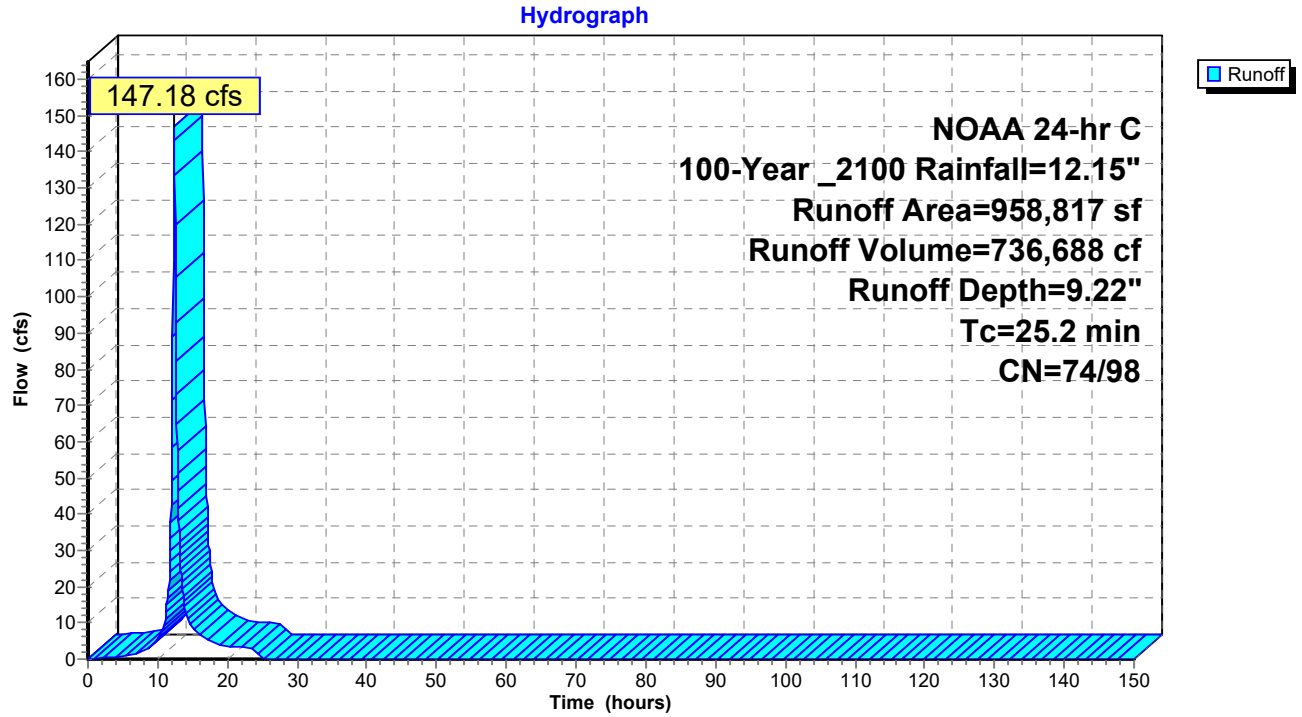
Runoff = 147.18 cfs @ 12.35 hrs, Volume= 736,688 cf, Depth= 9.22"
Routed to Pond 1P : Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

	Area (sf)	CN	Description
*	140,354	98	Impervious
	15,045	65	Brush, Good, HSG C
	794,453	74	>75% Grass cover, Good, HSG C
	8,965	70	Woods, Good, HSG C
	958,817	77	Weighted Average
	818,463	74	85.36% Pervious Area
	140,354	98	14.64% Impervious Area

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

Subcatchment 1Sa: DA 1: CN w/ IC areas



Summary for Subcatchment 1Sb: Roof

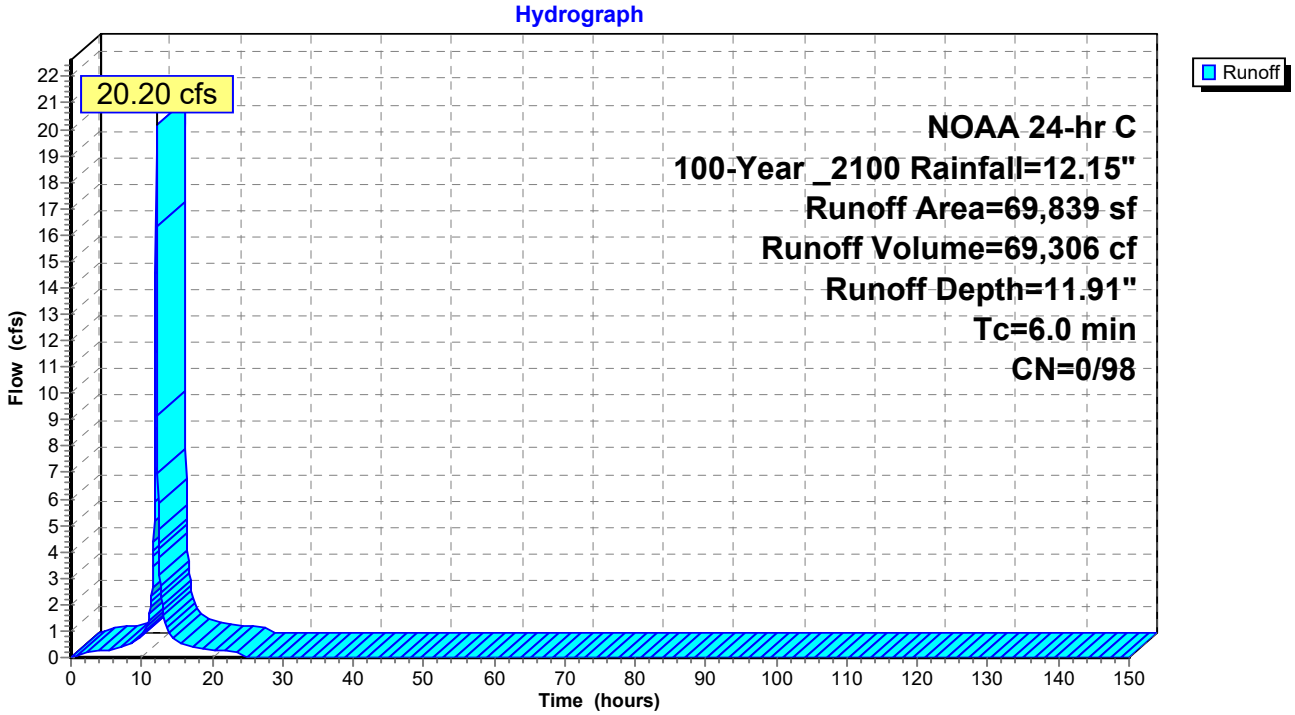
Runoff = 20.20 cfs @ 12.13 hrs, Volume= 69,306 cf, Depth=11.91"
Routed to Pond 2P : ROOF RG 750 SF

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

	Area (sf)	CN	Description
*	69,839	98	Roof - Building GIS Layer
	69,839	98	100.00% Impervious Area

