

20240629_PartridgeFarmRd_HCAD_BASINS

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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 6613 NJ Morris-D Rainfall events imported from "NRCS-Rain.txt" for 6620 NJ Warren-C Rainfall events imported from "NRCS-Rain.txt" for 6617 NJ Somerset-C Rainfall events imported from "NRCS-Rain.txt" for 6638 NJ_Cur Somerset-C Rainfall events imported from "NRCS-Rain.txt" for 6659 NJ_2100 Somerset-C

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Printed 6/29/2024 Page 3

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

Rainfall Events Listing

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Area Listing (all nodes)

Area	CN	Description
(sq-ft)		(subcatchment-numbers)
318,193	98	(1Sb, 1Sc, 2Sb, 2Sc, 3Sb, 3Sc, 4Sb, 4Sc)
9,860	79	50-75% Grass cover, Fair, HSG C (3S, 3Sa)
3,296,358	74	>75% Grass cover, Good, HSG C (1S, 1Sa, 2S, 2Sa, 3S, 3Sa, 4S, 4Sa)
2	65	Brush, Good, HSG C (2S, 2Sa)
593,279	98	Impervious (1S, 1Sa, 2S, 2Sa, 3S, 3Sa, 4S)
787,424	73	Woods, Fair, HSG C (1S, 1Sa, 2S, 2Sa, 3S, 3Sa, 4S, 4Sa)
129,742	70	Woods, Good, HSG C (1S, 1Sa, 3S, 3Sa)
13,246	72	Woods/grass comb., Good, HSG C (2S, 2Sa, 4S, 4Sa)
5,148,104	78	TOTAL AREA

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Soil Listing (all nodes)

Area	Soil	Subcatchment
(sq-ft)	Group	Numbers
0	HSG A	
0	HSG B	
4,236,632	HSG C	1S, 1Sa, 2S, 2Sa, 3S, 3Sa, 4S, 4Sa
0	HSG D	
911,472	Other	1S, 1Sa, 1Sb, 1Sc, 2S, 2Sa, 2Sb, 2Sc, 3S, 3Sa, 3Sb, 3Sc, 4S, 4Sb, 4Sc
5,148,104		TOTAL AREA

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				,		
HSG-A	HSG-B	HSG-C	HSG-D	Other	Total	Ground
(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	Cover
0	0	0	0	318,193	318,193	
0	0	9,860	0	0	9,860	50-75% Grass cover, Fair
0	0	3,296,358	0	0	3,296,358	>75% Grass cover, Good
0	0	2	0	0	2	Brush, Good
0	0	0	0	593,279	593,279	Impervious
0	0	787,424	0	0	787,424	Woods, Fair
0	0	129,742	0	0	129,742	Woods, Good
0	0	13,246	0	0	13,246	Woods/grass comb., Good
0	0	4,236,632	0	911,472	5,148,104	TOTAL AREA

Ground Covers (all nodes)

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Printed 6/29/2024 Page 7

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	1Ri	75.00	74.00	100.0	0.0100	0.013	0.0	48.0	0.0
2	1Ro	70.75	66.00	925.0	0.0051	0.013	0.0	30.0	0.0
3	2Ri	70.00	69.00	100.0	0.0100	0.013	0.0	48.0	0.0
4	2Ro	65.75	63.50	190.0	0.0118	0.013	0.0	42.0	0.0
5	1P	94.17	94.12	10.0	0.0050	0.020	0.0	6.0	0.0
6	1P	94.33	94.17	32.0	0.0050	0.020	0.0	6.0	0.0
7	5P	94.17	94.12	10.0	0.0050	0.020	0.0	6.0	0.0
8	5P	94.33	94.17	32.0	0.0050	0.020	0.0	6.0	0.0
9	9P	94.17	94.12	10.0	0.0050	0.020	0.0	6.0	0.0
10	9P	94.33	94.17	32.0	0.0050	0.020	0.0	6.0	0.0

Pipe Listing (all nodes)

20240629_PartridgeFarmRd_HCAD_BASINSNOAA 24-hr C 2-Year_	Current Rainfall=3.34"
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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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

Subcatchment1S: DA 1: CN w/ IC areas	Runoff Area=549,495 sf 18.28% Impervious Runoff Depth=1.49" Tc=19.8 min CN=74/98 Runoff=14.85 cfs 68,325 cf
Subcatchment1Sa: DA 1: CN w/ IC areas	Runoff Area=492,891 sf 8.90% Impervious Runoff Depth=1.31" Tc=19.8 min CN=74/98 Runoff=11.82 cfs 53,669 cf
Subcatchment1Sb: DA 1: Roofs	Runoff Area=21,359 sf 100.00% Impervious Runoff Depth=3.11" Tc=6.0 min CN=0/98 Runoff=1.68 cfs 5,530 cf
Subcatchment1Sc: DA1: Driveways	Runoff Area=35,245 sf 100.00% Impervious Runoff Depth=3.11" Tc=6.0 min CN=0/98 Runoff=2.77 cfs 9,125 cf
Subcatchment 2S: DA 2: CN w/ IC areas	Runoff Area=908,125 sf 25.71% Impervious Runoff Depth=1.64" Tc=21.8 min CN=74/98 Runoff=25.56 cfs 124,024 cf
Subcatchment2Sa: DA 2: CN w/ IC areas	Runoff Area=759,404 sf 11.16% Impervious Runoff Depth=1.35" Tc=21.8 min CN=74/98 Runoff=17.87 cfs 85,518 cf
Subcatchment2Sb: DA 2: Roofs	Runoff Area=53,997 sf 100.00% Impervious Runoff Depth=3.11" Tc=6.0 min CN=0/98 Runoff=4.25 cfs 13,981 cf
Subcatchment2Sc: DA 2: Driveways	Runoff Area=94,724 sf 100.00% Impervious Runoff Depth=3.11" Tc=6.0 min CN=0/98 Runoff=7.45 cfs 24,526 cf
Subcatchment3S: DA 3: CN w/ IC areas	Runoff Area=947,660 sf 12.29% Impervious Runoff Depth=1.37" Tc=27.9 min CN=74/98 Runoff=20.05 cfs 108,488 cf
Subcatchment3Sa: DA 3: CN w/ IC areas	Runoff Area=840,092 sf 1.06% Impervious Runoff Depth=1.15" Tc=27.9 min CN=74/98 Runoff=15.16 cfs 80,637 cf
Subcatchment3Sb: DA 3: Roofs	Runoff Area=22,074 sf 100.00% Impervious Runoff Depth=3.11" Tc=6.0 min CN=0/98 Runoff=1.74 cfs 5,715 cf
Subcatchment3Sc: DA 3: Driveways	Runoff Area=85,494 sf 100.00% Impervious Runoff Depth=3.11" Tc=6.0 min CN=0/98 Runoff=6.73 cfs 22,136 cf
Subcatchment4S: DA 4: CN w/ IC areas	Runoff Area=168,772 sf 3.14% Impervious Runoff Depth=1.19" Tc=24.4 min CN=74/98 Runoff=3.37 cfs 16,777 cf
Subcatchment4Sa: DA 4: CN w/ IC areas	Runoff Area=163,472 sf 0.00% Impervious Runoff Depth=1.13" Tc=24.4 min CN=74/0 Runoff=3.11 cfs 15,405 cf
Subcatchment4Sb: DA 4: Roofs	Runoff Area=695 sf 100.00% Impervious Runoff Depth=3.11" Tc=6.0 min CN=0/98 Runoff=0.05 cfs 180 cf
Subcatchment4Sc: DA 4: Driveways	Runoff Area=4,605 sf 100.00% Impervious Runoff Depth=3.11" Tc=6.0 min CN=0/98 Runoff=0.36 cfs 1,192 cf

Reach 1Ri: Inlet Pipe Avg. Flow Depth=0.62' Max Vel=6.04 fps Inflow=7.54 cfs 52,607 cf 48.0" Round Pipe n=0.013 L=100.0' S=0.0100 '/' Capacity=143.64 cfs Outflow=7.52 cfs 52,607 cf
Reach 1Ro: outlet Avg. Flow Depth=0.42' Max Vel=3.33 fps Inflow=1.83 cfs 45,416 cf 30.0" Round Pipe n=0.013 L=925.0' S=0.0051 '/' Capacity=29.39 cfs Outflow=1.83 cfs 45,405 cf
Reach 2Ri: Inlet Pipe Avg. Flow Depth=0.77' Max Vel=6.89 fps Inflow=11.77 cfs 84,357 cf 48.0" Round Pipe n=0.013 L=100.0' S=0.0100 '/' Capacity=143.64 cfs Outflow=11.72 cfs 84,355 cf
Reach 2Ro: Outlet Avg. Flow Depth=0.63' Max Vel=6.60 fps Inflow=7.84 cfs 79,538 cf 42.0" Round Pipe n=0.013 L=190.0' S=0.0118 '/' Capacity=109.48 cfs Outflow=7.83 cfs 79,538 cf
Pond 1P: Basic Rain Garden (w/ underdrain Peak Elev=96.79' Storage=7,858 cf Inflow=11.82 cfs 53,669 cf Primary=7.54 cfs 52,607 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=7.54 cfs 52,607 cf
Pond 2P: Basic Rain Garden (infiltration only) Peak Elev=99.87' Storage=3,114 cf Inflow=1.68 cfs 5,530 cf Discarded=0.05 cfs 5,530 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 5,530 cf
Pond 3P: Basic Porous Pavement (infiltration Peak Elev=99.46' Storage=2,574 cf Inflow=2.77 cfs 9,125 cf Discarded=0.41 cfs 9,127 cf Primary=0.00 cfs 0 cf Outflow=0.41 cfs 9,127 cf
Pond 4P: Basin 1 Medium CasePeak Elev=74.99' Storage=26,760 cfInflow=7.52 cfs52,607 cfPrimary=1.83 cfs45,416 cfSecondary=0.00 cfs0 cfTertiary=0.00 cfs0 cfOutflow=1.83 cfs45,416 cf
Pond 5P: Basic Rain Garden (w/ Peak Elev=98.85' Storage=13,081 cf Inflow=17.87 cfs 85,518 cf Primary=11.77 cfs 84,357 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=11.77 cfs 84,357 cf
Pond 6P: Basic Rain Garden (infiltration Peak Elev=99.88' Storage=7,894 cf Inflow=4.25 cfs 13,981 cf Discarded=0.14 cfs 13,981 cf Primary=0.00 cfs 0 cf Outflow=0.14 cfs 13,981 cf
Pond 7P: Basic Porous Pavement Peak Elev=99.46' Storage=6,919 cf Inflow=7.45 cfs 24,526 cf Discarded=1.10 cfs 24,526 cf Primary=0.00 cfs 0 cf Outflow=1.10 cfs 24,526 cf
Pond 8P: Basin 2 Medium Case Peak Elev=70.20' Storage=24,451 cf Inflow=11.72 cfs 84,355 cf Primary=7.84 cfs 79,538 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=7.84 cfs 79,538 cf
Pond 9P: Basic Rain Garden (w/ Peak Elev=100.69' Storage=3,104 cf Inflow=15.16 cfs 80,637 cf Primary=2.83 cfs 53,566 cf Secondary=9.01 cfs 22,976 cf Tertiary=3.32 cfs 3,882 cf Outflow=15.15 cfs 80,425 cf
Pond 10P: Basic Rain Garden (infiltration Peak Elev=99.99' Storage=3,323 cf Inflow=1.74 cfs 5,715 cf Discarded=0.05 cfs 5,715 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 5,715 cf
Pond 11P: Basic Porous PavementPeak Elev=99.46' Storage=6,245 cfInflow=6.73 cfs22,136 cfDiscarded=0.99 cfs22,136 cfPrimary=0.00 cfs0 cfOutflow=0.99 cfs22,136 cf
Pond 12P: Basic Porous Pavement (infiltration Peak Elev=99.46' Storage=343 cf Inflow=0.36 cfs 1,192 cf Discarded=0.05 cfs 1,192 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 1,192 cf
Link 1L: Combined Flows Inflow=7.54 cfs 52,607 cf Primary=7.54 cfs 52,607 cf
Link 21 - Combined Flows

Inflow=11.77 cfs 84,357 cf Primary=11.77 cfs 84,357 cf

Link 2L: Combined Flows

Link 3L: dA3

Inflow=15.15 cfs 80,425 cf Primary=15.15 cfs 80,425 cf

Link 4L: DA 4: Combined Flows

Inflow=3.13 cfs 15,584 cf Primary=3.13 cfs 15,584 cf

Total Runoff Area = 5,148,104 sf Runoff Volume = 635,227 cf Average Runoff Depth = 1.48" 82.29% Pervious = 4,236,632 sf 17.71% Impervious = 911,472 sf

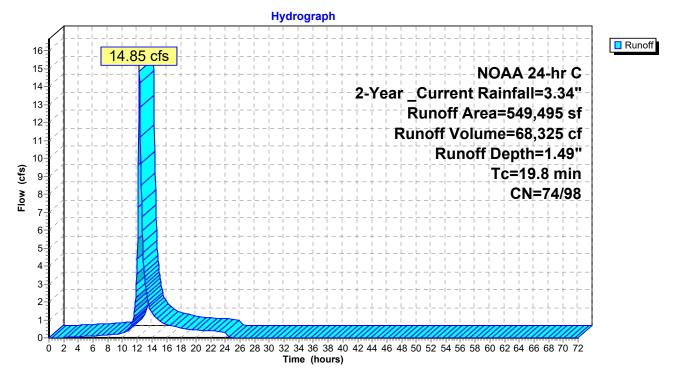
Summary for Subcatchment 1S: DA 1: CN w/ IC areas

Runoff = 14.85 cfs @ 12.30 hrs, Volume= 68,325 cf, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _Current Rainfall=3.34"

	Area (sf)	CN	Description					
*	100,459	98	Impervious					
	317,162	74	>75% Grass cover, Good, HSG C					
	131,575	73	Woods, Fair, HSG C					
	299	70	Woods, Good, HSG C					
	549,495	78	Weighted Average					
	449,036	74	81.72% Pervious Area					
	100,459	98	18.28% Impervious Area					
_	Tc Length	Slop						
(r	nin) (feet)	(ft/	ft) (ft/sec) (cfs)					
1	19.8		Direct Entry, Direct					

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



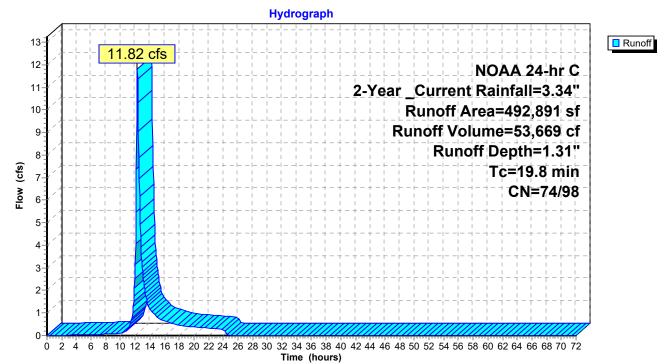
Summary for Subcatchment 1Sa: DA 1: CN w/ IC areas

Runoff = 11.82 cfs @ 12.30 hrs, Volume= 53,669 cf, Depth= 1.31" 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _Current Rainfall=3.34"

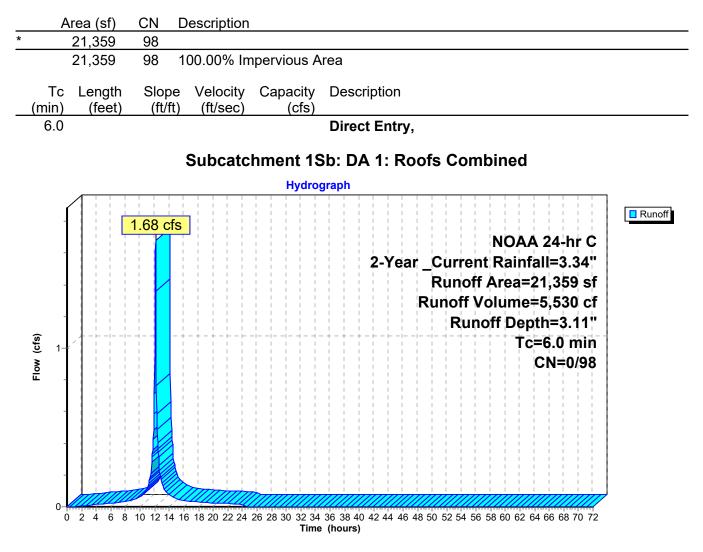
	Area (sf)	CN	Description	Description					
*	43,855	98	Impervious						
	317,162	74	>75% Gras	s cover, Go	bod, HSG C				
	131,575	73	Woods, Fai	r, HSG C					
	299	70	Woods, Go	od, HSG C					
	492,891	76	Weighted A	verage					
	449,036	74	91.10% Per	vious Area					
	43,855	98	8.90% Impe	ervious Are	а				
	T . 1			0	D a substant				
	Tc Length			Capacity	Description				
(m	in) (feet)	(ft/	ft) (ft/sec)	(cfs)					
19	9.8				Direct Entry, Direct				

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



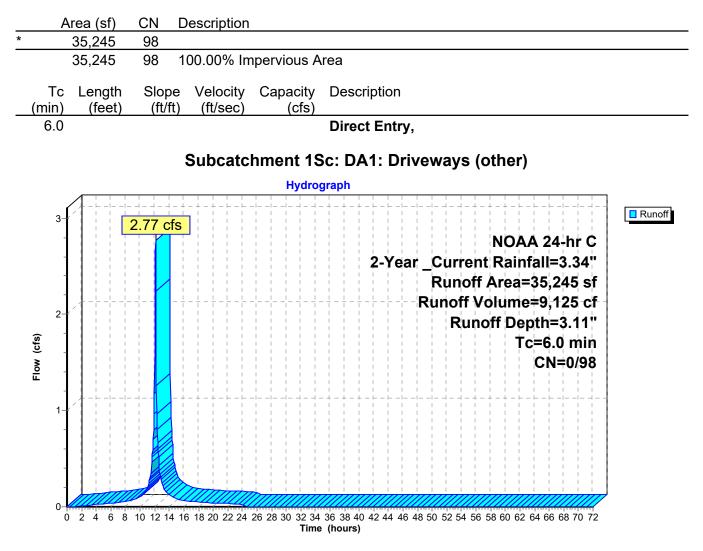
Summary for Subcatchment 1Sb: DA 1: Roofs Combined

Runoff = 1.68 cfs @ 12.13 hrs, Volume= 5,530 cf, Depth= 3.11" Routed to Pond 2P : Basic Rain Garden (infiltration only)



Summary for Subcatchment 1Sc: DA1: Driveways (other)

Runoff = 2.77 cfs @ 12.13 hrs, Volume= 9,125 cf, Depth= 3.11" Routed to Pond 3P : Basic Porous Pavement (infiltration only)



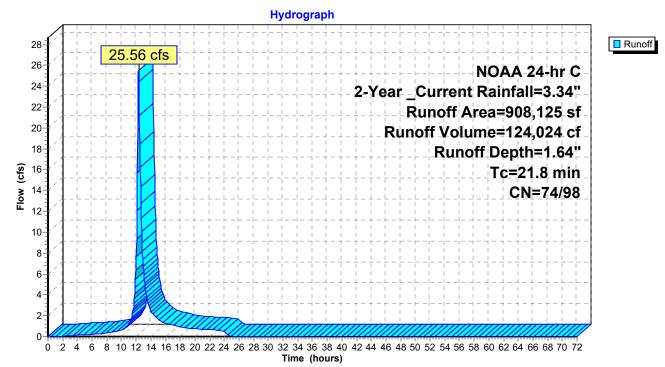
Summary for Subcatchment 2S: DA 2: CN w/ IC areas

Runoff = 25.56 cfs @ 12.32 hrs, Volume= 124,024 cf, Depth= 1.64"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _Current Rainfall=3.34"

	Area (sf)	CN	Description					
*	233,471	98	Impervious	mpervious				
	1	65	Brush, Goo	d, HSG C				
	620,871	74	>75% Gras	s cover, Go	ood, HSG C			
	1,845	72	Woods/gras	ss comb., G	Good, HSG C			
	51,937	73	Woods, Fai	r, HSG C				
	908,125	80	Weighted Average					
	674,654	74	74.29% Per	vious Area	3			
	233,471	98	25.71% Imp	pervious Ar	rea			
				_				
	Tc Length			Capacity				
(n	nin) (feet)) (ft/	ft) (ft/sec)	(cfs)				
2	1.8				Direct Entry, Direct			

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



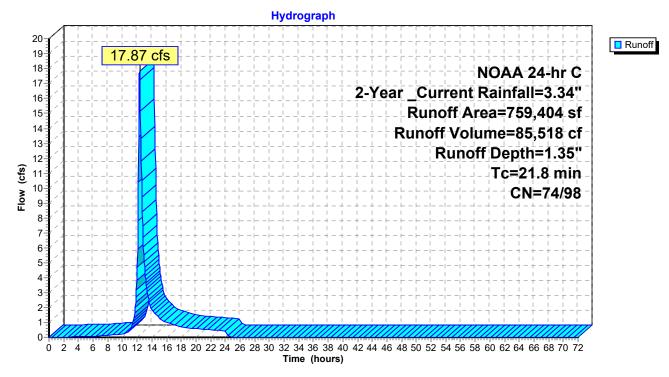
Summary for Subcatchment 2Sa: DA 2: CN w/ IC areas

Runoff = 17.87 cfs @ 12.33 hrs, Volume= 85,518 cf, Depth= 1.35" Routed to Pond 5P : 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _Current Rainfall=3.34"

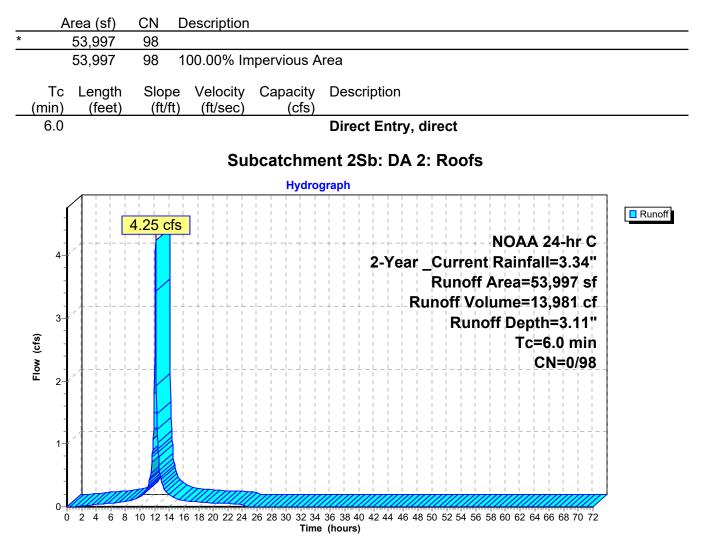
	Area (sf)	CN	Description				
*	84,750	98	npervious				
	1	65	Brush, Good, HSG C				
	620,871	74	>75% Grass cover, Good, HSG C				
	1,845	72	Woods/grass comb., Good, HSG C				
	51,937	73	Woods, Fair, HSG C				
	759,404	77	Weighted Average				
	674,654	74	88.84% Pervious Area				
	84,750	94,750 98 11.16% Impervious Area					
(r	Tc Length nin) (feet)	Slop (ft/					
2	21.8		Direct Entry, Direct				

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



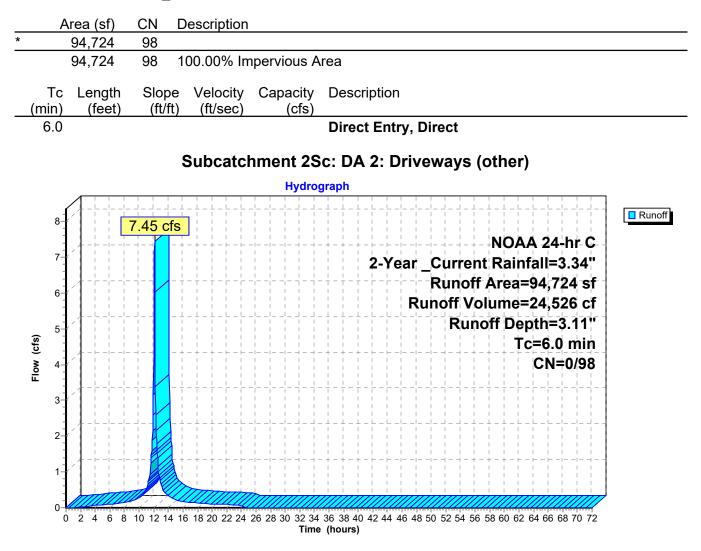
Summary for Subcatchment 2Sb: DA 2: Roofs

Runoff = 4.25 cfs @ 12.13 hrs, Volume= 13,981 cf, Depth= 3.11" Routed to Pond 6P : Basic Rain Garden (infiltration only)



Summary for Subcatchment 2Sc: DA 2: Driveways (other)

Runoff = 7.45 cfs @ 12.13 hrs, Volume= 24,526 cf, Depth= 3.11" Routed to Pond 7P : Basic Porous Pavement (infiltration only)



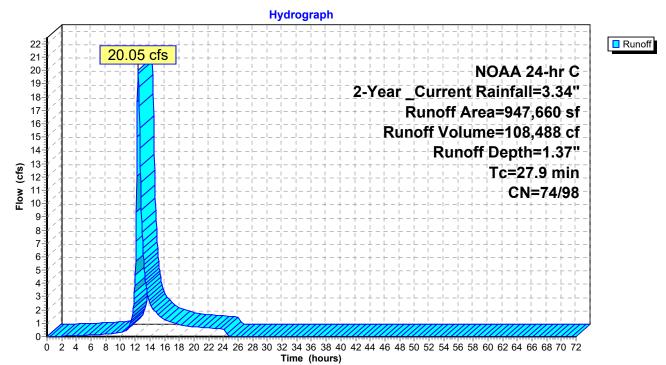
Summary for Subcatchment 3S: DA 3: CN w/ IC areas

Runoff = 20.05 cfs @ 12.41 hrs, Volume= 108,488 cf, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _Current Rainfall=3.34"

_	Area (sf)	CN	Description					
*	116,506	98	Impervious	npervious				
	4,930	79	50-75% Grass cover, Fair, HSG C					
	592,347	74	>75% Grass cover, Good, HSG C					
	169,305	73	Woods, Fair, HSG C					
	64,572	70	Woods, Good, HSG C					
	947,660	77	Weighted Average					
	831,154	74	87.71% Pervious Area					
	116,506	98	12.29% Impervious Area					
	Tc Length	Slop						
	(min) (feet)	(ft/	(ft) (ft/sec) (cfs)					
	27.9		Direct Entry, direct					

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



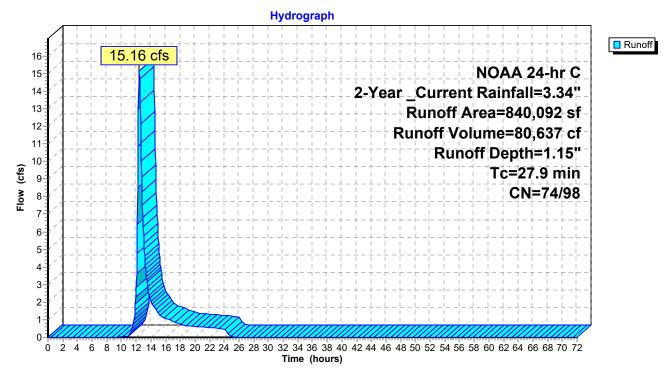
Summary for Subcatchment 3Sa: DA 3: CN w/ IC areas

Runoff = 15.16 cfs @ 12.42 hrs, Volume= 80,637 cf, Depth= 1.15" Routed to Pond 9P : 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _Current Rainfall=3.34"

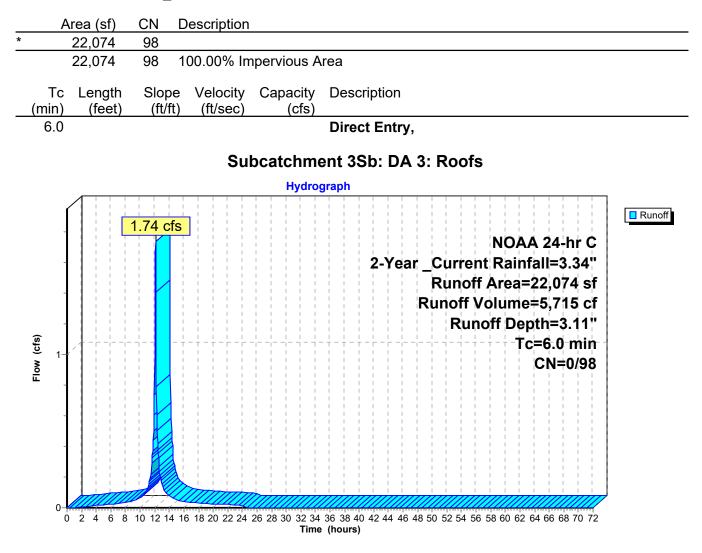
	Area (sf)	CN	Description				
*	8,938	98	npervious				
	4,930	79	50-75% Grass cover, Fair, HSG C				
	592,347	74	>75% Grass cover, Good, HSG C				
	169,305	73	Woods, Fair, HSG C				
	64,572	70 Woods, Good, HSG C					
840,092 74 Weighted Average			Weighted Average				
831,154 74 98.94% Pervious Area			98.94% Pervious Area				
8,938 98 1.06% Impervious Area			1.06% Impervious Area				
_(m	Tc Length nin) (feet)	Slop (ft/					
2	7.9		Direct Entry, direct				

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



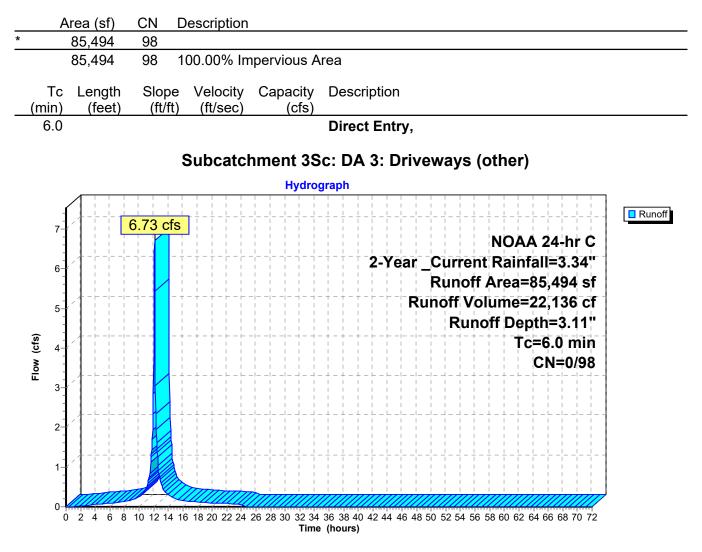
Summary for Subcatchment 3Sb: DA 3: Roofs

Runoff = 1.74 cfs @ 12.13 hrs, Volume= 5,715 cf, Depth= 3.11" Routed to Pond 10P : Basic Rain Garden (infiltration only)



Summary for Subcatchment 3Sc: DA 3: Driveways (other)

Runoff = 6.73 cfs @ 12.13 hrs, Volume= 22,136 cf, Depth= 3.11" Routed to Pond 11P : Basic Porous Pavement (infiltration only)



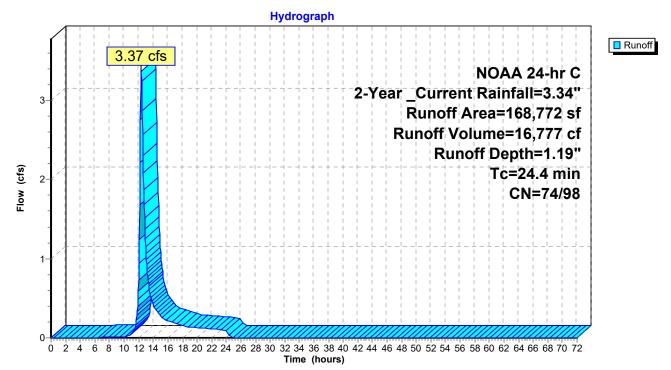
Summary for Subcatchment 4S: DA 4: CN w/ IC areas

Runoff = 3.37 cfs @ 12.37 hrs, Volume= 16,777 cf, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _Current Rainfall=3.34"

	Area (sf)	CN	Description					
*	5,300	98	Impervious	mpervious				
	117,799	74	>75% Gras	s cover, Go	ood, HSG C			
	4,778	72	Woods/gras	ss comb., G	Good, HSG C			
	40,895	73	Woods, Fai	r, HSG C				
	168,772	74	Weighted A	verage				
	163,472 74 96.86% Pervious Area				a			
	5,300	98	3.14% Impe	ervious Are	a			
	Tc Length			Capacity	Description			
<u>(m</u>	iin) (feet)) (ft/	ft) (ft/sec)	(cfs)				
24	4.4				Direct Entry, Direct			

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



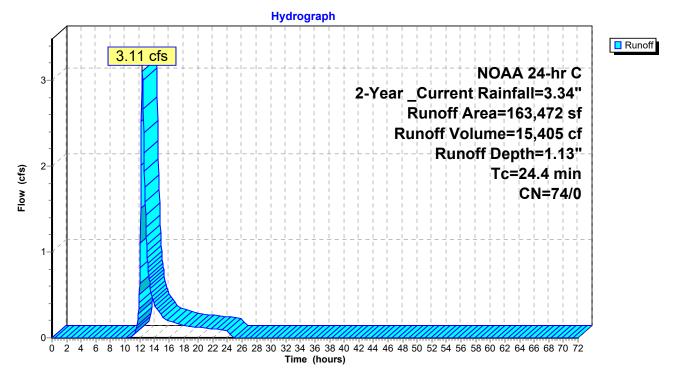
Summary for Subcatchment 4Sa: DA 4: CN w/ IC areas

Runoff = 3.11 cfs @ 12.37 hrs, Volume= 15,405 cf, Depth= 1.13" Routed to Link 4L : DA 4: Combined Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _Current Rainfall=3.34"

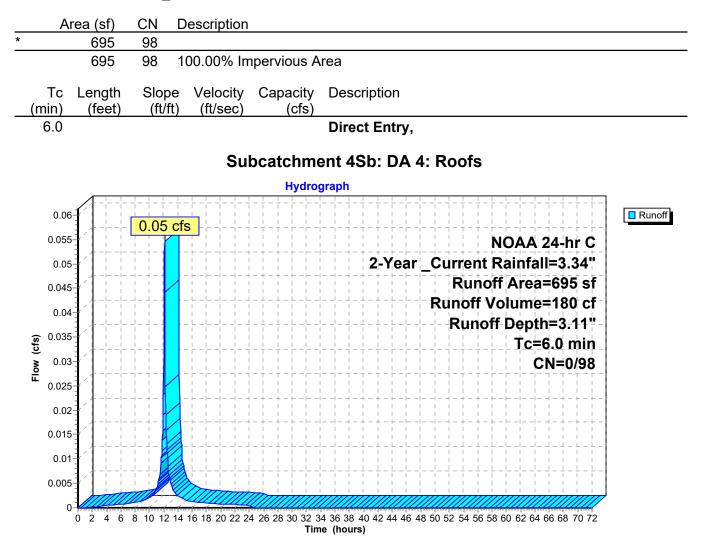
	Area (sf)	CN	Description					
*	0	98	Impervious	Impervious				
	117,799	74	>75% Grass	cover, Go	bod, HSG C			
	4,778	72	Woods/grass	s comb., G	Good, HSG C			
	40,895	73	Woods, Fair,	HSG C				
	163,472	74	Weighted Average					
	163,472	74	100.00% Per	rvious Are	a			
To (min)	5	Slop (ft/f		Capacity (cfs)	Description			
24.4					Direct Entry, Direct			

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



Summary for Subcatchment 4Sb: DA 4: Roofs

Runoff = 0.05 cfs @ 12.13 hrs, Volume= Routed to Link 4L : DA 4: Combined Flows 180 cf, Depth= 3.11"



Summary for Subcatchment 4Sc: DA 4: Driveways (other)

Runoff = 0.36 cfs @ 12.13 hrs, Volume= 1,192 cf, Depth= 3.11" Routed to Pond 12P : Basic Porous Pavement (infiltration only)

Area (sf) CN Descriptior	1	
4,605 98		
4,605 98 100.00% lr	mpervious Area	
Tc Length Slope Velocity (min) (feet) (ft/ft) (ft/sec)	Capacity Description (cfs)	
6.0	Direct Entry,	
Subcato	hment 4Sc: DA 4: Driveways (other)	
	Hydrograph	
0.4		Runoff
0.38 0.38 0.36 cfs		
0.36		
	2-Year _Current Rainfall=3.34"	
	Runoff Area=4,605 sf	
0.28		
0.26	Runoff Depth=3.11"	
3 0.24 1	Tc=6.0 min	
(\$) 0.22 0.22 0.22 0.22 0.2- 0.2- 0.2- 0.2-		
0.14		
0.12		
	+-+-+-+-+-+-++-+-+-+-+-+-+-	
0.02		

Summary for Reach 1Ri: Inlet Pipe

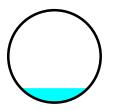
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 549,495 sf, 18.28% Impervious, Inflow Depth = 1.15" for 2-Year _Current event Inflow = 7.54 cfs @ 12.52 hrs, Volume= 52,607 cf Outflow = 7.52 cfs @ 12.53 hrs, Volume= 52,607 cf, Atten= 0%, Lag= 0.5 min Routed to Pond 4P : Basin 1 Medium Case

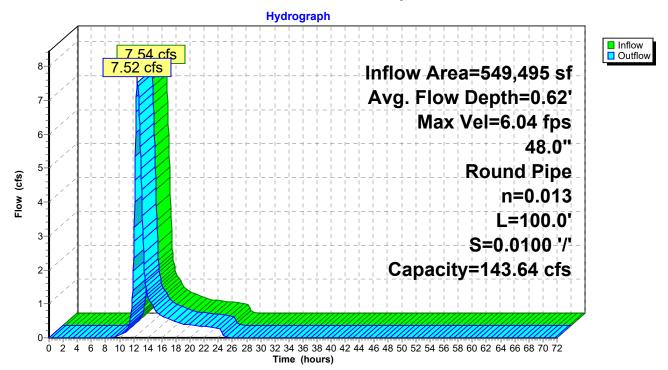
Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 6.04 fps, Min. Travel Time= 0.3 min Avg. Velocity = 2.38 fps, Avg. Travel Time= 0.7 min

Peak Storage= 125 cf @ 12.52 hrs Average Depth at Peak Storage= 0.62', Surface Width= 2.90' Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 143.64 cfs

48.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 100.0' Slope= 0.0100 '/' Inlet Invert= 75.00', Outlet Invert= 74.00'



Reach 1Ri: Inlet Pipe



Summary for Reach 1Ro: outlet

[52] Hint: Inlet/Outlet conditions not evaluated

 Inflow Area =
 549,495 sf, 18.28% Impervious, Inflow Depth > 0.99" for 2-Year _Current event

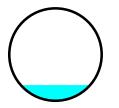
 Inflow =
 1.83 cfs @ 13.54 hrs, Volume=
 45,416 cf

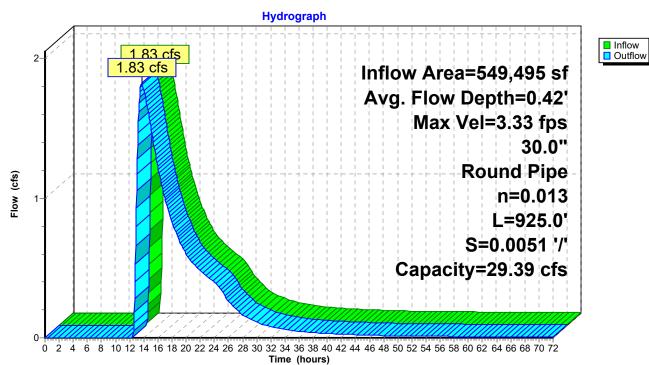
 Outflow =
 1.83 cfs @ 13.69 hrs, Volume=
 45,405 cf, Atten= 0%, Lag= 8.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Max. Velocity= 3.33 fps, Min. Travel Time= 4.6 min Avg. Velocity = 1.27 fps, Avg. Travel Time= 12.1 min

Peak Storage= 508 cf @ 13.61 hrs Average Depth at Peak Storage= 0.42', Surface Width= 1.87' Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 29.39 cfs

30.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 925.0' Slope= 0.0051 '/' Inlet Invert= 70.75', Outlet Invert= 66.00'





Reach 1Ro: outlet

Summary for Reach 2Ri: Inlet Pipe

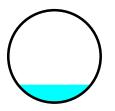
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 908,125 sf, 25.71% Impervious, Inflow Depth = 1.11" for 2-Year _Current event Inflow = 11.77 cfs @ 12.56 hrs, Volume= 84,357 cf Outflow = 11.72 cfs @ 12.56 hrs, Volume= 84,355 cf, Atten= 0%, Lag= 0.3 min Routed to Pond 8P : Basin 2 Medium Case