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

Subcatchment 1Sb: Roof



Summary for Subcatchment 1Sc: Driveways (GIS - other)

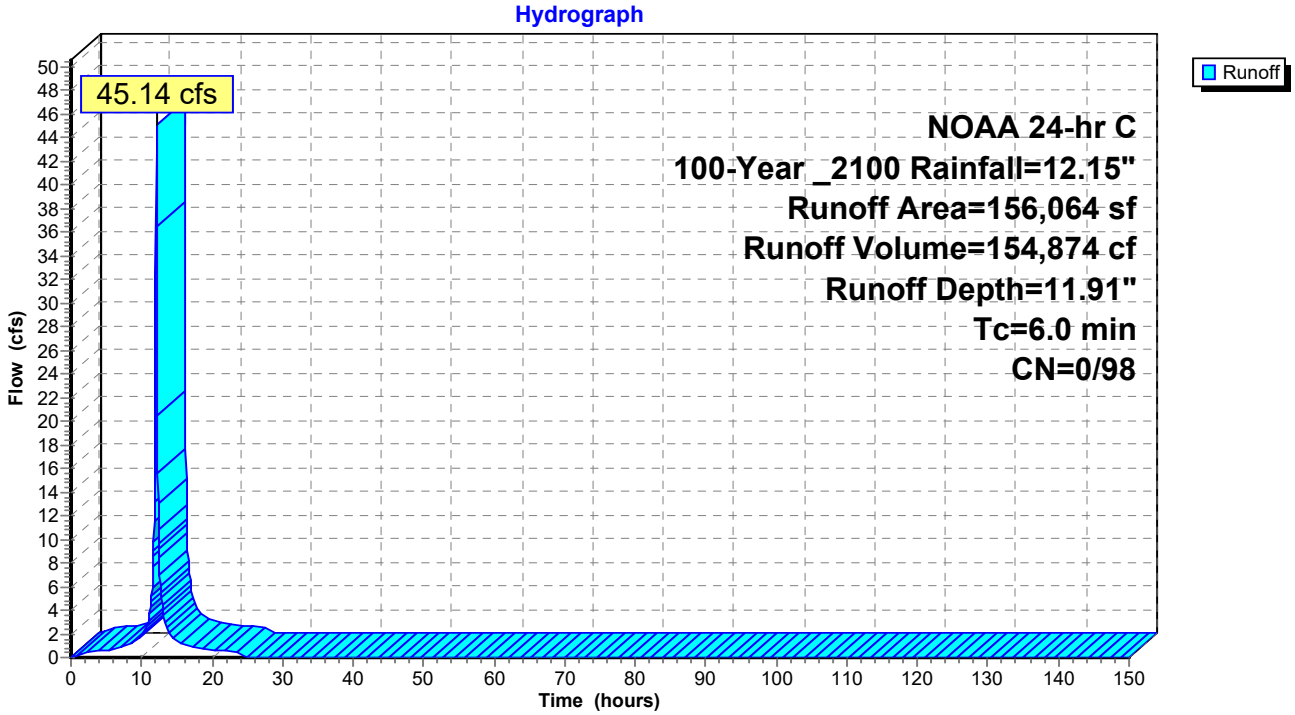
Runoff = 45.14 cfs @ 12.13 hrs, Volume= 154,874 cf, Depth=11.91"
Routed to Pond 3P : Basic Porous Pavement (infiltration only)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

	Area (sf)	CN	Description
*	156,064	98	Impervious Drivways (other)
	156,064	98	100.00% Impervious Area

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

Subcatchment 1Sc: Driveways (GIS - other)



Summary for Subcatchment 2S: DA 2: CN w/ IC areas

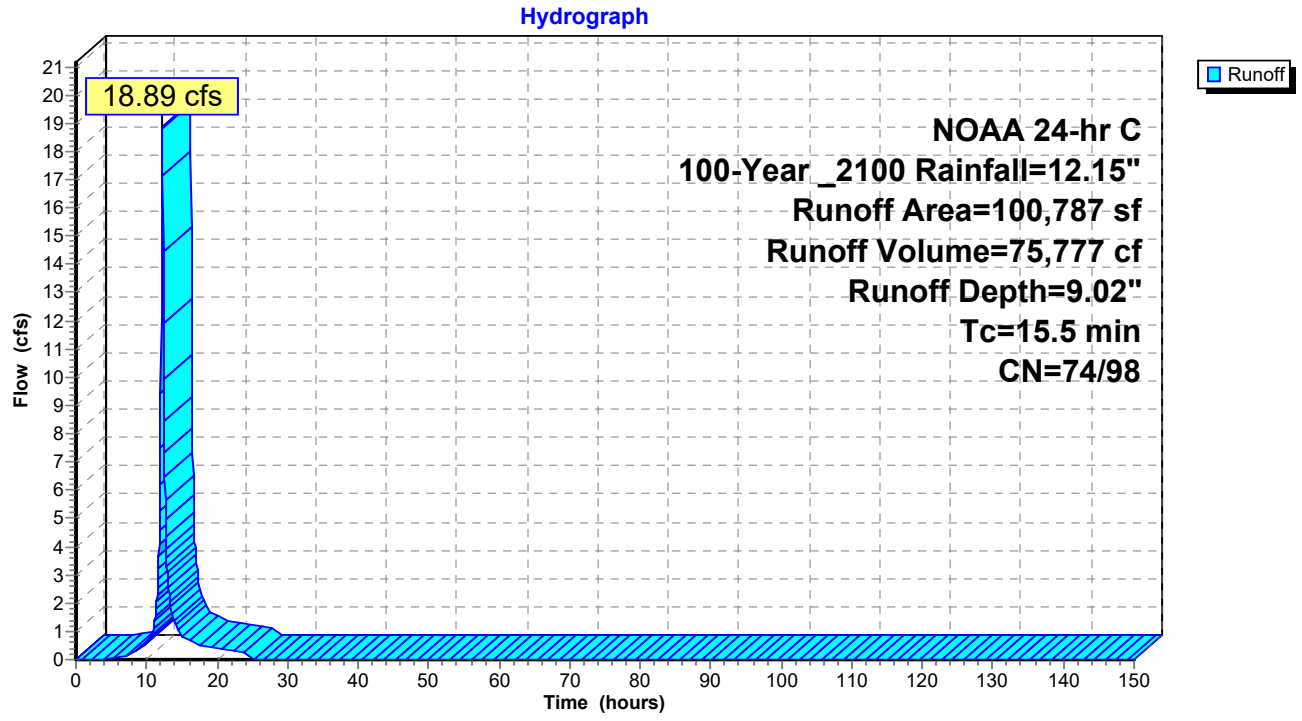
Runoff = 18.89 cfs @ 12.24 hrs, Volume= 75,777 cf, Depth= 9.02"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

	Area (sf)	CN	Description
*	8,425	98	Impervious
	86	65	Brush, Good, HSG C
	92,276	74	>75% Grass cover, Good, HSG C
	100,787	76	Weighted Average
	92,362	74	91.64% Pervious Area
	8,425	98	8.36% Impervious Area

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

Subcatchment 2S: DA 2: CN w/ IC areas



Summary for Subcatchment 3S: DA 3: CN w/ IC areas

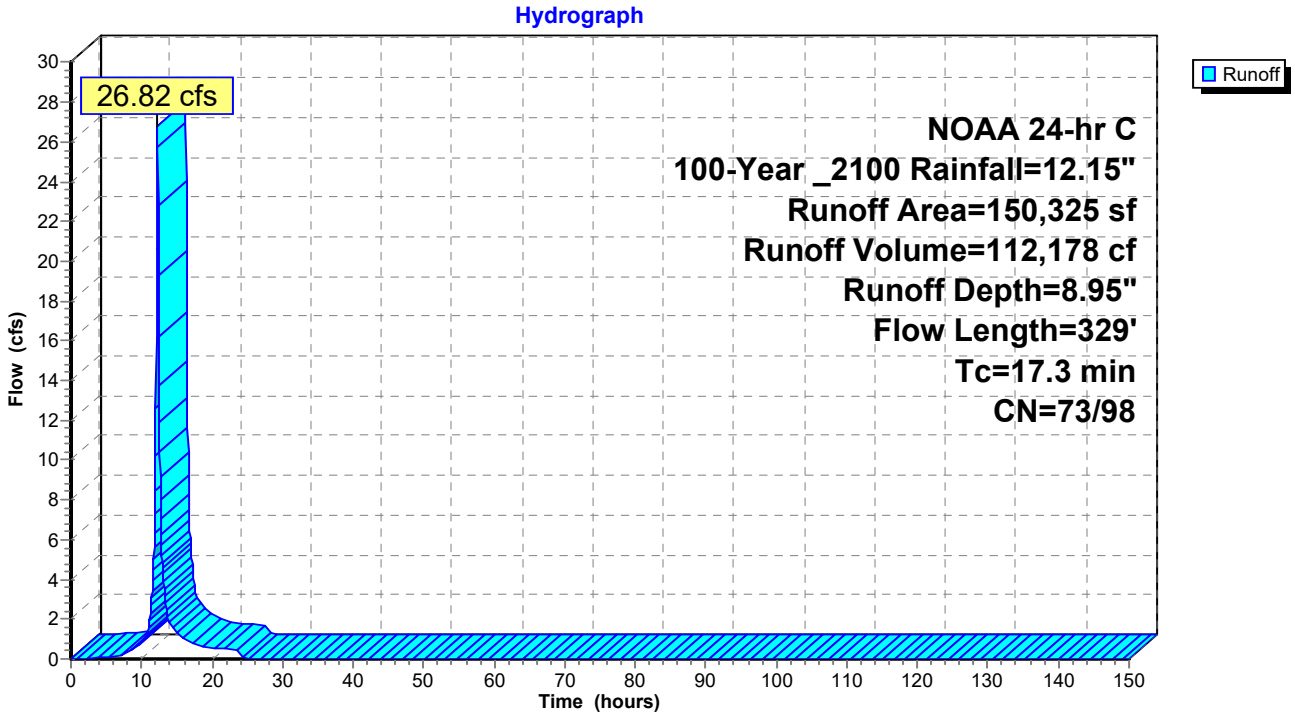
Runoff = 26.82 cfs @ 12.26 hrs, Volume= 112,178 cf, Depth= 8.95"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

	Area (sf)	CN	Description
*	15,427	98	Impervious
	17,213	65	Brush, Good, HSG C
	11,427	73	Brush, Good, HSG D
	99,487	74	>75% Grass cover, Good, HSG C
	6,771	70	Woods, Good, HSG C
	150,325	75	Weighted Average
	134,898	73	89.74% Pervious Area
	15,427	98	10.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0103	0.13		**Sheet Flow, Sheetflow** Grass: Short n= 0.150 P2= 3.34"
4.8	229	0.0129	0.80		**Shallow Concentrated Flow, SCF - Grass** Short Grass Pasture Kv= 7.0 fps
17.3	329	Total			

Subcatchment 3S: DA 3: CN w/ IC areas



Summary for Subcatchment 4S: DA 4: CN w/ IC areas

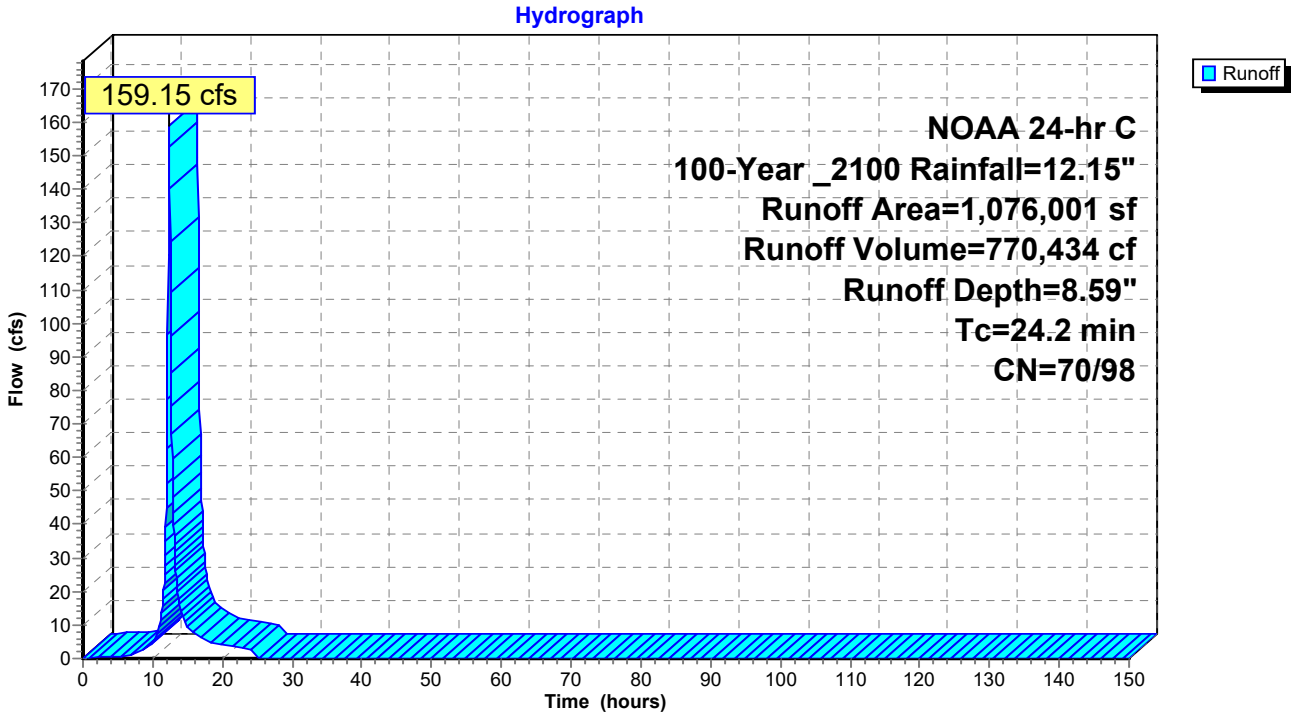
Runoff = 159.15 cfs @ 12.34 hrs, Volume= 770,434 cf, Depth= 8.59"
Routed to Link 2L : Offsite Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-150.00 hrs, dt= 0.0
NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