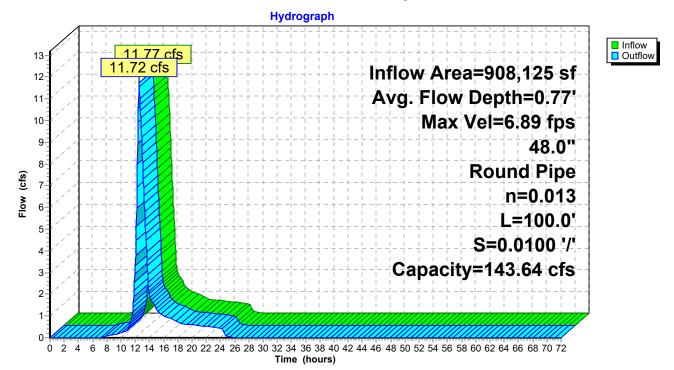
Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 6.89 fps, Min. Travel Time= 0.2 min Avg. Velocity = 2.68 fps, Avg. Travel Time= 0.6 min

Peak Storage= 170 cf @ 12.56 hrs Average Depth at Peak Storage= 0.77', Surface Width= 3.16' Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 143.64 cfs

48.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 100.0' Slope= 0.0100 '/' Inlet Invert= 70.00', Outlet Invert= 69.00'



Reach 2Ri: Inlet Pipe



Summary for Reach 2Ro: Outlet

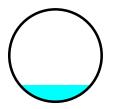
[52] Hint: Inlet/Outlet conditions not evaluated

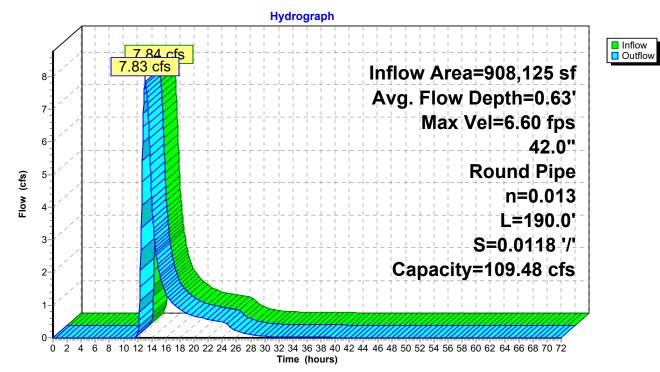
Inflow Are	a =	908,125 sf, 25.71% Impervious, Inflow Depth = 1.05" for 2-Year Current eve	nt
Inflow	=	7.84 cfs @ 13.08 hrs, Volume= 79,538 cf	
Outflow	=	7.83 cfs @ 13.09 hrs, Volume= 79,538 cf, Atten= 0%, Lag= 0.9 min	

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 6.60 fps, Min. Travel Time= 0.5 min Avg. Velocity = 1.69 fps, Avg. Travel Time= 1.9 min

Peak Storage= 226 cf @ 13.08 hrs Average Depth at Peak Storage= 0.63' , Surface Width= 2.70' Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 109.48 cfs

42.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 190.0' Slope= 0.0118 '/' Inlet Invert= 65.75', Outlet Invert= 63.50'





Reach 2Ro: Outlet

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

Inflow Area =	492,891 sf,	8.90% Impervious,	Inflow Depth = 1.31"	for 2-Year _Current event
Inflow =	11.82 cfs @ 1	12.30 hrs, Volume=	53,669 cf	_
Outflow =	7.54 cfs @ 1	12.52 hrs, Volume=	52,607 cf, Atte	n= 36%, Lag= 13.0 min
Primary =	7.54 cfs @ 1	12.52 hrs, Volume=	52,607 cf	
Routed to Link	(1L:Combined	Flows		
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	
Routed to Link	(1L:Combined	Flows		
		0.00 hrs, Volume=	0 cf	
Routed to Link	(1L: Combined	Flows		

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 96.79' @ 12.52 hrs Surf.Area= 4,550 sf Storage= 7,858 cf

Plug-Flow detention time= 32.4 min calculated for 52,570 cf (98% of inflow) Center-of-Mass det. time= 21.0 min (874.3 - 853.3)

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 = 0.00 = 15.635 cf. Total Available Storage

 $1,737 \text{ cf} \times 9.00 = 15,635 \text{ cf}$ Total Available Storage

Storage	Group A	created	with	Chamber	Wizard

Elevation (feet)		Surf.Area (sq-ft)	Void %)		Cum.Store (cubic-feet)	Wet.Area (sq-ft)		
97.7		175	0.	· · · · · ·	0	175		
98.2		175	35.		31	198		
99.2	25	175	35.) 61	92	245		
99.5		175	25.		103	257		
100.0		175	100.			281		
100.5		175	100.		280	304		
101.7	75	175	100.) 217	497	363		
Device	Routing	In	vert	Outlet Devices				
#1	Primary	94	.17'	6.0" Round Culve	ert X 9.00 L= 10.0'	Ke= 0.500		
	-			Inlet / Outlet Invert=	= 94.17' / 94.12' S	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 9.00 L= 32.0' Ke= 0.500				
				Inlet / Outlet Invert= 94.33' / 94.17' S= 0.0050 '/' Cc= 0.900				
	0	400		n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.20 sf				
#3	Seconda	ry 100	.00'	•		ted Rectangular Weir X 9.00		
				Aead (feet) 0.20 C	0.40 0.60 0.80 1.	00 1.20 1.40 1.60 1.80 2.00		
					54 2 61 2 61 2 60	2.66 2.70 2.77 2.89 2.88		
				2.85 3.07 3.20 3.		2.00 2.10 2.11 2.09 2.00		
				2.00 0.01 0.20 0.	02			

#4 Tertiary 100.50' 6.0' long Sharp-Crested Rectangular Weir X 9.00 2 End Contraction(s)

Primary OutFlow Max=7.53 cfs @ 12.52 hrs HW=96.78' (Free Discharge) 1=Culvert (Passes 7.53 cfs of 11.35 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 7.53 cfs @ 4.26 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_StormTechSC-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

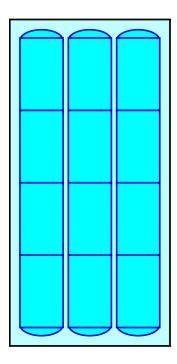
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

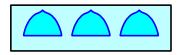
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

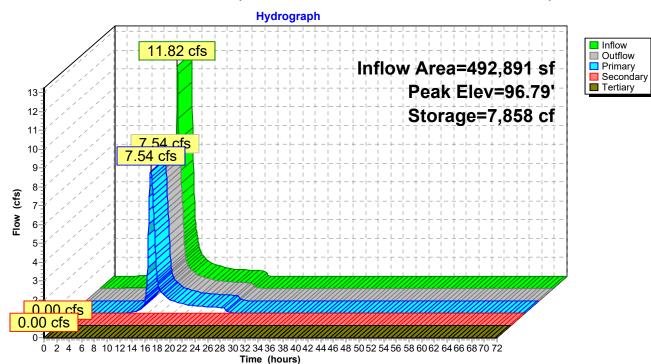
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

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

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: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	21,359 sf,100.00% Impervious,	Inflow Depth = 3.11" for 2-Year Current event				
Inflow =	1.68 cfs @ 12.13 hrs, Volume=	5,530 cf				
Outflow =	0.05 cfs @ 14.82 hrs, Volume=	5,530 cf, Atten= 97%, Lag= 161.8 min				
Discarded =	0.05 cfs @ 14.82 hrs, Volume=	5,530 cf				
Primary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf				
Routed to Link 1L : Combined Flows						

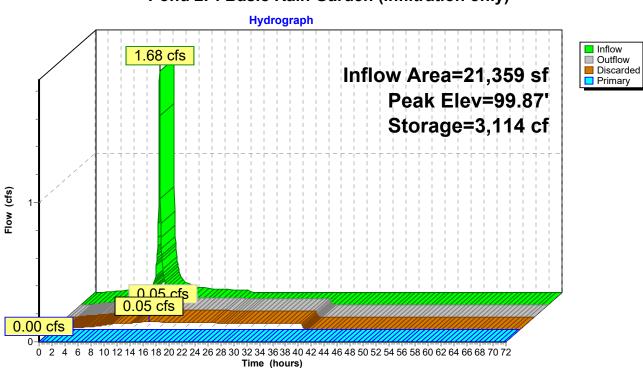
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.87' @ 14.82 hrs Surf.Area= 4,667 sf Storage= 3,114 cf

Plug-Flow detention time= 551.7 min calculated for 5,526 cf (100% of inflow) Center-of-Mass det. time= 552.0 min (1,308.6 - 756.6)

Volume	Invert	Ava	il.Storage	Storage Descrip	otion		
#1	98.25'		622 cf	Custom Stage	Custom Stage Data (Conic)Listed below (Recalc)		
			622 cf	x 10.00 = 6,22	20 cf Total Availab	le Storage	
Elevation (feet)			Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)		
98.25		374	0.0	0	0	374	
99.25	5	374	35.0	131	131	443	
99.50)	374	25.0	23	154	460	
100.00)	500	100.0	218	372	591	
100.25	5	500	100.0	125	497	611	
100.50		500 100.0		125	622	631	
#1	Routing Discarded Primary	98	0.25' 0.5 0.00' 2.0' Hea 2.50 Coe	' long x 3.0' brea ad (feet) 0.20 0.4 0 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2	rea d Rectangular Weir X 10.00 1.20 1.40 1.60 1.80 2.00 2.65 2.64 2.64 2.68 2.68	

Discarded OutFlow Max=0.05 cfs @ 14.82 hrs HW=99.87' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.05 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: Basic Rain Garden (infiltration only)

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

Inflow Area = 35,245 sf,100.00% Impervious, Inflow Depth = 3.11" for 2-Year Current event Inflow 2.77 cfs @ 12.13 hrs, Volume= 9.125 cf = 0.41 cfs @ 11.65 hrs, Volume= Outflow = 9,127 cf, Atten= 85%, Lag= 0.0 min 0.41 cfs @ 11.65 hrs, Volume= Discarded = 9,127 cf Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf Routed to Link 1L : Combined Flows

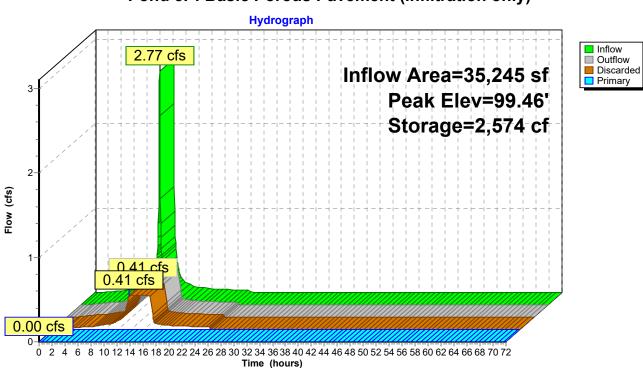
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 99.46' @ 12.62 hrs Surf.Area= 35,245 sf Storage= 2,574 cf

Plug-Flow detention time= 38.3 min calculated for 9,121 cf (100% of inflow) Center-of-Mass det. time= 38.4 min (795.1 - 756.6)

Volume	Invert	t Avail.	.Storage	Storage Descri	ption	
#1	99.25	' 1	6,001 cf	Custom Stage	Data (Prismatic)	Listed below (Recalc)
Elevatio (fee 99.2 99.7 99.8 100.0 100.2	et) 25 75 83 01	(sq-ft) 35,245 35,245 35,245 35,245 35,245	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 6,168 423 952 8,459	Cum.Store (cubic-feet) 0 6,168 6,591 7,542 16,001	
Device	Routing	Inv	vert Outle	et Devices		
#1 #2	Discarded Primary	99 <i>.1</i> 100.0	00' 15.0 Head 2.50 Coef	long x 1.0' bre d (feet) 0.20 0.4 3.00	40 0.60 0.80 1.0	area rous Asphalt X 76.00 0 1.20 1.40 1.60 1.80 2.00 2.98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=0.41 cfs @ 11.65 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.41 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: Basin 1 Medium Case

[62] Hint: Exceeded Reach 1Ri OUTLET depth by 0.71' @ 14.00 hrs

Inflow Area = 549,495 sf, 18.28% Impervious, Inflow Depth = 1.15" for 2-Year Current event 7.52 cfs @ 12.53 hrs, Volume= Inflow = 52,607 cf Outflow = 1.83 cfs @ 13.54 hrs, Volume= 45,416 cf, Atten= 76%, Lag= 60.8 min Primary = 1.83 cfs @ 13.54 hrs, Volume= 45,416 cf Routed to Reach 1Ro : outlet Secondary = 0.00 cfs @ 0.00 hrs. Volume= 0 cfRouted to Reach 1Ro : outlet Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf Routed to Reach 1Ro : outlet

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 74.99' @ 13.54 hrs Surf.Area= 28,370 sf Storage= 26,760 cf

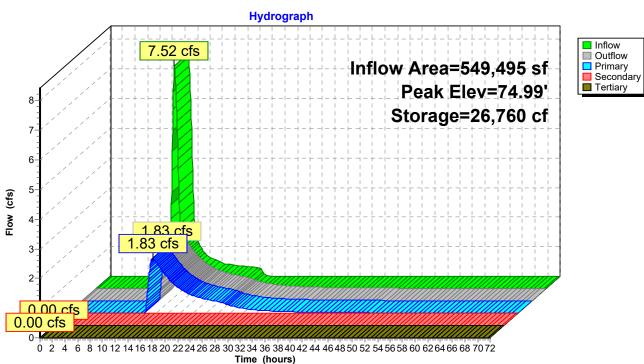
Plug-Flow detention time= 367.5 min calculated for 45,384 cf (86% of inflow) Center-of-Mass det. time= 303.7 min (1,178.7 - 875.0)

Volume	Invert	Avail.Stor	age Storage	Description	
#1	74.00'	162,84	0 cf Custom	i Stage Data (Pr	ismatic) Listed below (Recalc)
Elevatio (fee		Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
74.0	0 2	5,611	0	0	
79.0)0 3	9,525	162,840	162,840	
Device	Routing	Invert	Outlet Device	s	
#1	Primary	74.25'	12.0" Vert. Lo	ow Flow Orifice	C= 0.600
				ir flow at low hea	
#2	Secondary	76.25'			Orifice X 2.00 C= 0.600
	-	70 75		ir flow at low hea	
#3	Tertiary	78.75'		Horiz. Orifice/G ir flow at low hea	
			Linited to we	ii now at iow nea	105

Primary OutFlow Max=1.83 cfs @ 13.54 hrs HW=74.99' (Free Discharge) **1=Low Flow Orifice** (Orifice Controls 1.83 cfs @ 2.93 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=74.00' (Free Discharge) 2=2-YR Orifice (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=74.00' (Free Discharge) -3=Orifice/Grate (Controls 0.00 cfs)



Pond 4P: Basin 1 Medium Case

Summary for Pond 5P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Inflow Area =	759,404 sf, 11.16%	Impervious,	Inflow Depth = 1.35"	for 2-Year _Current event			
Inflow =	17.87 cfs @ 12.33 hrs	, Volume=	85,518 cf	_			
Outflow =	11.77 cfs @ 12.56 hrs	, Volume=	84,357 cf, Atte	n= 34%, Lag= 13.6 min			
Primary =	11.77 cfs @ 12.56 hrs	, Volume=	84,357 cf				
Routed to Link 2L : Combined Flows							
	0.00 cfs @ 0.00 hrs	, Volume=	0 cf				
Routed to Lin	k 2L : Combined Flows						
	0.00 cfs @ 0.00 hrs	, Volume=	0 cf				
Routed to Lin	k 2L : Combined Flows						

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 98.85' @ 12.56 hrs Surf.Area= 6,805 sf Storage= 13,081 cf

Plug-Flow detention time= 28.2 min calculated for 84,357 cf (99% of inflow) Center-of-Mass det. time= 19.9 min (870.3 - 850.3)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	365 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
		1 606 cf	x 10.00 - 16.060 cf. Total Available Storage

 $1,606 \text{ cf} \times 10.00 = 16,060 \text{ cf}$ Total Available Storage

Storage Group A created with Chamber Wizard

Elevatio (fee		Surf.Area (sq-ft)	Void %)		Cum.Store (cubic-feet)	Wet.Area (sq-ft)
97.7	1	<u>(34-11)</u> 175	0.	· · · ·	0	175
98.2		175	35.		31	198
99.2	-	175	35.		92	245
99.5	-	175	25.		103	257
100.0	00	175	100.	0 88	190	281
100.5	51	175	100.	0 89	280	304
101.0	00	175	100.	0 86	365	327
Device	Routing	In	vert	Outlet Devices		
#1	Primary	94	1.17'	6.0" Round Culve	rt X 10.00 L= 10.0)' Ke= 0.500
	,			Inlet / Outlet Invert=	94.17'/94.12' S	= 0.0050 '/' Cc= 0.900
				n= 0.020 Corrugate	ed PE, corrugated	interior, Flow Area= 0.20 sf
#2	Device 1	94	.33'	6.0" Round 6" HD	PE Underdrain X	10.00 L= 32.0' Ke= 0.500
						S= 0.0050 '/' Cc= 0.900
	- ·			0		interior, Flow Area= 0.20 sf
#3	Seconda	ry 100).00'	•		ted Rectangular Weir X 10.00
					.40 0.60 0.80 1.0	00 1.20 1.40 1.60 1.80 2.00
				2.50 3.00 3.50	1 2 61 2 61 2 60	266 270 277 280 288
				2.85 3.07 3.20 3.3		2.66 2.70 2.77 2.89 2.88
				2.00 0.07 0.20 0.0	<i>JL</i>	

#4 Tertiary 100.50' **6.0' long Sharp-Crested Rectangular Weir X 10.00** 2 End Contraction(s)

Primary OutFlow Max=11.74 cfs @ 12.56 hrs HW=98.83' (Free Discharge) 1=Culvert (Passes 11.74 cfs of 17.60 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 11.74 cfs @ 5.98 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 5P: 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

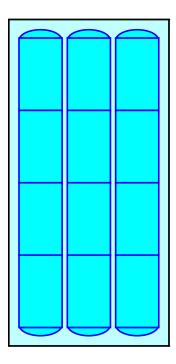
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

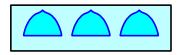
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

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

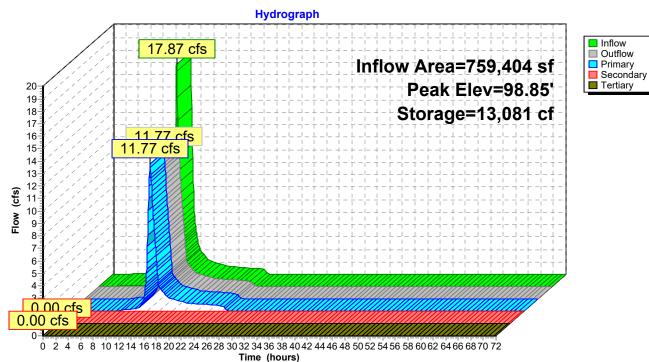
Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af Overall Storage Efficiency = 54.5%Overall System Size = $32.10' \times 15.75' \times 4.50'$

12 Chambers 84.3 cy Field 63.8 cy Stone









Summary for Pond 6P: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	53,997 sf,100.00% Impervious,	Inflow Depth = 3.11" for 2-Year Current event				
Inflow =	4.25 cfs @ 12.13 hrs, Volume=	13,981 cf				
Outflow =	0.14 cfs @ 14.84 hrs, Volume=	13,981 cf, Atten= 97%, Lag= 162.6 min				
Discarded =	0.14 cfs @ 14.84 hrs, Volume=	13,981 cf				
Primary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf				
Routed to Link 2L : Combined Flows						

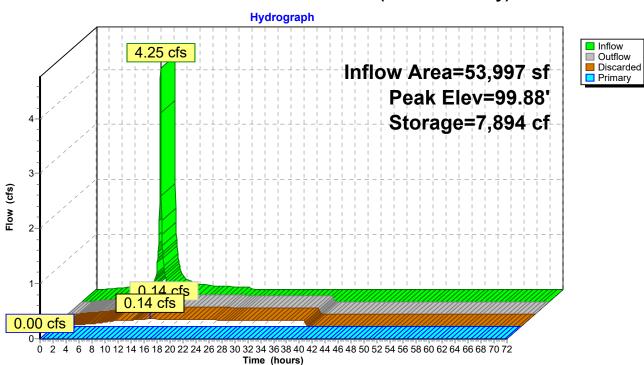
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 99.88' @ 14.84 hrs Surf.Area= 11,728 sf Storage= 7,894 cf

Plug-Flow detention time= 557.5 min calculated for 13,971 cf (100% of inflow) Center-of-Mass det. time= 557.8 min (1,314.4 - 756.6)

Volume	Invert	Ava	il.Storage	Storage Descrip	otion		
#1	98.25'		622 cf	Custom Stage	Custom Stage Data (Conic)Listed below (Recalc)		
			622 cf	x 25.00 = 15,5	50 cf Total Availat	ble Storage	
Elevatio (fee		Surf.Area Voids (sq-ft) (%)		Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
98.2	-	374	0.0	0	0	374	
99.2	-	374	35.0	131	131	443	
99.5	50	374	25.0	23	154	460	
100.0	0	500	100.0	218	372	591	
100.2	25	500	100.0	125	497	611	
100.5	50	500 100.0		125	622	631	
Device #1 #2	Routing Discarded Primary	Invert Outl ed 98.25' 0.50 100.00' 2.0' Hea 2.50 Coe		long x 3.0' brea ad (feet) 0.20 0.4 0 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2.	rea 1 Rectangular Weir X 25.00 1.20 1.40 1.60 1.80 2.00 .65 2.64 2.64 2.68 2.68	

Discarded OutFlow Max=0.14 cfs @ 14.84 hrs HW=99.88' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.14 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 6P: Basic Rain Garden (infiltration only)

Summary for Pond 7P: Basic Porous Pavement (infiltration only)

Inflow Area = 94,724 sf,100.00% Impervious, Inflow Depth = 3.11" for 2-Year Current event Inflow 7.45 cfs @ 12.13 hrs, Volume= 24.526 cf = 1.10 cfs @ 11.65 hrs, Volume= 24,526 cf, Atten= 85%, Lag= 0.0 min Outflow = 1.10 cfs @ 11.65 hrs, Volume= Discarded = 24,526 cf 0.00 cfs @ 0.00 hrs, Volume= Primary = 0 cf Routed to Link 2L : Combined Flows

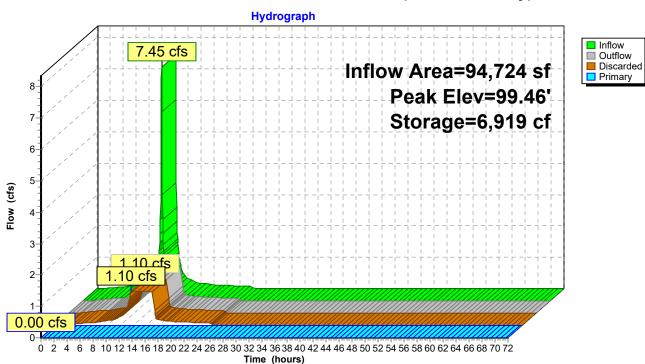
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.46' @ 12.62 hrs Surf.Area= 94,724 sf Storage= 6,919 cf

Plug-Flow detention time= 38.4 min calculated for 24,509 cf (100% of inflow) Center-of-Mass det. time= 38.4 min (795.1 - 756.6)

Volume	Inver	rt Avail	I.Storage	Storage Descri	ption	
#1	99.25	5' 4	43,005 cf	Custom Stage	Data (Prismatic)L	isted below (Recalc)
Elevatio (fee 99.2 99.7 99.8 100.0 100.2	et) 25 75 83 01	Surf.Area (sq-ft) 94,724 94,724 94,724 94,724 94,724	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 16,577 1,137 2,558 22,734	Cum.Store (cubic-feet) 0 16,577 17,713 20,271 43,005	
Device	Routing	١n	vert Outle	et Devices		
#1 #2	Discarded Primary	99. 100.	.00' 15.0 Head 2.50 Coet	' long x 1.0' bre d (feet) 0.20 0.4 3.00	40 0.60 0.80 1.00	rea ous Asphalt X 76.00 1.20 1.40 1.60 1.80 2.00 2.98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=1.10 cfs @ 11.65 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 1.10 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 7P: Basic Porous Pavement (infiltration only)

Summary for Pond 8P: Basin 2 Medium Case

[62] Hint: Exceeded Reach 2Ri OUTLET depth by 0.63' @ 13.65 hrs

Inflow Area = 908,125 sf, 25.71% Impervious, Inflow Depth = 1.11" for 2-Year Current event 11.72 cfs @ 12.56 hrs, Volume= 84.355 cf Inflow = Outflow = 7.84 cfs @ 13.08 hrs, Volume= 79,538 cf, Atten= 33%, Lag= 31.0 min Primary = 7.84 cfs @ 13.08 hrs, Volume= 79,538 cf Routed to Reach 2Ro : Outlet Secondary = 0.00 cfs @ 0.00 hrs. Volume= 0 cfRouted to Reach 2Ro : Outlet Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf Routed to Reach 2Ro : Outlet

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 70.20' @ 13.08 hrs Surf.Area= 21,850 sf Storage= 24,451 cf

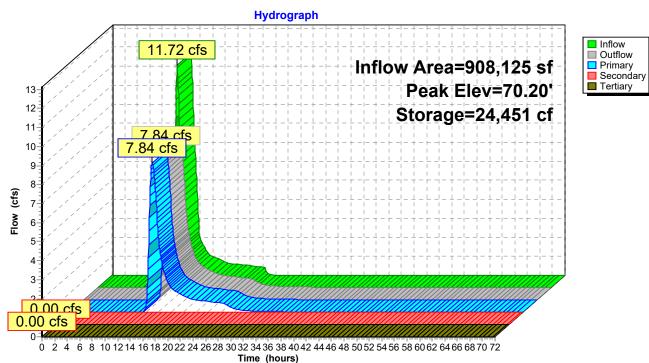
Plug-Flow detention time= 131.7 min calculated for 79,538 cf (94% of inflow) Center-of-Mass det. time= 100.2 min (971.1 - 870.9)

Volume	Invert	Avail.Sto	rage Storag	e Description	
#1	69.00'	125,28	B0 cf Custo	m Stage Data (Pris	smatic) Listed below (Recalc)
Elevatio (fee 69.0 74.0	et) 00 1	f.Area (sq-ft) 8,889 31,223	Inc.Store (cubic-feet) 0 125,280	Cum.Store (cubic-feet) 0 125,280	
Device	Routing	Invert	Outlet Devic	es	
#1	Primary	69.25'		_ow Flow Orifice) eir flow at low head	
#2	Secondary	71.25'	24.0" W x 1		Drifice X 3.00 C= 0.600
#3	Tertiary	73.75'	48.0" x 48.0	" Horiz. Orifice/Gr eir flow at low head	rate C= 0.600

Primary OutFlow Max=7.83 cfs @ 13.08 hrs HW=70.20' (Free Discharge) -1=Low Flow Orifice (Orifice Controls 7.83 cfs @ 3.32 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge) 2=2-YR Orifice (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge) -3=Orifice/Grate (Controls 0.00 cfs)



Pond 8P: Basin 2 Medium Case

Summary for Pond 9P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

840,092 sf, 1.06% Impervious, Inflow Depth = 1.15" for 2-Year Current event Inflow Area = Inflow = 15.16 cfs @ 12.42 hrs, Volume= 80.637 cf 15.15 cfs @ 12.42 hrs, Volume= Outflow = 80,425 cf, Atten= 0%, Lag= 0.1 min 2.83 cfs @ 12.42 hrs, Volume= Primary = 53,566 cf Routed to Link 3L : dA3 9.01 cfs @ 12.42 hrs, Volume= Secondary = 22,976 cf Routed to Link 3L : dA3 Tertiarv = 3.32 cfs @ 12.42 hrs, Volume= 3.882 cf Routed to Link 3L : dA3

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 100.69' @ 12.42 hrs Surf.Area= 1,361 sf Storage= 3,104 cf

Plug-Flow detention time= 11.3 min calculated for 80,425 cf (100% of inflow) Center-of-Mass det. time= 9.5 min (889.8 - 880.2)

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 2.00 - 3.475 cf. Total Available Storage

 $1,737 \text{ cf} \times 2.00 = 3,475 \text{ cf}$ Total Available Storage

Storage Group A created with Chamber Wizard

Elevatio	on	Surf.Area	Void	s Inc.Store	Cum.Store	Wet.Area			
(fee	et)	(sq-ft)	(%) (cubic-feet)	(cubic-feet)	(sq-ft)			
97.7	75	175	0.	0 0	0	175			
98.2	25	175	35.) 31	31	198			
99.2	25	175	35.	D 61	92	245			
99.5	50	175	25.	D 11	103	257			
100.0	00	175	100.	88	190	281			
100.5	51	175	100.) 89	280	304			
101.7	75	175	100.	217	497	363			
Device	Routing	In	vert	t Outlet Devices					
#1	Primary	94	.17'	6.0" Round Culvert X 2.00 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 2.00 L= 32.0' Ke= 0.500					
			Inlet / Outlet Invert= 94.33' / 94.17' S= 0.0050 '/' Cc= 0.900						
				n= 0.020 Corrugate	ed PE, corrugated	interior, Flow Area	= 0.20 sf		
#3	Seconda	ry 100	0.00'	3.0' long x 2.0' bre	eadth Broad-Cres	ted Rectangular W	/eir X 2.00		
				Head (feet) 0.20 0	0.40 0.60 0.80 1.0	00 1.20 1.40 1.60	1.80 2.00		
				2.50 3.00 3.50					
				Coef. (English) 2.5		2.66 2.70 2.77 2	.89 2.88		
				2.85 3.07 3.20 3.3	32				

#4 Tertiary 100.50' 6.0' long Sharp-Crested Rectangular Weir X 2.00 2 End Contraction(s)

Primary OutFlow Max=2.83 cfs @ 12.42 hrs HW=100.69' (Free Discharge) 1=Culvert (Passes 2.83 cfs of 4.23 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 2.83 cfs @ 7.19 fps)

Secondary OutFlow Max=8.96 cfs @ 12.42 hrs HW=100.69' (Free Discharge) —3=Broad-Crested Rectangular Weir (Weir Controls 8.96 cfs @ 2.16 fps)

Tertiary OutFlow Max=3.23 cfs @ 12.42 hrs HW=100.69' (Free Discharge) **4=Sharp-Crested Rectangular Weir** (Weir Controls 3.23 cfs @ 1.43 fps)

ond 9P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

Chamber Model = ADS_StormTechSC-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

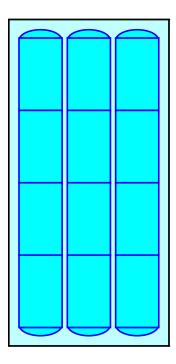
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

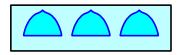
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

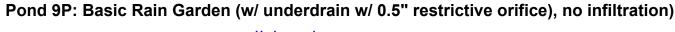
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

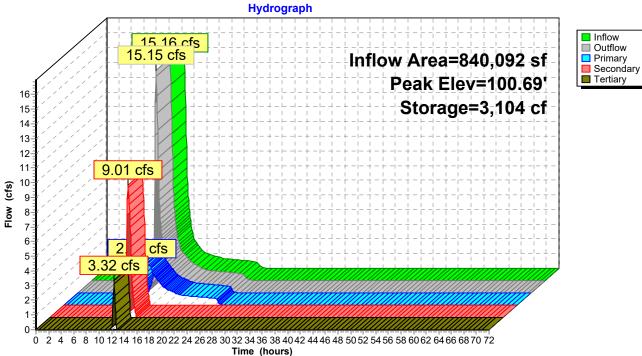
Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af Overall Storage Efficiency = 54.5%Overall System Size = $32.10' \times 15.75' \times 4.50'$

12 Chambers 84.3 cy Field 63.8 cy Stone









Summary for Pond 10P: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	22,074 sf,100.00% Impervious,	Inflow Depth = 3.11" for 2-Year _Current event
Inflow =	1.74 cfs @ 12.13 hrs, Volume=	5,715 cf
Outflow =	0.05 cfs @ 14.97 hrs, Volume=	5,715 cf, Atten= 97%, Lag= 170.8 min
Discarded =	0.05 cfs @ 14.97 hrs, Volume=	5,715 cf
Primary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf
Routed to Link	3L : dA3	

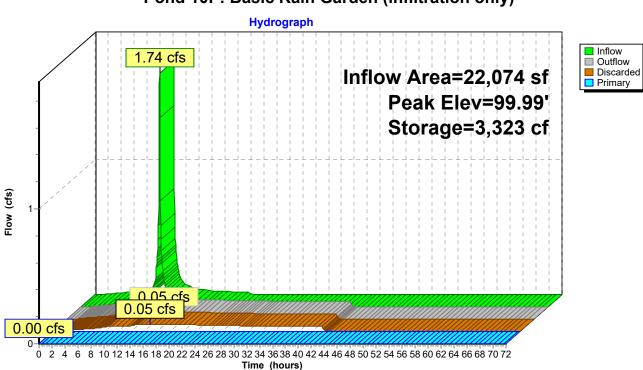
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 99.99' @ 14.97 hrs Surf.Area= 4,486 sf Storage= 3,323 cf

Plug-Flow detention time= 626.3 min calculated for 5,711 cf (100% of inflow) Center-of-Mass det. time= 626.7 min (1,383.3 - 756.6)

Volume	Invert	Ava	il.Storage	Storage Description					
#1 98.25' 622 cf Custom Stage Data (Conic)Listed below (Red					below (Recalc)				
			622 cf	x 9.00 = 5,598 cf Total Available Storage					
Elevatio (fee		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)			
98.2	25	374	0.0	0	0	374			
99.2	25	374	35.0	131	131	443			
99.5	60	374	25.0	23	154	460			
100.0	0	500	100.0	218	372	591			
100.2	25	500	100.0	125	497	611			
100.50 500 100.0		125	622	631					
Device #1 #2	Routing Discarded Primary	98	2.25' 0.50 .00' 2.0' Hea 2.50 Coe	long x 3.0' bread d (feet) 0.20 0.40 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2.	ea Rectangular Weir X 9.00 1.20 1.40 1.60 1.80 2.00 65 2.64 2.64 2.68 2.68			

Discarded OutFlow Max=0.05 cfs @ 14.97 hrs HW=99.99' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.05 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 10P: Basic Rain Garden (infiltration only)

Summary for Pond 11P: Basic Porous Pavement (infiltration only)

85,494 sf,100.00% Impervious, Inflow Depth = 3.11" for 2-Year Current event Inflow Area = Inflow 6.73 cfs @ 12.13 hrs, Volume= 22.136 cf = 0.99 cfs @ 11.65 hrs, Volume= 22,136 cf, Atten= 85%, Lag= 0.0 min Outflow = 0.99 cfs @ 11.65 hrs, Volume= 22,136 cf Discarded = Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf Routed to Link 3L : dA3

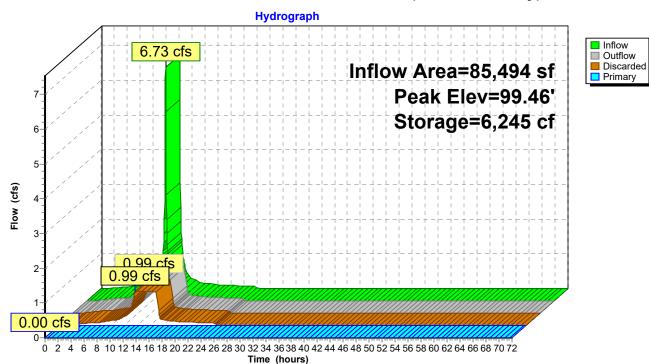
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.46' @ 12.62 hrs Surf.Area= 85,494 sf Storage= 6,245 cf

Plug-Flow detention time= 38.4 min calculated for 22,120 cf (100% of inflow) Center-of-Mass det. time= 38.4 min (795.1 - 756.6)

Volume	Inver	t Avail	.Storage	Storage Description		
#1	99.25	' 3	88,814 cf	Custom Stage	Data (Prismatic)Lis	ited below (Recalc)
Elevatic (fee 99.2 99.7 99.8 100.0 100.2	et) 25 75 33 01	(sq-ft) 85,494 85,494 85,494 85,494 85,494	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 14,961 1,026 2,308 20,519	Cum.Store (cubic-feet) 0 14,961 15,987 18,296 38,814	
100.2 Device #1 #2	25 <u>Routing</u> Discarded Primary	Inv	vert Outle 25' 0.50 00' 15.0 Head 2.50 Coef	et Devices 0 in/hr Exfiltration 1 long x 1.0' bre d (feet) 0.20 0.4 3.00	on over Surface are adth Edge of Poro 0 0.60 0.80 1.00	ea us Asphalt X 76.00 1.20 1.40 1.60 1.80 2.00 98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=0.99 cfs @ 11.65 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.99 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 11P: Basic Porous Pavement (infiltration only)

Summary for Pond 12P: Basic Porous Pavement (infiltration only)

Inflow Area = 4,605 sf,100.00% Impervious, Inflow Depth = 3.11" for 2-Year Current event Inflow 0.36 cfs @ 12.13 hrs, Volume= 1.192 cf = 0.05 cfs @ 11.70 hrs, Volume= Outflow = 1,192 cf, Atten= 85%, Lag= 0.0 min 0.05 cfs @ 11.70 hrs, Volume= Discarded = 1,192 cf 0.00 cfs @ 0.00 hrs, Volume= Primary = 0 cf Routed to Link 4L : DA 4: Combined Flows

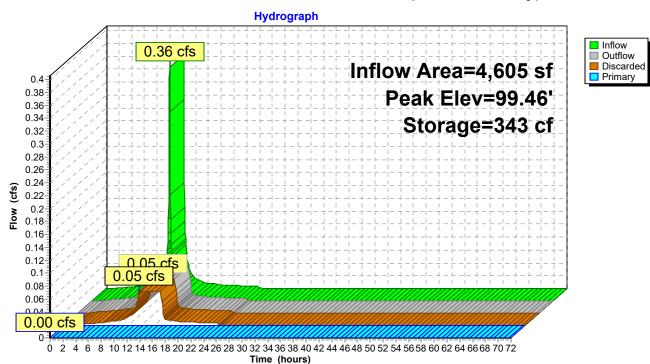
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 99.46' @ 12.62 hrs Surf.Area= 4,605 sf Storage= 343 cf

Plug-Flow detention time= 40.7 min calculated for 1,192 cf (100% of inflow) Center-of-Mass det. time= 40.7 min (797.3 - 756.6)

Volume	Invert	Ava	il.Storage	e Storage Description				
#1	99.25'		4,393 cf	f Custom Stage Data (Prismatic)Listed below (Recal		isted below (Recalc)		
	-							
Elevatio	on Si	urf.Area	Voids	Inc.Store	Cum.Store			
(fee	et)	(sq-ft)	(%)	(cubic-feet)	(cubic-feet)			
99.2	25	4,605	0.0	0	0			
99.7	75	4,605	35.0	806	806			
99.8	33	4,605	15.0	55	861			
100.0)1	4,605	15.0	124	985			
100.2	25	4,605	100.0	1,105	2,091			
100.7	75	4,605	100.0	2,303	4,393			
Device	Routing	In	vert Ou	tlet Devices				
#1	Discarded	99	.25' 0.5	00 in/hr Exfiltrati	on over Surface a	rea		
#2	Primary	100	.00' 15.	15.0' long x 1.0' breadth Edge		ous Asphalt X 76.00		
	5			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					
			-		272 275 285 2	.98 3.08 3.20 3.28 3.31		
				0 3.31 3.32	2.12 2.10 2.00 2			
			5.5	0 0.01 0.02				
Discarded OutFlow Max=0.05 cfs @ 11.70 brs. HW=99.27' (Free Discharge)								

Discarded OutFlow Max=0.05 cfs @ 11.70 hrs HW=99.27' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.05 cfs)

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

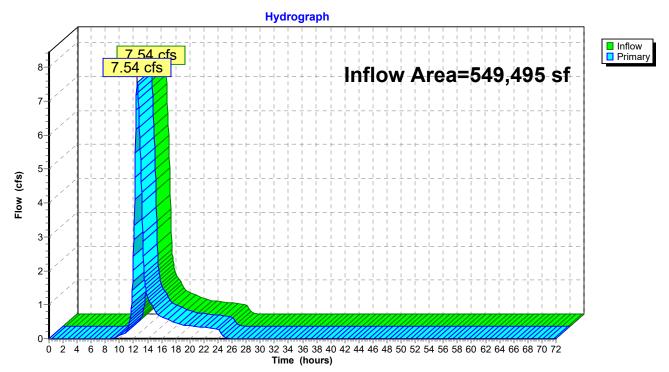




Summary for Link 1L: Combined Flows

Inflow Area = 549,495 sf, 18.28% Impervious, Inflow Depth = 1.15" for 2-Year _Current event Inflow = 7.54 cfs @ 12.52 hrs, Volume= 52,607 cf Primary = 7.54 cfs @ 12.52 hrs, Volume= 52,607 cf, Atten= 0%, Lag= 0.0 min Routed to Reach 1Ri : Inlet Pipe

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Link 1L: Combined Flows

Summary for Link 2L: Combined Flows

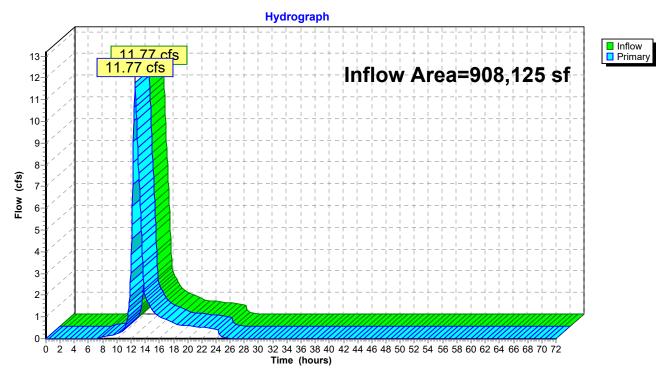
 Inflow Area =
 908,125 sf, 25.71% Impervious, Inflow Depth =
 1.11"
 for 2-Year _Current event

 Inflow =
 11.77 cfs @
 12.56 hrs, Volume=
 84,357 cf

 Primary =
 11.77 cfs @
 12.56 hrs, Volume=
 84,357 cf, Atten= 0%, Lag= 0.0 min

 Routed to Reach 2Ri : Inlet Pipe
 Inlet Pipe
 10.000 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

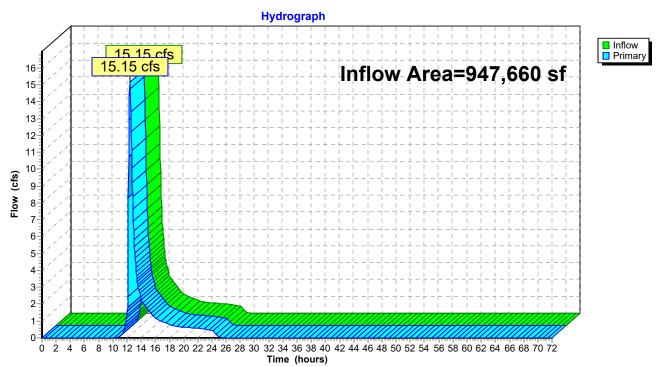


Link 2L: Combined Flows

Summary for Link 3L: dA3

Inflow Are	a =	947,660 sf, 12.29% Impervious, Inflow Depth = 1.02" for 2-Year _Current event
Inflow	=	15.15 cfs @ 12.42 hrs, Volume= 80,425 cf
Primary	=	15.15 cfs @ 12.42 hrs, Volume= 80,425 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

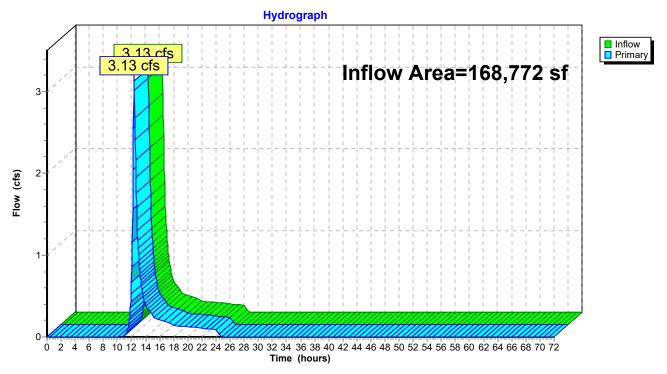


Link 3L: dA3

Summary for Link 4L: DA 4: Combined Flows

Inflow Are	a =	168,772 sf, 3.14% Impervious, Inflow Depth = 1.11" for 2-Year Current event	t
Inflow	=	3.13 cfs @ 12.37 hrs, Volume= 15,584 cf	
Primary	=	3.13 cfs @ 12.37 hrs, Volume= 15,584 cf, Atten= 0%, Lag= 0.0 min	

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Link 4L: DA 4: Combined Flows

20240629_PartridgeFarmRd_HCAD Prepared by Rutgers Cooperative Extens HydroCAD® 10.10-7c s/n 03601 © 2022 Hydro					
	-72.00 hrs, dt=0.05 hrs, 1441 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					
Subcatchment1S: DA 1: CN w/ IC areas	Runoff Area=549,495 sf 18.28% Impervious Runoff Depth=1.97" Tc=19.8 min CN=74/98 Runoff=19.93 cfs 90,180 cf				
Subcatchment1Sa: DA 1: CN w/ IC areas	Runoff Area=492,891 sf 8.90% Impervious Runoff Depth=1.77" Tc=19.8 min CN=74/98 Runoff=16.30 cfs 72,561 cf				

Subcatchment1Sb: DA 1: RoofsRunoff Area=21,359 sf100.00% ImperviousRunoff Depth=3.74"Tc=6.0 minCN=0/98Runoff=2.00 cfs6,648 cf

Subcatchment1Sc: DA1: Driveways Runoff Area=35,245 sf 100.00% Impervious Runoff Depth=3.74" Tc=6.0 min CN=0/98 Runoff=3.31 cfs 10,971 cf

Subcatchment 2S: DA 2: CN w/ IC areas Runoff Area=908,125 sf 25.71% Impervious Runoff Depth=2.13" Tc=21.8 min CN=74/98 Runoff=33.68 cfs 161,182 cf

Subcatchment 2Sa: DA 2: CN w/ IC areas Runoff Area=759,404 sf 11.16% Impervious Runoff Depth=1.82" Tc=21.8 min CN=74/98 Runoff=24.54 cfs 114,890 cf

Subcatchment2Sb: DA 2: Roofs Runoff Area=53,997 sf 100.00% Impervious Runoff Depth=3.74" Tc=6.0 min CN=0/98 Runoff=5.07 cfs 16,807 cf

Subcatchment 2Sc: DA 2: Driveways Runoff Area=94,724 sf 100.00% Impervious Runoff Depth=3.74" Tc=6.0 min CN=0/98 Runoff=8.89 cfs 29,484 cf

Subcatchment 3S: DA 3: CN w/ IC areas Runoff Area=947,660 sf 12.29% Impervious Runoff Depth=1.84" Tc=27.9 min CN=74/98 Runoff=27.39 cfs 145,307 cf

Subcatchment 3Sa: DA 3: CN w/ IC areas Runoff Area=840,092 sf 1.06% Impervious Runoff Depth=1.60" Tc=27.9 min CN=74/98 Runoff=21.53 cfs 111,825 cf

Subcatchment 3Sb: DA 3: Roofs Runoff Area=22,074 sf 100.00% Impervious Runoff Depth=3.74" Tc=6.0 min CN=0/98 Runoff=2.07 cfs 6,871 cf

Subcatchment 3Sc: DA 3: Driveways Runoff Area=85,494 sf 100.00% Impervious Runoff Depth=3.74" Tc=6.0 min CN=0/98 Runoff=8.02 cfs 26,611 cf

Subcatchment 4S: DA 4: CN w/ IC areas Runoff Area=168,772 sf 3.14% Impervious Runoff Depth=1.64" Tc=24.4 min CN=74/98 Runoff=4.74 cfs 23,096 cf

Subcatchment4Sa: DA 4: CN w/ IC areas Runoff Area=163,472 sf 0.00% Impervious Runoff Depth=1.57" Tc=24.4 min CN=74/0 Runoff=4.44 cfs 21,447 cf

> Runoff Area=695 sf 100.00% Impervious Runoff Depth=3.74" Tc=6.0 min CN=0/98 Runoff=0.07 cfs 216 cf

Subcatchment4Sc: DA 4: Driveways

Subcatchment4Sb: DA 4: Roofs

Runoff Area=4,605 sf 100.00% Impervious Runoff Depth=3.74" Tc=6.0 min CN=0/98 Runoff=0.43 cfs 1,433 cf

Reach 1Ri: Inlet Pipe Avg. Flow Depth=0.72' Max Vel=6.60 fps Inflow=10.19 cfs 71,656 cf 48.0" Round Pipe n=0.013 L=100.0' S=0.0100 '/' Capacity=143.64 cfs Outflow=10.14 cfs 71,657 cf
Reach 1Ro: outlet Avg. Flow Depth=0.52' Max Vel=3.78 fps Inflow=2.81 cfs 64,451 cf 30.0" Round Pipe n=0.013 L=925.0' S=0.0051 '/' Capacity=29.39 cfs Outflow=2.81 cfs 64,440 cf
Reach 2Ri: Inlet Pipe Avg. Flow Depth=1.09' Max Vel=8.36 fps Inflow=23.63 cfs 113,731 cf 48.0" Round Pipe n=0.013 L=100.0' S=0.0100 '/' Capacity=143.64 cfs Outflow=22.89 cfs 113,745 cf
Reach 2Ro: Outlet Avg. Flow Depth=0.75' Max Vel=7.28 fps Inflow=10.98 cfs 108,930 cf 42.0" Round Pipe n=0.013 L=190.0' S=0.0118 '/' Capacity=109.48 cfs Outflow=10.97 cfs 108,930 cf
Pond 1P: Basic Rain Garden (w/ Peak Elev=98.54' Storage=11,599 cf Inflow=16.30 cfs 72,561 cf Primary=10.19 cfs 71,498 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=10.19 cfs 71,498 cf
Pond 2P: Basic Rain Garden (infiltration Peak Elev=100.01' Storage=3,758 cf Inflow=2.00 cfs 6,648 cf Discarded=0.06 cfs 6,490 cf Primary=0.04 cfs 159 cf Outflow=0.10 cfs 6,648 cf
Pond 3P: Basic Porous PavementPeak Elev=99.52' Storage=3,370 cfInflow=3.31 cfs10,971 cfDiscarded=0.41 cfs10,970 cfPrimary=0.00 cfs0 cfOutflow=0.41 cfs10,970 cf
Pond 4P: Basin 1 Medium Case Peak Elev=75.30' Storage=35,765 cf Inflow=10.14 cfs 71,657 cf Primary=2.81 cfs 64,451 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=2.81 cfs 64,451 cf
Pond 5P: Basic Rain Garden (w/ Peak Elev=100.25' Storage=14,742 cf Inflow=24.54 cfs 114,890 cf Primary=13.60 cfs 108,461 cf Secondary=10.01 cfs 4,734 cf Tertiary=0.00 cfs 0 cf Outflow=23.63 cfs 113,195 cf
Pond 6P: Basic Rain Garden (infiltration Peak Elev=100.01' Storage=9,417 cf Inflow=5.07 cfs 16,807 cf Discarded=0.14 cfs 16,271 cf Primary=0.14 cfs 537 cf Outflow=0.29 cfs 16,808 cf
Pond 7P: Basic Porous Pavement Peak Elev=99.52' Storage=9,057 cf Inflow=8.89 cfs 29,484 cf Discarded=1.10 cfs 29,484 cf Primary=0.00 cfs 0 cf Outflow=1.10 cfs 29,484 cf
Pond 8P: Basin 2 Medium Case Peak Elev=70.43' Storage=29,460 cf Inflow=22.89 cfs 113,745 cf Primary=10.98 cfs 108,930 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=10.98 cfs 108,930 cf
Pond 9P: Basic Rain Garden (w/ Peak Elev=100.82' Storage=3,149 cf Inflow=21.53 cfs 11,825 cf Primary=2.86 cfs 65,822 cf Secondary=11.62 cfs 35,218 cf Tertiary=7.05 cfs 10,505 cf Outflow=21.53 cfs 111,546 cf
Pond 10P: Basic Rain Garden (infiltration Peak Elev=100.03' Storage=3,482 cf Inflow=2.07 cfs 6,871 cf Discarded=0.05 cfs 6,043 cf Primary=0.23 cfs 828 cf Outflow=0.28 cfs 6,870 cf
Pond 11P: Basic Porous PavementPeak Elev=99.52' Storage=8,175 cfInflow=8.02 cfs26,611 cfDiscarded=0.99 cfs26,611 cfPrimary=0.00 cfs0 cfOutflow=0.99 cfs26,611 cf
Pond 12P: Basic Porous Pavement (infiltration Peak Elev=99.53' Storage=447 cf Inflow=0.43 cfs 1,433 cf Discarded=0.05 cfs 1,433 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 1,433 cf
Link 1L: Combined FlowsInflow=10.19 cfs71,656 cfPrimary=10.19 cfs71,656 cf
Link 2L: Combined Flows Inflow=23.63 cfs 113,731 cf

Inflow=23.63 cfs 113,731 cf Primary=23.63 cfs 113,731 cf Link 3L: dA3

Inflow=21.53 cfs 112,374 cf Primary=21.53 cfs 112,374 cf

Link 4L: DA 4: Combined Flows

Inflow=4.45 cfs 21,663 cf Primary=4.45 cfs 21,663 cf

Total Runoff Area = 5,148,104 sf Runoff Volume = 839,531 cf Average Runoff Depth = 1.96" 82.29% Pervious = 4,236,632 sf 17.71% Impervious = 911,472 sf

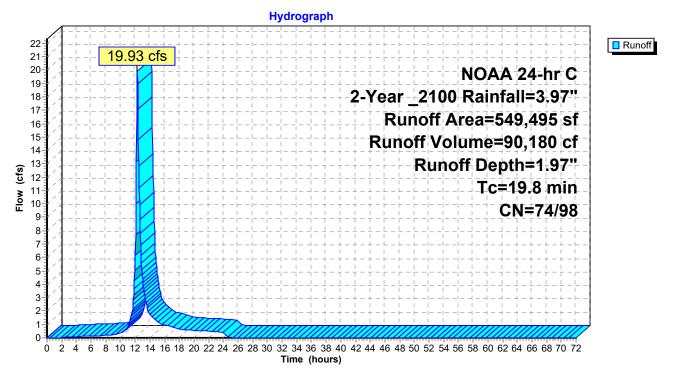
Summary for Subcatchment 1S: DA 1: CN w/ IC areas

Runoff = 19.93 cfs @ 12.30 hrs, Volume= 90,180 cf, Depth= 1.97"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

	Area (sf)	CN	Description				
*	100,459	98	Impervious				
	317,162	74	>75% Grass	s cover, Go	ood, HSG C		
	131,575	73	Woods, Fair	, HSG C			
	299	70	Woods, Goo	od, HSG C			
	549,495	78	8 Weighted Average				
	449,036	74	81.72% Per	vious Area	3		
	100,459	98	18.28% Imp	ervious Are	rea		
	Tc Length	Slop		Capacity	Description		
(min) (feet)	(ft/	ft) (ft/sec)	(cfs)			
	19.8				Direct Entry, Direct		

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



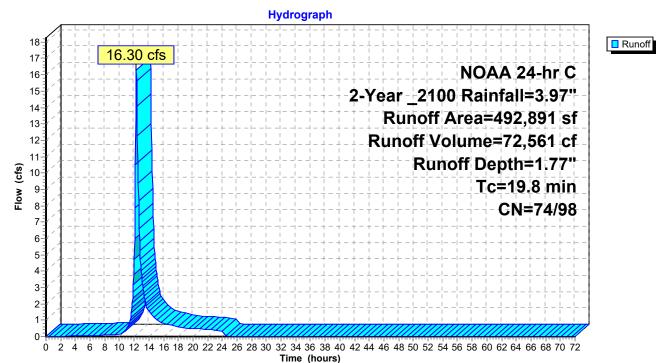
Summary for Subcatchment 1Sa: DA 1: CN w/ IC areas

Runoff = 16.30 cfs @ 12.30 hrs, Volume= 72,561 cf, Depth= 1.77" 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

	Area (sf)	CN	Description				
*	43,855	98	Impervious				
	317,162	74	>75% Gras	s cover, Go	bod, HSG C		
	131,575	73	Woods, Fai	r, HSG C			
	299	70	Woods, Go	od, HSG C			
	492,891	76	6 Weighted Average				
	449,036	74	91.10% Per	vious Area	1		
	43,855	98	8.90% Impe	ervious Are	а		
_				• •	– 1.4		
	c Length	Slop		Capacity	Description		
(mir	n) (feet)	(ft/1	ft) (ft/sec)	(cfs)			
19.	8				Direct Entry, Direct		

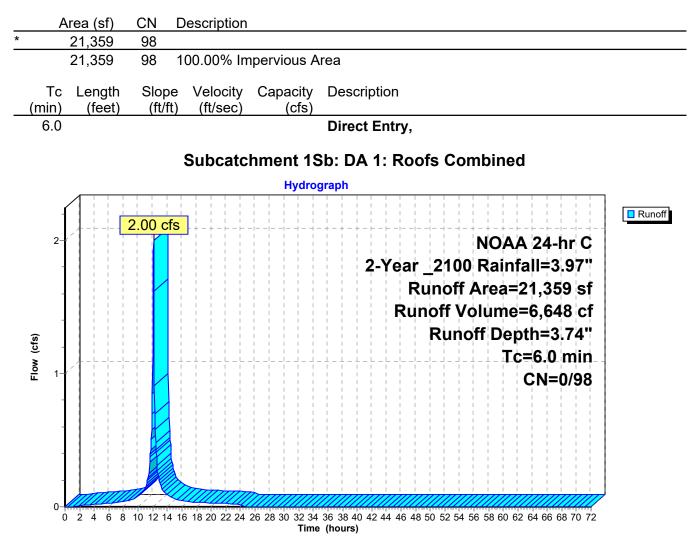
Subcatchment 1Sa: DA 1: CN w/ IC areas



Summary for Subcatchment 1Sb: DA 1: Roofs Combined

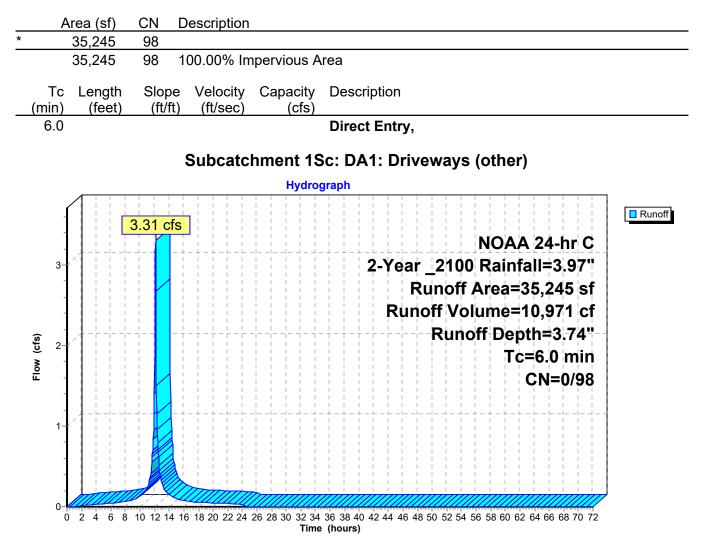
Runoff = 2.00 cfs @ 12.13 hrs, Volume= 6,648 cf, Depth= 3.74" Routed to Pond 2P : Basic Rain Garden (infiltration only)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _2100 Rainfall=3.97"



Summary for Subcatchment 1Sc: DA1: Driveways (other)

Runoff = 3.31 cfs @ 12.13 hrs, Volume= 10,971 cf, Depth= 3.74" Routed to Pond 3P : Basic Porous Pavement (infiltration only)



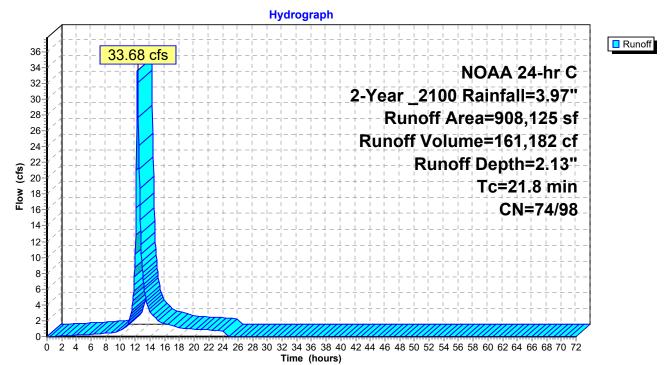
Summary for Subcatchment 2S: DA 2: CN w/ IC areas

Runoff = 33.68 cfs @ 12.32 hrs, Volume= 161,182 cf, Depth= 2.13"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

	Area (sf)	CN	Description	
*	233,471	98	Impervious	
	1	65	Brush, Good, HSG C	
	620,871	74	>75% Grass cover, Good, HSG C	
	1,845	72	Woods/grass comb., Good, HSG C	
	51,937	73	Woods, Fair, HSG C	
	908,125	80	Weighted Average	
	674,654	74	74.29% Pervious Area	
	233,471	98	25.71% Impervious Area	
(n	Tc Length nin) (feet)	Slor (ft/	pe Velocity Capacity Description /ft) (ft/sec) (cfs)	
2	1.8		Direct Entry, Direct	

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



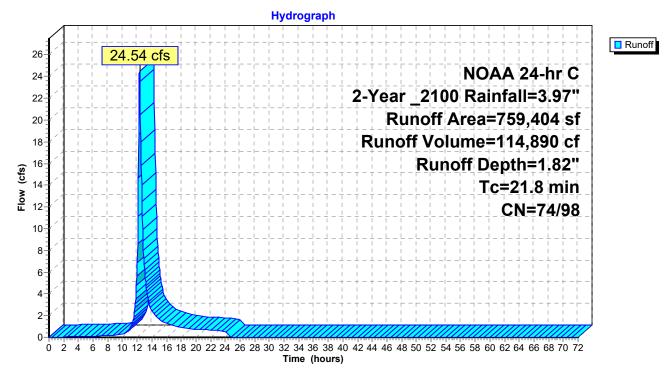
Summary for Subcatchment 2Sa: DA 2: CN w/ IC areas

Runoff = 24.54 cfs @ 12.32 hrs, Volume= 114,890 cf, Depth= 1.82" Routed to Pond 5P : 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

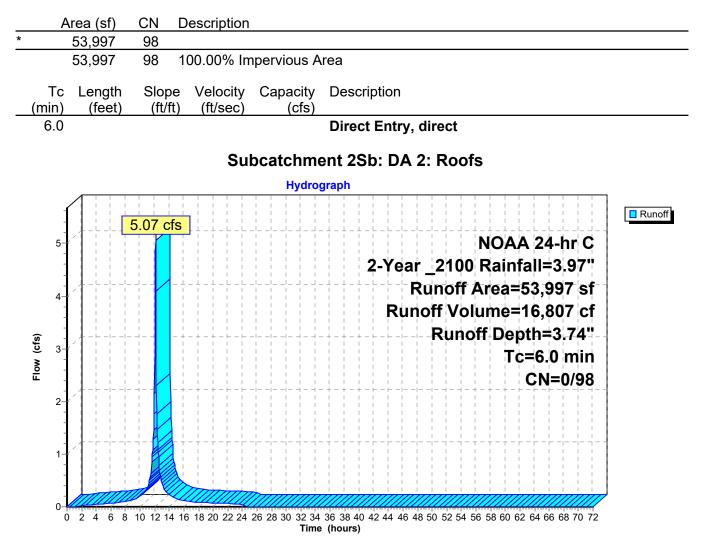
	Area (sf)	CN	Description	
*	84,750	98	Impervious	
	1	65	Brush, Good, HSG C	
	620,871	74	>75% Grass cover, Good, HSG C	
	1,845	72	Woods/grass comb., Good, HSG C	
	51,937	73	Woods, Fair, HSG C	
	759,404	77	Weighted Average	
	674,654	74	88.84% Pervious Area	
	84,750	98	11.16% Impervious Area	
(r	Tc Length nin) (feet)	Slop (ft/		
2	21.8		Direct Entry, Direct	

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



Summary for Subcatchment 2Sb: DA 2: Roofs

Runoff = 5.07 cfs @ 12.13 hrs, Volume= 16,807 cf, Depth= 3.74" Routed to Pond 6P : Basic Rain Garden (infiltration only)



Summary for Subcatchment 2Sc: DA 2: Driveways (other)

Runoff = 8.89 cfs @ 12.13 hrs, Volume= 29,484 cf, Depth= 3.74" Routed to Pond 7P : Basic Porous Pavement (infiltration only)

	A	rea (sf)	CN	Description			
		94,724	98				
		94,724	98	100.00% Im	pervious A	Area	
- (mi	Tc n)	Length (feet)	Slope (ft/ft)		Capacity (cfs)	Description	
6	0.					Direct Entry, Direct	
				Subcatcl	nment 2S	Sc: DA 2: Driveways (other)	
					Hydro	graph	
	ſ		8.89 cfs	S			Runoff
	9-					NOAA 24-hr C	
	8					2-Year _2100 Rainfall=3.97"	
	- 7					Runoff Area=94,724 sf Runoff Volume=29,484 cf	
fs)	6-					Runoff Depth=3.74"	
Flow (cfs)	5-					Tc=6.0 min	
	4					CN=0/98	
	3-					- + - + - + - + - +	
	2-						
	1-1						
	0-	2468	10 12 14	16 18 20 22 24	26 28 30 32 34	36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72	

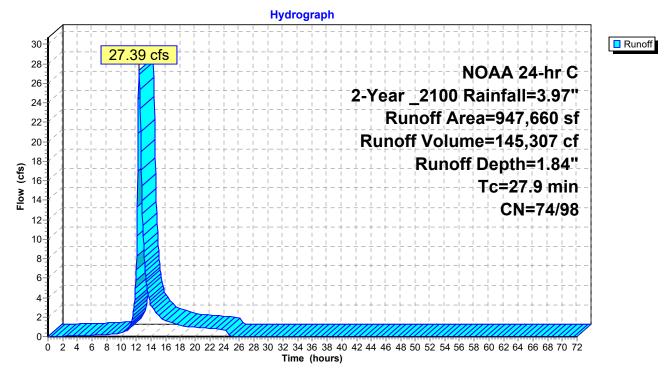
Summary for Subcatchment 3S: DA 3: CN w/ IC areas

Runoff = 27.39 cfs @ 12.41 hrs, Volume= 145,307 cf, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

	Area (sf)	CN	Description	
*	116,506	98	Impervious	
	4,930	79	50-75% Grass cover, Fair, HSG C	
	592,347	74	>75% Grass cover, Good, HSG C	
	169,305	73	Woods, Fair, HSG C	
	64,572	70	Woods, Good, HSG C	
	947,660	77	Weighted Average	
	831,154	74	87.71% Pervious Area	
	116,506	98	12.29% Impervious Area	
(m	Tc Length hin) (feet)	Slop (ft/	pe Velocity Capacity Description /ft) (ft/sec) (cfs)	
2	7.9		Direct Entry, direct	

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



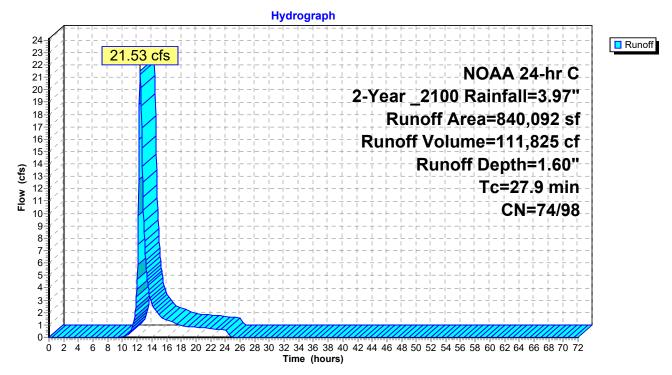
Summary for Subcatchment 3Sa: DA 3: CN w/ IC areas

Runoff = 21.53 cfs @ 12.41 hrs, Volume= 111,825 cf, Depth= 1.60" Routed to Pond 9P : 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

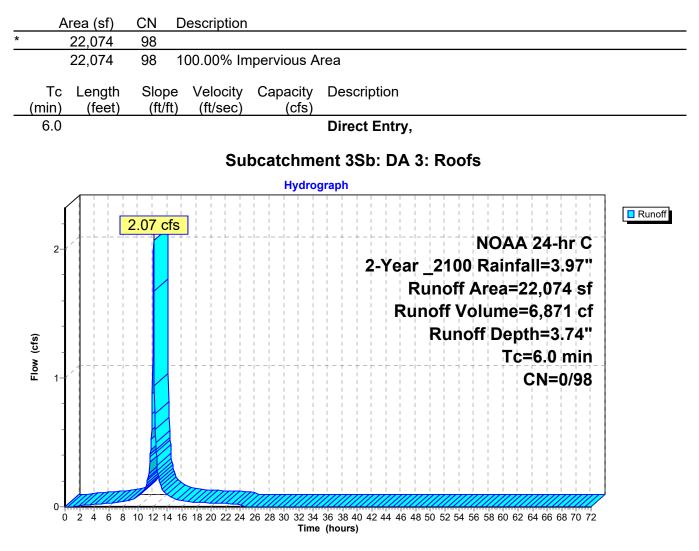
	Area (sf)	CN	Description
*	8,938	98	Impervious
	4,930	79	50-75% Grass cover, Fair, HSG C
	592,347	74	>75% Grass cover, Good, HSG C
	169,305	73	Woods, Fair, HSG C
	64,572	70	Woods, Good, HSG C
	840,092	74	Weighted Average
	831,154	74	98.94% Pervious Area
	8,938	98	1.06% Impervious Area
(m	Tc Length nin) (feet)	Sloı (ft/	
2	7.9		Direct Entry, direct

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



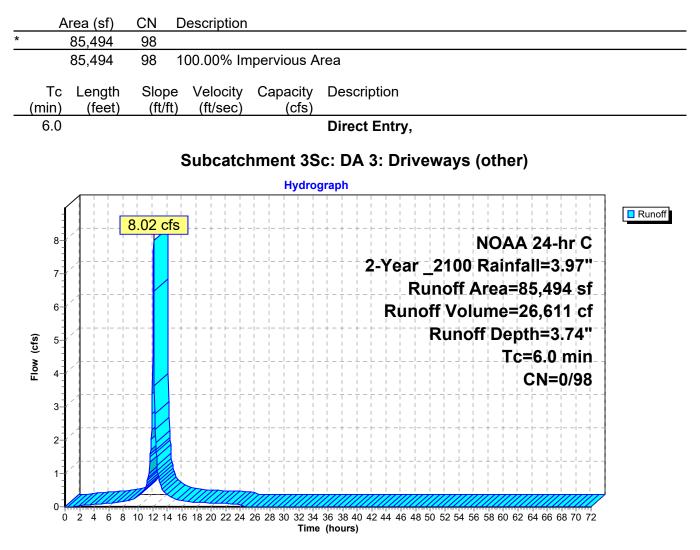
Summary for Subcatchment 3Sb: DA 3: Roofs

Runoff = 2.07 cfs @ 12.13 hrs, Volume= 6,871 cf, Depth= 3.74" Routed to Pond 10P : Basic Rain Garden (infiltration only)



Summary for Subcatchment 3Sc: DA 3: Driveways (other)

Runoff = 8.02 cfs @ 12.13 hrs, Volume= 26,611 cf, Depth= 3.74" Routed to Pond 11P : Basic Porous Pavement (infiltration only)



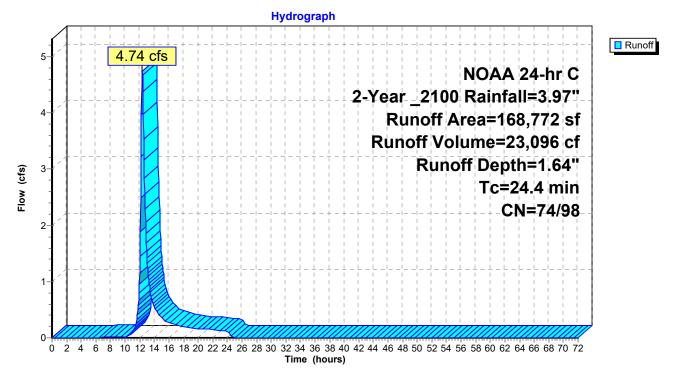
Summary for Subcatchment 4S: DA 4: CN w/ IC areas

Runoff = 4.74 cfs @ 12.36 hrs, Volume= 23,096 cf, Depth= 1.64"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

	Area (sf)	CN	Description		
*	5,300	98	Impervious		
	117,799	74	>75% Grass of	cover, Go	bod, HSG C
	4,778	72	Woods/grass	comb., G	Good, HSG C
	40,895	73	Woods, Fair,	HSG C	
	168,772	74	Weighted Ave	rage	
	163,472	74	96.86% Pervi	ous Area	
	5,300	98	3.14% Imperv	ious Area	a
	Tc Length	Slop		Capacity	Description
<u>(m</u>	in) (feet)	(ft/1	ft) (ft/sec)	(cfs)	
24	1.4				Direct Entry, Direct

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



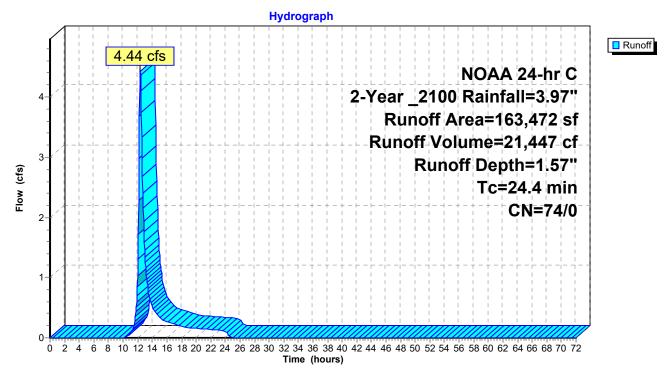
Summary for Subcatchment 4Sa: DA 4: CN w/ IC areas

Runoff = 4.44 cfs @ 12.37 hrs, Volume= 21,447 cf, Depth= 1.57" Routed to Link 4L : DA 4: Combined Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 2-Year _2100 Rainfall=3.97"

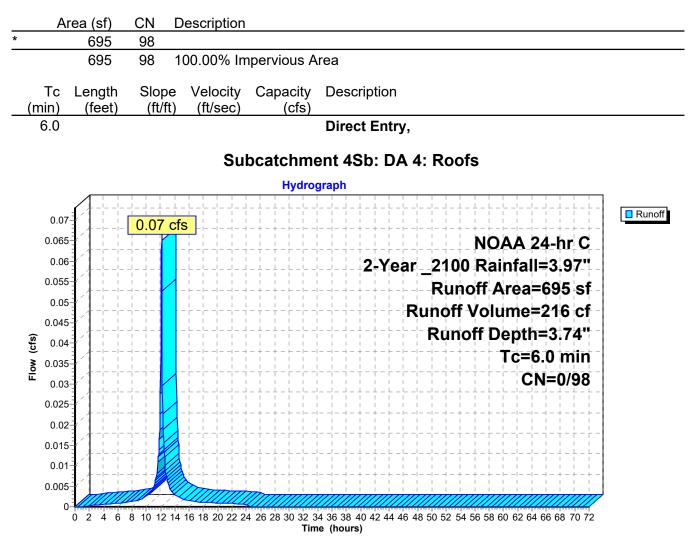
	Area (sf)	CN	Description		
*	0	98	Impervious		
	117,799	74	>75% Grass	cover, Go	bod, HSG C
	4,778	72	Woods/grass	s comb., G	Good, HSG C
	40,895	73	Woods, Fair,	HSG C	
	163,472	74	Weighted Av	erage	
	163,472	74	100.00% Per	vious Are	a
(r	Tc Length min) (feet)	Slop (ft/		Capacity (cfs)	Description
	24.4				Direct Entry, Direct

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



Summary for Subcatchment 4Sb: DA 4: Roofs

Runoff = 0.07 cfs @ 12.13 hrs, Volume= 216 cf, Depth= 3.74" Routed to Link 4L : DA 4: Combined Flows



Summary for Subcatchment 4Sc: DA 4: Driveways (other)

Runoff = 0.43 cfs @ 12.13 hrs, Volume= 1,433 cf, Depth= 3.74" Routed to Pond 12P : Basic Porous Pavement (infiltration only)

A	rea (sf)	CN I	Description				
	4,605	98					
	4,605	98 ⁻	100.00% Im	pervious A	rea		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
6.0					Direct Entry,		
			Subcatch	iment 4S	c: DA 4: Drivewa	ys (other)	
				Hydrog	jraph		
0.48- 0.46-		0.43 cf	- + - + - + - - - + - + - + - + - + -				Runoff
0.44 0.42	▛{┲_──────┣ ▋}╊_─└──└──┣		╾┯┛╴┾╶╶┝╶╶╷╴╶╷╴ ╴╎╴╸╎╴╴╎╴╶╵╴	+-+-+ +-+-+		NOAA 24-hr C	
0.4 0.38			- + - + - + - + - - - + - + - +		2-Year _21	00 Rainfall=3.97"	
0.36 0.34					Run	off Area=4,605 sf	
0.32					Runoff	Volume=1,433 cf	
0.3 			- + - + - + - +		R u	noff Depth=3.74"	
(s) 0.28 0.26 0.24 0.22	Y _ H _ I _ I _ I _ I _ / I _ I _ I Y _ A _ I _ I _ I _ I		- <u> </u> - <u> </u> - + - + - - -			Tc=6.0 min -	
ଜୁ 0.22 0.2-	<pre>/ - - - </pre>		- 	$-\frac{1}{1} - \frac{1}{1} - \frac{1}{1} - \frac{1}{1} - \frac{1}{1} - \frac{1}{1}$		CN=0/98	
0.18- 0.16-			- - - <u>-</u> <u>-</u> - <u>-</u> <u>-</u>				
0.14							
0.12- 0.1-	┥╷╴╷╴╴ ┥╷┥╶┝╴╴┝╴╴		- - - -			- ; - ; - ; - ; - ; - ; - ; - ; - ; - ;	
0.08 0.06	< ^		- + - + - - 				
0.04- 0.02-							
0-	0 2 4 6	8 10 12 14				54 56 58 60 62 64 66 68 70 72	
	02468	0 10 12 14	10 10 20 22 24		e (hours)	JH JU JU UU UZ UH UU UO 70 72	

Summary for Reach 1Ri: Inlet Pipe

[52] Hint: Inlet/Outlet conditions not evaluated

 Inflow Area =
 549,495 sf, 18.28% Impervious, Inflow Depth =
 1.56" for 2-Year _2100 event

 Inflow =
 10.19 cfs @
 12.52 hrs, Volume=
 71,656 cf

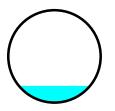
 Outflow =
 10.14 cfs @
 12.52 hrs, Volume=
 71,657 cf, Atten= 0%, Lag= 0.4 min

 Routed to Pond 4P : Basin 1 Medium Case
 71,657 cf, Atten= 0%, Lag= 0.4 min
 71,657 cf, Atten= 0%, Lag= 0.4 min

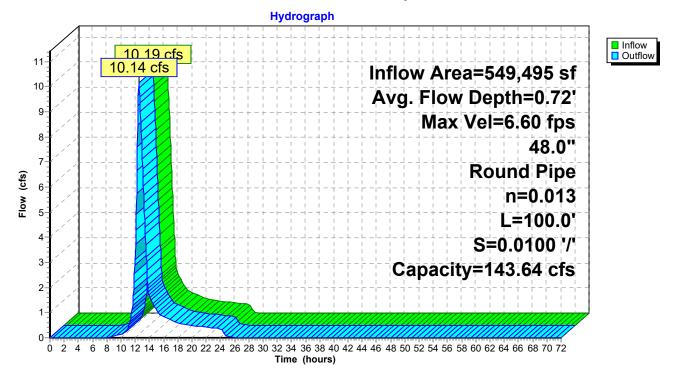
Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 6.60 fps, Min. Travel Time= 0.3 min Avg. Velocity = 2.54 fps, Avg. Travel Time= 0.7 min

Peak Storage= 154 cf @ 12.52 hrs Average Depth at Peak Storage= 0.72', Surface Width= 3.07' Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 143.64 cfs

48.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 100.0' Slope= 0.0100 '/' Inlet Invert= 75.00', Outlet Invert= 74.00'



Reach 1Ri: Inlet Pipe



Summary for Reach 1Ro: outlet

[52] Hint: Inlet/Outlet conditions not evaluated

 Inflow Area =
 549,495 sf, 18.28% Impervious, Inflow Depth > 1.41" for 2-Year _2100 event

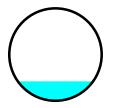
 Inflow =
 2.81 cfs @ 13.63 hrs, Volume=
 64,451 cf