	Area (sf)	CN	Description
*	117,373	98	Impervious
	376,010	65	Brush, Good, HSG C
	14,106	73	Brush, Good, HSG D
	58,960	79	50-75% Grass cover, Fair, HSG C
	6,320	84	50-75% Grass cover, Fair, HSG D
	199,948	74	>75% Grass cover, Good, HSG C
	6,758	80	>75% Grass cover, Good, HSG D
	13	86	<50% Grass cover, Poor, HSG C
	5,323	72	Woods/grass comb., Good, HSG C
	90,808	73	Woods, Fair, HSG C
	200,382	70	Woods, Good, HSG C
	1,076,001	73	Weighted Average
	958,628	70	89.09% Pervious Area
	117,373	98	10.91% Impervious Area

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

Subcatchment 4S: DA 4: CN w/ IC areas



Summary for Reach 1R: INLET PIPE

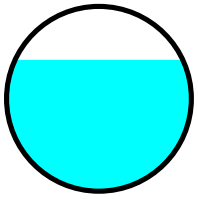
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 8.14" for 100-Year _2100 event
Inflow = 173.56 cfs @ 12.32 hrs, Volume= 803,463 cf
Outflow = 173.34 cfs @ 12.32 hrs, Volume= 803,525 cf, Atten= 0%, Lag= 0.1 min
Routed to Pond 4P : Municipal Property Basin 2100

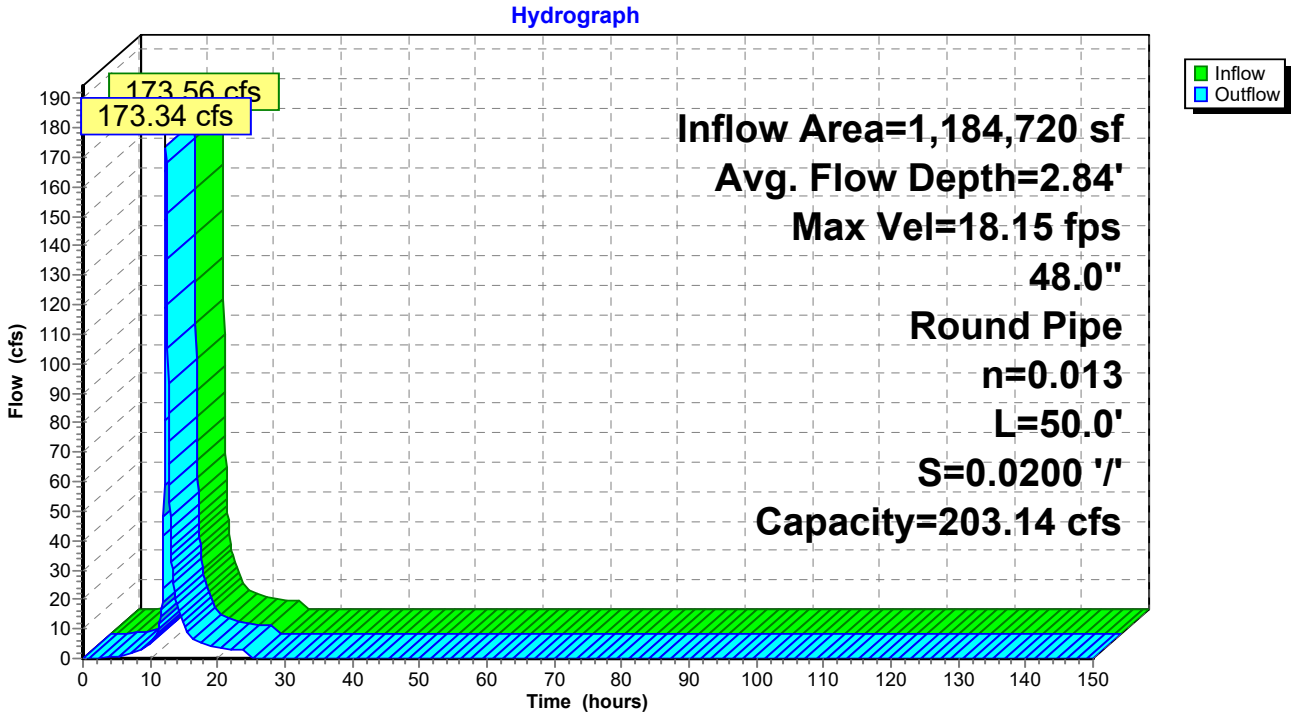
Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 2
Max. Velocity= 18.15 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 5.74 fps, Avg. Travel Time= 0.1 min

Peak Storage= 477 cf @ 12.32 hrs
Average Depth at Peak Storage= 2.84' , Surface Width= 3.63'
Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 203.14 cfs

48.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 66.00', Outlet Invert= 65.00'



Reach 1R: INLET PIPE



Summary for Reach 2R: OUTFLOW PIPE

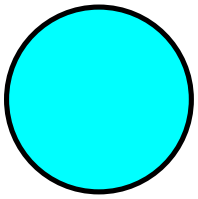
[52] Hint: Inlet/Outlet conditions not evaluated
[55] Hint: Peak inflow is 117% of Manning's capacity
[76] Warning: Detained 12,684 cf (Pond w/culvert advised)

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 8.05" for 100-Year _2100 event
Inflow = 110.80 cfs @ 12.58 hrs, Volume= 795,104 cf
Outflow = 100.65 cfs @ 13.03 hrs, Volume= 795,104 cf, Atten= 9%, Lag= 26.9 min