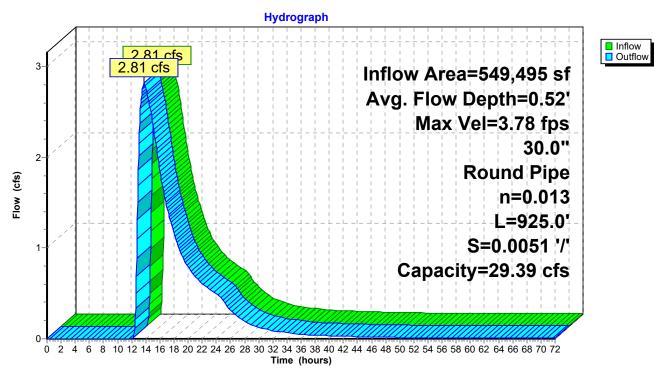
 Outflow =
 2.81 cfs @ 13.75 hrs, Volume=
 64,440 cf, Atten= 0%, Lag= 6.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Max. Velocity= 3.78 fps, Min. Travel Time= 4.1 min Avg. Velocity = 1.35 fps, Avg. Travel Time= 11.4 min

Peak Storage= 688 cf @ 13.68 hrs Average Depth at Peak Storage= 0.52' , Surface Width= 2.03' Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 29.39 cfs

30.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 925.0' Slope= 0.0051 '/' Inlet Invert= 70.75', Outlet Invert= 66.00'





Reach 1Ro: outlet

Summary for Reach 2Ri: Inlet Pipe

[52] Hint: Inlet/Outlet conditions not evaluated

 Inflow Area =
 908,125 sf, 25.71% Impervious, Inflow Depth =
 1.50" for 2-Year _2100 event

 Inflow =
 23.63 cfs @
 12.42 hrs, Volume=
 113,731 cf

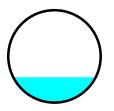
 Outflow =
 22.89 cfs @
 12.42 hrs, Volume=
 113,745 cf, Atten= 3%, Lag= 0.2 min

 Routed to Pond 8P : Basin 2 Medium Case
 20.2 min
 113,745 cf, Atten= 3%, Lag= 0.2 min

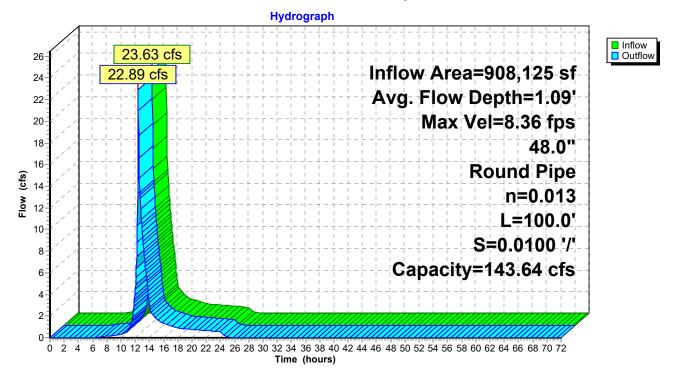
Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 8.36 fps, Min. Travel Time= 0.2 min Avg. Velocity = 2.86 fps, Avg. Travel Time= 0.6 min

Peak Storage= 278 cf @ 12.42 hrs Average Depth at Peak Storage= 1.09', Surface Width= 3.57' Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 143.64 cfs

48.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 100.0' Slope= 0.0100 '/' Inlet Invert= 70.00', Outlet Invert= 69.00'



Reach 2Ri: Inlet Pipe



Summary for Reach 2Ro: Outlet

[52] Hint: Inlet/Outlet conditions not evaluated

 Inflow Area =
 908,125 sf, 25.71% Impervious, Inflow Depth =
 1.44" for 2-Year_2100 event

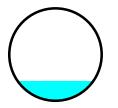
 Inflow =
 10.98 cfs @
 12.86 hrs, Volume=
 108,930 cf

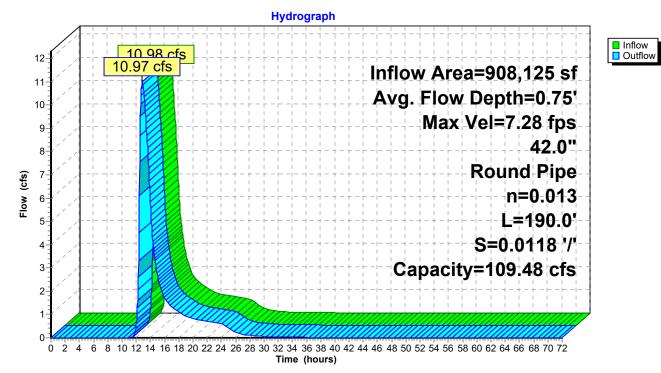
 Outflow =
 10.97 cfs @
 12.87 hrs, Volume=
 108,930 cf, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 7.28 fps, Min. Travel Time= 0.4 min Avg. Velocity = 1.78 fps, Avg. Travel Time= 1.8 min

Peak Storage= 286 cf @ 12.86 hrs Average Depth at Peak Storage= 0.75' , Surface Width= 2.87' Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 109.48 cfs

42.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 190.0' Slope= 0.0118 '/' Inlet Invert= 65.75', Outlet Invert= 63.50'





Reach 2Ro: Outlet

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

Inflow Area =	492,891 sf, 8.90% Impervious,	Inflow Depth = 1.77" for 2-Year 2100 event
Inflow =	16.30 cfs @ 12.30 hrs, Volume=	72,561 cf
	10.19 cfs @ 12.52 hrs, Volume=	71,498 cf, Atten= 38%, Lag= 13.1 min
	10.19 cfs @ 12.52 hrs, Volume=	71,498 cf
Routed to Link	x 1L : Combined Flows	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf
Routed to Link	1L : Combined Flows	
	0.00 cfs @ 0.00 hrs, Volume=	0 cf
Routed to Link	x 1L : Combined Flows	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 98.54' @ 12.52 hrs Surf.Area= 6,125 sf Storage= 11,599 cf

Plug-Flow detention time= 28.4 min calculated for 71,448 cf (98% of inflow) Center-of-Mass det. time= 19.9 min (866.8 - 846.9)

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 = 0.00 = 15.635 cf. Total Available Storage

 $1,737 \text{ cf} \times 9.00 = 15,635 \text{ cf}$ Total Available Storage

Storage	Group A	created	with	Chamber	Wizard

Elevation (feet)		Surf.Area (sq-ft)	Void %)		Cum.Store (cubic-feet)	Wet.Area (sq-ft)		
	1			· · · · · ·				
97.7		175	0. 25		0 31	175		
98.2	-	175	35.		-	198		
99.2	-	175	35.		92	245		
99.8		175	25.		103	257		
100.0		175	100.		190	281		
100.5	51	175	100.) 89	280	304		
101.7	75	175	100.) 217	497	363		
Device	Routing	In	vert	Outlet Devices				
#1	Primary	94	1.17'	6.0" Round Culve	ert X 9.00 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 Are				
#2	Device 1	94	.33'	6.0" Round 6" HDPE Underdrain X 9.00 L= 32.0' Ke= 0.500				
<i></i>	Device 1	0		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				
#2	Secondo	n/ 100						
#3 Secondary 100.00'			0.00	3.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 9.00 Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00				
					0.40 0.60 0.80 1.0	00 1.20 1.40 1.60	J 1.80 2.00	
				2.50 3.00 3.50				
				Coef. (English) 2.5		2.66 2.70 2.77	2.89 2.88	
				2.85 3.07 3.20 3.3	32			

#4 Tertiary 100.50' 6.0' long Sharp-Crested Rectangular Weir X 9.00 2 End Contraction(s)

Primary OutFlow Max=10.13 cfs @ 12.52 hrs HW=98.49' (Free Discharge) 1=Culvert (Passes 10.13 cfs of 15.20 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 10.13 cfs @ 5.73 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

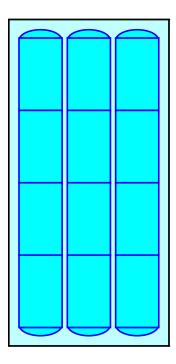
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

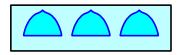
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

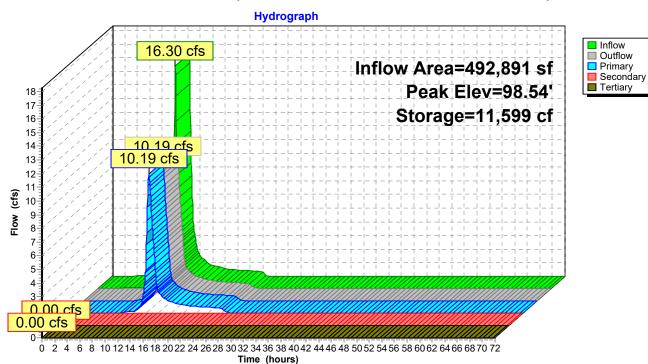
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

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

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: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	21,359 sf,100.00% Impervious,	Inflow Depth = 3.74" for 2-Year 2100 event
Inflow =	2.00 cfs @ 12.13 hrs, Volume=	6,648 cf
Outflow =	0.10 cfs @ 13.70 hrs, Volume=	6,648 cf, Atten= 95%, Lag= 94.4 min
Discarded =	0.06 cfs @ 13.35 hrs, Volume=	6,490 cf
Primary =	0.04 cfs @ 13.70 hrs, Volume=	159 cf
Routed to Link	1L : Combined Flows	

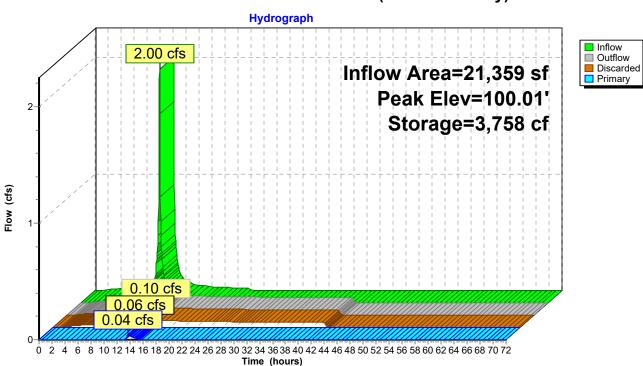
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.01' @ 13.70 hrs Surf.Area= 5,000 sf Storage= 3,758 cf

Plug-Flow detention time= 615.2 min calculated for 6,644 cf (100% of inflow) Center-of-Mass det. time= 615.6 min (1,368.7 - 753.1)

Volume	Invert	Ava	il.Storage	Storage Description					
#1	98.25'		622 cf	f Custom Stage Data (Conic)Listed below (Recalc)					
			622 cf	x 10.00 = 6,22	20 cf Total Availabl	e Storage			
Elevatio (fee		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)			
98.2	25	374	0.0	0	0	374			
99.2	25	374	35.0	131	131	443			
99.5	0	374	25.0	23	154	460			
100.0	0	500	100.0	218	372	591			
100.2	25	500	100.0	125	497	611			
100.5	0	500	100.0	125	622	631			
Device #1 #2	Routing Discarded Primary	98	2.25' 0.50 .00' 2.0' Hea 2.50 Coe	long x 3.0' brea id (feet) 0.20 0.4 0 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2	rea d Rectangular Weir X 10.00 1.20 1.40 1.60 1.80 2.00 .65 2.64 2.64 2.68 2.68			

Discarded OutFlow Max=0.06 cfs @ 13.35 hrs HW=100.00' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.03 cfs @ 13.70 hrs HW=100.01' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 0.03 cfs @ 0.21 fps)





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

35,245 sf,100.00% Impervious, Inflow Depth = 3.74" for 2-Year 2100 event Inflow Area = Inflow 3.31 cfs @ 12.13 hrs, Volume= 10.971 cf = 0.41 cfs @ 11.60 hrs, Volume= 10,970 cf, Atten= 88%, Lag= 0.0 min Outflow = 0.41 cfs @ 11.60 hrs, Volume= Discarded = 10,970 cf 0.00 cfs @ 0.00 hrs, Volume= Primary = 0 cf Routed to Link 1L : Combined Flows

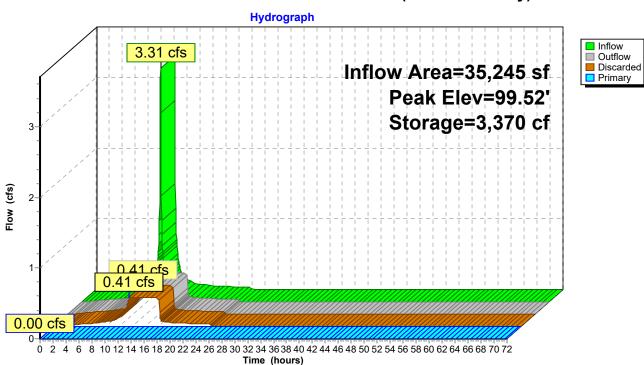
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 99.52' @ 12.71 hrs Surf.Area= 35,245 sf Storage= 3,370 cf

Plug-Flow detention time= 52.0 min calculated for 10,962 cf (100% of inflow) Center-of-Mass det. time= 51.9 min (805.0 - 753.1)

Volume	Inver	t Avail.	Storage	Storage Descri	ption	
#1	99.25	' 1	6,001 cf	Custom Stage	Data (Prismatic)Listed below (Recalc)
Elevatio (fee 99.2 99.7 99.8 100.0 100.2	et) 25 75 33 01	(sq-ft) 35,245 35,245 35,245 35,245 35,245	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 6,168 423 952 8,459	Cum.Store (cubic-feet) 0 6,168 6,591 7,542 16,001	
Device	Routing	Inve	ert Outle	et Devices		
#1 #2	Discarded Primary	99.2 100.0	00' 15.0 ' Head 2.50 Coef	long x 1.0' bro d (feet) 0.20 0.4 3.00	40 0.60 0.80 1.0	area brous Asphalt X 76.00 00 1.20 1.40 1.60 1.80 2.00 2.98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=0.41 cfs @ 11.60 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.41 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: Basin 1 Medium Case

[62] Hint: Exceeded Reach 1Ri OUTLET depth by 0.97' @ 13.90 hrs

Inflow Area = 549,495 sf, 18.28% Impervious, Inflow Depth = 1.56" for 2-Year 2100 event 10.14 cfs @ 12.52 hrs, Volume= Inflow = 71.657 cf Outflow = 2.81 cfs @ 13.63 hrs, Volume= 64,451 cf, Atten= 72%, Lag= 66.5 min Primary = 2.81 cfs @ 13.63 hrs, Volume= 64,451 cf Routed to Reach 1Ro : outlet Secondary = 0.00 cfs @ 0.00 hrs. Volume= 0 cfRouted to Reach 1Ro : outlet Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf Routed to Reach 1Ro : outlet

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 75.30' @ 13.63 hrs Surf.Area= 29,240 sf Storage= 35,765 cf

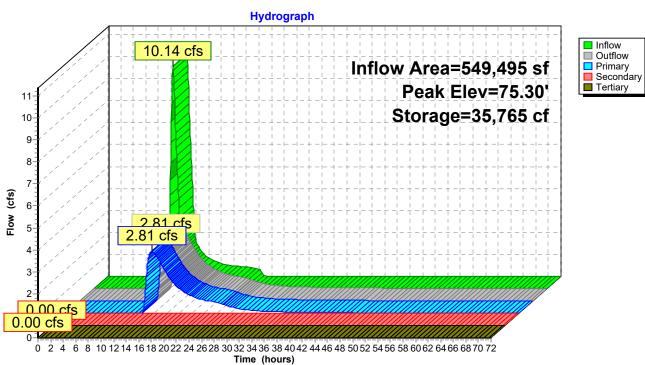
Plug-Flow detention time= 308.7 min calculated for 64,406 cf (90% of inflow) Center-of-Mass det. time= 259.5 min (1,126.9 - 867.4)

Volume	Invert	Avail.Stor	rage Storage	Description	
#1	74.00'	162,84	840 cf Custom Stage Data (Prismatic)List		ismatic)Listed below (Recalc)
Elevatio (fee		f.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
74.0	-	25,611	0	0	
79.0	00 3	39,525	162,840	162,840	
Device	Routing	Invert	Outlet Device	S	
#1	Primary	74.25'		ow Flow Orifice	
# 0	Coccurdom			ir flow at low hea	
#2	Secondary	76.25'		ir flow at low hea	Orifice X 2.00 C= 0.600
#3	Tertiary	78.75'	24.0" x 24.0"	Horiz. Orifice/G	Frate C= 0.600

Primary OutFlow Max=2.81 cfs @ 13.63 hrs HW=75.30' (Free Discharge) -1=Low Flow Orifice (Orifice Controls 2.81 cfs @ 3.58 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=74.00' (Free Discharge) 2=2-YR Orifice (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=74.00' (Free Discharge) -3=Orifice/Grate (Controls 0.00 cfs)



Pond 4P: Basin 1 Medium Case

Summary for Pond 5P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Inflow Area =	759,404 sf, 11.16% Impervious,	Inflow Depth = 1.82" for 2-Year _2100 event
Inflow =	24.54 cfs @ 12.32 hrs, Volume=	114,890 cf
Outflow =	23.63 cfs @ 12.42 hrs, Volume=	113,195 cf, Atten= 4%, Lag= 5.5 min
Primary =	13.60 cfs @ 12.40 hrs, Volume=	108,461 cf
Routed to Link	< 2L : Combined Flows	
Secondary =	10.01 cfs @ 12.42 hrs, Volume=	4,734 cf
Routed to Link	< 2L : Combined Flows	
Tertiary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf
Routed to Link	< 2L : Combined Flows	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 100.25' @ 12.40 hrs Surf.Area= 6,805 sf Storage= 14,742 cf

Plug-Flow detention time= 27.3 min calculated for 113,195 cf (99% of inflow) Center-of-Mass det. time= 18.2 min (862.8 - 844.6)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	365 cf	Custom Stage Data (Conic)Listed below (Recalc)
#2A	93.75'		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
		1 606 cf	x 10.00 - 16.060 cf Total Available Storage

 $1,606 \text{ cf} \times 10.00 = 16,060 \text{ cf}$ Total Available Storage

Storage Group A created with Chamber Wizard

Elevatio (fee		Surf.Area (sq-ft)	Void %)		Cum.Store (cubic-feet)	Wet.Area (sq-ft)		
97.7	75	175	0.		0	175		
98.2	25	175	35.	0 31	31	198		
99.2	25	175	35.	0 61	92	245		
99.8	50	175	25.	0 11	103	257		
100.0	00	175	100.	0 88	190	281		
100.5	51	175	100.	0 89	280	304		
101.0	00	175	100.	0 86	365	327		
Device	Routing	In	vert	Outlet Devices				
#1	Primary	94	1.17'	6.0" Round Culve	rt X 10.00 L= 10.0)' Ke= 0.500		
	, ,			Inlet / Outlet Invert=			0.900	
				n= 0.020 Corrugate				
#2	Device 1	94	1.33'	6.0" Round 6" HD				
				Inlet / Outlet Invert= 94.33' / 94.17' S= 0.0050 '/' Cc= 0.900				
				n= 0.020 Corrugate				
#3	Seconda	rv 100	0.00'	3.0' long x 2.0' bre				
		5		Head (feet) 0.20 0		•		
				2.50 3.00 3.50				
				Coef. (English) 2.54	4 2.61 2.61 2.60	2.66 2.70 2.77	2.89 2.88	
				2.85 3.07 3.20 3.3				

#4 Tertiary 100.50' **6.0' long Sharp-Crested Rectangular Weir X 10.00** 2 End Contraction(s)

Primary OutFlow Max=13.60 cfs @ 12.40 hrs HW=100.25' (Free Discharge) 1=Culvert (Passes 13.60 cfs of 20.35 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 13.60 cfs @ 6.92 fps)

Secondary OutFlow Max=8.72 cfs @ 12.42 hrs HW=100.24' (Free Discharge) —3=Broad-Crested Rectangular Weir (Weir Controls 8.72 cfs @ 1.24 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 5P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

Chamber Model = ADS_StormTechSC-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

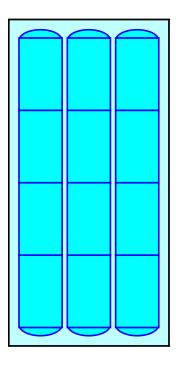
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

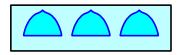
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

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

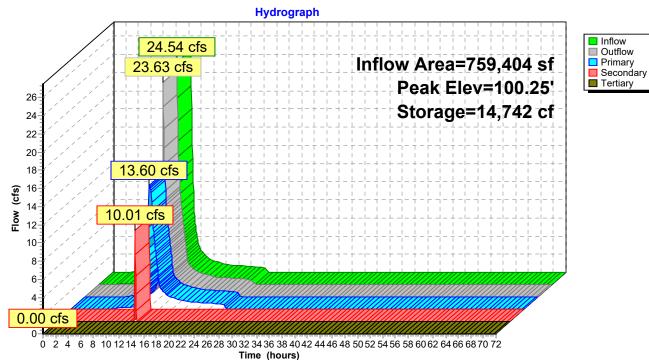
Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af Overall Storage Efficiency = 54.5%Overall System Size = $32.10' \times 15.75' \times 4.50'$

12 Chambers 84.3 cy Field 63.8 cy Stone









Summary for Pond 6P: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	53,997 sf,100.00% Impervious,	Inflow Depth = 3.74" for 2-Year 2100 event
Inflow =	5.07 cfs @ 12.13 hrs, Volume=	16,807 cf
Outflow =	0.29 cfs @ 13.51 hrs, Volume=	16,808 cf, Atten= 94%, Lag= 83.2 min
Discarded =	0.14 cfs @ 13.20 hrs, Volume=	16,271 cf
Primary =	0.14 cfs @ 13.51 hrs, Volume=	537 cf
Routed to Link	2L : Combined Flows	

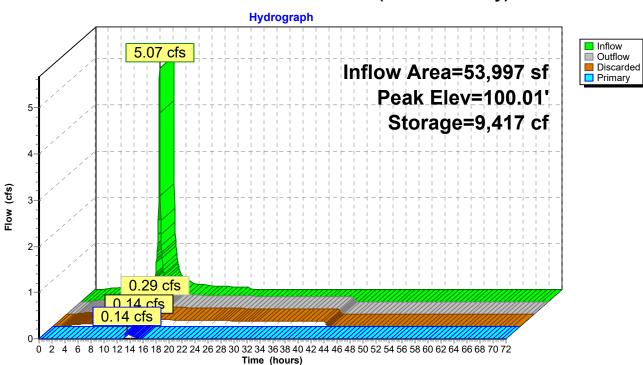
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 100.01' @ 13.51 hrs Surf.Area= 12,500 sf Storage= 9,417 cf

Plug-Flow detention time= 611.1 min calculated for 16,796 cf (100% of inflow) Center-of-Mass det. time= 611.4 min (1,364.5 - 753.1)

Volume	Invert	Ava	il.Storage	Storage Descrip	Storage Description				
#1	98.25'		622 cf	Custom Stage Data (Conic)Listed below (Recalc)					
			622 cf	x 25.00 = 15,5	50 cf Total Availat	ble Storage			
Elevatio (fee		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)			
98.2	-	374	0.0	0	0	374			
99.2	-	374	35.0	131	131	443			
99.5	50	374	25.0	23	154	460			
100.0	0	500	100.0	218	372	591			
100.2	25	500	100.0	125	497	611			
100.5	50	500	100.0	125	622	631			
Device #1 #2	Routing Discarded Primary	98	3.25' 0.50 0.00' 2.0' Hea 2.50 Coe	long x 3.0' bread d (feet) 0.20 0.4 0 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2.	ea I Rectangular Weir X 25.00 1.20 1.40 1.60 1.80 2.00 65 2.64 2.64 2.68 2.68			

Discarded OutFlow Max=0.14 cfs @ 13.20 hrs HW=100.00' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=0.11 cfs @ 13.51 hrs HW=100.01' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 0.11 cfs @ 0.24 fps)



Pond 6P: Basic Rain Garden (infiltration only)

Summary for Pond 7P: Basic Porous Pavement (infiltration only)

94,724 sf,100.00% Impervious, Inflow Depth = 3.74" for 2-Year 2100 event Inflow Area = Inflow 8.89 cfs @ 12.13 hrs, Volume= 29.484 cf = 1.10 cfs @ 11.60 hrs, Volume= 29,484 cf, Atten= 88%, Lag= 0.0 min Outflow = 1.10 cfs @ 11.60 hrs, Volume= Discarded = 29.484 cf 0.00 cfs @ 0.00 hrs, Volume= Primary = 0 cf Routed to Link 2L : Combined Flows

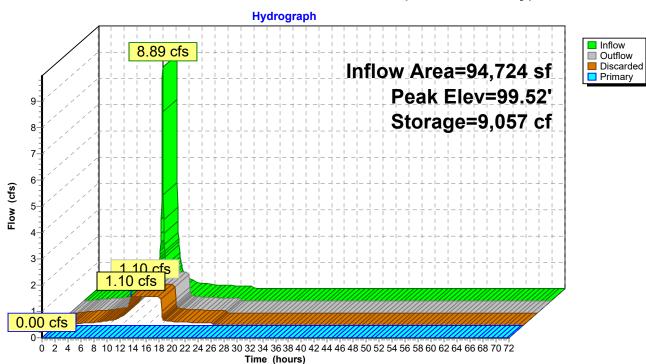
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.52' @ 12.71 hrs Surf.Area= 94,724 sf Storage= 9,057 cf

Plug-Flow detention time= 52.0 min calculated for 29,464 cf (100% of inflow) Center-of-Mass det. time= 52.0 min (805.0 - 753.1)

Volume	Inver	t Avail	I.Storage	Storage Descrip	otion	
#1	99.25	' Z	43,005 cf	Custom Stage	Data (Prismatic)List	ed below (Recalc)
Elevatio (fee 99.2 99.7 99.8 100.0 100.2	et) 25 75 33 01	Surf.Area (sq-ft) 94,724 94,724 94,724 94,724 94,724 94,724	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 16,577 1,137 2,558 22,734	Cum.Store (cubic-feet) 0 16,577 17,713 20,271 43,005	
100.2 <u>Device</u> #1 #2	25 <u>Routing</u> Discarded Primary	Inv	vert Outle .25' 0.50 .00' 15.0 Head 2.50 Coet	et Devices 0 in/hr Exfiltratio ' long x 1.0' bre d (feet) 0.20 0.4 3.00	on over Surface are adth Edge of Porou 0 0.60 0.80 1.00 1	-

Discarded OutFlow Max=1.10 cfs @ 11.60 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 1.10 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 7P: Basic Porous Pavement (infiltration only)

Summary for Pond 8P: Basin 2 Medium Case

[62] Hint: Exceeded Reach 2Ri OUTLET depth by 0.72' @ 13.15 hrs

Inflow Area = 908,125 sf, 25.71% Impervious, Inflow Depth = 1.50" for 2-Year 2100 event 22.89 cfs @ 12.42 hrs, Volume= Inflow = 113,745 cf Outflow = 10.98 cfs @ 12.86 hrs, Volume= 108,930 cf, Atten= 52%, Lag= 26.3 min Primary = 10.98 cfs @ 12.86 hrs, Volume= 108,930 cf Routed to Reach 2Ro : Outlet Secondary = 0.00 cfs @ 0.00 hrs. Volume= 0 cfRouted to Reach 2Ro : Outlet Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf Routed to Reach 2Ro : Outlet

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 70.43' @ 12.86 hrs Surf.Area= 22,408 sf Storage= 29,460 cf

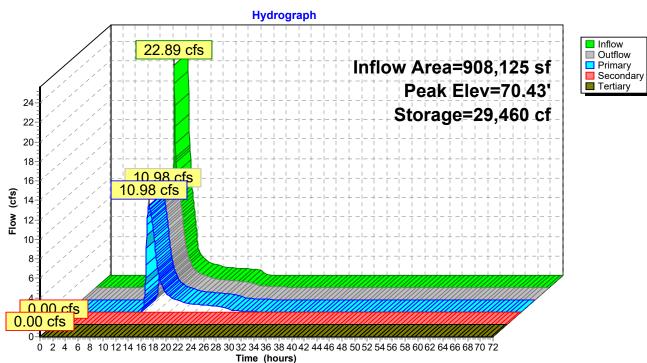
Plug-Flow detention time= 109.4 min calculated for 108,930 cf (96% of inflow) Center-of-Mass det. time= 85.4 min (948.6 - 863.3)

Volume	Invert	Avail.Stor	rage Storag	e Description	
#1	69.00'	125,28	30 cf Custo	m Stage Data (Pi	rismatic)Listed below (Recalc)
Elevatio (fee	et)	rf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
69.0		18,889	0	0	
74.(00	31,223	125,280	125,280	
Device	Routing	Invert	Outlet Devic	es	
#1	Primary	69.25'			X 2.00 C= 0.600
				eir flow at low hea	
#2	Secondary	71.25'	-		Crifice X 3.00 C= 0.600
#3	Tertiary	73.75'	48.0" x 48.0	eir flow at low hea " Horiz. Orifice/(eir flow at low hea	Grate C= 0.600

Primary OutFlow Max=10.98 cfs @ 12.86 hrs HW=70.43' (Free Discharge) -1=Low Flow Orifice (Orifice Controls 10.98 cfs @ 3.69 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge) 2=2-YR Orifice (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge) -3=Orifice/Grate (Controls 0.00 cfs)



Pond 8P: Basin 2 Medium Case

Summary for Pond 9P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Inflow Area = 840,092 sf, 1.06% Impervious, Inflow Depth = 1.60" for 2-Year 2100 event Inflow = 21.53 cfs @ 12.41 hrs, Volume= 111.825 cf 21.53 cfs @ 12.41 hrs, Volume= Outflow = 111,546 cf, Atten= 0%, Lag= 0.1 min 2.86 cfs @ 12.41 hrs, Volume= Primary = 65.822 cf Routed to Link 3L : dA3 11.62 cfs @ 12.41 hrs, Volume= 35,218 cf Secondary = Routed to Link 3L : dA3 Tertiarv = 7.05 cfs @ 12.41 hrs, Volume= 10.505 cf Routed to Link 3L : dA3

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 100.82' @ 12.41 hrs Surf.Area= 1,361 sf Storage= 3,149 cf

Plug-Flow detention time= 10.1 min calculated for 111,469 cf (100% of inflow) Center-of-Mass det. time= 8.8 min (879.4 - 870.7)

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 2.00 - 3.475 cf. Total Available Storage

 $1,737 \text{ cf} \times 2.00 = 3,475 \text{ cf}$ Total Available Storage

Storage Group A created with Chamber Wizard

Elevatio (fee		Surf.Area (sq-ft)	Void %)		Cum.Store (cubic-feet)	Wet.Area	
	1			· · · · · · · · · · · · · · · · · · ·		(sq-ft)	
97.7	-	175	0.		0	175	
98.2		175	35.		31	198	
99.2	25	175	35.) 61	92	245	
99.5	50	175	25.) 11	103	257	
100.0	00	175	100.	88	190	281	
100.5	51	175	100.) 89	280	304	
101.7	75	175	100.) 217	497	363	
Device	Routing	In	vert	Outlet Devices			
#1	Primary	94	17'	6.0" Round Culve	rt X 2.00 L= 10.0'	Ke= 0.500	
	-			Inlet / Outlet Invert=	= 94.17' / 94.12' S	S= 0.0050 '/' Cc=	0.900
				n= 0.020 Corrugate	ed PE. corrugated	interior. Flow Are	a= 0.20 sf
#2	Device 1	94	.33'	6.0" Round 6" HD			
		-		Inlet / Outlet Invert=			
				n= 0.020 Corrugate			
#3	Seconda	rv 100).00'	3.0' long x 2.0' bre			
#5	Occonda	iy 100	.00				
				Head (feet) 0.20 0	1.40 0.00 0.00 1.0	00 1.20 1.40 1.0	0 1.00 2.00
				2.50 3.00 3.50		.	
				Coef. (English) 2.5		2.66 2.70 2.77	2.89 2.88
				2.85 3.07 3.20 3.3	32		

#4 Tertiary 100.50' 6.0' long Sharp-Crested Rectangular Weir X 2.00 2 End Contraction(s)

Primary OutFlow Max=2.85 cfs @ 12.41 hrs HW=100.82' (Free Discharge) 1=Culvert (Passes 2.85 cfs of 4.27 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 2.85 cfs @ 7.27 fps)

Secondary OutFlow Max=11.56 cfs @ 12.41 hrs HW=100.82' (Free Discharge) —3=Broad-Crested Rectangular Weir (Weir Controls 11.56 cfs @ 2.36 fps)

Tertiary OutFlow Max=6.95 cfs @ 12.41 hrs HW=100.82' (Free Discharge) **4=Sharp-Crested Rectangular Weir** (Weir Controls 6.95 cfs @ 1.84 fps)

ond 9P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

Chamber Model = ADS_StormTechSC-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

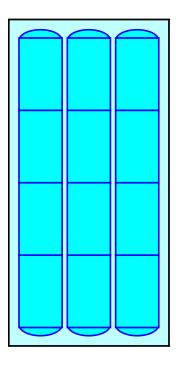
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

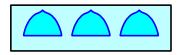
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

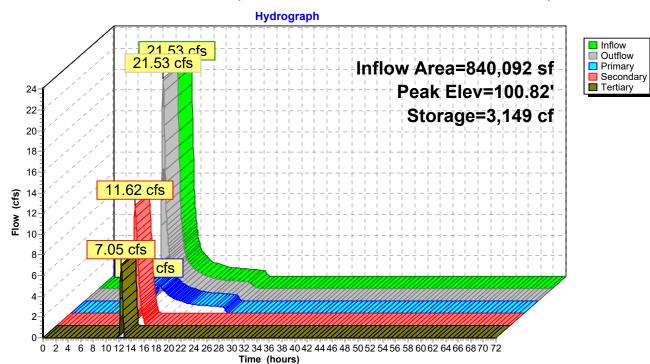
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

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

12 Chambers 84.3 cy Field 63.8 cy Stone







Pond 9P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Summary for Pond 10P: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	22,074 sf,	100.00% Impervious,	Inflow Depth = 3.74" for 2-Year _2100 event
Inflow =	2.07 cfs @	12.13 hrs, Volume=	6,871 cf
Outflow =	0.28 cfs @	12.66 hrs, Volume=	6,870 cf, Atten= 86%, Lag= 31.9 min
Discarded =	0.05 cfs @	12.45 hrs, Volume=	6,043 cf
Primary =	0.23 cfs @	12.66 hrs, Volume=	828 cf
Routed to Link	3L : dA3		

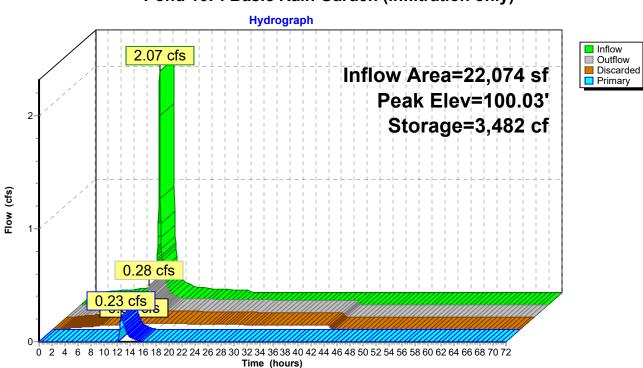
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 100.03' @ 12.66 hrs Surf.Area= 4,500 sf Storage= 3,482 cf

Plug-Flow detention time= 563.6 min calculated for 6,866 cf (100% of inflow) Center-of-Mass det. time= 563.9 min (1,317.0 - 753.1)

Volume	Invert	Ava	il.Storage	Storage Descrip	tion	
#1	98.25'		622 cf	Custom Stage	Data (Conic)Listed	below (Recalc)
			622 cf	x 9.00 = 5,598	cf Total Available	Storage
Elevatio (fee		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
98.2	25	374	0.0	0	0	374
99.2	25	374	35.0	131	131	443
99.5	60	374	25.0	23	154	460
100.0	0	500	100.0	218	372	591
100.2	25	500	100.0	125	497	611
100.5	60	500	100.0	125	622	631
Device #1 #2	Routing Discarded Primary	98	2.25' 0.50 .00' 2.0' Hea 2.50 Coe	long x 3.0' bread d (feet) 0.20 0.4 0 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2.	ea Rectangular Weir X 9.00 1.20 1.40 1.60 1.80 2.00 65 2.64 2.64 2.68 2.68

Discarded OutFlow Max=0.05 cfs @ 12.45 hrs HW=100.00' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.22 cfs @ 12.66 hrs HW=100.03' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 0.22 cfs @ 0.42 fps)



Pond 10P: Basic Rain Garden (infiltration only)

Summary for Pond 11P: Basic Porous Pavement (infiltration only)

85,494 sf,100.00% Impervious, Inflow Depth = 3.74" for 2-Year 2100 event Inflow Area = Inflow 8.02 cfs @ 12.13 hrs, Volume= 26.611 cf = 0.99 cfs @ 11.60 hrs, Volume= 26,611 cf, Atten= 88%, Lag= 0.0 min Outflow = 0.99 cfs @ 11.60 hrs, Volume= Discarded = 26.611 cf Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf Routed to Link 3L : dA3

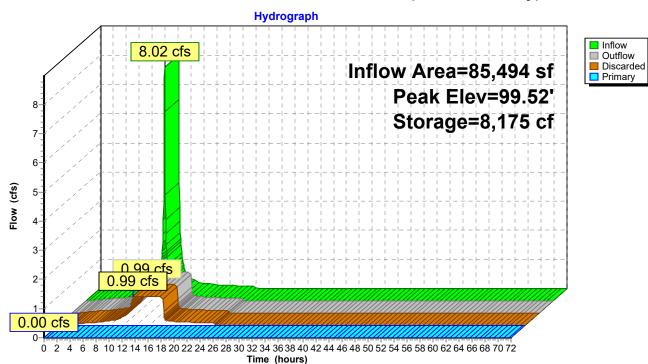
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.52' @ 12.71 hrs Surf.Area= 85,494 sf Storage= 8,175 cf

Plug-Flow detention time= 52.0 min calculated for 26,593 cf (100% of inflow) Center-of-Mass det. time= 52.0 min (805.0 - 753.1)

Volume	Inver	t Avai	I.Storage	Storage Descrip	otion	
#1	99.25	5' 3	38,814 cf	Custom Stage	Data (Prismatic)Li	sted below (Recalc)
Elevatio (fee 99.2 99.7 99.8 100.0 100.2	et) 25 75 83 01	Surf.Area (sq-ft) 85,494 85,494 85,494 85,494 85,494	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 14,961 1,026 2,308 20,519	Cum.Store (cubic-feet) 0 14,961 15,987 18,296 38,814	
Device	Routing	Inv	vert Outle	et Devices		
#1 #2	Discarded Primary	99. 100.	.00' 15.0 Hea 2.50 Coe	' long x 1.0' bre d (feet) 0.20 0.4 3.00	0 0.60 0.80 1.00	rea bus Asphalt X 76.00 1.20 1.40 1.60 1.80 2.00 .98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=0.99 cfs @ 11.60 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.99 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 11P: Basic Porous Pavement (infiltration only)

Summary for Pond 12P: Basic Porous Pavement (infiltration only)

Inflow Area = 4,605 sf,100.00% Impervious, Inflow Depth = 3.74" for 2-Year 2100 event Inflow 0.43 cfs @ 12.13 hrs, Volume= 1.433 cf = 0.05 cfs @ 11.60 hrs, Volume= Outflow = 1,433 cf, Atten= 88%, Lag= 0.0 min 0.05 cfs @ 11.60 hrs, Volume= Discarded = 1,433 cf 0.00 cfs @ 0.00 hrs, Volume= Primary = 0 cf Routed to Link 4L : DA 4: Combined Flows

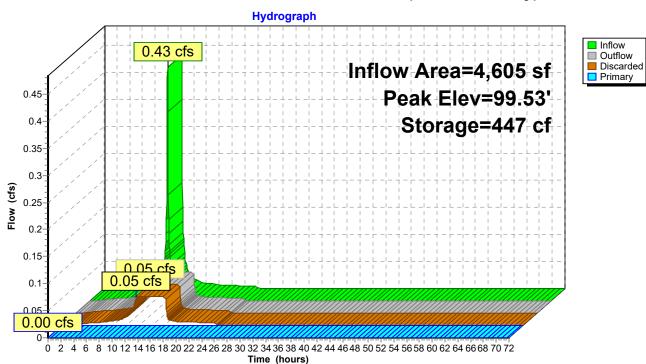
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 99.53' @ 12.71 hrs Surf.Area= 4,605 sf Storage= 447 cf

Plug-Flow detention time= 54.3 min calculated for 1,432 cf (100% of inflow) Center-of-Mass det. time= 54.3 min (807.4 - 753.1)