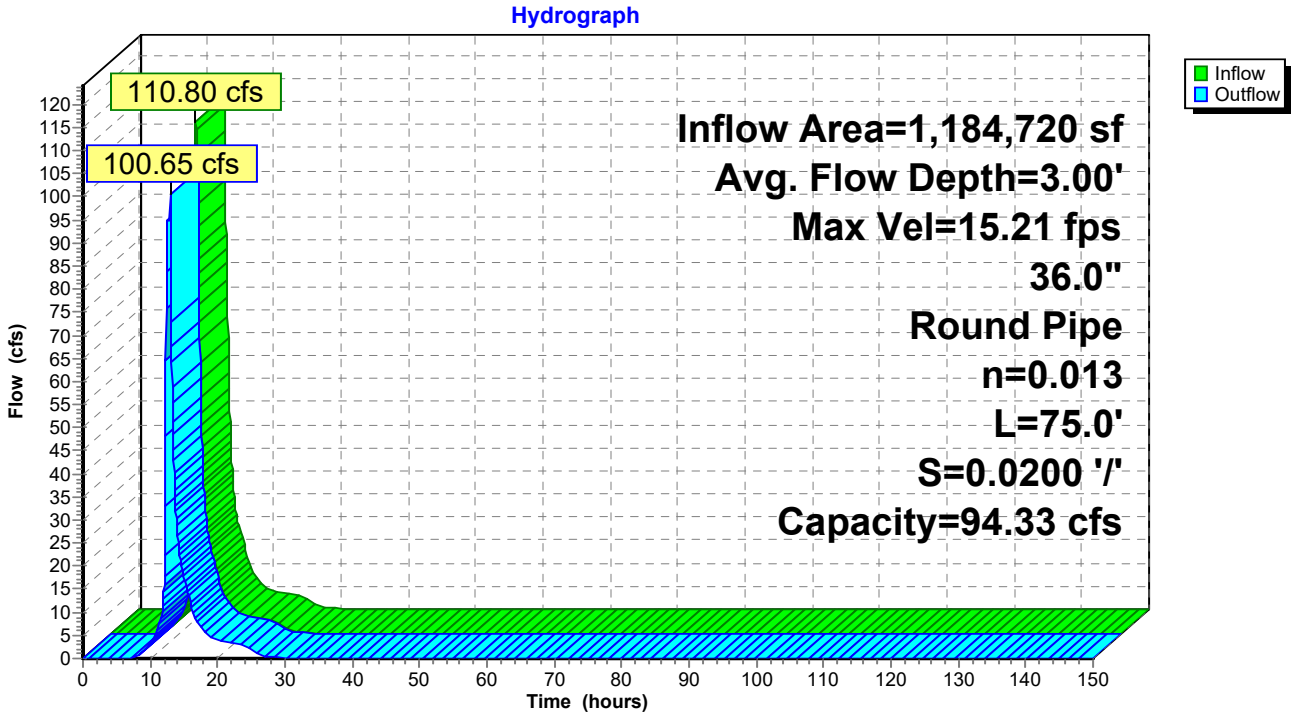
Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Max. Velocity= 15.21 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.26 fps, Avg. Travel Time= 0.6 min

Peak Storage= 530 cf @ 12.50 hrs
Average Depth at Peak Storage= 3.00'
Bank-Full Depth= 3.00' Flow Area= 7.1 sf, Capacity= 94.33 cfs

36.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 75.0' Slope= 0.0200 '/'
Inlet Invert= 62.00', Outlet Invert= 60.50'



Reach 2R: OUTFLOW PIPE



Summary for Pond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Inflow Area = 958,817 sf, 14.64% Impervious, Inflow Depth = 9.22" for 100-Year _2100 event
Inflow = 147.18 cfs @ 12.35 hrs, Volume= 736,688 cf
Outflow = 147.10 cfs @ 12.35 hrs, Volume= 734,490 cf, Atten= 0%, Lag= 0.1 min
Primary = 25.49 cfs @ 12.35 hrs, Volume= 486,774 cf
Routed to Link 1L : Combined Flow
Secondary = 85.67 cfs @ 12.35 hrs, Volume= 208,092 cf
Routed to Link 1L : Combined Flow
Tertiary = 35.95 cfs @ 12.35 hrs, Volume= 39,624 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 100.72' @ 12.35 hrs Surf.Area= 12,249 sf Storage= 28,021 cf

Plug-Flow detention time= 12.0 min calculated for 734,490 cf (100% of inflow)
Center-of-Mass det. time= 9.9 min (818.1 - 808.1)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	497 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
#2A	93.75'	689 cf	**15.75'W x 32.10'L x 4.50'H Field A** 2,275 cf Overall - 551 cf Embedded = 1,724 cf x 40.0% Voids
#3A	95.25'	551 cf	**ADS_StormTech SC-740 +Cap** x 12 Inside #2 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 3 Rows
		1,737 cf	x 18.00 = 31,271 cf Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
97.75	175	0.0	0	0	175
98.25	175	35.0	31	31	198
99.25	175	35.0	61	92	245
99.50	175	25.0	11	103	257
100.00	175	100.0	88	190	281
100.51	175	100.0	89	280	304
101.75	175	100.0	217	497	363

Device	Routing	Invert	Outlet Devices
#1	Primary	94.17'	**6.0" Round Culvert X 18.00** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 94.17' / 94.12' S= 0.0050 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.20 sf
#2	Device 1	94.33'	**6.0" Round 6" HDPE Underdrain X 18.00** L= 32.0' Ke= 0.500 Inlet / Outlet Invert= 94.33' / 94.17' S= 0.0050 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.20 sf
#3	Secondary	100.00'	**3.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 18.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

#4	Tertiary	100.50'	**6.0' long Sharp-Crested Rectangular Weir X 18.00** 2 End Contraction(s)

Primary OutFlow Max=25.48 cfs @ 12.35 hrs HW=100.72' (Free Discharge)
└**1=Culvert** (Passes 25.48 cfs of 38.14 cfs potential flow)
└**2=6" HDPE Underdrain** (Barrel Controls 25.48 cfs @ 7.21 fps)

Secondary OutFlow Max=85.50 cfs @ 12.35 hrs HW=100.72' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 85.50 cfs @ 2.21 fps)

Tertiary OutFlow Max=35.63 cfs @ 12.35 hrs HW=100.72' (Free Discharge)
└**4=Sharp-Crested Rectangular Weir** (Weir Controls 35.63 cfs @ 1.53 fps)

ond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

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

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

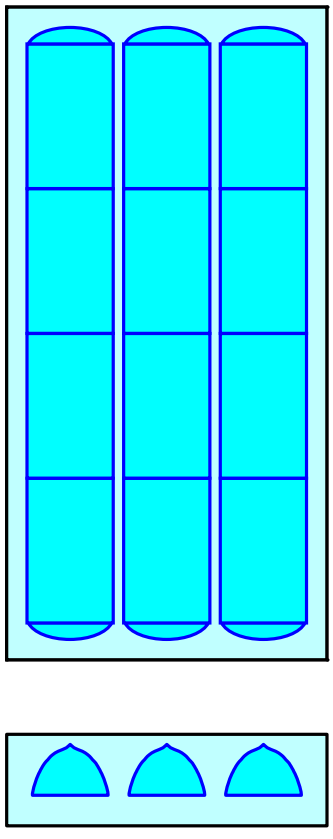
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