Volume	Invert	Ava	il.Storage	Storage Descri	ption	
#1	99.25'		4,393 ct	Custom Stage	Data (Prismatic)	Listed below (Recalc)
	_					
Elevatio	on Si	urf.Area	Voids	Inc.Store	Cum.Store	
(fee	et)	(sq-ft)	(%)	(cubic-feet)	(cubic-feet)	
99.2	25	4,605	0.0	0	0	
99.7	'5	4,605	35.0	806	806	
99.8	33	4,605	15.0	55	861	
100.0)1	4,605	15.0	124	985	
100.2	25	4,605	100.0	1,105	2,091	
100.7	' 5	4,605	100.0	2,303	4,393	
Device	Routing	In	vert Ou	tlet Devices		
#1	Discarded	99	.25' 0.5	00 in/hr Exfiltrat	ion over Surface	area
#2	Primary	100	.00' 15	.0' lona x 1.0' bro	eadth Edge of Po	rous Asphalt X 76.00
	,					0 1.20 1.40 1.60 1.80 2.00
				50 3.00		
			-		272 275 285	2.98 3.08 3.20 3.28 3.31
				0 3.31 3.32	2.72 2.70 2.00	2.00 0.00 0.20 0.20 0.01
			0.0	0.01 0.02		
Discard	ed OutFlow	Max=0	05 cfs @	11 60 hrs HW=90	9 27' (Free Disch	arge)

Discarded OutFlow Max=0.05 cfs @ 11.60 hrs HW=99.27' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.05 cfs)

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

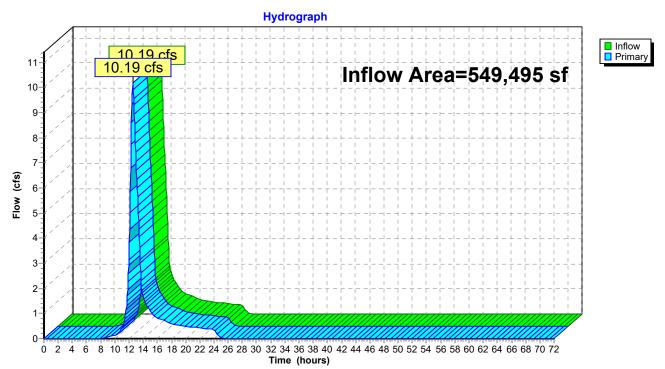


Pond 12P: Basic Porous Pavement (infiltration only)

Summary for Link 1L: Combined Flows

Inflow Area = 549,495 sf, 18.28% Impervious, Inflow Depth = 1.56" for 2-Year _2100 event Inflow = 10.19 cfs @ 12.52 hrs, Volume= 71,656 cf Primary = 10.19 cfs @ 12.52 hrs, Volume= 71,656 cf, Atten= 0%, Lag= 0.0 min Routed to Reach 1Ri : Inlet Pipe

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Link 1L: Combined Flows

Summary for Link 2L: Combined Flows

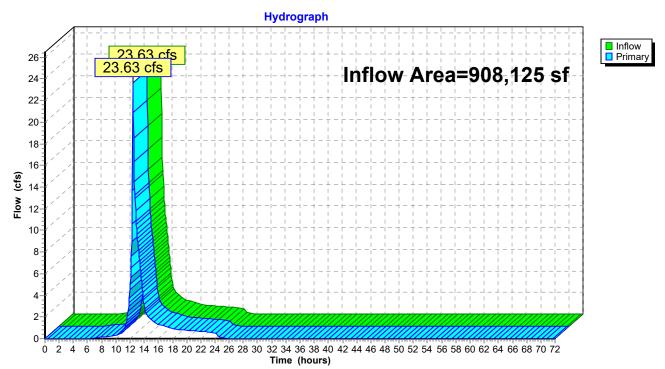
 Inflow Area =
 908,125 sf, 25.71% Impervious, Inflow Depth =
 1.50" for 2-Year _2100 event

 Inflow =
 23.63 cfs @
 12.42 hrs, Volume=
 113,731 cf

 Primary =
 23.63 cfs @
 12.42 hrs, Volume=
 113,731 cf, Atten= 0%, Lag= 0.0 min

 Routed to Reach 2Ri : Inlet Pipe
 100
 113,731 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

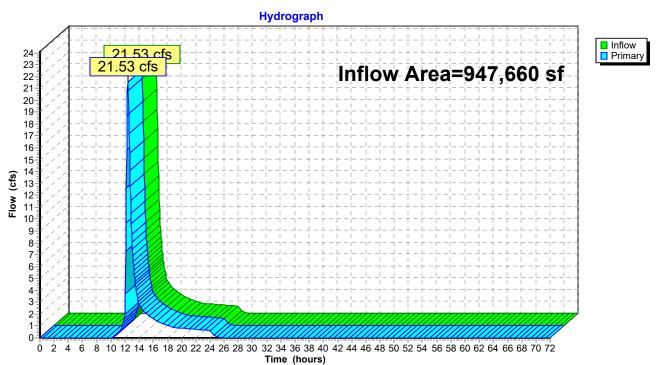


Link 2L: Combined Flows

Summary for Link 3L: dA3

Inflow Are	a =	947,660 sf, 12.2	29% Impervious,	Inflow Depth =	1.42"	for 2-Year	2100 event
Inflow	=	21.53 cfs @ 12.4	1 hrs, Volume=	112,374 c	f		
Primary	=	21.53 cfs @ 12.4	1 hrs, Volume=	112,374 c	f, Atter	n= 0%, Lag= (0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

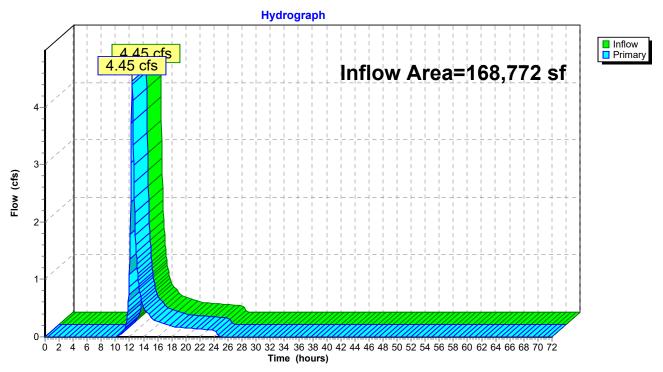


Link 3L: dA3

Summary for Link 4L: DA 4: Combined Flows

Inflow Area	a =	168,772 sf,	3.14% Impervious,	Inflow Depth =	1.54"	for 2-Year _2100 event
Inflow	=	4.45 cfs @	12.36 hrs, Volume=	21,663 cf		
Primary	=	4.45 cfs @	12.36 hrs, Volume=	21,663 cf	, Atter	n= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Link 4L: DA 4: Combined Flows

20240629_PartridgeFarmRd_HCAD_BASIN NOAA 24-hr C 10-Year_	_Current Rainfall=5.16"
Prepared by Rutgers Cooperative Extension Water Resources Program	Printed 6/29/2024
HydroCAD® 10.10-7c s/n 03601 © 2022 HydroCAD Software Solutions LLC	Page 126

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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

Subcatchment1S: DA 1: CN w/ IC areas	Runoff Area=549,495 sf 18.28% Impervious Runoff Depth=2.94" Tc=19.8 min CN=74/98 Runoff=30.13 cfs 134,482 cf
Subcatchment1Sa: DA 1: CN w/ IC areas	Runoff Area=492,891 sf 8.90% Impervious Runoff Depth=2.71" Tc=19.8 min CN=74/98 Runoff=25.39 cfs 111,261 cf
Subcatchment1Sb: DA 1: Roofs	Runoff Area=21,359 sf 100.00% Impervious Runoff Depth=4.92" Tc=6.0 min CN=0/98 Runoff=2.61 cfs 8,762 cf
Subcatchment1Sc: DA1: Driveways	Runoff Area=35,245 sf 100.00% Impervious Runoff Depth=4.92" Tc=6.0 min CN=0/98 Runoff=4.31 cfs 14,459 cf
Subcatchment2S: DA 2: CN w/ IC areas	Runoff Area=908,125 sf 25.71% Impervious Runoff Depth=3.12" Tc=21.8 min CN=74/98 Runoff=49.89 cfs 235,913 cf
Subcatchment2Sa: DA 2: CN w/ IC areas	Runoff Area=759,404 sf 11.16% Impervious Runoff Depth=2.76" Tc=21.8 min CN=74/98 Runoff=37.96 cfs 174,901 cf
Subcatchment2Sb: DA 2: Roofs	Runoff Area=53,997 sf 100.00% Impervious Runoff Depth=4.92" Tc=6.0 min CN=0/98 Runoff=6.61 cfs 22,152 cf
Subcatchment2Sc: DA 2: Driveways	Runoff Area=94,724 sf 100.00% Impervious Runoff Depth=4.92" Tc=6.0 min CN=0/98 Runoff=11.59 cfs 38,860 cf
Subcatchment3S: DA 3: CN w/ IC areas	Runoff Area=947,660 sf 12.29% Impervious Runoff Depth=2.79" Tc=27.9 min CN=74/98 Runoff=42.24 cfs 220,436 cf
Subcatchment3Sa: DA 3: CN w/ IC areas	Runoff Area=840,092 sf 1.06% Impervious Runoff Depth=2.52" Tc=27.9 min CN=74/98 Runoff=34.58 cfs 176,307 cf
Subcatchment3Sb: DA 3: Roofs	Runoff Area=22,074 sf 100.00% Impervious Runoff Depth=4.92" Tc=6.0 min CN=0/98 Runoff=2.70 cfs 9,056 cf
Subcatchment3Sc: DA 3: Driveways	Runoff Area=85,494 sf 100.00% Impervious Runoff Depth=4.92" Tc=6.0 min CN=0/98 Runoff=10.46 cfs 35,073 cf
Subcatchment4S: DA 4: CN w/ IC areas	Runoff Area=168,772 sf 3.14% Impervious Runoff Depth=2.57" Tc=24.4 min CN=74/98 Runoff=7.55 cfs 36,129 cf
Subcatchment4Sa: DA 4: CN w/ IC areas	Runoff Area=163,472 sf 0.00% Impervious Runoff Depth=2.49" Tc=24.4 min CN=74/0 Runoff=7.15 cfs 33,955 cf
Subcatchment4Sb: DA 4: Roofs	Runoff Area=695 sf 100.00% Impervious Runoff Depth=4.92" Tc=6.0 min CN=0/98 Runoff=0.09 cfs 285 cf
Subcatchment4Sc: DA 4: Driveways	Runoff Area=4,605 sf 100.00% Impervious Runoff Depth=4.92" Tc=6.0 min CN=0/98 Runoff=0.56 cfs 1,889 cf

Reach 1Ri: Inlet Pipe Avg. Flow Depth=1.18' Max Vel=8.56 fps Inflow=26.98 cfs 112,517 cf 48.0" Round Pipe n=0.013 L=100.0' S=0.0100 '/' Capacity=143.64 cfs Outflow=24.82 cfs 112,548 cf
Reach 1Ro: outlet Avg. Flow Depth=0.64' Max Vel=4.24 fps Inflow=4.18 cfs 105,320 cf 30.0" Round Pipe n=0.013 L=925.0' S=0.0051 '/' Capacity=29.39 cfs Outflow=4.18 cfs 105,310 cf
Reach 2Ri: Inlet Pipe Avg. Flow Depth=1.43' Max Vel=9.72 fps Inflow=39.36 cfs 178,678 cf 48.0" Round Pipe n=0.013 L=100.0' S=0.0100 '/' Capacity=143.64 cfs Outflow=39.08 cfs 178,732 cf
Reach 2Ro: Outlet Avg. Flow Depth=0.97' Max Vel=8.44 fps Inflow=18.30 cfs 173,915 cf 42.0" Round Pipe n=0.013 L=190.0' S=0.0118 '/' Capacity=109.48 cfs Outflow=18.29 cfs 173,916 cf
Pond 1P: Basic Rain Garden (w/ Peak Elev=100.32' Storage=13,376 cf Inflow=25.39 cfs 111,261 cf Primary=12.31 cfs 101,846 cf Secondary=13.77 cfs 8,882 cf Tertiary=0.00 cfs 0 cf Outflow=26.39 cfs 110,728 cf
Pond 2P: Basic Rain Garden (infiltration Discarded=0.06 cfs 6,974 cfPeak Elev=100.06' Storage=3,995 cfInflow=2.61 cfs 8,762 cfOutflow=0.69 cfs 8,762 cf
Pond 3P: Basic Porous PavementPeak Elev=99.66' Storage=5,023 cfInflow=4.31 cfs14,459 cfDiscarded=0.41 cfs14,457 cfPrimary=0.00 cfs0 cfOutflow=0.41 cfs14,457 cf
Pond 4P: Basin 1 Medium Case Peak Elev=75.97' Storage=55,987 cf Inflow=24.82 cfs 112,548 cf Primary=4.18 cfs 105,320 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=4.18 cfs 105,320 cf
Pond 5P: Basic Rain Garden (w/ Peak Elev=100.45' Storage=15,102 cf Inflow=37.96 cfs 174,901 cf Primary=13.84 cfs 146,643 cf Secondary=23.87 cfs 27,360 cf Tertiary=0.00 cfs 0 cf Outflow=37.71 cfs 174,003 cf
Pond 6P: Basic Rain Garden (infiltration Peak Elev=100.06' Storage=10,023 cf Inflow=6.61 cfs 22,152 cf Discarded=0.14 cfs 17,477 cf Primary=1.72 cfs 4,674 cf Outflow=1.86 cfs 22,152 cf
Pond 7P: Basic Porous PavementPeak Elev=99.66' Storage=13,500 cfInflow=11.59 cfs38,860 cfDiscarded=1.10 cfs38,860 cfPrimary=0.00 cfs0 cfOutflow=1.10 cfs38,860 cf
Pond 8P: Basin 2 Medium Case Peak Elev=71.16' Storage=46,483 cf Inflow=39.08 cfs 178,732 cf Primary=18.30 cfs 173,915 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=18.30 cfs 173,915 cf
Pond 9P: Basic Rain Garden (w/ Peak Elev=101.03' Storage=3,223 cf Inflow=34.58 cfs 176,307 cf Primary=2.90 cfs 87,061 cf Secondary=16.75 cfs 61,255 cf Tertiary=14.92 cfs 27,754 cf Outflow=34.57 cfs 176,070 cf
Pond 10P: Basic Rain Garden (infiltration Peak Elev=100.09' Storage=3,766 cf Inflow=2.70 cfs 9,056 cf Discarded=0.05 cfs 6,469 cf Primary=1.25 cfs 2,582 cf Outflow=1.30 cfs 9,051 cf
Pond 11P: Basic Porous PavementPeak Elev=99.66' Storage=12,184 cfInflow=10.46 cfs35,073 cfDiscarded=0.99 cfs35,073 cfPrimary=0.00 cfs0 cfOutflow=0.99 cfs35,073 cf
Pond 12P: Basic Porous Pavement (infiltration Peak Elev=99.66' Storage=664 cf Inflow=0.56 cfs 1,889 cf Discarded=0.05 cfs 1,889 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 1,889 cf
Link 1L: Combined Flows Inflow=26.98 cfs 112,517 cf Primary=26.98 cfs 112,517 cf
Link 2L: Combined Flows Inflow=39.36 cfs 178,678 cf

Inflow=39.36 cfs 178,678 cf Primary=39.36 cfs 178,678 cf Link 3L: dA3

Inflow=35.36 cfs 178,652 cf Primary=35.36 cfs 178,652 cf

Link 4L: DA 4: Combined Flows

Inflow=7.17 cfs 34,240 cf Primary=7.17 cfs 34,240 cf

Total Runoff Area = 5,148,104 sf Runoff Volume = 1,253,921 cf Average Runoff Depth = 2.92" 82.29% Pervious = 4,236,632 sf 17.71% Impervious = 911,472 sf

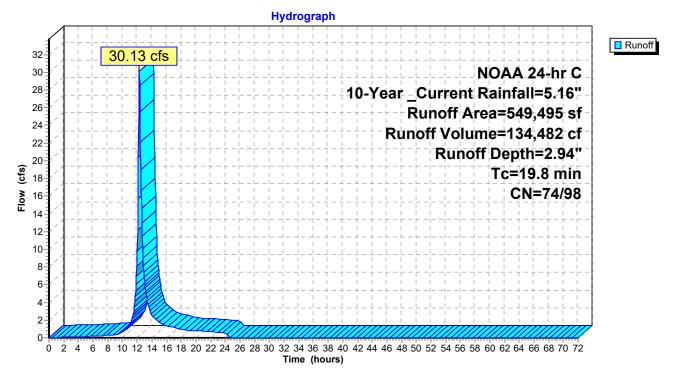
Summary for Subcatchment 1S: DA 1: CN w/ IC areas

Runoff = 30.13 cfs @ 12.29 hrs, Volume= 134,482 cf, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _Current Rainfall=5.16"

	Area (sf)	CN	Description				
*	100,459	98	Impervious				
	317,162	74	>75% Grass cover, Good, HSG C				
	131,575	73	Voods, Fair, HSG C				
	299	70	Woods, Good, HSG C				
	549,495	78	Weighted Average				
	449,036	74	81.72% Pervious Area				
	100,459	98	18.28% Impervious Area				
	Tc Length	Slop					
(n	nin) (feet)	(ft/	ft) (ft/sec) (cfs)				
1	9.8		Direct Entry, Direct				

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



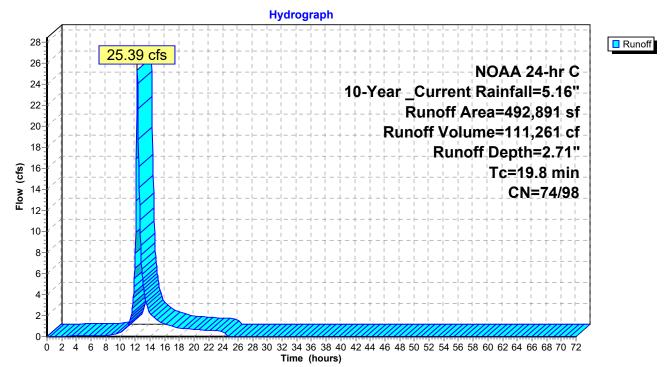
Summary for Subcatchment 1Sa: DA 1: CN w/ IC areas

Runoff = 25.39 cfs @ 12.30 hrs, Volume= 111,261 cf, Depth= 2.71" 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _Current Rainfall=5.16"

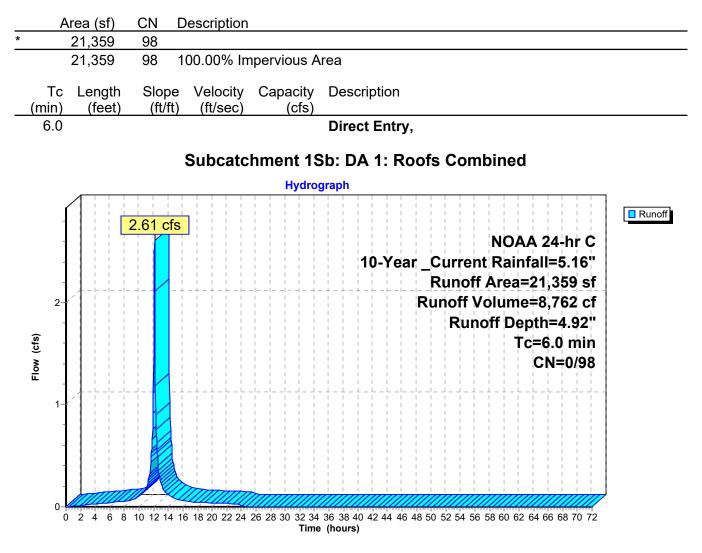
	Area (sf)	CN	Description	Description				
*	43,855	98	Impervious					
	317,162	74	>75% Gras	s cover, Go	bod, HSG C			
	131,575	73	Woods, Fai	Woods, Fair, HSG C				
	299	70	Woods, Go	od, HSG C				
	492,891	76	Weighted A	verage				
	449,036 74 91.10% Pervious Area							
	43,855	98	8.90% Impe	ervious Are	а			
_				• •				
	Fc Length	Slop	,	Capacity	Description			
(mi	n) (feet)	(ft/1	ft) (ft/sec)	(cfs)				
19	.8				Direct Entry, Direct			

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



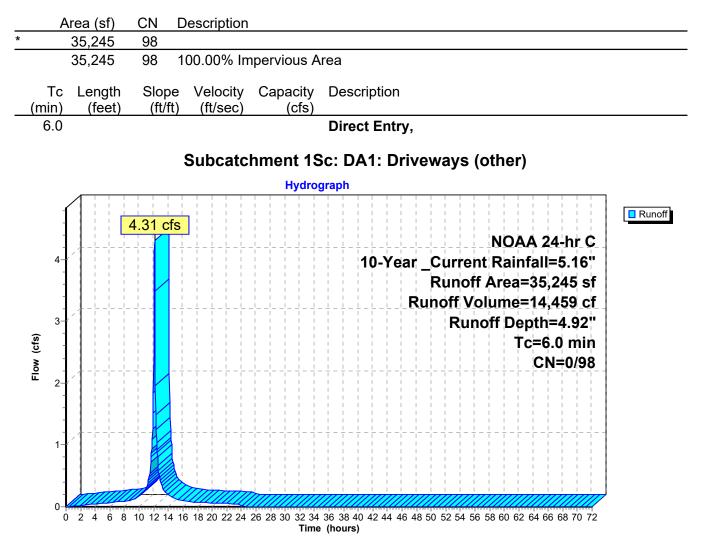
Summary for Subcatchment 1Sb: DA 1: Roofs Combined

Runoff = 2.61 cfs @ 12.13 hrs, Volume= 8,762 cf, Depth= 4.92" Routed to Pond 2P : Basic Rain Garden (infiltration only)



Summary for Subcatchment 1Sc: DA1: Driveways (other)

Runoff = 4.31 cfs @ 12.13 hrs, Volume= 14,459 cf, Depth= 4.92" Routed to Pond 3P : Basic Porous Pavement (infiltration only)



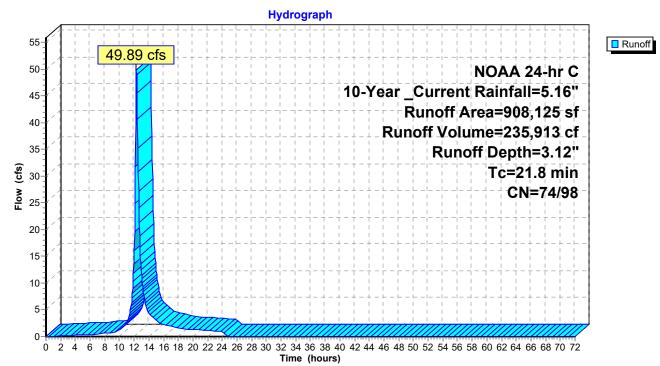
Summary for Subcatchment 2S: DA 2: CN w/ IC areas

Runoff = 49.89 cfs @ 12.32 hrs, Volume= 235,913 cf, Depth= 3.12"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _Current Rainfall=5.16"

	Area (sf)	CN	Description	Description					
*	233,471	98	Impervious	mpervious					
	1	65	Brush, Goo	Brush, Good, HSG C					
	620,871	74	>75% Gras	>75% Grass cover, Good, HSG C					
	1,845	72	Woods/gras	s comb., G	Good, HSG C				
	51,937	73	Woods, Fai	r, HSG C					
	908,125	80	80 Weighted Average						
	674,654	74	74 74.29% Pervious Area						
	233,471	98	25.71% Imp	ervious Ar	rea				
	T			0					
,	Tc Length			Capacity	Description				
<u> </u>	nin) (feet)	(ft/	ft) (ft/sec)	(cfs)					
2	1.8				Direct Entry, Direct				

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



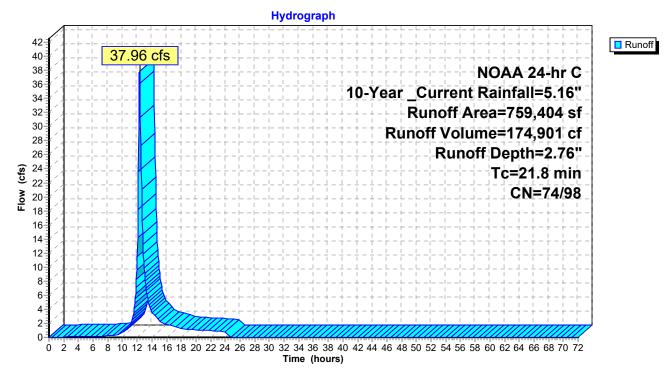
Summary for Subcatchment 2Sa: DA 2: CN w/ IC areas

Runoff = 37.96 cfs @ 12.32 hrs, Volume= 174,901 cf, Depth= 2.76" Routed to Pond 5P : 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _Current Rainfall=5.16"

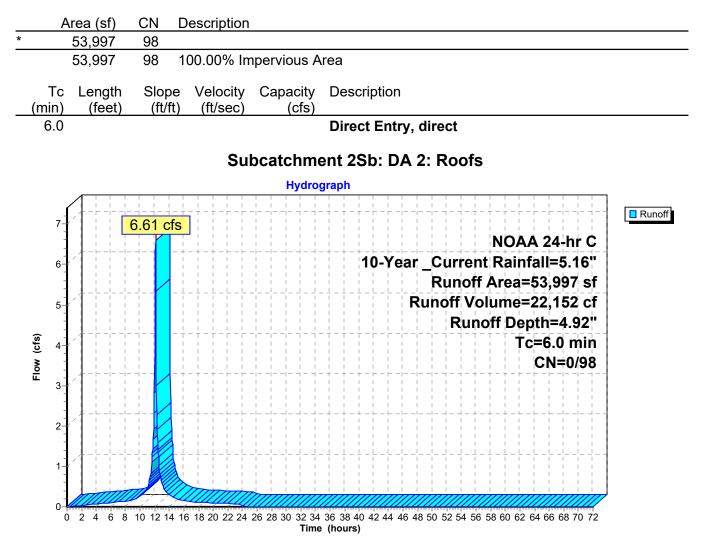
	Area (sf)	CN	Description					
*	84,750	98	mpervious					
	1	65	Brush, Good, HSG C					
	620,871	74	>75% Grass cover, Good, HSG C					
	1,845	72	Woods/grass comb., Good, HSG C					
	51,937	73	Woods, Fair, HSG C					
	759,404	77	Weighted Average					
	674,654	74	88.84% Pervious Area					
	84,750	98	11.16% Impervious Area					
	Tc Length in) (feet)	Slop (ft/						
2	1.8		Direct Entry, Direct	_				

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



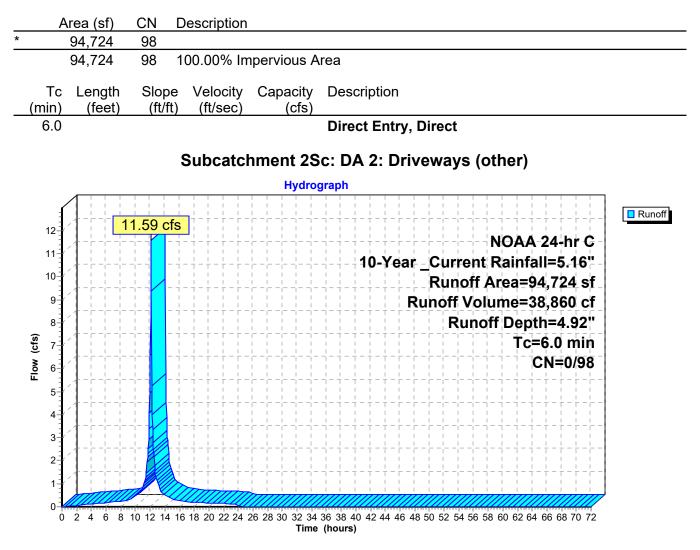
Summary for Subcatchment 2Sb: DA 2: Roofs

Runoff = 6.61 cfs @ 12.13 hrs, Volume= 22,152 cf, Depth= 4.92" Routed to Pond 6P : Basic Rain Garden (infiltration only)



Summary for Subcatchment 2Sc: DA 2: Driveways (other)

Runoff = 11.59 cfs @ 12.13 hrs, Volume= 38,860 cf, Depth= 4.92" Routed to Pond 7P : Basic Porous Pavement (infiltration only)



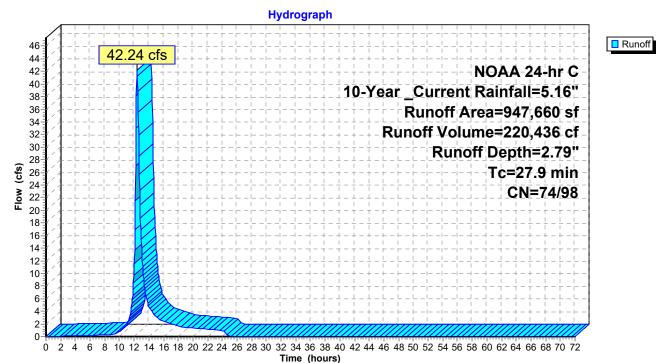
Summary for Subcatchment 3S: DA 3: CN w/ IC areas

Runoff = 42.24 cfs @ 12.40 hrs, Volume= 220,436 cf, Depth= 2.79"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _Current Rainfall=5.16"

	Area (sf)	CN	Description				
*	116,506	98	Impervious				
	4,930	79	50-75% Grass cover, Fair, HSG C				
	592,347	74	>75% Grass cover, Good, HSG C				
	169,305	73	Woods, Fair, HSG C				
	64,572	70	Woods, Good, HSG C				
	947,660	77	Weighted Average				
	831,154	74	87.71% Pervious Area				
	116,506	98	12.29% Impervious Area				
	To Low with	01					
,	Tc Length	Slop					
	iin) (feet)	(ft/					
2	7.9		Direct Entry, direct				

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



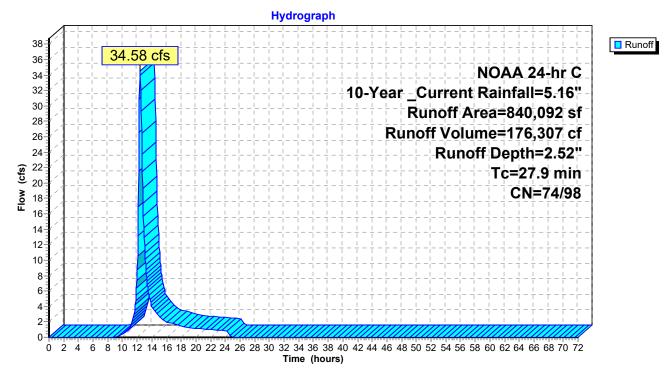
Summary for Subcatchment 3Sa: DA 3: CN w/ IC areas

Runoff = 34.58 cfs @ 12.40 hrs, Volume= 176,307 cf, Depth= 2.52" Routed to Pond 9P : 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _Current Rainfall=5.16"

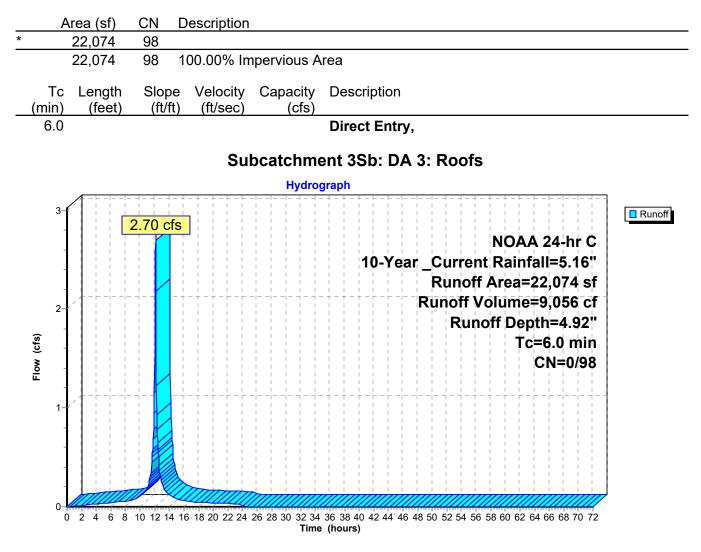
	Area (sf)	CN	Description
*	8,938	98	Impervious
	4,930	79	50-75% Grass cover, Fair, HSG C
	592,347	74	>75% Grass cover, Good, HSG C
	169,305	73	Woods, Fair, HSG C
	64,572	70	Woods, Good, HSG C
	840,092	74	Weighted Average
	831,154	74	98.94% Pervious Area
	8,938	98	1.06% Impervious Area
<u>(m</u>	Tc Length hin) (feet)	Slop (ft/	
2	7.9		Direct Entry, direct

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



Summary for Subcatchment 3Sb: DA 3: Roofs

Runoff = 2.70 cfs @ 12.13 hrs, Volume= 9,056 cf, Depth= 4.92" Routed to Pond 10P : Basic Rain Garden (infiltration only)



Summary for Subcatchment 3Sc: DA 3: Driveways (other)

Runoff = 10.46 cfs @ 12.13 hrs, Volume= 35,073 cf, Depth= 4.92" Routed to Pond 11P : Basic Porous Pavement (infiltration only)

	Area (sf)	CN E	Description				
	85,494	98					
	85,494	98 1	100.00% Im	pervious A	rea		
T (min	0	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
6.0	0				Direct Entry,		
			Subcatch	nment 3S	c: DA 3: Driv	eways (other)	
				Hydro	graph		
							Runof
11	∄ ´│ ¦ ¦ <mark>│</mark>	0.46 cfs					
10						NOAA 24-hr	1
9						_Current Rainfall=5.16	
0			$\begin{array}{cccccccccccccccccccccccccccccccccccc$			Runoff Area=85,494 s unoff Volume=35,073 d	
8						Runoff Depth=4.92	
7 (i				 -			
Flow (cfs)						CN=0/9	
₽ 5							
4			$-\frac{1}{1}-\frac{1}{1}-\frac{1}{1}-\frac{1}{1}-\frac{1}{1}$				
			$= \frac{1}{7} = $				- [
3			- + - + - + - + -				- <u>-</u> -
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1						1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
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	0 2 4 6 8	10 12 14 1	6 18 20 22 24 2		36 38 40 42 44 46 48 (hours)	50 52 54 56 58 60 62 64 66 68 70	72

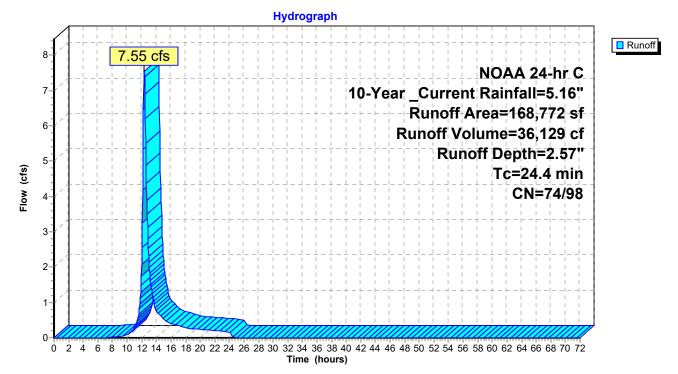
Summary for Subcatchment 4S: DA 4: CN w/ IC areas

Runoff = 7.55 cfs @ 12.36 hrs, Volume= 36,129 cf, Depth= 2.57"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _Current Rainfall=5.16"

	Area (sf)	CN	Description
*	5,300	98	Impervious
	117,799	74	>75% Grass cover, Good, HSG C
	4,778	72	Woods/grass comb., Good, HSG C
	40,895	73	Woods, Fair, HSG C
	168,772	74	Weighted Average
	163,472	74	96.86% Pervious Area
	5,300	98	3.14% Impervious Area
	Tc Length	Slop	
(m	nin) (feet)	(ft/	(ft/sec) (cfs)
2	4.4		Direct Entry, Direct

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



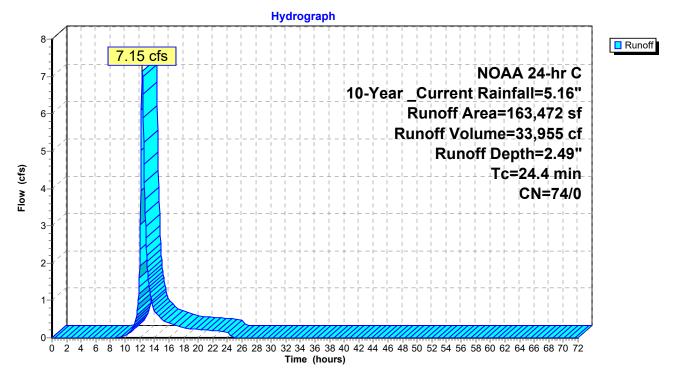
Summary for Subcatchment 4Sa: DA 4: CN w/ IC areas

Runoff = 7.15 cfs @ 12.36 hrs, Volume= 33,955 cf, Depth= 2.49" Routed to Link 4L : DA 4: Combined Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _Current Rainfall=5.16"

	Area (sf)	CN	Description	Description				
*	0	98	Impervious	Impervious				
	117,799	74	>75% Grass (>75% Grass cover, Good, HSG C				
	4,778	72	Woods/grass	Woods/grass comb., Good, HSG C				
	40,895	73	Woods, Fair,	HSG C				
	163,472 74 Weighted Average							
	163,472 74 100.00% Pervious Area			vious Are	а			
- (mi	Гс Length n) (feet)	Slop (ft/f		Capacity (cfs)	Description			
24	.4				Direct Entry, Direct			

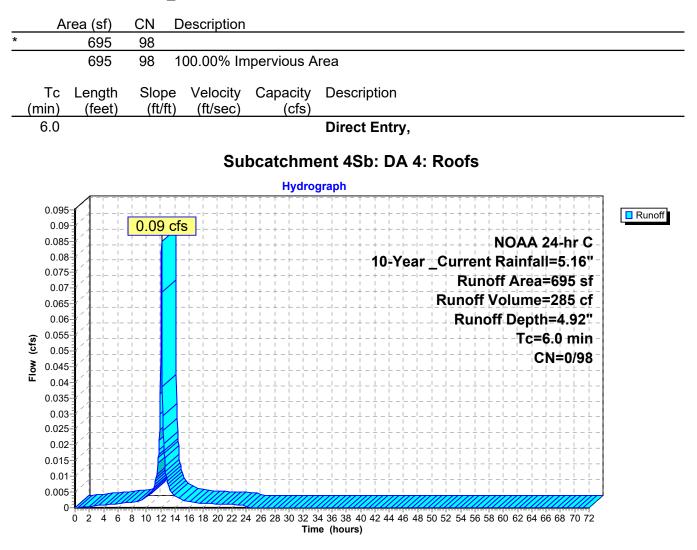
Subcatchment 4Sa: DA 4: CN w/ IC areas



Summary for Subcatchment 4Sb: DA 4: Roofs

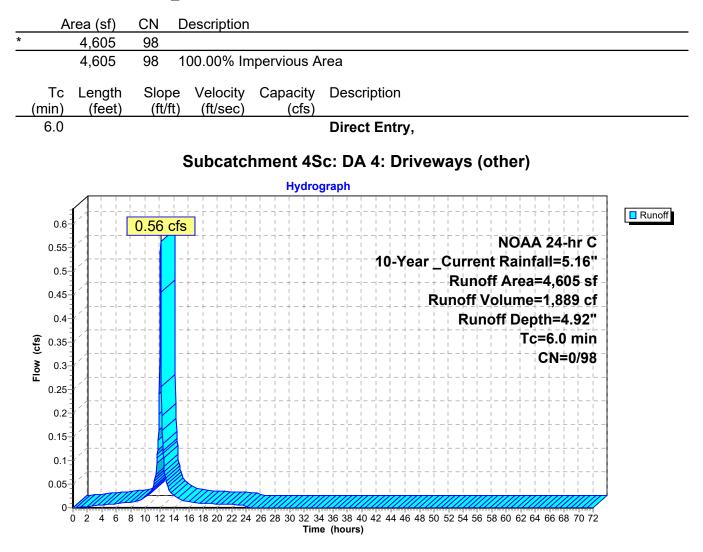
Runoff = 0.09 cfs @ 12.13 hrs, Volume= Routed to Link 4L : DA 4: Combined Flows

285 cf, Depth= 4.92"



Summary for Subcatchment 4Sc: DA 4: Driveways (other)

Runoff = 0.56 cfs @ 12.13 hrs, Volume= 1,889 cf, Depth= 4.92" Routed to Pond 12P : Basic Porous Pavement (infiltration only)



Summary for Reach 1Ri: Inlet Pipe

[52] Hint: Inlet/Outlet conditions not evaluated

 Inflow Area =
 549,495 sf, 18.28% Impervious, Inflow Depth =
 2.46" for 10-Year _Current event

 Inflow =
 26.98 cfs @
 12.32 hrs, Volume=
 112,517 cf

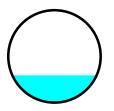
 Outflow =
 24.82 cfs @
 12.34 hrs, Volume=
 112,548 cf, Atten= 8%, Lag= 1.0 min

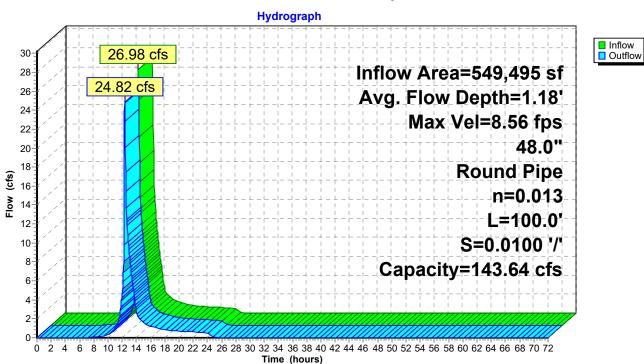
 Routed to Pond 4P : Basin 1 Medium Case
 112,548 cf, Atten= 8%, Lag= 1.0 min
 112,548 cf, Atten= 8%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 8.56 fps, Min. Travel Time= 0.2 min Avg. Velocity = 2.79 fps, Avg. Travel Time= 0.6 min

Peak Storage= 307 cf @ 12.32 hrs Average Depth at Peak Storage= 1.18', Surface Width= 3.65' Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 143.64 cfs

48.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 100.0' Slope= 0.0100 '/' Inlet Invert= 75.00', Outlet Invert= 74.00'





Reach 1Ri: Inlet Pipe

Summary for Reach 1Ro: outlet

[52] Hint: Inlet/Outlet conditions not evaluated

 Inflow Area =
 549,495 sf, 18.28% Impervious, Inflow Depth > 2.30" for 10-Year _Current event

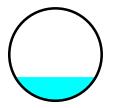
 Inflow =
 4.18 cfs @ 13.75 hrs, Volume=
 105,320 cf

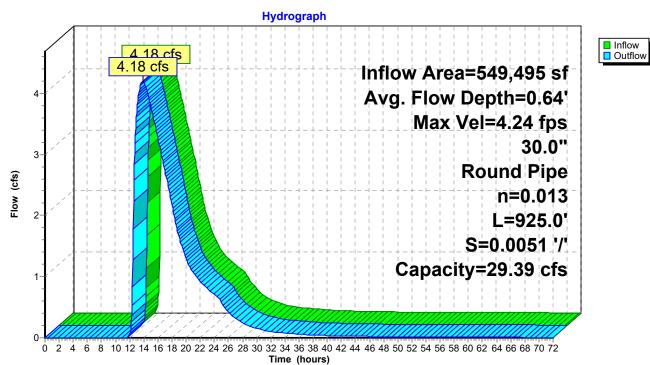
 Outflow =
 4.18 cfs @ 13.85 hrs, Volume=
 105,310 cf, Atten= 0%, Lag= 6.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Max. Velocity= 4.24 fps, Min. Travel Time= 3.6 min Avg. Velocity = 1.48 fps, Avg. Travel Time= 10.4 min

Peak Storage= 912 cf @ 13.79 hrs Average Depth at Peak Storage= 0.64', Surface Width= 2.18' Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 29.39 cfs

30.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 925.0' Slope= 0.0051 '/' Inlet Invert= 70.75', Outlet Invert= 66.00'





Reach 1Ro: outlet

Summary for Reach 2Ri: Inlet Pipe

[52] Hint: Inlet/Outlet conditions not evaluated

 Inflow Area =
 908,125 sf, 25.71% Impervious, Inflow Depth =
 2.36" for 10-Year _Current event

 Inflow =
 39.36 cfs @
 12.33 hrs, Volume=
 178,678 cf

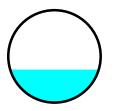
 Outflow =
 39.08 cfs @
 12.34 hrs, Volume=
 178,732 cf, Atten= 1%, Lag= 0.4 min

 Routed to Pond 8P : Basin 2 Medium Case
 178,732 cf, Atten= 1%, Lag= 0.4 min

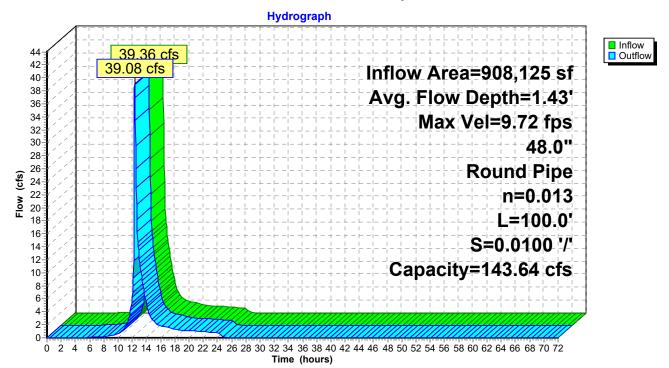
Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 9.72 fps, Min. Travel Time= 0.2 min Avg. Velocity = 3.14 fps, Avg. Travel Time= 0.5 min

Peak Storage= 402 cf @ 12.33 hrs Average Depth at Peak Storage= 1.43', Surface Width= 3.83' Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 143.64 cfs

48.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 100.0' Slope= 0.0100 '/' Inlet Invert= 70.00', Outlet Invert= 69.00'



Reach 2Ri: Inlet Pipe



Summary for Reach 2Ro: Outlet

[52] Hint: Inlet/Outlet conditions not evaluated

 Inflow Area =
 908,125 sf, 25.71% Impervious, Inflow Depth =
 2.30" for 10-Year _Current event

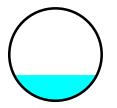
 Inflow =
 18.30 cfs @
 12.70 hrs, Volume=
 173,915 cf

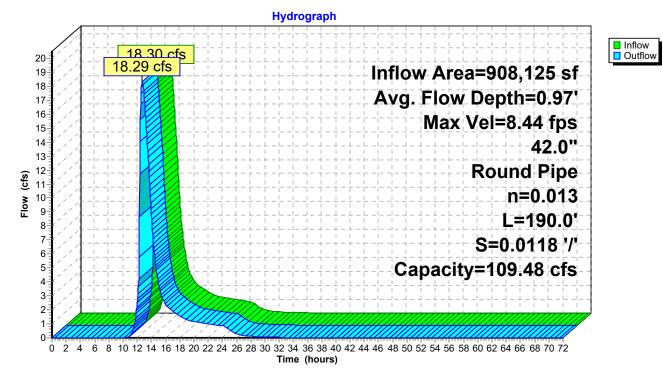
 Outflow =
 18.29 cfs @
 12.71 hrs, Volume=
 173,916 cf, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 8.44 fps, Min. Travel Time= 0.4 min Avg. Velocity = 1.92 fps, Avg. Travel Time= 1.7 min

Peak Storage= 412 cf @ 12.71 hrs Average Depth at Peak Storage= 0.97', Surface Width= 3.13' Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 109.48 cfs

42.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 190.0' Slope= 0.0118 '/' Inlet Invert= 65.75', Outlet Invert= 63.50'





Reach 2Ro: Outlet

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 = 492,891 sf, 8.90% Impervious, Inflow Depth = 2.71" for 10-Year Current event 25.39 cfs @ 12.30 hrs, Volume= 111,261 cf Inflow = Outflow = 26.39 cfs @ 12.32 hrs, Volume= 110,728 cf, Atten= 0%, Lag= 1.7 min 12.31 cfs @ 12.30 hrs, Volume= Primary = 101,846 cf Routed to Link 1L : Combined Flows Secondary = 13.77 cfs @ 12.32 hrs. Volume= 8.882 cf Routed to Link 1L : Combined Flows 0.00 cfs @ 0.00 hrs, Volume= 0 cf Tertiary = Routed to Link 1L : Combined Flows

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 100.32' @ 12.30 hrs Surf.Area= 6,125 sf Storage= 13,376 cf

Plug-Flow detention time= 18.9 min calculated for 110,651 cf (99% of inflow) Center-of-Mass det. time= 16.1 min (853.4 - 837.3)

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 9.00 = 15,635 cf Total Available Storage

Storage Group A created with Chamber Wizard

Elevatio	on s	Surf.Area	Void	s Inc.Store	Cum.Store	Wet.Area	
(fee	et)	(sq-ft)	(%	b) (cubic-feet)	(cubic-feet)	(sq-ft)	
97.7	75	175	0.	0 0	0	175	
98.2	25	175	35.	0 31	31	198	
99.2	25	175	35.	0 61	92	245	
99.5	50	175	25.	0 11	103	257	
100.0	00	175	100.			281	
100.5	-	175	100.	0 89	280	304	
101.7	75	175	100.	0 217	497	363	
Device	Routing	In	vert	Outlet Devices			
#1	Primary	94	17'	6.0" Round Culv	ert X 9.00 L= 10.0	' Ke= 0.500	
				Inlet / Outlet Invert	= 94.17' / 94.12'	S= 0.0050 '/' Cc=	0.900
				n= 0.020 Corruga	ted PE, corrugated	interior, Flow Are	a= 0.20 sf
#2	Device 1	94	.33'	6.0" Round 6" HI	DPE Underdrain X	9.00 L= 32.0' Ke	= 0.500
				Inlet / Outlet Invert	= 94.33' / 94.17' S	S= 0.0050 '/' Cc=	0.900
					ted PE, corrugated		
#3	Secondar	ry 100).00'		readth Broad-Cres		
				· · · ·	0.40 0.60 0.80 1.	00 1.20 1.40 1.6	0 1.80 2.00
				2.50 3.00 3.50			

 #4
 Tertiary
 100.50'
 6.0' long Sharp-Crested Rectangular Weir X 9.00 2 End Contraction(s)

Primary OutFlow Max=12.31 cfs @ 12.30 hrs HW=100.32' (Free Discharge) 1=Culvert (Passes 12.31 cfs of 18.43 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 12.31 cfs @ 6.97 fps)

Secondary OutFlow Max=12.18 cfs @ 12.32 hrs HW=100.31' (Free Discharge) —3=Broad-Crested Rectangular Weir (Weir Controls 12.18 cfs @ 1.44 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_StormTechSC-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

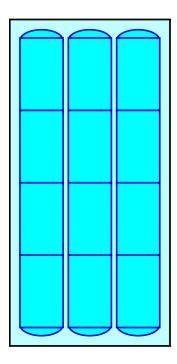
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

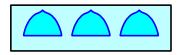
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

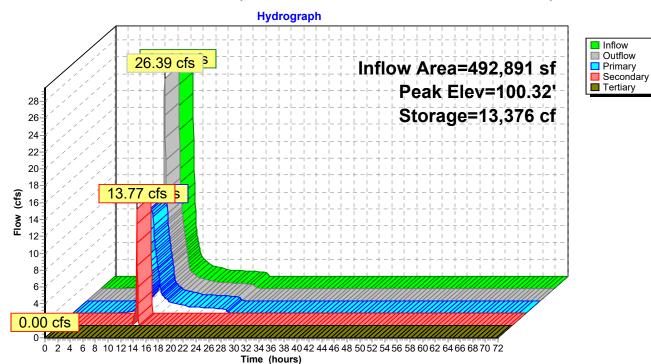
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

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

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: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	21,359 sf,100.00% Impervious,	Inflow Depth = 4.92" for 10-Year Current event					
Inflow =	2.61 cfs @ 12.13 hrs, Volume=	8,762 cf					
Outflow =	0.69 cfs @ 12.38 hrs, Volume=	8,762 cf, Atten= 73%, Lag= 15.1 min					
Discarded =	0.06 cfs @ 12.25 hrs, Volume=	6,974 cf					
Primary =	0.64 cfs @ 12.38 hrs, Volume=	1,789 cf					
Routed to Link 1L : Combined Flows							

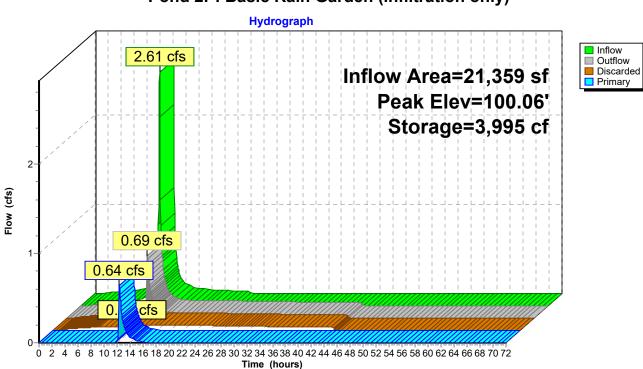
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.06' @ 12.38 hrs Surf.Area= 5,000 sf Storage= 3,995 cf

Plug-Flow detention time= 512.7 min calculated for 8,756 cf (100% of inflow) Center-of-Mass det. time= 513.2 min (1,261.5 - 748.3)

Volume	Invert	. Ava	il.Storage	Storage Descrip	otion	
#1	98.25'		622 cf	Custom Stage	Data (Conic)Listed	below (Recalc)
			622 cf	x 10.00 = 6,22	20 cf Total Availabl	e Storage
Elevatio (fee		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
98.2	1	374	0.0	0	0	374
99.2	25	374	35.0	131	131	443
99.5	50	374	25.0	23	154	460
100.0	00	500	100.0	218	372	591
100.2	25	500	100.0	125	497	611
100.5	50	500	100.0	125	622	631
Device #1 #2	Routing Discarded Primary	98	3.25' 0.50 0.00' 2.0' Hea 2.50 Coe	long x 3.0' brea ad (feet) 0.20 0.4 0 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2	rea d Rectangular Weir X 10.00 1.20 1.40 1.60 1.80 2.00 .65 2.64 2.64 2.68 2.68

Discarded OutFlow Max=0.06 cfs @ 12.25 hrs HW=100.02' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.62 cfs @ 12.38 hrs HW=100.05' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 0.62 cfs @ 0.57 fps)



Pond 2P: Basic Rain Garden (infiltration only)

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

Inflow Area = 35,245 sf,100.00% Impervious, Inflow Depth = 4.92" for 10-Year Current event Inflow 4.31 cfs @ 12.13 hrs, Volume= 14.459 cf = 0.41 cfs @ 11.35 hrs, Volume= 14,457 cf, Atten= 91%, Lag= 0.0 min Outflow = 0.41 cfs @ 11.35 hrs, Volume= Discarded = 14,457 cf Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf Routed to Link 1L : Combined Flows

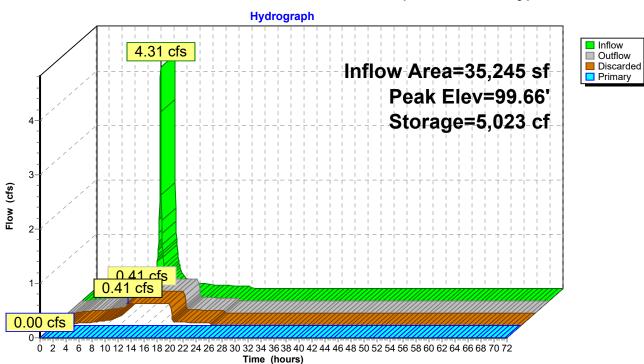
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 99.66' @ 12.98 hrs Surf.Area= 35,245 sf Storage= 5,023 cf

Plug-Flow detention time= 82.0 min calculated for 14,447 cf (100% of inflow) Center-of-Mass det. time= 81.8 min (830.1 - 748.3)

Volume	Inver	t Avail	l.Storage	Storage Descr	iption	
#1	99.25	' 1	16,001 cf	Custom Stage	e Data (Prismatic	Listed below (Recalc)
Elevatio (fee 99.2 99.7 99.8 100.0 100.2	et) 25 75 33 01	Surf.Area (sq-ft) 35,245 35,245 35,245 35,245 35,245 35,245	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 6,168 423 952 8,459	Cum.Store (cubic-feet) 0 6,168 6,591 7,542 16,001	
Device	Routing	Inv	vert Outle	et Devices		
#1 #2	Discarded Primary	99. 100.	.00' 15.0 Head 2.50 Coet	' long x 1.0' br d (feet) 0.20 0. 3.00	40 0.60 0.80 1.0	area brous Asphalt X 76.00 00 1.20 1.40 1.60 1.80 2.00 2.98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=0.41 cfs @ 11.35 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.41 cfs)

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





Summary for Pond 4P: Basin 1 Medium Case

[63] Warning: Exceeded Reach 1Ri INLET depth by 0.58' @ 14.10 hrs

Inflow Area = 549,495 sf, 18.28% Impervious, Inflow Depth = 2.46" for 10-Year Current event 24.82 cfs @ 12.34 hrs, Volume= Inflow = 112,548 cf Outflow = 4.18 cfs @ 13.75 hrs, Volume= 105,320 cf, Atten= 83%, Lag= 84.5 min Primary = 4.18 cfs @ 13.75 hrs, Volume= 105,320 cf Routed to Reach 1Ro : outlet Secondary = 0.00 cfs @ 0.00 hrs. Volume= 0 cfRouted to Reach 1Ro : outlet Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf Routed to Reach 1Ro : outlet

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 75.97' @ 13.75 hrs Surf.Area= 31,105 sf Storage= 55,987 cf

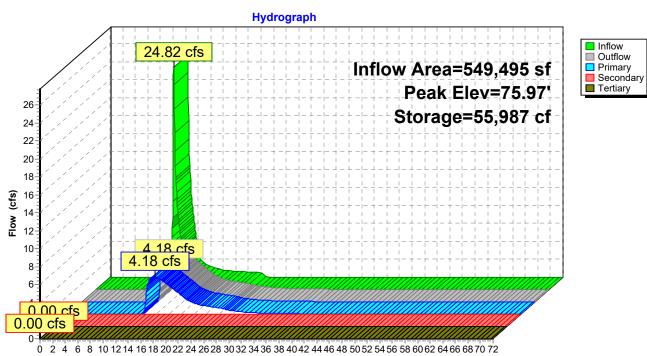
Plug-Flow detention time= 265.1 min calculated for 105,320 cf (94% of inflow) Center-of-Mass det. time= 230.1 min (1,083.0 - 852.8)

Volume	Invert	Avail.Sto	rage Storag	e Description		
#1	74.00'	162,84	40 cf Custo	cf Custom Stage Data (Prismatic)Listed below (Recalc)		
Elevatio	et)	rf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
74.(79.(25,611 39,525	0 162,840	0 162,840		
Device	Routing	Invert	Outlet Devic	es		
#1	Primary	74.25'		Low Flow Orifice		
#2	Secondary	76.25'	18.0" W x 1	eir flow at low hea 2.0" H Vert. 2-YR eir flow at low hea	Orifice X 2.00 C= 0.600	
#3	Tertiary	78.75'	24.0" x 24.0	" Horiz. Orifice/G eir flow at low hea	Grate C= 0.600	

Primary OutFlow Max=4.18 cfs @ 13.75 hrs HW=75.97' (Free Discharge) **1=Low Flow Orifice** (Orifice Controls 4.18 cfs @ 5.33 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=74.00' (Free Discharge) 2=2-YR Orifice (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=74.00' (Free Discharge) -3=Orifice/Grate (Controls 0.00 cfs)



Time (hours)

Pond 4P: Basin 1 Medium Case

Summary for Pond 5P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Inflow Area =	759,404 sf, 11.16% Impervious,	Inflow Depth = 2.76" for 10-Year _Current event
Inflow =	37.96 cfs @ 12.32 hrs, Volume=	174,901 cf
Outflow =	37.71 cfs @ 12.33 hrs, Volume=	174,003 cf, Atten= 1%, Lag= 0.4 min
Primary =	13.84 cfs @ 12.33 hrs, Volume=	146,643 cf
Routed to Link	< 2L : Combined Flows	
	23.87 cfs @ 12.33 hrs, Volume=	27,360 cf
Routed to Linl	< 2L : Combined Flows	
	0.00 cfs @ 0.00 hrs, Volume=	0 cf
Routed to Linl	< 2L : Combined Flows	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 100.45' @ 12.33 hrs Surf.Area= 6,805 sf Storage= 15,102 cf

Plug-Flow detention time= 17.6 min calculated for 174,003 cf (99% of inflow) Center-of-Mass det. time= 14.2 min (850.0 - 835.8)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	365 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
		1 606 cf	x 10.00 - 16.060 cf. Total Available Storage

 $1,606 \text{ cf} \times 10.00 = 16,060 \text{ cf}$ Total Available Storage

Storage Group A created with Chamber Wizard

Elevatio (fee		Surf.Area (sq-ft)	Void %)		Cum.Store (cubic-feet)	Wet.Area (sq-ft)
97.7	1	<u>(34-11)</u> 175	0.	· · · ·	0	175
98.2		175	35.		31	198
99.2	-	175	35.		92	245
99.5	-	175	25.		103	257
100.0	00	175	100.	0 88	190	281
100.5	51	175	100.	0 89	280	304
101.0	00	175	100.	0 86	365	327
Device	Routing	In	vert	Outlet Devices		
#1	Primary	94	1.17'	6.0" Round Culve	rt X 10.00 L= 10.0)' Ke= 0.500
	,			Inlet / Outlet Invert=	94.17'/94.12' S	= 0.0050 '/' Cc= 0.900
				n= 0.020 Corrugate	ed PE, corrugated	interior, Flow Area= 0.20 sf
#2	Device 1	94	.33'	6.0" Round 6" HD	PE Underdrain X	10.00 L= 32.0' Ke= 0.500
						S= 0.0050 '/' Cc= 0.900
	- ·			0		interior, Flow Area= 0.20 sf
#3	Seconda	ry 100).00'	•		ted Rectangular Weir X 10.00
					.40 0.60 0.80 1.0	00 1.20 1.40 1.60 1.80 2.00
				2.50 3.00 3.50	1 2 61 2 61 2 60	266 270 277 280 288
				2.85 3.07 3.20 3.3		2.66 2.70 2.77 2.89 2.88
				2.00 0.07 0.20 0.0	<i>JL</i>	

#4 Tertiary 100.50' **6.0' long Sharp-Crested Rectangular Weir X 10.00** 2 End Contraction(s)

Primary OutFlow Max=13.84 cfs @ 12.33 hrs HW=100.45' (Free Discharge) 1=Culvert (Passes 13.84 cfs of 20.72 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 13.84 cfs @ 7.05 fps)

Secondary OutFlow Max=23.53 cfs @ 12.33 hrs HW=100.45' (Free Discharge) —3=Broad-Crested Rectangular Weir (Weir Controls 23.53 cfs @ 1.75 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 5P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

Chamber Model = ADS_StormTechSC-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

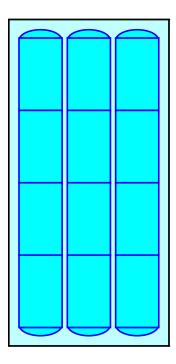
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

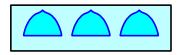
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

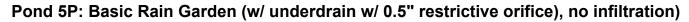
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

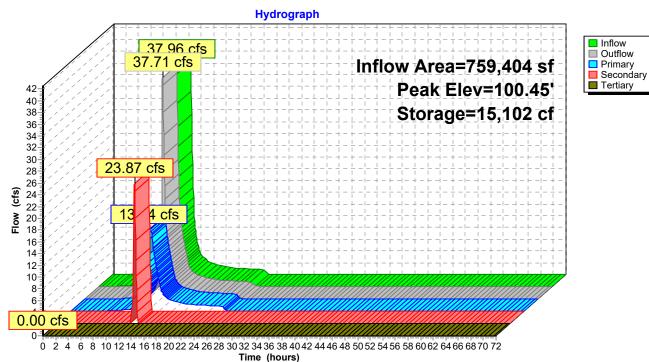
Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af Overall Storage Efficiency = 54.5%Overall System Size = $32.10' \times 15.75' \times 4.50'$

12 Chambers 84.3 cy Field 63.8 cy Stone









Summary for Pond 6P: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	53,997 sf,100.00% Impervious,	Inflow Depth = 4.92" for 10-Year Current event					
Inflow =	6.61 cfs @ 12.13 hrs, Volume=	22,152 cf					
Outflow =	1.86 cfs @ 12.37 hrs, Volume=	22,152 cf, Atten= 72%, Lag= 14.3 min					
Discarded =	0.14 cfs @ 12.25 hrs, Volume=	17,477 cf					
Primary =	1.72 cfs @ 12.37 hrs, Volume=	4,674 cf					
Routed to Link 2L : Combined Flows							

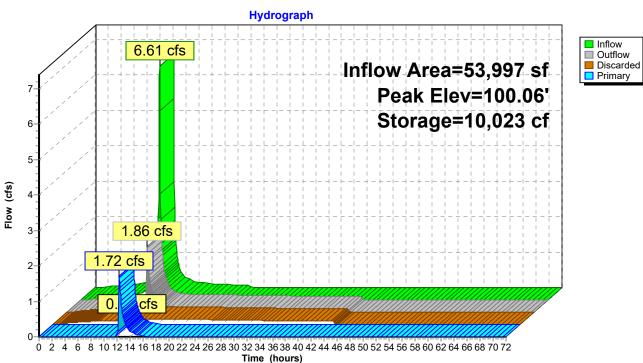
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 100.06' @ 12.37 hrs Surf.Area= 12,500 sf Storage= 10,023 cf

Plug-Flow detention time= 508.9 min calculated for 22,136 cf (100% of inflow) Center-of-Mass det. time= 509.3 min (1,257.6 - 748.3)

Volume	Invert	Ava	il.Storage	Storage Descrip	tion	
#1	98.25'		622 cf	Custom Stage	Data (Conic)Listed	below (Recalc)
			622 cf	x 25.00 = 15,5	50 cf Total Availab	le Storage
Elevatio (fee		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
98.2		374	0.0	0	0	374
99.2	25	374	35.0	131	131	443
99.5	60	374	25.0	23	154	460
100.0	0	500	100.0	218	372	591
100.2	25	500	100.0	125	497	611
100.5	60	500	100.0	125	622	631
Device #1 #2	Routing Discarded Primary	98	3.25' 0.50 3.00' 2.0' Hea 2.50 Coe	long x 3.0' bread d (feet) 0.20 0.4 0 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2.	ea I Rectangular Weir X 25.00 1.20 1.40 1.60 1.80 2.00 65 2.64 2.64 2.68 2.68

Discarded OutFlow Max=0.14 cfs @ 12.25 hrs HW=100.03' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=1.67 cfs @ 12.37 hrs HW=100.06' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 1.67 cfs @ 0.58 fps)



Pond 6P: Basic Rain Garden (infiltration only)

Summary for Pond 7P: Basic Porous Pavement (infiltration only)

Inflow Area = 94,724 sf,100.00% Impervious, Inflow Depth = 4.92" for 10-Year Current event Inflow = 11.59 cfs @ 12.13 hrs, Volume= 38.860 cf 1.10 cfs @ 11.35 hrs, Volume= 38,860 cf, Atten= 91%, Lag= 0.0 min Outflow = 1.10 cfs @ 11.35 hrs, Volume= Discarded = 38.860 cf Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf Routed to Link 2L : Combined Flows

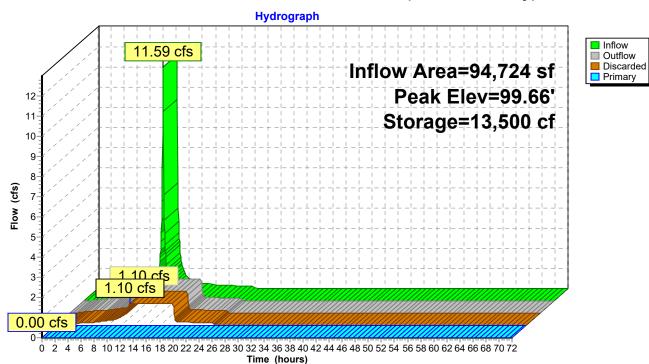
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.66' @ 12.98 hrs Surf.Area= 94,724 sf Storage= 13,500 cf

Plug-Flow detention time= 81.9 min calculated for 38,860 cf (100% of inflow) Center-of-Mass det. time= 81.9 min (830.2 - 748.3)

Volume	Inver	t Avail	I.Storage	Storage Descri	ption	
#1	99.25	' 4	43,005 cf	Custom Stage	Data (Prismatic)	Listed below (Recalc)
Elevatio (fee 99.2 99.7 99.8 100.0 100.2	25 75 83 01	Surf.Area (sq-ft) 94,724 94,724 94,724 94,724 94,724	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 16,577 1,137 2,558 22,734	Cum.Store (cubic-feet) 0 16,577 17,713 20,271 43,005	
Device	Routing	Inv	vert Outle	et Devices		
#1 #2	Discarded Primary	99. 100.	.00' 15.0 Head 2.50 Coet	' long x 1.0' bre d (feet) 0.20 0.4 3.00	40 0.60 0.80 1.0	area rous Asphalt X 76.00 0 1.20 1.40 1.60 1.80 2.00 2.98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=1.10 cfs @ 11.35 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 1.10 cfs)

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





Summary for Pond 8P: Basin 2 Medium Case

[63] Warning: Exceeded Reach 2Ri INLET depth by 0.27' @ 12.80 hrs

Inflow Area = 908,125 sf, 25.71% Impervious, Inflow Depth = 2.36" for 10-Year Current event 39.08 cfs @ 12.34 hrs, Volume= Inflow = 178,732 cf Outflow = 18.30 cfs @ 12.70 hrs, Volume= 173,915 cf, Atten= 53%, Lag= 21.8 min Primary = 18.30 cfs @ 12.70 hrs, Volume= 173,915 cf Routed to Reach 2Ro : Outlet Secondary = 0.00 cfs @ 0.00 hrs. Volume= 0 cfRouted to Reach 2Ro : Outlet Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf Routed to Reach 2Ro : Outlet

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 71.16' @ 12.70 hrs Surf.Area= 24,210 sf Storage= 46,483 cf

Plug-Flow detention time= 84.4 min calculated for 173,794 cf (97% of inflow) Center-of-Mass det. time= 69.9 min (918.6 - 848.7)

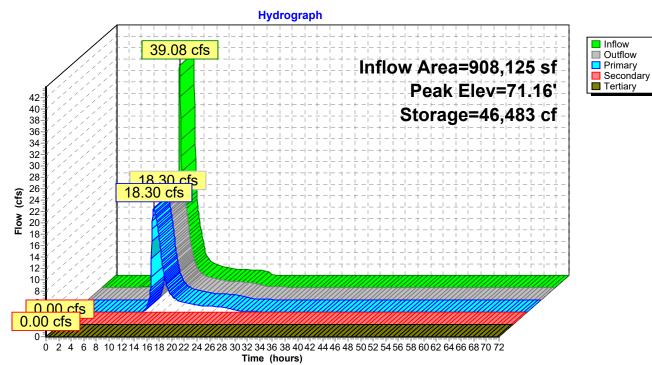
Volume	Invert	Avail.Sto	rage Storag	e Description	
#1	69.00'	125,28	30 cf Custo	m Stage Data (P	rismatic)Listed below (Recalc)
Elevatio (fee 69.0	et)	rf.Area (sq-ft) 18,889	Inc.Store (cubic-feet) 0	Cum.Store (cubic-feet) 0	
74.0		31,223	125,280	125,280	
Device	Routing	Invert	Outlet Devic	ces	
#1	Primary	69.25'	18.0" Vert. Low Flow Orifice X 2.00 C= 0.600		
#2	#2 Secondary 71.25'		Limited to weir flow at low heads 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	73.75'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=18.30 cfs @ 12.70 hrs HW=71.16' (Free Discharge) -1=Low Flow Orifice (Orifice Controls 18.30 cfs @ 5.18 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge) 2=2-YR Orifice (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge) -3=Orifice/Grate (Controls 0.00 cfs)





Summary for Pond 9P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Inflow Area = 840,092 sf, 1.06% Impervious, Inflow Depth = 2.52" for 10-Year Current event Inflow 34.58 cfs @ 12.40 hrs, Volume= 176,307 cf = 34.57 cfs @ 12.41 hrs, Volume= 176,070 cf, Atten= 0%, Lag= 0.1 min Outflow = 2.90 cfs @ 12.41 hrs, Volume= Primary = 87,061 cf Routed to Link 3L : dA3 16.75 cfs @ 12.41 hrs, Volume= Secondary = 61,255 cf Routed to Link 3L : dA3 Tertiarv = 14.92 cfs @ 12.41 hrs, Volume= 27.754 cf Routed to Link 3L : dA3

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 101.03' @ 12.41 hrs Surf.Area= 1,361 sf Storage= 3,223 cf

Plug-Flow detention time= 8.5 min calculated for 175,948 cf (100% of inflow) Center-of-Mass det. time= 7.8 min (865.4 - 857.7)

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 2.00 - 3.475 cf. Total Available Storage

1,737 cf x 2.00 = 3,475 cf Total Available Storage

Storage Group A created with Chamber Wizard

Elevatio	on	Surf.Area	Void		Cum.Store	Wet.Area		
(fee	et)	(sq-ft)	(%) (cubic-feet)	(cubic-feet)	<u>(sq-ft)</u>		
97.7	75	175	0.) 0	0	175		
98.2	25	175	35.) 31	31	198		
99.2	25	175	35.) 61	92	245		
99.5	50	175	25.) 11	103	257		
100.0	00	175	100.	88	190	281		
100.5	51	175	100.) 89	280	304		
101.7	75	175	100.) 217	497	363		
Device	Routing	In	vert	Outlet Devices				
#1	Primary	94	17'	6.0" Round Culve	ert X 2.00 L= 10.0'	Ke= 0.500		
	-			Inlet / Outlet Invert=	= 94.17' / 94.12' S	S= 0.0050 '/' Cc= 0.900		
				n= 0.020 Corrugate	ed PE, corrugated	interior, Flow Area= 0.20 sf		
#2	Device 1	94	.33'	6.0" Round 6" HD	PE Underdrain X	2.00 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					interior, Flow Area= 0.20 sf		
#3	Seconda	ry 100	0.00'	3.0' long x 2.0' bro	eadth Broad-Cres	ted Rectangular Weir X 2.00		
				Head (feet) 0.20 C	0.40 0.60 0.80 1.0	00 1.20 1.40 1.60 1.80 2.00		
				2.50 3.00 3.50				
				Coef. (English) 2.5	54 2.61 2.61 2.60	2.66 2.70 2.77 2.89 2.88		
				2.85 3.07 3.20 3.3	32			

#4 Tertiary 100.50' 6.0' long Sharp-Crested Rectangular Weir X 2.00 2 End Contraction(s)

Primary OutFlow Max=2.90 cfs @ 12.41 hrs HW=101.03' (Free Discharge) 1=Culvert (Passes 2.90 cfs of 4.34 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 2.90 cfs @ 7.39 fps)

Secondary OutFlow Max=16.72 cfs @ 12.41 hrs HW=101.03' (Free Discharge) —3=Broad-Crested Rectangular Weir (Weir Controls 16.72 cfs @ 2.71 fps)

Tertiary OutFlow Max=14.87 cfs @ 12.41 hrs HW=101.03' (Free Discharge) **4=Sharp-Crested Rectangular Weir** (Weir Controls 14.87 cfs @ 2.38 fps)

ond 9P: 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

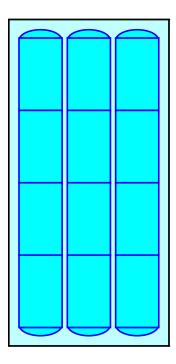
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

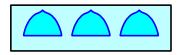
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

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

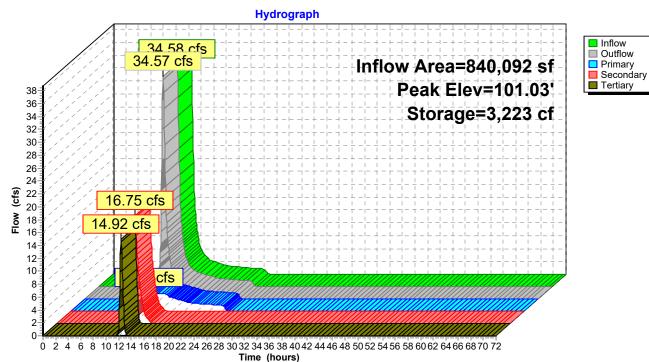
Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af Overall Storage Efficiency = 54.5%Overall System Size = $32.10' \times 15.75' \times 4.50'$

12 Chambers 84.3 cy Field 63.8 cy Stone









Summary for Pond 10P: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	22,074 sf	,100.00% Impervious,	Inflow Depth = 4.92" for	⁻ 10-Year _Current event
Inflow =	2.70 cfs @	12.13 hrs, Volume=	9,056 cf	_
Outflow =	1.30 cfs @	12.26 hrs, Volume=	9,051 cf, Atten= 5	52%, Lag= 7.8 min
Discarded =	0.05 cfs @	12.15 hrs, Volume=	6,469 cf	-
Primary =	1.25 cfs @	12.26 hrs, Volume=	2,582 cf	
Routed to Link	3L : dA3			

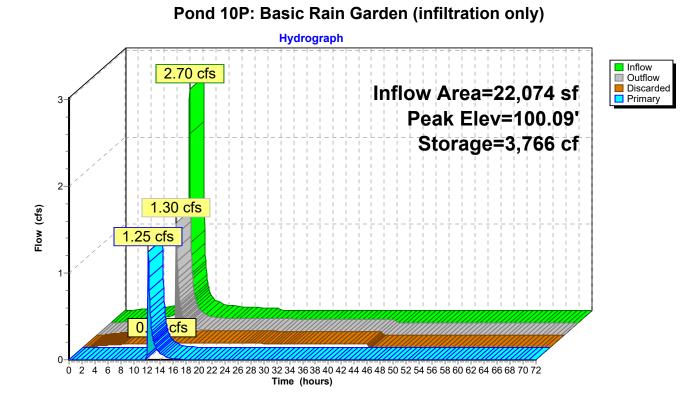
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 100.09' @ 12.26 hrs Surf.Area= 4,500 sf Storage= 3,766 cf

Plug-Flow detention time= 467.5 min calculated for 9,045 cf (100% of inflow) Center-of-Mass det. time= 467.7 min (1,216.0 - 748.3)

Volume	Invert	Ava	il.Storage	Storage Descrip	tion	
#1	98.25'		622 cf	Custom Stage	Data (Conic)Listed	below (Recalc)
			622 cf	x 9.00 = 5,598	cf Total Available	Storage
Elevatio (fee		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
98.2	25	374	0.0	0	0	374
99.2	25	374	35.0	131	131	443
99.5	60	374	25.0	23	154	460
100.0	0	500	100.0	218	372	591
100.2	25	500	100.0	125	497	611
100.5	60	500	100.0	125	622	631
Device #1 #2	Routing Discarded Primary	98	2.25' 0.50 .00' 2.0' Hea 2.50 Coe	long x 3.0' bread d (feet) 0.20 0.40 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2.	ea Rectangular Weir X 9.00 1.20 1.40 1.60 1.80 2.00 65 2.64 2.64 2.68 2.68

Discarded OutFlow Max=0.05 cfs @ 12.15 hrs HW=100.02' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=1.23 cfs @ 12.26 hrs HW=100.09' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 1.23 cfs @ 0.74 fps)



Summary for Pond 11P: Basic Porous Pavement (infiltration only)

85,494 sf,100.00% Impervious, Inflow Depth = 4.92" for 10-Year Current event Inflow Area = Inflow 10.46 cfs @ 12.13 hrs, Volume= 35.073 cf = 0.99 cfs @ 11.35 hrs, Volume= 35,073 cf, Atten= 91%, Lag= 0.0 min Outflow = 0.99 cfs @ 11.35 hrs, Volume= Discarded = 35.073 cf 0.00 hrs, Volume= Primary = 0.00 cfs @ 0 cf Routed to Link 3L : dA3

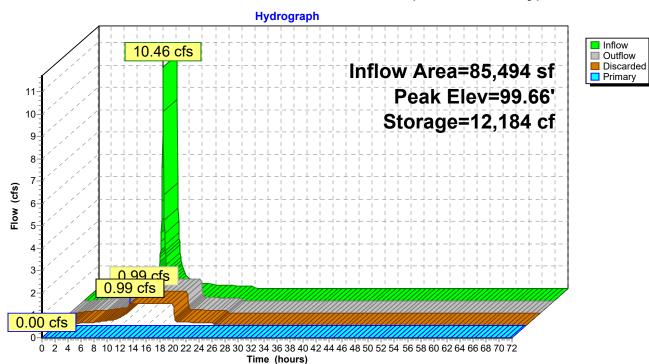
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.66' @ 12.98 hrs Surf.Area= 85,494 sf Storage= 12,184 cf

Plug-Flow detention time= 81.9 min calculated for 35,073 cf (100% of inflow) Center-of-Mass det. time= 81.9 min (830.2 - 748.3)

Volume	Invei	rt Ava	il.Storage	Storage Descri	iption	
#1	99.25	5'	38,814 c	Custom Stage	e Data (Prismatic)	Listed below (Recalc)
Elevatio	-n (Surf.Area	Voids	Inc.Store	Cum.Store	
					•	
(fee	et)	(sq-ft)	(%)	(cubic-feet)	(cubic-feet)	
99.2	25	85,494	0.0	0	0	
99.7	75	85,494	35.0	14,961	14,961	
99.8	33	85,494	15.0	1,026	15,987	
100.0	D1	85,494	15.0	2,308	18,296	
100.2	25	85,494	100.0	20,519	38,814	
Device	Routing	In	vert Ou	tlet Devices		
#1	Discarded	99).25' 0.5	500 in/hr Exfiltrat	ion over Surface	area
#2	Primary	100).00' 15	0' long x 1.0' br	eadth Edge of Po	orous Asphalt X 76.00
	,					0 1.20 1.40 1.60 1.80 2.00
				50 3.00		
			-		0 7 7 7 7 7 7 9 6	2.98 3.08 3.20 3.28 3.31
					2.12 2.13 2.03	2.90 3.00 3.20 3.20 3.31
			3.3	0 3.31 3.32		