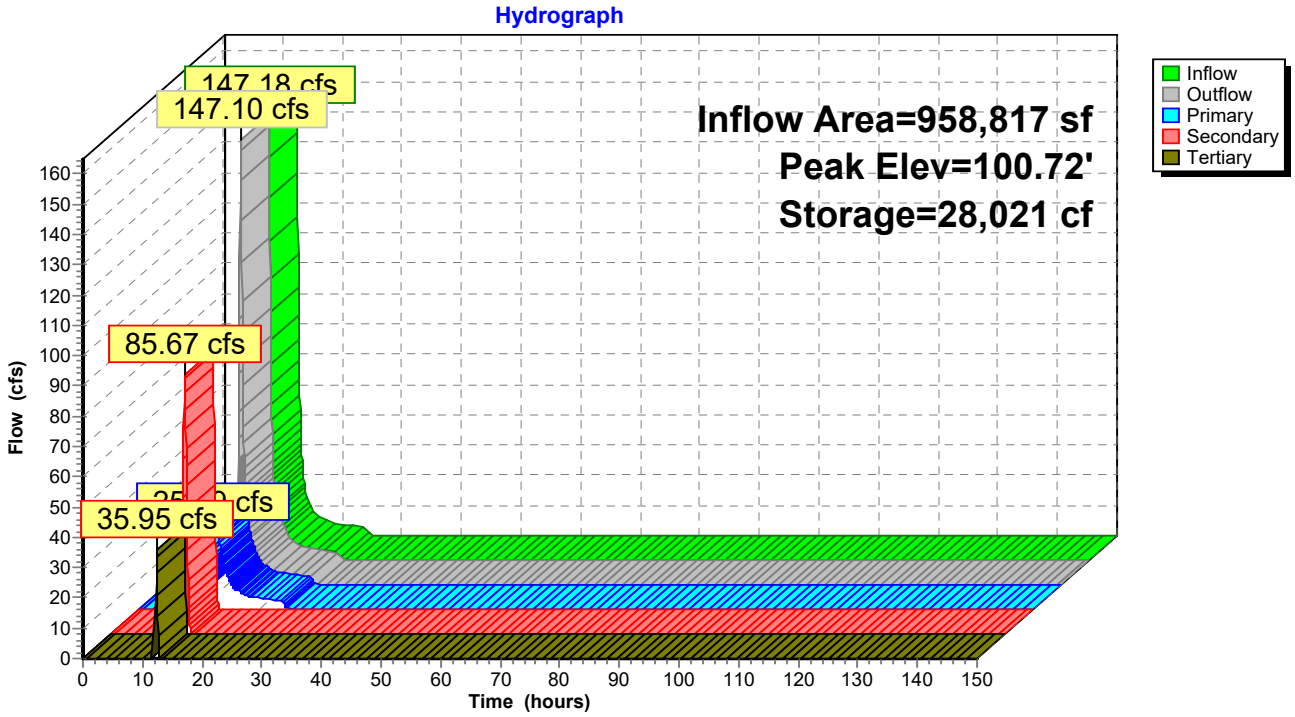
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af
Overall Storage Efficiency = 54.5%
Overall System Size = 32.10' x 15.75' x 4.50'

12 Chambers
84.3 cy Field
63.8 cy Stone



Pond 1P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)



Summary for Pond 2P: ROOF RG 750 SF

Assumes infiltration through media is non-limiting.

Inflow Area = 69,839 sf,100.00% Impervious, Inflow Depth = 11.91" for 100-Year _2100 event
Inflow = 20.20 cfs @ 12.13 hrs, Volume= 69,306 cf
Outflow = 15.06 cfs @ 12.20 hrs, Volume= 69,306 cf, Atten= 25%, Lag= 4.2 min
Discarded = 0.32 cfs @ 12.05 hrs, Volume= 41,853 cf
Primary = 14.74 cfs @ 12.20 hrs, Volume= 27,453 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Peak Elev= 100.19' @ 12.20 hrs Surf.Area= 27,750 sf Storage= 25,493 cf

Plug-Flow detention time= 397.4 min calculated for 69,283 cf (100% of inflow)
Center-of-Mass det. time= 397.7 min (1,134.9 - 737.1)

Volume	Invert	Avail.Storage	Storage Description
#1	98.25'	735 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
		735 cf	x 37.00 = 27,209 cf Total Available Storage

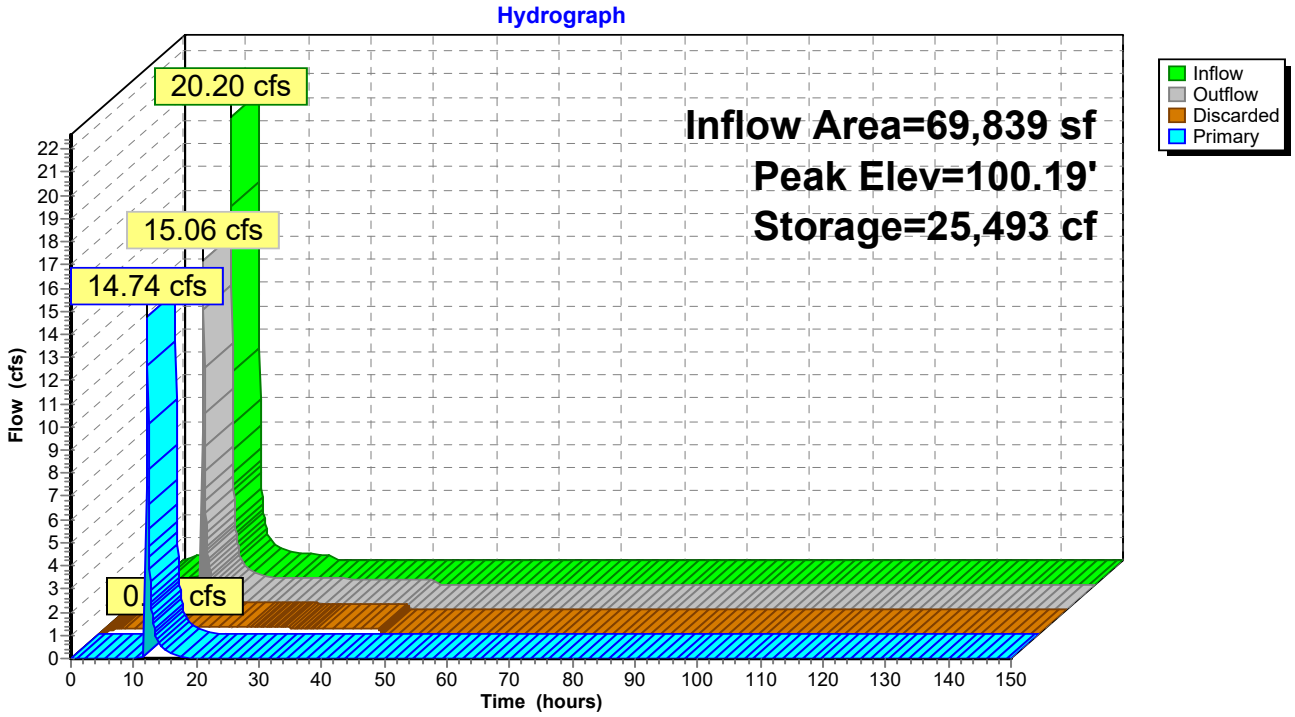
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
98.25	546	0.0	0	0	546
99.25	546	35.0	191	191	629
99.50	546	25.0	34	225	650
100.00	750	100.0	323	548	858
100.25	750	100.0	188	735	883

Device	Routing	Invert	Outlet Devices
#1	Discarded	98.25'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	100.00'	**2.0' long x 3.0' breadth Broad-Crested Rectangular Weir X 37.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.32 cfs @ 12.05 hrs HW=100.04' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.32 cfs)