Discarded OutFlow Max=0.99 cfs @ 11.35 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.99 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 11P: Basic Porous Pavement (infiltration only)

Summary for Pond 12P: Basic Porous Pavement (infiltration only)

Inflow Area =	4,605 sf,100.00% Impervious,	Inflow Depth = 4.92" for 10-Year _Current event					
Inflow =	0.56 cfs @ 12.13 hrs, Volume=	1,889 cf					
Outflow =	0.05 cfs @ 11.35 hrs, Volume=	1,889 cf, Atten= 91%, Lag= 0.0 min					
Discarded =	0.05 cfs @ 11.35 hrs, Volume=	1,889 cf					
Primary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf					
Routed to Link 4L : DA 4: Combined Flows							

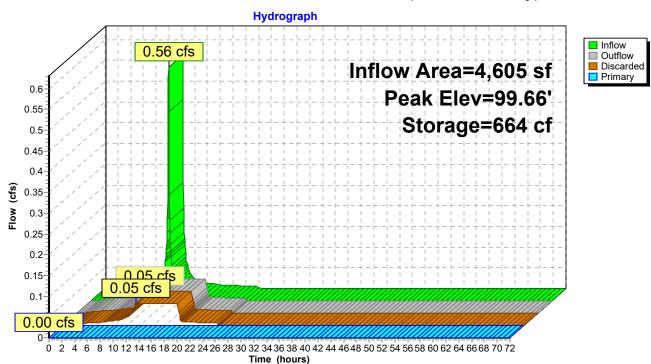
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 99.66' @ 12.98 hrs Surf.Area= 4,605 sf Storage= 664 cf

Plug-Flow detention time= 84.3 min calculated for 1,888 cf (100% of inflow) Center-of-Mass det. time= 84.2 min (832.5 - 748.3)

Volume	Inve	rt Ava	il.Storage	Storage Descri	ption	
#1	99.2	5'	4,393 cf	Custom Stage	Data (Prismatic)	_isted below (Recalc)
F laviatio		D f A m a a) / a i al a		Ourse Otherse	
Elevatio		Surf.Area	Voids	Inc.Store	Cum.Store	
(fee	et)	(sq-ft)	(%)	(cubic-feet)	(cubic-feet)	
99.2	25	4,605	0.0	0	0	
99.7	75	4,605	35.0	806	806	
99.8	33	4,605	15.0	55	861	
100.0)1	4,605	15.0	124	985	
100.2	25	4,605	100.0	1,105	2,091	
100.7		4,605	100.0	2,303	4,393	
Device	Routing	In	vert Out	let Devices		
#1	Discardeo	d 99	.25' 0.5	00 in/hr Exfiltrati	ion over Surface	area
#2	Primary	100	.00' 15. 0)' long x 1.0' bre	eadth Edge of Po	rous Asphalt X 76.00
<i>""</i>	i innary	100				
			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			
			Coe	ef. (English) 2.69	2.72 2.75 2.85	2.98 3.08 3.20 3.28 3.31
			3.30	0 3.31 3.32		
Discarded OutFlow Max=0.05 cfs @ 11.35 brs_HW=99.27' (Free Discharge)						

Discarded OutFlow Max=0.05 cfs @ 11.35 hrs HW=99.27' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.05 cfs)

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





20240629_PartridgeFarmRd_HCAD_BASIN NOAA 24-hr C 10-Year_Current Rainfall=5.16"Prepared by Rutgers Cooperative Extension Water Resources ProgramPrinted 6/29/2024HydroCAD® 10.10-7c s/n 03601 © 2022 HydroCAD Software Solutions LLCPage 181

Summary for Link 1L: Combined Flows

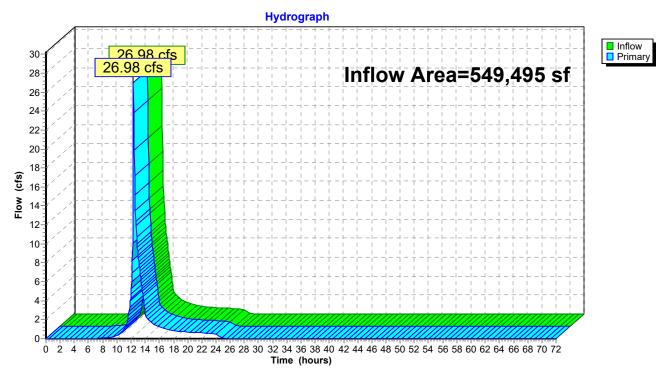
 Inflow Area =
 549,495 sf, 18.28% Impervious, Inflow Depth =
 2.46" for 10-Year _Current event

 Inflow =
 26.98 cfs @
 12.32 hrs, Volume=
 112,517 cf

 Primary =
 26.98 cfs @
 12.32 hrs, Volume=
 112,517 cf, Atten= 0%, Lag= 0.0 min

 Routed to Reach 1Ri : Inlet Pipe
 10
 112,517 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Link 1L: Combined Flows

20240629_PartridgeFarmRd_HCAD_BASIN NOAA 24-hr C 10-Year _Current Rainfall=5.16"Prepared by Rutgers Cooperative Extension Water Resources ProgramPrinted 6/29/2024HydroCAD® 10.10-7c s/n 03601 © 2022 HydroCAD Software Solutions LLCPage 182

Summary for Link 2L: Combined Flows

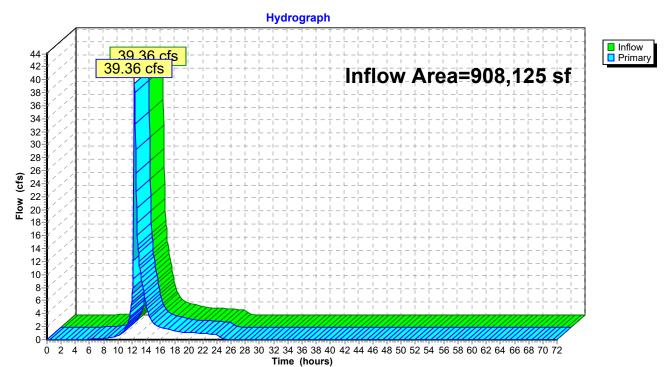
 Inflow Area =
 908,125 sf, 25.71% Impervious, Inflow Depth =
 2.36" for 10-Year _Current event

 Inflow =
 39.36 cfs @
 12.33 hrs, Volume=
 178,678 cf

 Primary =
 39.36 cfs @
 12.33 hrs, Volume=
 178,678 cf, Atten= 0%, Lag= 0.0 min

 Routed to Reach 2Ri : Inlet Pipe
 10
 10

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Link 2L: Combined Flows

20240629_PartridgeFarmRd_HCAD_BASIN NOAA 24-hr C 10-Year_Current Rainfall=5.16"Prepared by Rutgers Cooperative Extension Water Resources ProgramPrinted 6/29/2024HydroCAD® 10.10-7c s/n 03601 © 2022 HydroCAD Software Solutions LLCPage 183

Summary for Link 3L: dA3

Inflow Are	a =	947,660 sf, 12.29% Impervious, Inflow Depth = 2.26" for 10-Year Current event
Inflow	=	35.36 cfs @ 12.40 hrs, Volume= 178,652 cf
Primary	=	35.36 cfs @ 12.40 hrs, Volume= 178,652 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Hydrograph Inflow Primary 35.36 cfs 35.36 cfs 38 Inflow Area=947,660 sf 36 34 32 30 28 26 24 Flow (cfs) 22-20 18-16 14 12 10 8 6 4 2 0 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours)

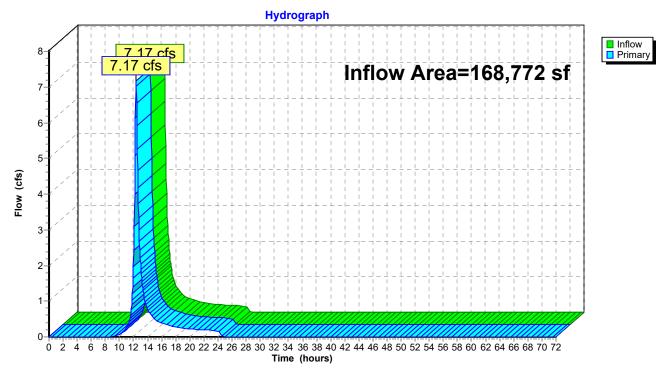
Link 3L: dA3

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Summary for Link 4L: DA 4: Combined Flows

Inflow Are	a =	168,772 sf, 3.14% Impervious, Inflow Depth = 2.43" for 10-Year Current event
Inflow	=	7.17 cfs @ 12.36 hrs, Volume= 34,240 cf
Primary	=	7.17 cfs @ 12.36 hrs, Volume= 34,240 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Link 4L: DA 4: Combined Flows

20240629_PartridgeFarmRd_HCAD_BASINS NOAA 24-hr C 10-Year	_2100 Rainfall=6.21"
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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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

Subcatchment1S: DA 1: CN w/ IC areas	Runoff Area=549,495 sf 18.28% Impervious Runoff Depth=3.84" Tc=19.8 min CN=74/98 Runoff=39.54 cfs 175,807 cf
Subcatchment1Sa: DA 1: CN w/ IC areas	Runoff Area=492,891 sf 8.90% Impervious Runoff Depth=3.59" Tc=19.8 min CN=74/98 Runoff=33.82 cfs 147,639 cf
Subcatchment1Sb: DA 1: Roofs	Runoff Area=21,359 sf 100.00% Impervious Runoff Depth=5.97" Tc=6.0 min CN=0/98 Runoff=3.15 cfs 10,629 cf
Subcatchment1Sc: DA1: Driveways	Runoff Area=35,245 sf 100.00% Impervious Runoff Depth=5.97" Tc=6.0 min CN=0/98 Runoff=5.20 cfs 17,539 cf
Subcatchment 2S: DA 2: CN w/ IC areas	Runoff Area=908,125 sf 25.71% Impervious Runoff Depth=4.03" Tc=21.8 min CN=74/98 Runoff=64.78 cfs 305,214 cf
Subcatchment2Sa: DA 2: CN w/ IC areas	Runoff Area=759,404 sf 11.16% Impervious Runoff Depth=3.65" Tc=21.8 min CN=74/98 Runoff=50.39 cfs 231,205 cf
Subcatchment2Sb: DA 2: Roofs	Runoff Area=53,997 sf 100.00% Impervious Runoff Depth=5.97" Tc=6.0 min CN=0/98 Runoff=7.96 cfs 26,871 cf
Subcatchment2Sc: DA 2: Driveways	Runoff Area=94,724 sf 100.00% Impervious Runoff Depth=5.97" Tc=6.0 min CN=0/98 Runoff=13.97 cfs 47,138 cf
Subcatchment3S: DA 3: CN w/ IC areas	Runoff Area=947,660 sf 12.29% Impervious Runoff Depth=3.68" Tc=27.9 min CN=74/98 Runoff=56.00 cfs 290,857 cf
Subcatchment3Sa: DA 3: CN w/ IC areas	Runoff Area=840,092 sf 1.06% Impervious Runoff Depth=3.39" Tc=27.9 min CN=74/98 Runoff=46.75 cfs 237,328 cf
Subcatchment3Sb: DA 3: Roofs	Runoff Area=22,074 sf 100.00% Impervious Runoff Depth=5.97" Tc=6.0 min CN=0/98 Runoff=3.25 cfs 10,985 cf
Subcatchment3Sc: DA 3: Driveways	Runoff Area=85,494 sf 100.00% Impervious Runoff Depth=5.97" Tc=6.0 min CN=0/98 Runoff=12.61 cfs 42,545 cf
Subcatchment4S: DA 4: CN w/ IC areas	Runoff Area=168,772 sf 3.14% Impervious Runoff Depth=3.44" Tc=24.4 min CN=74/98 Runoff=10.16 cfs 48,440 cf
Subcatchment4Sa: DA 4: CN w/ IC areas	Runoff Area=163,472 sf 0.00% Impervious Runoff Depth=3.36" Tc=24.4 min CN=74/0 Runoff=9.68 cfs 45,803 cf
Subcatchment4Sb: DA 4: Roofs	Runoff Area=695 sf 100.00% Impervious Runoff Depth=5.97" Tc=6.0 min CN=0/98 Runoff=0.10 cfs 346 cf
Subcatchment4Sc: DA 4: Driveways	Runoff Area=4,605 sf 100.00% Impervious Runoff Depth=5.97" Tc=6.0 min CN=0/98 Runoff=0.68 cfs 2,292 cf

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Reach 1Ri: Inlet Pipe Avg. Flow Depth=1.34' Max Vel=9.42 fps Inflow=35.09 cfs 149,036 cf 48.0" Round Pipe n=0.013 L=100.0' S=0.0100 '/' Capacity=143.64 cfs Outflow=34.79 cfs 149,077 cf
Reach 1Ro: outlet Avg. Flow Depth=0.78' Max Vel=4.74 fps Inflow=6.16 cfs 141,837 cf 30.0" Round Pipe n=0.013 L=925.0' S=0.0051 '/' Capacity=29.39 cfs Outflow=6.15 cfs 141,826 cf
Reach 2Ri: Inlet Pipe Avg. Flow Depth=1.69' Max Vel=10.58 fps Inflow=53.60 cfs 238,680 cf 48.0" Round Pipe n=0.013 L=100.0' S=0.0100 '/' Capacity=143.64 cfs Outflow=53.29 cfs 238,720 cf
Reach 2Ro: Outlet Avg. Flow Depth=1.23' Max Vel=9.60 fps Inflow=29.01 cfs 233,910 cf 42.0" Round Pipe n=0.013 L=190.0' S=0.0118 '/' Capacity=109.48 cfs Outflow=28.93 cfs 233,911 cf
Pond 1P: Basic Rain Garden (w/ Peak Elev=100.45' Storage=13,586 cf Inflow=33.82 cfs 147,639 cf Primary=12.46 cfs 124,928 cf Secondary=21.21 cfs 20,784 cf Tertiary=0.00 cfs 0 cf Outflow=33.67 cfs 145,712 cf
Pond 2P: Basic Rain Garden (infiltration Peak Elev=100.11' Storage=4,283 cf Inflow=3.15 cfs 10,629 cf Discarded=0.06 cfs 7,306 cf Primary=1.83 cfs 3,323 cf Outflow=1.89 cfs 10,629 cf
Pond 3P: Basic Porous PavementPeak Elev=99.83' Storage=6,612 cfInflow=5.20 cfs17,539 cfDiscarded=0.41 cfs17,539 cfPrimary=0.00 cfs0 cfOutflow=0.41 cfs17,539 cf
Pond 4P: Basin 1 Medium CasePeak Elev=76.49' Storage=72,539 cfInflow=34.79 cfs149,077 cfPrimary=4.99 cfs137,247 cfSecondary=1.16 cfs4,590 cfTertiary=0.00 cfs0 cfOutflow=6.16 cfs141,837 cf
Pond 5P: Basic Rain Garden (w/ Peak Elev=100.56' Storage=15,297 cf Inflow=50.39 cfs 231,205 cf Primary=13.98 cfs 178,452 cf Secondary=33.13 cfs 50,003 cf Tertiary=3.17 cfs 1,658 cf Outflow=50.28 cfs 230,113 cf
Pond 6P: Basic Rain Garden (infiltration Peak Elev=100.11' Storage=10,734 cf Inflow=7.96 cfs 26,871 cf Discarded=0.14 cfs 18,308 cf Primary=4.73 cfs 8,567 cf Outflow=4.87 cfs 26,875 cf
Pond 7P: Basic Porous PavementPeak Elev=99.83' Storage=17,770 cfInflow=13.97 cfs47,138 cfDiscarded=1.10 cfs47,138 cfPrimary=0.00 cfs0 cfOutflow=1.10 cfs47,138 cf
Pond 8P: Basin 2 Medium Case Peak Elev=71.74' Storage=60,972 cf Inflow=53.29 cfs 238,720 cf Primary=22.44 cfs 224,402 cf Secondary=6.58 cfs 9,508 cf Tertiary=0.00 cfs 0 cf Outflow=29.01 cfs 233,910 cf
Pond 9P: Basic Rain Garden (w/ Peak Elev=101.20' Storage=3,282 cf Inflow=46.75 cfs 237,328 cf Primary=2.94 cfs 103,986 cf Secondary=21.33 cfs 86,456 cf Tertiary=22.48 cfs 46,656 cf Outflow=46.75 cfs 237,098 cf
Pond 10P: Basic Rain Garden (infiltration Peak Elev=100.15' Storage=4,005 cf Inflow=3.25 cfs 10,985 cf Discarded=0.05 cfs 6,760 cf Primary=2.45 cfs 4,221 cf Outflow=2.50 cfs 10,981 cf
Pond 11P: Basic Porous PavementPeak Elev=99.83' Storage=16,038 cfInflow=12.61 cfs42,545 cfDiscarded=0.99 cfs42,545 cfPrimary=0.00 cfs0 cfOutflow=0.99 cfs42,545 cf
Pond 12P: Basic Porous Pavement (infiltration Peak Elev=99.84' Storage=871 cf Inflow=0.68 cfs 2,292 cf Discarded=0.05 cfs 2,291 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 2,291 cf
Link 1L: Combined Flows Inflow=35.09 cfs 149,036 cf Primary=35.09 cfs 149,036 cf
Link 2L: Combined Flows Inflow=53.60 cfs 238,680 cf Primary=53.60 cfs 238,680 cf

Link 3L: dA3

Inflow=47.74 cfs 241,319 cf Primary=47.74 cfs 241,319 cf

Link 4L: DA 4: Combined Flows

Inflow=9.71 cfs 46,149 cf Primary=9.71 cfs 46,149 cf

Total Runoff Area = 5,148,104 sf Runoff Volume = 1,640,637 cf Average Runoff Depth = 3.82" 82.29% Pervious = 4,236,632 sf 17.71% Impervious = 911,472 sf 20240629_PartridgeFarmRd_HCAD_BASINSNOAA 24-hr C 10-Year _2100 Rainfall=6.21"Prepared by Rutgers Cooperative Extension Water Resources ProgramPrinted 6/29/2024HydroCAD® 10.10-7cs/n 03601© 2022 HydroCAD Software Solutions LLCPage 188

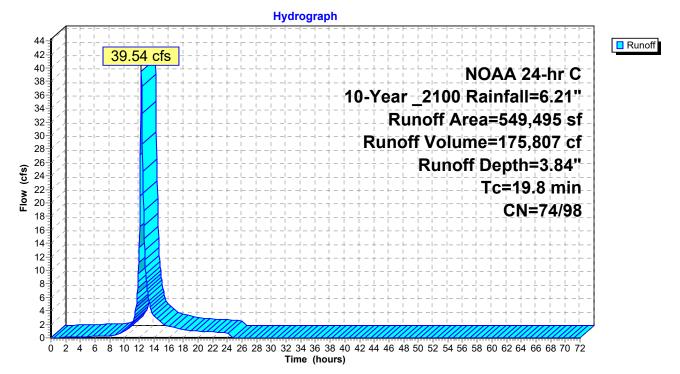
Summary for Subcatchment 1S: DA 1: CN w/ IC areas

Runoff = 39.54 cfs @ 12.29 hrs, Volume= 175,807 cf, Depth= 3.84"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

	Area (sf)	CN	Description	Description			
*	100,459	98	Impervious	Impervious			
	317,162	74	>75% Gras	s cover, Go	ood, HSG C		
	131,575	73	Woods, Fai	r, HSG C			
	299	70	Woods, Go	od, HSG C	;		
	549,495	78	Weighted A	verage			
	449,036	74	81.72% Per	vious Area	3		
	100,459	98	18.28% Imp	pervious Are	rea		
	Tc Length	Slop		Capacity	Description		
(r	nin) (feet)	(ft/	ft) (ft/sec)	(cfs)			
1	19.8				Direct Entry, Direct		

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



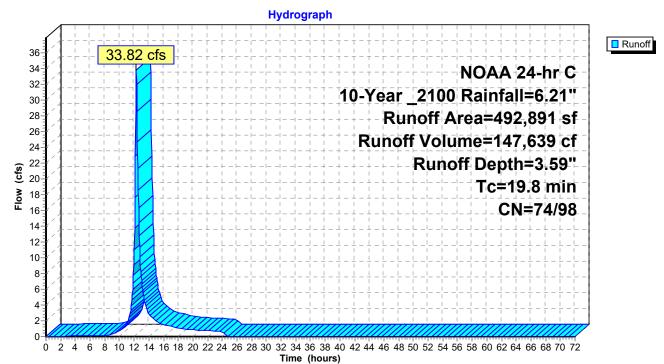
Summary for Subcatchment 1Sa: DA 1: CN w/ IC areas

Runoff = 33.82 cfs @ 12.29 hrs, Volume= 147,639 cf, Depth= 3.59" 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

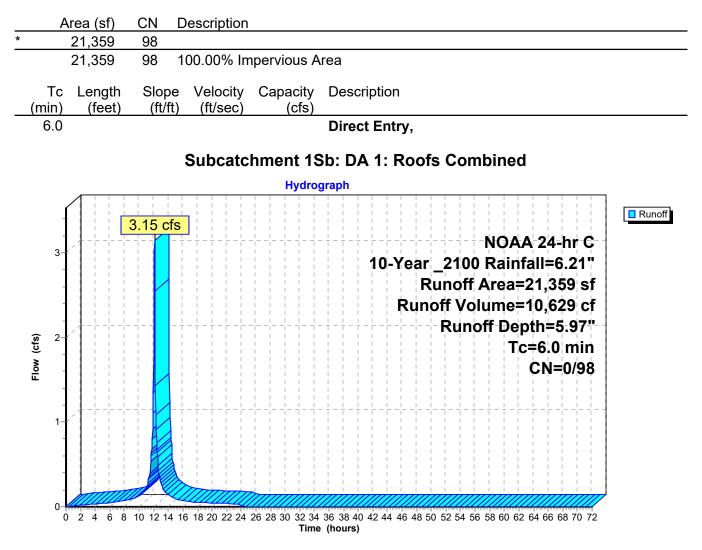
	Area (sf)	CN	Description	Description				
*	43,855	98	Impervious	Impervious				
	317,162	74	>75% Gras	s cover, Go	bod, HSG C			
	131,575	73	Woods, Fai	r, HSG C				
	299	70	Woods, Go	od, HSG C				
	492,891	76	Weighted A	verage				
	449,036 74 91.10% Pervious Area			vious Area				
	43,855	98	8.90% Impe	ervious Are	а			
	Tc Length	Slop	,	Capacity	Description			
(mi	n) (feet)	(ft/1	ft) (ft/sec)	(cfs)				
19	.8				Direct Entry, Direct			

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



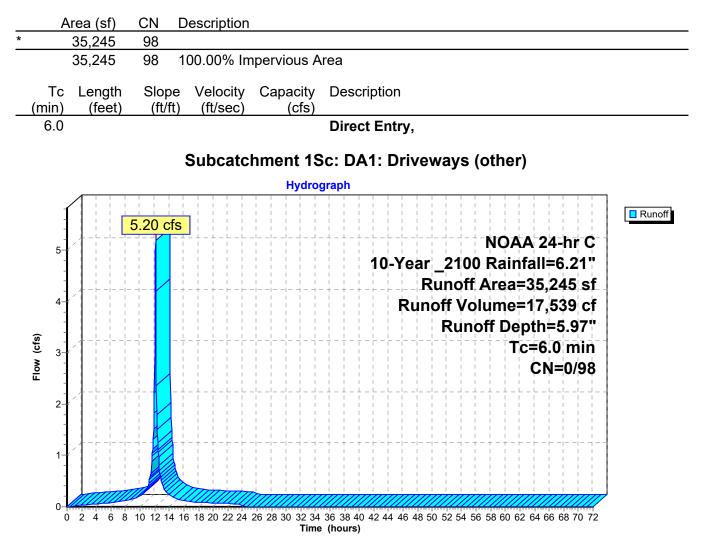
Summary for Subcatchment 1Sb: DA 1: Roofs Combined

Runoff = 3.15 cfs @ 12.13 hrs, Volume= 10,629 cf, Depth= 5.97" Routed to Pond 2P : Basic Rain Garden (infiltration only)



Summary for Subcatchment 1Sc: DA1: Driveways (other)

Runoff = 5.20 cfs @ 12.13 hrs, Volume= 17,539 cf, Depth= 5.97" Routed to Pond 3P : Basic Porous Pavement (infiltration only)



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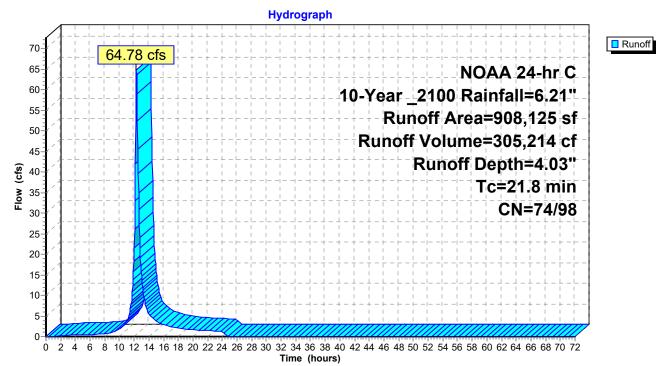
Summary for Subcatchment 2S: DA 2: CN w/ IC areas

Runoff = 64.78 cfs @ 12.32 hrs, Volume= 305,214 cf, Depth= 4.03"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

	Area (sf)	CN	Description	Description			
*	233,471	98	Impervious	Impervious			
	1	65	Brush, Goo	d, HSG C			
	620,871	74	>75% Gras	s cover, Go	bod, HSG C		
	1,845	72	Woods/gras	ss comb., G	Good, HSG C		
	51,937	73	Woods, Fai	r, HSG C			
	908,125	80	Weighted A	verage			
	674,654 74 74.29% Pervious Area				1		
	233,471 98 25.71% Impervious Are			pervious Are	ea		
	Tc Length			Capacity	Description		
(m	nin) (feet)	(ft/	ft) (ft/sec)	(cfs)			
2	1.8				Direct Entry, Direct		

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



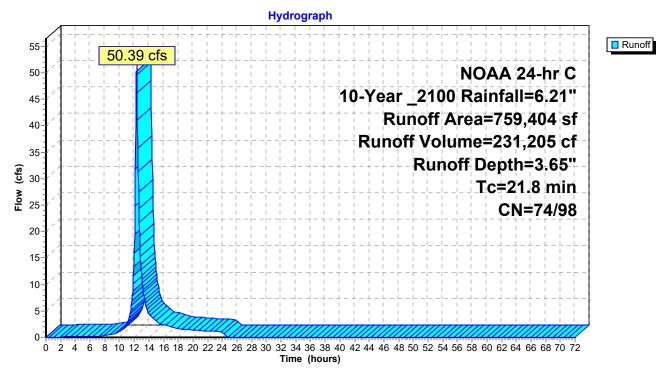
Summary for Subcatchment 2Sa: DA 2: CN w/ IC areas

Runoff = 50.39 cfs @ 12.32 hrs, Volume= 231,205 cf, Depth= 3.65" Routed to Pond 5P : 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

	Area (sf)	CN	Description
*	84,750	98	Impervious
	1	65	Brush, Good, HSG C
	620,871	74	>75% Grass cover, Good, HSG C
	1,845	72	Woods/grass comb., Good, HSG C
	51,937	73	Woods, Fair, HSG C
	759,404	77	Weighted Average
	674,654	74	88.84% Pervious Area
	84,750	98	11.16% Impervious Area
<u>(n</u>	Tc Length nin) (feet)	Slop (ft/	
2	.1.8		Direct Entry, Direct

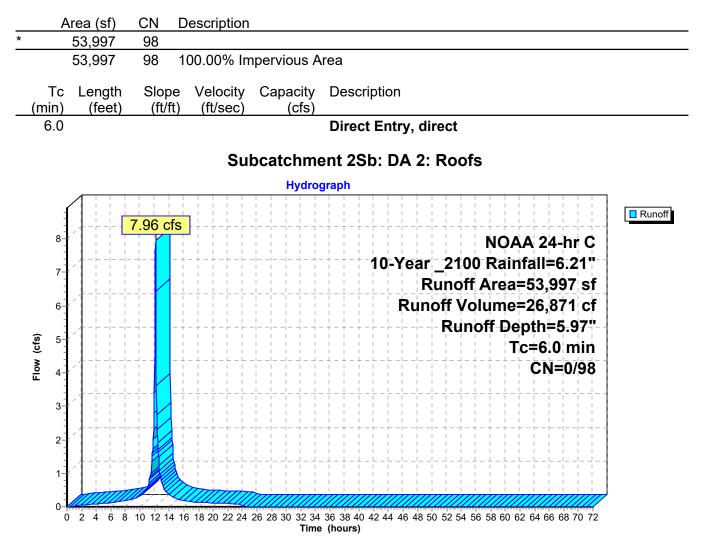
Subcatchment 2Sa: DA 2: CN w/ IC areas



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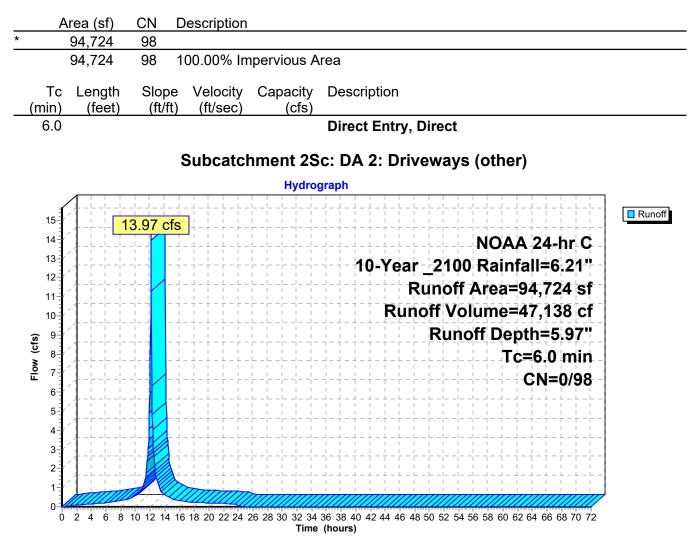
Summary for Subcatchment 2Sb: DA 2: Roofs

Runoff = 7.96 cfs @ 12.13 hrs, Volume= 26,871 cf, Depth= 5.97" Routed to Pond 6P : Basic Rain Garden (infiltration only)



Summary for Subcatchment 2Sc: DA 2: Driveways (other)

Runoff = 13.97 cfs @ 12.13 hrs, Volume= 47,138 cf, Depth= 5.97" Routed to Pond 7P : Basic Porous Pavement (infiltration only)



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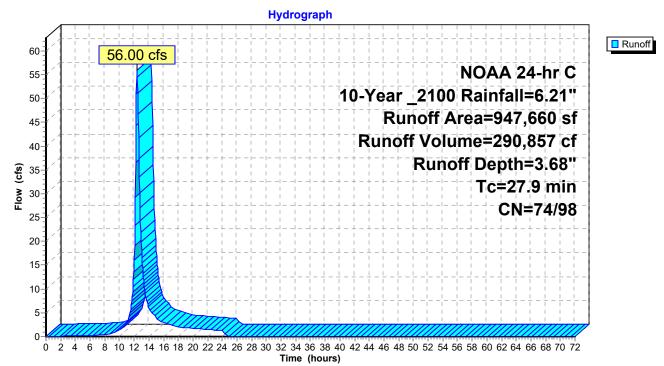
Summary for Subcatchment 3S: DA 3: CN w/ IC areas

Runoff = 56.00 cfs @ 12.40 hrs, Volume= 290,857 cf, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

	Area (sf)	CN	Description
*	116,506	98	Impervious
	4,930	79	50-75% Grass cover, Fair, HSG C
	592,347	74	>75% Grass cover, Good, HSG C
	169,305	73	Woods, Fair, HSG C
	64,572	70	Woods, Good, HSG C
	947,660	77	Weighted Average
	831,154	74	87.71% Pervious Area
	116,506	98	12.29% Impervious Area
(n	Tc Length nin) (feet)	Slop (ft/	
2	7.9		Direct Entry, direct

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



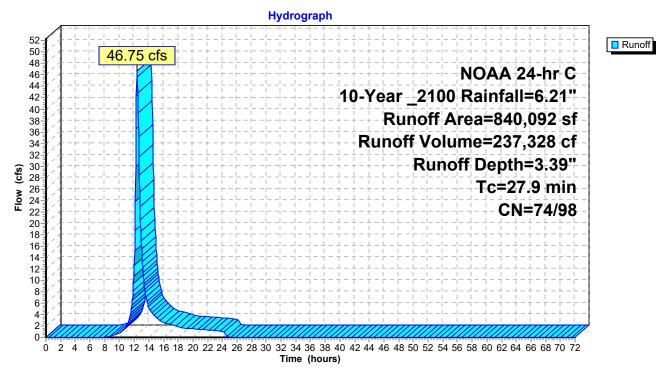
Summary for Subcatchment 3Sa: DA 3: CN w/ IC areas

Runoff = 46.75 cfs @ 12.40 hrs, Volume= 237,328 cf, Depth= 3.39" Routed to Pond 9P : 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

	Area (sf)	CN	Description
*	8,938	98	Impervious
	4,930	79	50-75% Grass cover, Fair, HSG C
	592,347	74	>75% Grass cover, Good, HSG C
	169,305	73	Woods, Fair, HSG C
	64,572	70	Woods, Good, HSG C
	840,092	74	Weighted Average
831,154 74 98.94% Pervious Area			98.94% Pervious Area
	8,938	98	1.06% Impervious Area
(m	Tc Length in) (feet)	Slop (ft/	
2	7.9		Direct Entry, direct

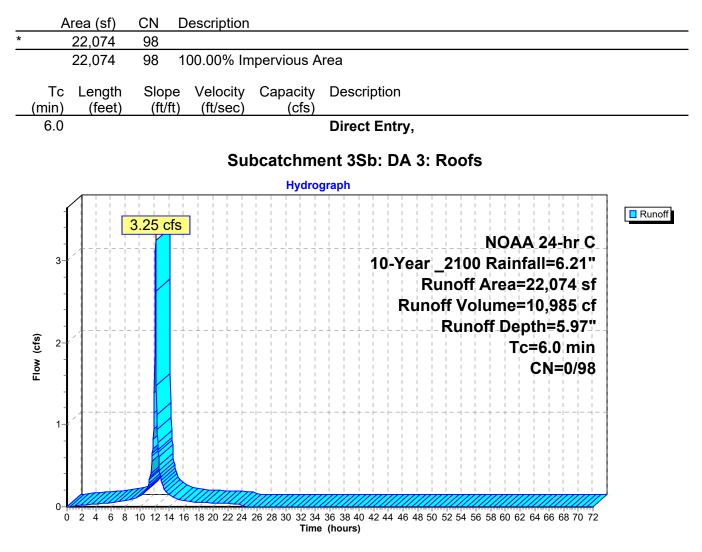
Subcatchment 3Sa: DA 3: CN w/ IC areas



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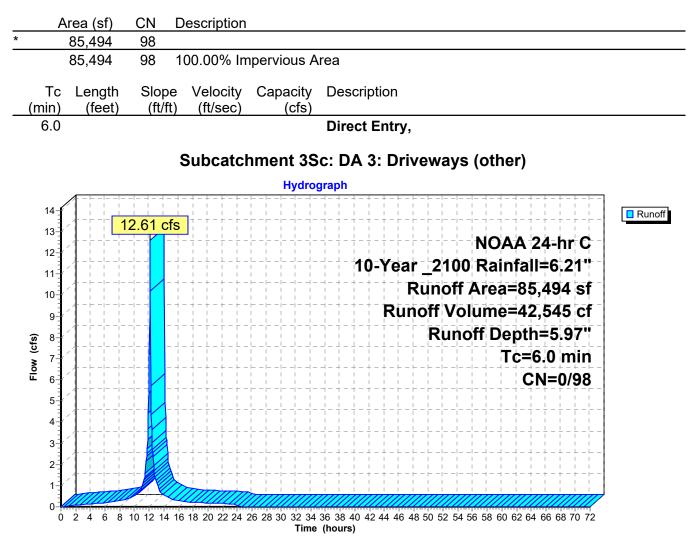
Summary for Subcatchment 3Sb: DA 3: Roofs

Runoff = 3.25 cfs @ 12.13 hrs, Volume= 10,985 cf, Depth= 5.97" Routed to Pond 10P : Basic Rain Garden (infiltration only)



Summary for Subcatchment 3Sc: DA 3: Driveways (other)

Runoff = 12.61 cfs @ 12.13 hrs, Volume= 42,545 cf, Depth= 5.97" Routed to Pond 11P : Basic Porous Pavement (infiltration only)



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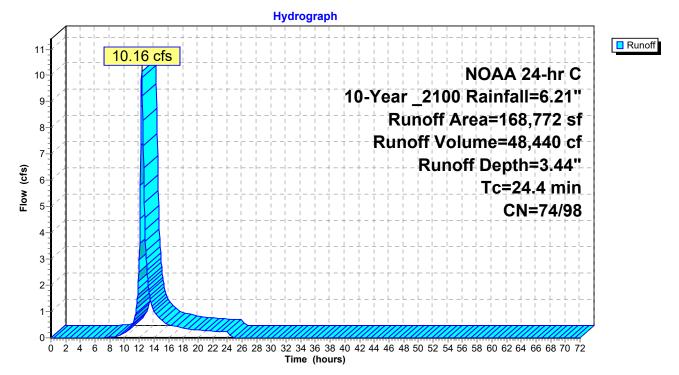
Summary for Subcatchment 4S: DA 4: CN w/ IC areas

Runoff = 10.16 cfs @ 12.35 hrs, Volume= 48,440 cf, Depth= 3.44"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

	Area (sf)	CN	Description	Description			
*	5,300	98	Impervious				
	117,799	74	>75% Grass	cover, Go	bod, HSG C		
	4,778	72	Woods/grass	s comb., G	Good, HSG C		
	40,895	73	Woods, Fair,	, HSG C			
	168,772 74 Weighted Average						
163,472 74 96.86% Pervious Area			96.86% Perv	ious Area/	l		
	5,300 98 3.14% Impervious Area			vious Area	а		
	Tc Length	Slop		Capacity	Description		
(n	nin) (feet)	(ft/	ft) (ft/sec)	(cfs)			
2	4.4				Direct Entry, Direct		

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



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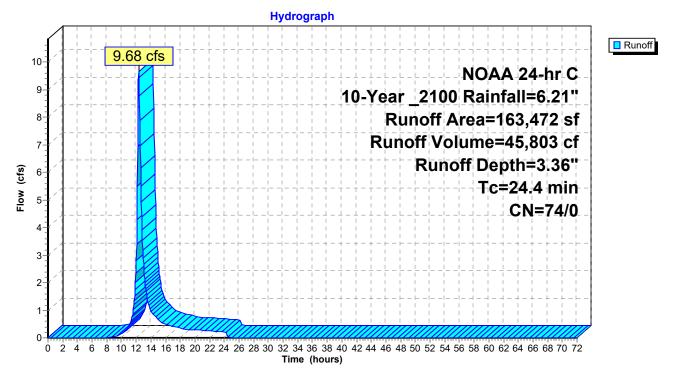
Summary for Subcatchment 4Sa: DA 4: CN w/ IC areas

Runoff = 9.68 cfs @ 12.35 hrs, Volume= 45,803 cf, Depth= 3.36" Routed to Link 4L : DA 4: Combined Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 10-Year _2100 Rainfall=6.21"

A	Area (sf)	CN	Description		
*	0	98	Impervious		
	117,799	74	>75% Grass	cover, Go	bod, HSG C
	4,778	72	Woods/grass	s comb., G	Good, HSG C
	40,895	73	Woods, Fair,	HSG C	
	163,472	74	Weighted Av	erage	
	163,472	74	100.00% Per	vious Area	a
Tc (min)	Length (feet)	Slop (ft/f		Capacity (cfs)	Description
24.4					Direct Entry, Direct

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



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Summary for Subcatchment 4Sb: DA 4: Roofs

Runoff = 0.10 cfs @ 12.13 hrs, Volume= Routed to Link 4L : DA 4: Combined Flows 346 cf, Depth= 5.97"