Primary OutFlow Max=14.59 cfs @ 12.20 hrs HW=100.19' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 14.59 cfs @ 1.05 fps)

Pond 2P: ROOF RG 750 SF



Summary for Pond 3P: Basic Porous Pavement (infiltration only)

Inflow Area = 156,064 sf,100.00% Impervious, Inflow Depth = 11.91" for 100-Year _2100 event
Inflow = 45.14 cfs @ 12.13 hrs, Volume= 154,874 cf
Outflow = 28.69 cfs @ 12.22 hrs, Volume= 154,874 cf, Atten= 36%, Lag= 5.4 min
Discarded = 1.81 cfs @ 10.05 hrs, Volume= 113,354 cf
Primary = 26.88 cfs @ 12.22 hrs, Volume= 41,519 cf
Routed to Link 1L : Combined Flow

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs
Peak Elev= 100.07' @ 12.22 hrs Surf.Area= 156,064 sf Storage= 43,887 cf

Plug-Flow detention time= 105.4 min calculated for 154,822 cf (100% of inflow)
Center-of-Mass det. time= 105.3 min (842.5 - 737.1)

Volume	Invert	Avail.Storage	Storage Description
#1	99.25'	72,180 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

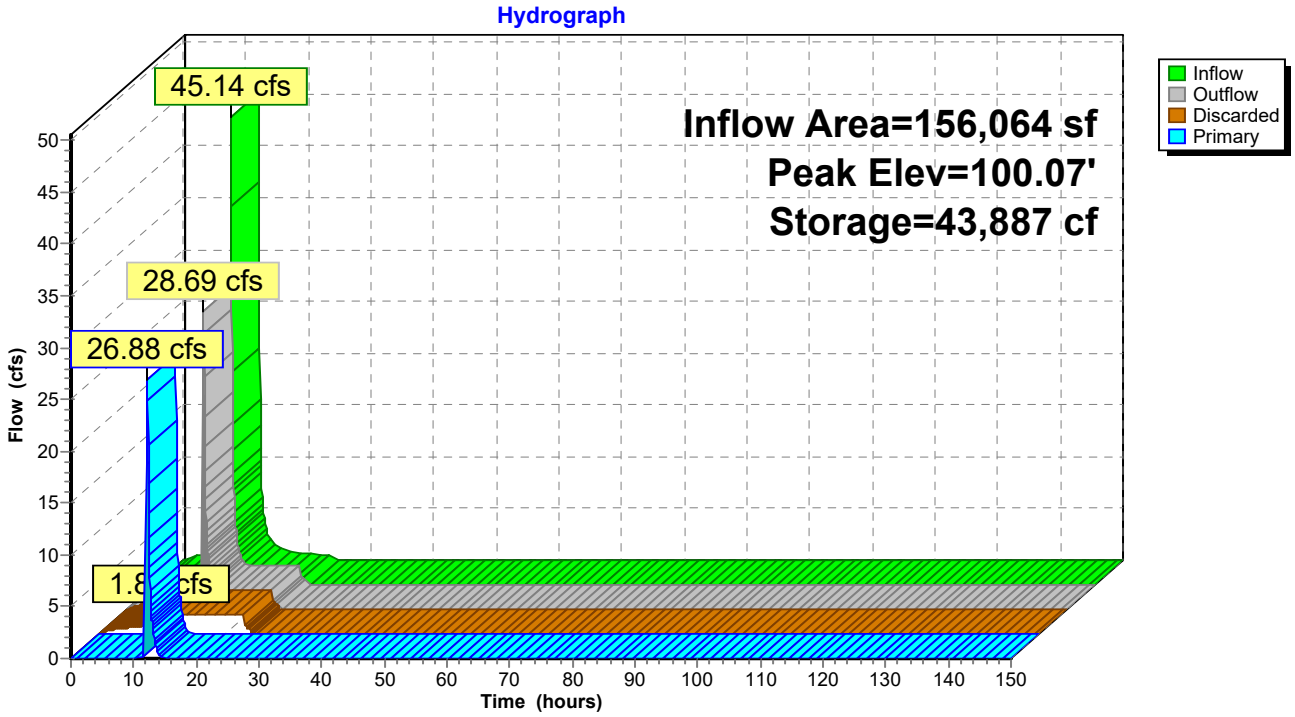
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.25	156,064	0.0	0	0
99.75	156,064	35.0	27,311	27,311
99.83	156,064	15.0	1,873	29,184
100.00	156,064	15.0	3,980	33,164
100.25	156,064	100.0	39,016	72,180

Device	Routing	Invert	Outlet Devices
#1	Discarded	99.25'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	100.00'	**15.0' long x 1.0' breadth Edge of Porous Asphalt X 37.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=1.81 cfs @ 10.05 hrs HW=99.26' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 1.81 cfs)

Primary OutFlow Max=25.82 cfs @ 12.22 hrs HW=100.07' (Free Discharge)
↑—**2=Edge of Porous Asphalt** (Weir Controls 25.82 cfs @ 0.70 fps)

Pond 3P: Basic Porous Pavement (infiltration only)



Summary for Pond 4P: Municipal Property Basin 2100

[63] Warning: Exceeded Reach 1R INLET depth by 2.13' @ 12.80 hrs

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 8.14" for 100-Year _2100 event
Inflow = 173.34 cfs @ 12.32 hrs, Volume= 803,525 cf
Outflow = 110.80 cfs @ 12.58 hrs, Volume= 795,104 cf, Atten= 36%, Lag= 15.7 min
Primary = 33.88 cfs @ 12.58 hrs, Volume= 550,508 cf
Routed to Reach 2R : OUTFLOW PIPE
Secondary = 60.36 cfs @ 12.58 hrs, Volume= 228,170 cf
Routed to Reach 2R : OUTFLOW PIPE
Tertiary = 16.56 cfs @ 12.58 hrs, Volume= 16,426 cf
Routed to Reach 2R : OUTFLOW PIPE

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 69.96' @ 12.58 hrs Surf.Area= 51,866 sf Storage= 211,253 cf

Plug-Flow detention time= 73.3 min calculated for 794,839 cf (99% of inflow)
Center-of-Mass det. time= 67.8 min (881.1 - 813.3)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	213,105 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	33,242	0	0
70.00	52,000	213,105	213,105

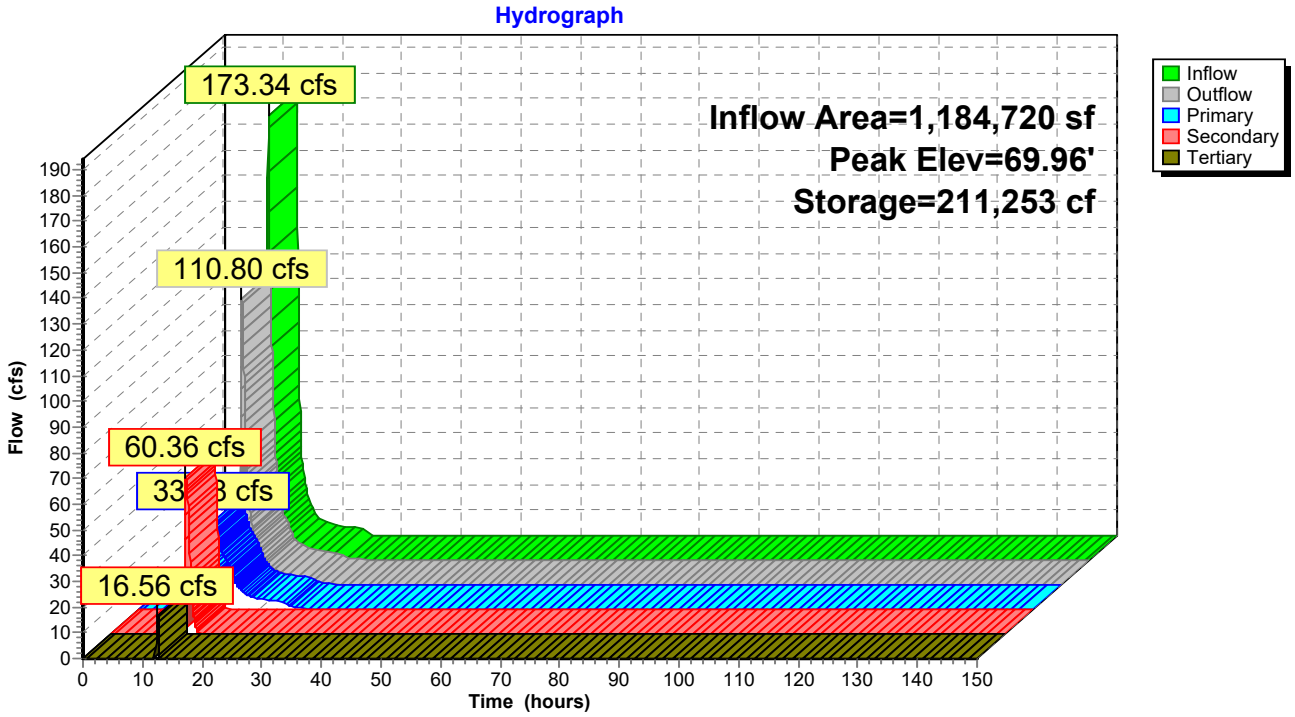
Device	Routing	Invert	Outlet Devices
#1	Primary	65.25'	**18.0" Vert. Low Flow Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	67.25'	**24.0" W x 18.0" H Vert. 2-YR Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Tertiary	69.50'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=33.86 cfs @ 12.58 hrs HW=69.96' (Free Discharge)
↑**1=Low Flow Orifice** (Orifice Controls 33.86 cfs @ 9.58 fps)

Secondary OutFlow Max=60.28 cfs @ 12.58 hrs HW=69.96' (Free Discharge)
↑**2=2-YR Orifice** (Orifice Controls 60.28 cfs @ 6.70 fps)

Tertiary OutFlow Max=16.31 cfs @ 12.58 hrs HW=69.96' (Free Discharge)
↑**3=Orifice/Grate** (Weir Controls 16.31 cfs @ 2.22 fps)

Pond 4P: Municipal Property Basin 2100

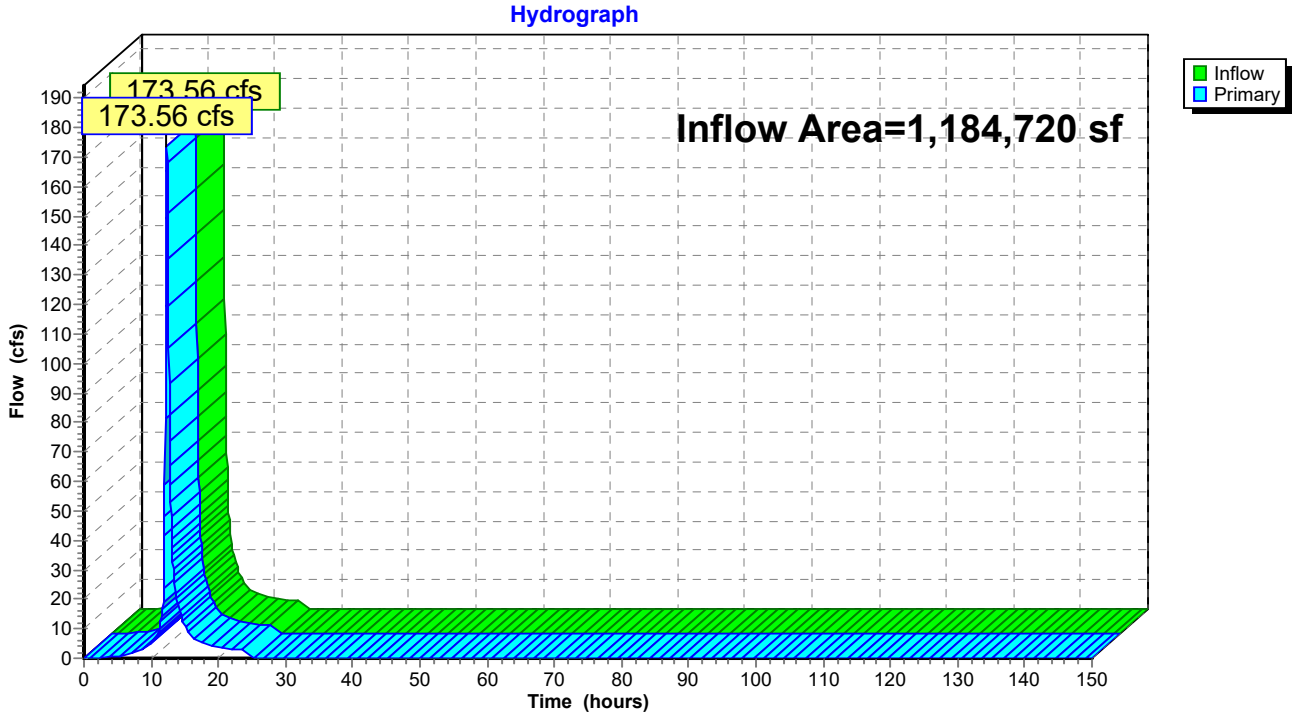


Summary for Link 1L: Combined Flow

Inflow Area = 1,184,720 sf, 30.92% Impervious, Inflow Depth = 8.14" for 100-Year _2100 event
Inflow = 173.56 cfs @ 12.32 hrs, Volume= 803,463 cf
Primary = 173.56 cfs @ 12.32 hrs, Volume= 803,463 cf, Atten= 0%, Lag= 0.0 min
Routed to Reach 1R : INLET PIPE

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs

Link 1L: Combined Flow



Summary for Link 2L: Offsite Flows

Inflow Area = 1,327,113 sf, 10.64% Impervious, Inflow Depth = 8.67" for 100-Year _2100 event
Inflow = 199.60 cfs @ 12.32 hrs, Volume= 958,389 cf
Primary = 199.60 cfs @ 12.32 hrs, Volume= 958,389 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.05 hrs

Link 2L: Offsite Flows