A	Area (sf)		Description			
	695	98				
	695	98 ⁻	100.00% In	pervious A	Area	
Tc (min)	Length (feet)	Slope (ft/ft)		Capacity (cfs)	Description	
6.0			· · ·		Direct Entry,	
			Sul	ocatchmo	ent 4Sb: DA 4: Roofs	
				Hydro	graph	
0.11						Runof
0.105	┋╡╱╁╶┾╴╌┝╴╽	0.10 cf	S		NOAA 24-hr C	
0.1 0.095	; ₽ ´,}		- -		10-Year 2100 Rainfall=6.21"	
0.09 0.085			- + - +	·	Runoff Area=695 sf	
0.08 0.075					Runoff Volume=346 cf	
0.07	┋┊┟╶┝╶┝╴╴				Runoff Depth=5.97" -	
0.065 (ئ 0.06 (ئ			- + - + - +		Tc≑6.0 min -	
8 0.055 ■ 0.05			- - - - - -	· + - + - + - + - + - + - + - + -	CN=0/98	
0.045 0.04	j /					
0.035	┋┫╱┨╶┝╴╌┝╴╴					
0.03 0.025			- + - + - + - + - + - + - + - + - + - +			
0.02 0.015	= / ! ! !		- + - + - + - + - + - +			
0.01 0.005	- /					
0.000		ímiínnímiín		26 28 30 32 3		

Summary for Subcatchment 4Sc: DA 4: Driveways (other)

Runoff = 0.68 cfs @ 12.13 hrs, Volume= 2,292 cf, Depth= 5.97" Routed to Pond 12P : Basic Porous Pavement (infiltration only)

	4,605 4,605	98 98 1	00.00% Im	pervious A	Area	
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
6.0	(1001)	(1011)	(18300)	(03)	Direct Entry,	
		:	Subcatch	nment 4S	Sc: DA 4: Driveways (other)	
				Hydro	ograph	
0.75		0.68 cfs	I I I I I I I I I I I I I I I I I I I I I I I I I		NOAA 24-hr C	Runoff
0.65	k ¹ }- - − - − /				10-Year 2100 Rainfall=6.21"	_
0.6 0.55	/!! / !-!		$\frac{1}{1} - \frac{1}{1} - \frac{1}{1} - \frac{1}{1} - \frac{1}{1} - \frac{1}{1} - \frac{1}{1}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Runoff Area=4,605 sf	-
0.5	,				Runoff Volume=2,292 cf	-
0.45					Runoff Depth=5.97"	-
Liow (cts) 0.4 0.35					Tc=6.0 min	_
0 .35					CN=0/98	
0.3						_
0.25	/ - !					_
0.2	/ /				· · · · · · · · · · · · · · · · · · ·	_
0.15	/ /			$\begin{array}{cccccccccccccccccccccccccccccccccccc$	· · · · · · · · · · · · · · · · · · ·	_
0.1	x -					_
0.05						J

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Summary for Reach 1Ri: Inlet Pipe

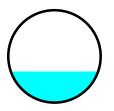
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 549,495 sf, 18.28% Impervious, Inflow Depth = 3.25" for 10-Year _2100 event Inflow = 35.09 cfs @ 12.29 hrs, Volume= 149,036 cf Outflow = 34.79 cfs @ 12.31 hrs, Volume= 149,077 cf, Atten= 1%, Lag= 0.7 min Routed to Pond 4P : Basin 1 Medium Case

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 9.42 fps, Min. Travel Time= 0.2 min Avg. Velocity = 2.97 fps, Avg. Travel Time= 0.6 min

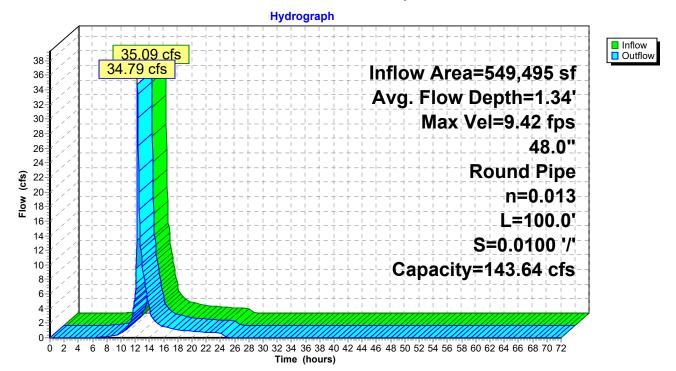
Peak Storage= 370 cf @ 12.30 hrs Average Depth at Peak Storage= 1.34', Surface Width= 3.78' Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 143.64 cfs

48.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 100.0' Slope= 0.0100 '/' Inlet Invert= 75.00', Outlet Invert= 74.00'



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Reach 1Ri: Inlet Pipe



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Summary for Reach 1Ro: outlet

[52] Hint: Inlet/Outlet conditions not evaluated

 Inflow Area =
 549,495 sf, 18.28% Impervious, Inflow Depth > 3.10" for 10-Year _2100 event

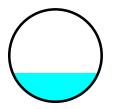
 Inflow =
 6.16 cfs @ 13.60 hrs, Volume=
 141,837 cf

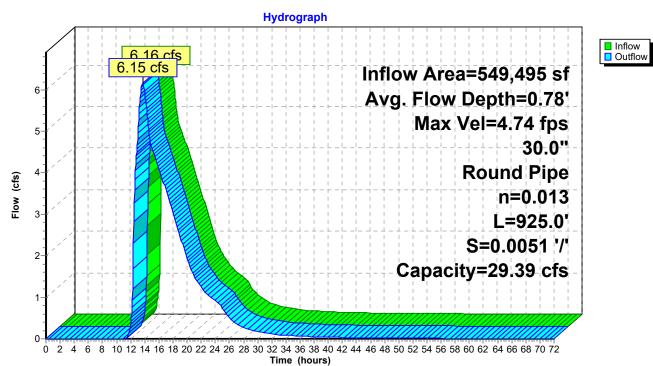
 Outflow =
 6.15 cfs @ 13.70 hrs, Volume=
 141,826 cf, Atten= 0%, Lag= 5.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Max. Velocity= 4.74 fps, Min. Travel Time= 3.3 min Avg. Velocity = 1.57 fps, Avg. Travel Time= 9.8 min

Peak Storage= 1,202 cf @ 13.64 hrs Average Depth at Peak Storage= 0.78', Surface Width= 2.31' Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 29.39 cfs

30.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 925.0' Slope= 0.0051 '/' Inlet Invert= 70.75', Outlet Invert= 66.00'





Reach 1Ro: outlet

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Summary for Reach 2Ri: Inlet Pipe

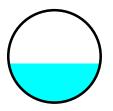
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 908,125 sf, 25.71% Impervious, Inflow Depth = 3.15" for 10-Year _2100 event Inflow = 53.60 cfs @ 12.31 hrs, Volume= 238,680 cf Outflow = 53.29 cfs @ 12.32 hrs, Volume= 238,720 cf, Atten= 1%, Lag= 0.3 min Routed to Pond 8P : Basin 2 Medium Case

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 10.58 fps, Min. Travel Time= 0.2 min Avg. Velocity = 3.35 fps, Avg. Travel Time= 0.5 min

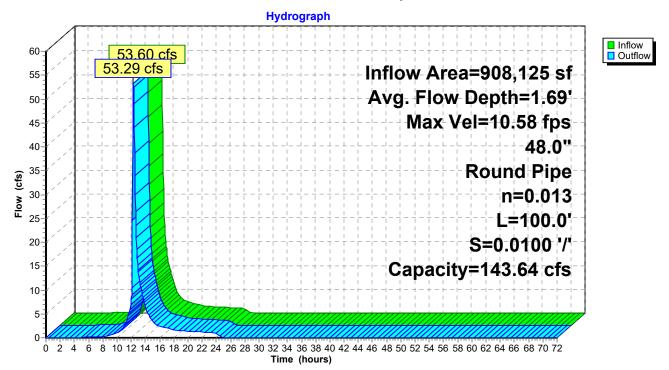
Peak Storage= 504 cf @ 12.31 hrs Average Depth at Peak Storage= 1.69', Surface Width= 3.95' Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 143.64 cfs

48.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 100.0' Slope= 0.0100 '/' Inlet Invert= 70.00', Outlet Invert= 69.00'



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Reach 2Ri: Inlet Pipe



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Summary for Reach 2Ro: Outlet

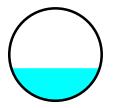
[52] Hint: Inlet/Outlet conditions not evaluated

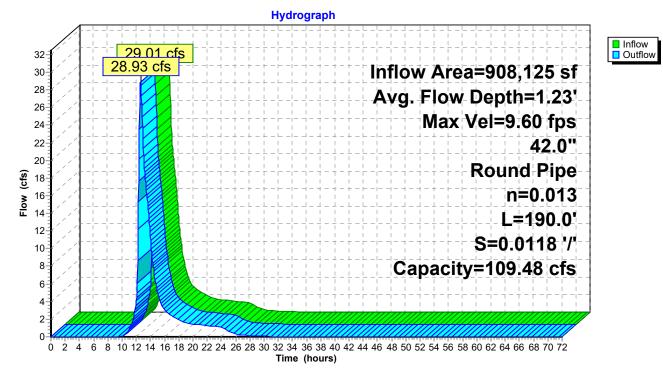
Inflow Are	a =	908,125 sf, 25.71% Impervious	Inflow Depth = 3.09"	for 10-Year _2100 event
Inflow	=	29.01 cfs @ 12.61 hrs, Volume=	233,910 cf	—
Outflow	=	28.93 cfs @ 12.62 hrs, Volume=	233,911 cf, Atter	n= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 9.60 fps, Min. Travel Time= 0.3 min Avg. Velocity = 2.02 fps, Avg. Travel Time= 1.6 min

Peak Storage= 573 cf @ 12.62 hrs Average Depth at Peak Storage= 1.23', Surface Width= 3.34' Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 109.48 cfs

42.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 190.0' Slope= 0.0118 '/' Inlet Invert= 65.75', Outlet Invert= 63.50'





Reach 2Ro: Outlet

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

Inflow Area =	492,891 sf,	8.90% Impervious,	Inflow Depth = 3.59"	for 10-Year _2100 event
Inflow =	33.82 cfs @ 12	2.29 hrs, Volume=	147,639 cf	_
Outflow =	33.67 cfs @ 12	2.30 hrs, Volume=	145,712 cf, Atte	n= 0%, Lag= 0.4 min
Primary =	12.46 cfs @ 12	2.30 hrs, Volume=	124,928 cf	
Routed to Link	1L : Combined I	Flows		
Secondary =	21.21 cfs @ 12	2.30 hrs, Volume=	20,784 cf	
Routed to Link	1L : Combined I	Flows		
		0.00 hrs, Volume=	0 cf	
Routed to Link	(1L : Combined I	Flows		

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 100.45' @ 12.30 hrs Surf.Area= 6,125 sf Storage= 13,586 cf

Plug-Flow detention time= 23.0 min calculated for 145,611 cf (99% of inflow) Center-of-Mass det. time= 15.2 min (845.9 - 830.7)

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 9.00 - 15.635 cf. Total Available Storage

 $1,737 \text{ cf} \times 9.00 = 15,635 \text{ cf}$ Total Available Storage

Storage Group A created with Chamber Wizard

	Elevation Surf.Area (feet) (sq-ft)		Void %)		Cum.Store (cubic-feet)	Wet.Area (sq-ft)		
97.75		175	0.	//	0	175		
98.2	25	175	35.	0 31	31	198		
99.2	25	175	35.	0 61	92	245		
99.5		175	25.	-	103	257		
100.0		175	100.		190	281		
100.5		175	100.		280	304		
101.7	75	175	100.	0 217	497	363		
Device	Routing	In	vert	Outlet Devices				
#1	Primary	94	1.17'	6.0" Round Culve	rt X 9.00 L= 10.0'	Ke= 0.500		
	,			Inlet / Outlet Invert=	= 94.17' / 94.12' S	= 0.0050 '/' Cc= 0.900		
				n= 0.020 Corrugate	ed PE, corrugated	interior, Flow Area= 0.20 sf		
#2	Device 1	94	.33'	6.0" Round 6" HDPE Underdrain X 9.00 L= 32.0' Ke= 0.500				
				Inlet / Outlet Invert= 94.33' / 94.17' S= 0.0050 '/' Cc= 0.900				
				0		interior, Flow Area= 0.20 sf		
#3	Seconda	ry 100).00'			ted Rectangular Weir X 9.00		
					.40 0.60 0.80 1.0	00 1.20 1.40 1.60 1.80 2.00		
				2.50 3.00 3.50	4 0 64 0 64 0 60			
				()		2.66 2.70 2.77 2.89 2.88		
				2.85 3.07 3.20 3.3	52			

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#4 Tertiary 100.50'6.0' long Sharp-Crested Rectangular Weir X 9.00 2 End Contraction(s)

Primary OutFlow Max=12.46 cfs @ 12.30 hrs HW=100.45' (Free Discharge) 1=Culvert (Passes 12.46 cfs of 18.64 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 12.46 cfs @ 7.05 fps)

Secondary OutFlow Max=21.16 cfs @ 12.30 hrs HW=100.45' (Free Discharge) —3=Broad-Crested Rectangular Weir (Weir Controls 21.16 cfs @ 1.75 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=93.75' (Free Discharge) **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs) 20240629_PartridgeFarmRd_HCAD_BASINSNOAA 24-hr C10-Year_2100 Rainfall=6.21"Prepared by Rutgers Cooperative Extension Water Resources ProgramPrinted 6/29/2024HydroCAD® 10.10-7cs/n 03601© 2022 HydroCAD Software Solutions LLCPage 212

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

Chamber Model = ADS_StormTechSC-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

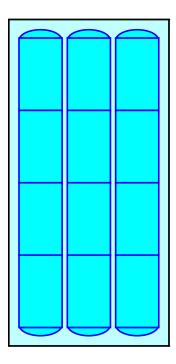
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

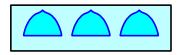
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

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

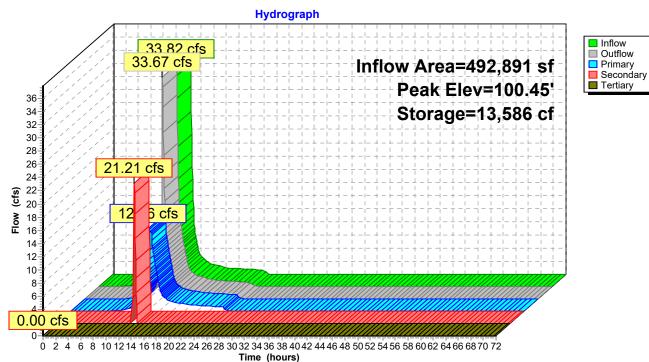
Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af Overall Storage Efficiency = 54.5%Overall System Size = $32.10' \times 15.75' \times 4.50'$

12 Chambers 84.3 cy Field 63.8 cy Stone









Summary for Pond 2P: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	21,359 sf,100.00% Impervious,	Inflow Depth = 5.97" for 10-Year 2100 event					
Inflow =	3.15 cfs @ 12.13 hrs, Volume=	10,629 cf					
Outflow =	1.89 cfs @ 12.22 hrs, Volume=	10,629 cf, Atten= 40%, Lag= 5.9 min					
Discarded =	0.06 cfs @ 12.15 hrs, Volume=	7,306 cf					
Primary =	1.83 cfs @ 12.22 hrs, Volume=	3,323 cf					
Routed to Link 1L : Combined Flows							

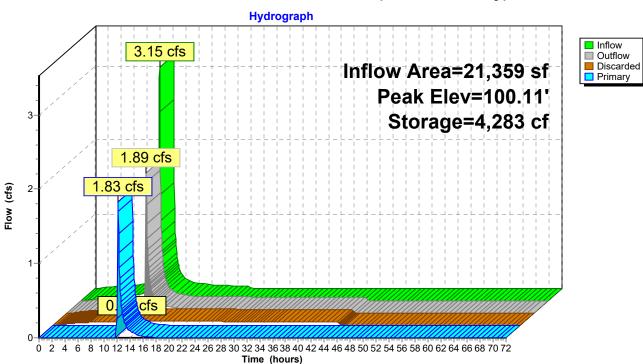
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.11' @ 12.22 hrs Surf.Area= 5,000 sf Storage= 4,283 cf

Plug-Flow detention time= 449.4 min calculated for 10,622 cf (100% of inflow) Center-of-Mass det. time= 450.0 min (1,195.3 - 745.3)

Volume	Invert	Ava	il.Storage	Storage Descrip	otion	
#1	98.25'		622 cf	Custom Stage	Data (Conic)Liste	d below (Recalc)
			622 cf	x = 10.00 = 6,22	20 cf Total Availat	ble Storage
Elevation (feet)	Su	rf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
98.25		374	0.0	0	0	374
99.25		374	35.0	131	131	443
99.50		374	25.0	23	154	460
100.00		500	100.0	218	372	591
100.25		500	100.0	125	497	611
100.50		500	100.0	125	622	631
#1 Di	outing scarded imary	98	8.25' 0.5 9.00' 2.0 He 2.5 Co	' long x 3.0' brea ad (feet) 0.20 0.4 50 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67	area ed Rectangular Weir X 10.00) 1.20 1.40 1.60 1.80 2.00 2.65 2.64 2.64 2.68 2.68

Discarded OutFlow Max=0.06 cfs @ 12.15 hrs HW=100.06' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=1.70 cfs @ 12.22 hrs HW=100.11' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 1.70 cfs @ 0.80 fps)



Pond 2P: Basic Rain Garden (infiltration only)

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

35,245 sf,100.00% Impervious, Inflow Depth = 5.97" for 10-Year 2100 event Inflow Area = Inflow 5.20 cfs @ 12.13 hrs, Volume= 17.539 cf = 0.41 cfs @ 11.15 hrs, Volume= 17,539 cf, Atten= 92%, Lag= 0.0 min Outflow = 0.41 cfs @ 11.15 hrs, Volume= Discarded = 17,539 cf 0.00 cfs @ 0.00 hrs, Volume= Primary = 0 cf Routed to Link 1L : Combined Flows

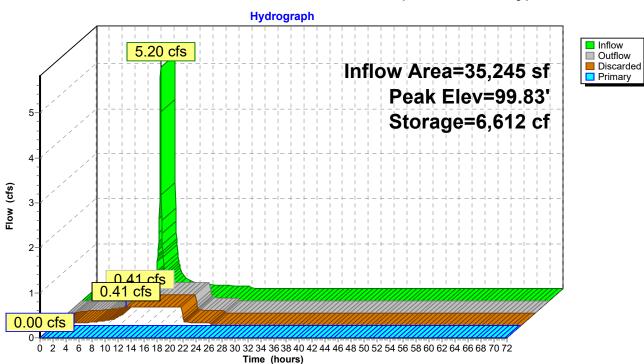
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 99.83' @ 13.14 hrs Surf.Area= 35,245 sf Storage= 6,612 cf

Plug-Flow detention time= 112.7 min calculated for 17,539 cf (100% of inflow) Center-of-Mass det. time= 112.6 min (858.0 - 745.3)

Volume	Inver	t Avail.	Storage	Storage Descri	ption	
#1	99.25	' 1	6,001 cf	Custom Stage	Data (Prismatic)Listed below (Recalc)
Elevatio (fee 99.2 99.7 99.8 100.0 100.2	et) 25 75 33 01	(sq-ft) 35,245 35,245 35,245 35,245 35,245	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 6,168 423 952 8,459	Cum.Store (cubic-feet) 0 6,168 6,591 7,542 16,001	
Device	Routing	Inve	ert Outle	et Devices		
#1 #2	Discarded Primary	99.2 100.0	00' 15.0 ' Head 2.50 Coef	long x 1.0' bro d (feet) 0.20 0.4 3.00	40 0.60 0.80 1.0	area brous Asphalt X 76.00 00 1.20 1.40 1.60 1.80 2.00 2.98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=0.41 cfs @ 11.15 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.41 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: Basin 1 Medium Case

[63] Warning: Exceeded Reach 1Ri INLET depth by 1.00' @ 14.15 hrs

Inflow Area = 549,495 sf, 18.28% Impervious, Inflow Depth = 3.26" for 10-Year 2100 event 34.79 cfs @ 12.31 hrs, Volume= Inflow = 149,077 cf Outflow = 6.16 cfs @ 13.60 hrs, Volume= 141,837 cf, Atten= 82%, Lag= 77.7 min Primary = 4.99 cfs @ 13.60 hrs, Volume= 137,247 cf Routed to Reach 1Ro : outlet Secondary = 1.16 cfs @ 13.60 hrs, Volume= 4.590 cf Routed to Reach 1Ro : outlet 0 cf Tertiary = 0.00 cfs @ 0.00 hrs, Volume= Routed to Reach 1Ro : outlet

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 76.49' @ 13.60 hrs Surf.Area= 32,552 sf Storage= 72,539 cf

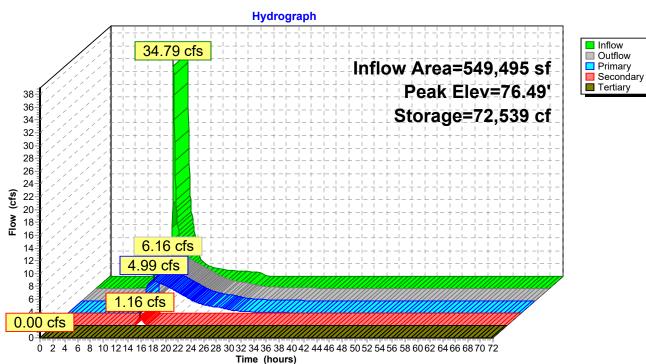
Plug-Flow detention time= 249.0 min calculated for 141,837 cf (95% of inflow) Center-of-Mass det. time= 221.5 min (1,066.3 - 844.8)

Volume	Invert	Avail.Stora	age Storage I	Description	
#1	74.00'	162,84	0 cf Custom	Stage Data (Pr	ismatic)Listed below (Recalc)
Elevatio (fee 74.0	et)	f.Area (sq-ft) (5.611	Inc.Store (cubic-feet) 0	Cum.Store (cubic-feet) 0	
79.0		9,525	162,840	162,840	
Device	Routing	Invert	Outlet Devices	i	
#1	Primary	74.25'		w Flow Orifice flow at low hea	
#2	Secondary	76.25'			Orifice X 2.00 C= 0.600
#3	Tertiary	78.75'	Limited to weir flow at low heads 24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=4.99 cfs @ 13.60 hrs HW=76.49' (Free Discharge) **1=Low Flow Orifice** (Orifice Controls 4.99 cfs @ 6.36 fps)

Secondary OutFlow Max=1.16 cfs @ 13.60 hrs HW=76.49' (Free Discharge) 2=2-YR Orifice (Orifice Controls 1.16 cfs @ 1.59 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=74.00' (Free Discharge) -3=Orifice/Grate (Controls 0.00 cfs)



Pond 4P: Basin 1 Medium Case

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Summary for Pond 5P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Inflow Area =	759,404 sf, 11.16% Impervious,	Inflow Depth = 3.65" for 10-Year _2100 event
Inflow =	50.39 cfs @ 12.32 hrs, Volume=	231,205 cf
Outflow =	50.28 cfs @ 12.32 hrs, Volume=	230,113 cf, Atten= 0%, Lag= 0.2 min
Primary =	13.98 cfs @ 12.32 hrs, Volume=	178,452 cf
Routed to Link	C 2L : Combined Flows	
Secondary =	33.13 cfs @ 12.32 hrs, Volume=	50,003 cf
Routed to Link	C 2L : Combined Flows	
	3.17 cfs @ 12.32 hrs, Volume=	1,658 cf
Routed to Link	C2L : Combined Flows	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 100.56' @ 12.32 hrs Surf.Area= 6,805 sf Storage= 15,297 cf

Plug-Flow detention time= 15.7 min calculated for 230,113 cf (100% of inflow) Center-of-Mass det. time= 12.5 min (842.1 - 829.6)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	365 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
		1 606 cf	x 10.00 - 16.060 cf. Total Available Storage

 $1,606 \text{ cf} \times 10.00 = 16,060 \text{ cf}$ Total Available Storage

Storage Group A created with Chamber Wizard

Elevatio (fee		Surf.Area (sq-ft)	Void %)		Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
97.7	1	<u>(34-11)</u> 175	0.	· · · ·	0	175	
98.2		175	35.		31	198	
99.2	-	175	35.		92	245	
99.5	-	175	25.		103	257	
100.0	00	175	100.	0 88	190	281	
100.5	51	175	100.	0 89	280	304	
101.0	00	175	100.	0 86	365	327	
Device	Routing	In	vert	Outlet Devices			
#1	Primary	94	4.17' 6.0" Round Culvert X 10.00 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 10.00 L= 32.0' Ke= 0.500			
				Inlet / Outlet Invert= 94.33' / 94.17' S= 0.0050 '/' Cc= 0.900			
	- ·			0		interior, Flow Area= 0.20 sf	
#3	#3 Secondary 100.00'			3.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 10.00			
					.40 0.60 0.80 1.0	00 1.20 1.40 1.60 1.80 2.00	
				2.50 3.00 3.50	1 2 61 2 61 2 60	266 270 277 280 288	
				2.85 3.07 3.20 3.3		2.66 2.70 2.77 2.89 2.88	
				2.00 0.07 0.20 0.0	<i>JL</i>		

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#4 Tertiary 100.50' **6.0' long Sharp-Crested Rectangular Weir X 10.00** 2 End Contraction(s)

Primary OutFlow Max=13.97 cfs @ 12.32 hrs HW=100.56' (Free Discharge) 1=Culvert (Passes 13.97 cfs of 20.91 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 13.97 cfs @ 7.12 fps)

Secondary OutFlow Max=32.83 cfs @ 12.32 hrs HW=100.56' (Free Discharge) —3=Broad-Crested Rectangular Weir (Weir Controls 32.83 cfs @ 1.95 fps)

Tertiary OutFlow Max=2.89 cfs @ 12.32 hrs HW=100.56' (Free Discharge) **4=Sharp-Crested Rectangular Weir** (Weir Controls 2.89 cfs @ 0.80 fps) 20240629_PartridgeFarmRd_HCAD_BASINSNOAA 24-hr C10-Year_2100 Rainfall=6.21"Prepared by Rutgers Cooperative Extension Water Resources ProgramPrinted 6/29/2024HydroCAD® 10.10-7cs/n 03601© 2022 HydroCAD Software Solutions LLCPage 222

ond 5P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

Chamber Model = ADS_StormTechSC-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

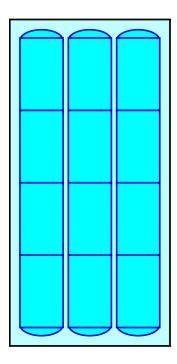
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

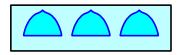
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

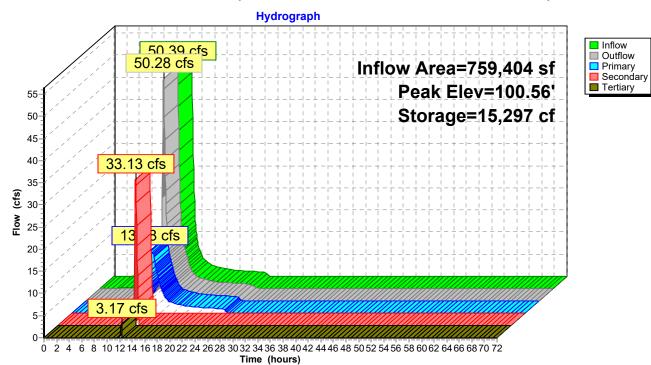
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

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

12 Chambers 84.3 cy Field 63.8 cy Stone







Pond 5P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Summary for Pond 6P: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	53,997 sf,100.00% Impervious,	Inflow Depth = 5.97" for 10-Year 2100 event					
Inflow =	7.96 cfs @ 12.13 hrs, Volume=	26,871 cf					
Outflow =	4.87 cfs @ 12.22 hrs, Volume=	26,875 cf, Atten= 39%, Lag= 5.7 min					
Discarded =	0.14 cfs @ 12.15 hrs, Volume=	18,308 cf					
Primary =	4.73 cfs @ 12.22 hrs, Volume=	8,567 cf					
Routed to Link 2L : Combined Flows							

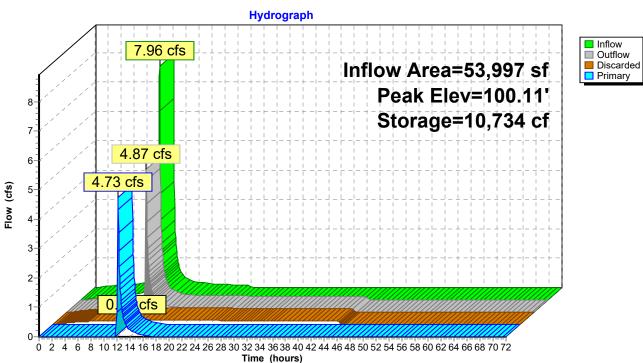
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 100.11' @ 12.22 hrs Surf.Area= 12,500 sf Storage= 10,734 cf

Plug-Flow detention time= 445.9 min calculated for 26,856 cf (100% of inflow) Center-of-Mass det. time= 446.5 min (1,191.9 - 745.3)

Volume	Invert	t Ava	il.Storage	Storage Description			
#1	98.25	1	622 cf	Custom Stage	Data (Conic)Listed	below (Recalc)	
			622 cf	x 25.00 = 15,5	50 cf Total Availab	ble Storage	
Elevatio (fee		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
98.2	1	374	0.0	0	0	374	
99.2	25	374	35.0	131	131	443	
99.5	50	374	25.0	23	154	460	
100.0	0	500	100.0	218	372	591	
100.2	25	500	100.0	125	497	611	
100.5	50	500	100.0	125	622	631	
Device #1 #2	Routing Discarded Primary	98	3.25' 0.50 3.00' 2.0' Hea 2.50 Coe	long x 3.0' bread id (feet) 0.20 0.4 0 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2.	rea 1 Rectangular Weir X 25.00 1.20 1.40 1.60 1.80 2.00 .65 2.64 2.64 2.68 2.68	

Discarded OutFlow Max=0.14 cfs @ 12.15 hrs HW=100.07' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=4.44 cfs @ 12.22 hrs HW=100.11' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 4.44 cfs @ 0.81 fps)



Pond 6P: Basic Rain Garden (infiltration only)

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Summary for Pond 7P: Basic Porous Pavement (infiltration only)

94,724 sf,100.00% Impervious, Inflow Depth = 5.97" for 10-Year 2100 event Inflow Area = Inflow = 13.97 cfs @ 12.13 hrs, Volume= 47.138 cf 1.10 cfs @ 11.15 hrs, Volume= 47,138 cf, Atten= 92%, Lag= 0.0 min Outflow = 1.10 cfs @ 11.15 hrs, Volume= 47,138 cf Discarded = Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf Routed to Link 2L : Combined Flows

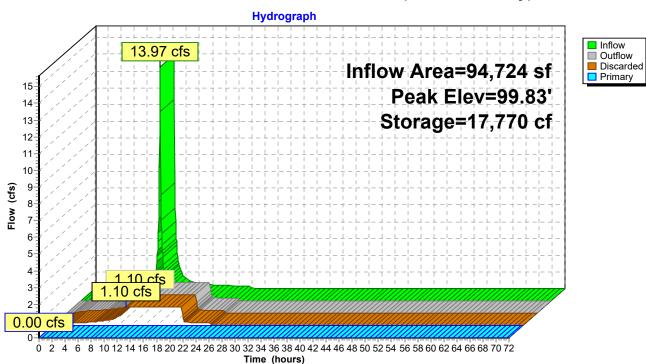
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.83' @ 13.14 hrs Surf.Area= 94,724 sf Storage= 17,770 cf

Plug-Flow detention time= 112.7 min calculated for 47,138 cf (100% of inflow) Center-of-Mass det. time= 112.6 min (858.0 - 745.3)

Volume	Inver	rt Avail	I.Storage	Storage Descri	ption	
#1	99.25	5' 4	43,005 cf	Custom Stage	Data (Prismatic)L	isted below (Recalc)
Elevatio (fee 99.2 99.7 99.8 100.0 100.2	et) 25 75 83 01	Surf.Area (sq-ft) 94,724 94,724 94,724 94,724 94,724	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 16,577 1,137 2,558 22,734	Cum.Store (cubic-feet) 0 16,577 17,713 20,271 43,005	
Device	Routing	١n	vert Outle	et Devices		
#1 #2	Discarded Primary	99. 100.	.00' 15.0 Head 2.50 Coet	' long x 1.0' bre d (feet) 0.20 0.4 3.00	40 0.60 0.80 1.00	rea ous Asphalt X 76.00 1.20 1.40 1.60 1.80 2.00 2.98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=1.10 cfs @ 11.15 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 1.10 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 7P: Basic Porous Pavement (infiltration only)

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Summary for Pond 8P: Basin 2 Medium Case

[63] Warning: Exceeded Reach 2Ri INLET depth by 0.65' @ 12.80 hrs

Inflow Area = 908,125 sf, 25.71% Impervious, Inflow Depth = 3.15" for 10-Year 2100 event 53.29 cfs @ 12.32 hrs, Volume= Inflow = 238,720 cf Outflow = 29.01 cfs @ 12.61 hrs, Volume= 233,910 cf, Atten= 46%, Lag= 17.9 min Primary = 22.44 cfs @ 12.61 hrs, Volume= 224,402 cf Routed to Reach 2Ro : Outlet Secondary = 6.58 cfs @ 12.61 hrs, Volume= 9.508 cf Routed to Reach 2Ro : Outlet 0 cf Tertiary = 0.00 cfs @ 0.00 hrs, Volume= Routed to Reach 2Ro : Outlet

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 71.74' @ 12.61 hrs Surf.Area= 25,644 sf Storage= 60,972 cf

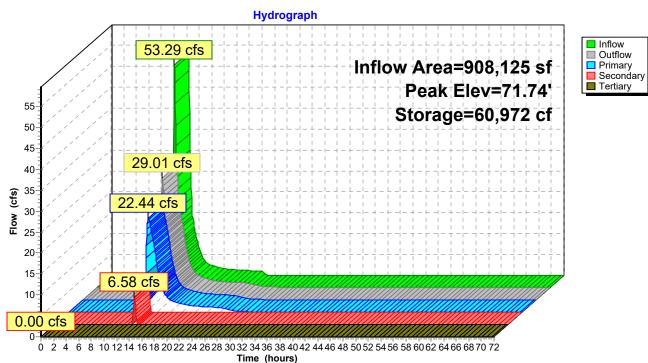
Plug-Flow detention time= 73.4 min calculated for 233,747 cf (98% of inflow) Center-of-Mass det. time= 62.6 min (902.7 - 840.1)

Volume	Invert	Avail.Sto	rage Storag	e Description	
#1	69.00'	125,28	80 cf Custo	m Stage Data (Pr	rismatic)Listed below (Recalc)
Elevatio (fee 69.0	et)	rf.Area <u>(sq-ft)</u> 18,889	Inc.Store (cubic-feet) 0	Cum.Store (cubic-feet) 0	
74.0		31,223	125,280	125,280	
Device	Routing	Invert	Outlet Devic	es	
#1	Primary	69.25'			X 2.00 C= 0.600
#2	Secondary	71.25'	24.0" W x 1	eir flow at low hea 8.0" H Vert. 2-YR eir flow at low hea	Orifice X 3.00 C= 0.600
#3	Tertiary	73.75'	48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		

Primary OutFlow Max=22.42 cfs @ 12.61 hrs HW=71.74' (Free Discharge) -1=Low Flow Orifice (Orifice Controls 22.42 cfs @ 6.34 fps)

Secondary OutFlow Max=6.51 cfs @ 12.61 hrs HW=71.74' (Free Discharge) 2=2-YR Orifice (Orifice Controls 6.51 cfs @ 2.24 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge) **3=Orifice/Grate** (Controls 0.00 cfs)



Pond 8P: Basin 2 Medium Case

Summary for Pond 9P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Inflow Area =	840,092 sf	, 1.06% Impervious,	Inflow Depth = 3.39" for 1	0-Year _2100 event
Inflow =	46.75 cfs @	12.40 hrs, Volume=	237,328 cf	_
Outflow =	46.75 cfs @	12.40 hrs, Volume=	237,098 cf, Atten= 0%,	, Lag= 0.1 min
Primary =	2.94 cfs @	12.40 hrs, Volume=	103,986 cf	
Routed to Lin	k 3L : dA3			
Secondary =	21.33 cfs @	12.40 hrs, Volume=	86,456 cf	
Routed to Lin	k 3L : dA3			
Tertiary =	22.48 cfs @	12.40 hrs, Volume=	46,656 cf	
Routed to Lin	k 3L : dA3			

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 101.20' @ 12.40 hrs Surf.Area= 1,361 sf Storage= 3,282 cf

Plug-Flow detention time= 7.7 min calculated for 236,934 cf (100% of inflow) Center-of-Mass det. time= 7.2 min (856.4 - 849.2)

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 2.00 - 3.475 cf. Total Available Storage

1,737 cf x 2.00 = 3,475 cf Total Available Storage

Storage Group A created with Chamber Wizard

Elevatio	on	Surf.Area	Void		Cum.Store	Wet.Area		
(fee	et)	(sq-ft)	(%) (cubic-feet)	(cubic-feet)	<u>(sq-ft)</u>		
97.7	75	175	0.	0 0	0	175		
98.2	25	175	35.) 31	31	198		
99.2	25	175	35.	D 61	92	245		
99.8	50	175	25.	D 11	103	257		
100.0	00	175	100.	88	190	281		
100.5	51	175	100.	0 89	280	304		
101.7	75	175	100.) 217	497	363		
Device	Routing	In	vert	Outlet Devices				
#1	Primary	94	94.17' 6.0" Round Culvert X 2.00 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	1.33'	6.0" Round 6" HDPE Underdrain X 2.00 L= 32.0' Ke= 0.500				
				Inlet / Outlet Invert= 94.33' / 94.17' S= 0.0050 '/' Cc= 0.900				
				n= 0.020 Corrugate	ed PE, corrugated	interior, Flow Area= 0.20 sf		
#3	Seconda	ry 100).00'	3.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 2.00				
				Head (feet) 0.20 0	.40 0.60 0.80 1.0	00 1.20 1.40 1.60 1.80 2.00	0	
				2.50 3.00 3.50				
				Coef. (English) 2.5	4 2.61 2.61 2.60	2.66 2.70 2.77 2.89 2.88		
			2.85 3.07 3.20 3.3	32				

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#4 Tertiary 100.50' 6.0' long Sharp-Crested Rectangular Weir X 2.00 2 End Contraction(s)

Primary OutFlow Max=2.94 cfs @ 12.40 hrs HW=101.20' (Free Discharge) 1=Culvert (Passes 2.94 cfs of 4.40 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 2.94 cfs @ 7.49 fps)

Secondary OutFlow Max=21.31 cfs @ 12.40 hrs HW=101.20' (Free Discharge) —3=Broad-Crested Rectangular Weir (Weir Controls 21.31 cfs @ 2.96 fps)

Tertiary OutFlow Max=22.46 cfs @ 12.40 hrs HW=101.20' (Free Discharge) **4=Sharp-Crested Rectangular Weir** (Weir Controls 22.46 cfs @ 2.74 fps) 20240629_PartridgeFarmRd_HCAD_BASINSNOAA 24-hr C10-Year_2100 Rainfall=6.21"Prepared by Rutgers Cooperative Extension Water Resources ProgramPrinted 6/29/2024HydroCAD® 10.10-7cs/n 03601© 2022 HydroCAD Software Solutions LLCPage 232

ond 9P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

Chamber Model = ADS_StormTechSC-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

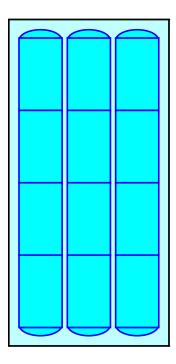
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

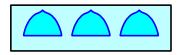
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

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

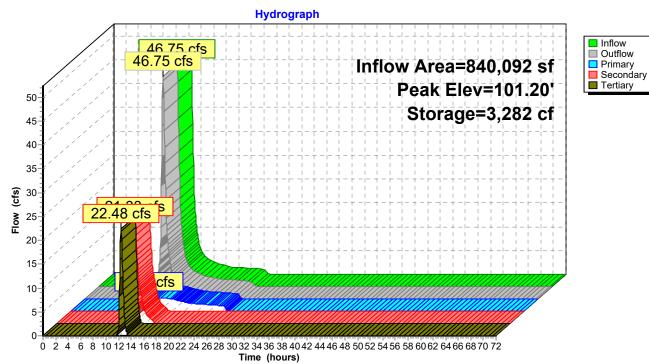
Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af Overall Storage Efficiency = 54.5%Overall System Size = $32.10' \times 15.75' \times 4.50'$

12 Chambers 84.3 cy Field 63.8 cy Stone









Summary for Pond 10P: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	22,074 sf,100.00% Impervious,	Inflow Depth = 5.97" for 10-Year 2100 event					
Inflow =	3.25 cfs @ 12.13 hrs, Volume=	10,985 cf					
Outflow =	2.50 cfs @ 12.19 hrs, Volume=	10,981 cf, Atten= 23%, Lag= 3.7 min					
Discarded =	0.05 cfs @ 12.10 hrs, Volume=	6,760 cf					
Primary =	2.45 cfs @ 12.19 hrs, Volume=	4,221 cf					
Routed to Link 3L : dA3							

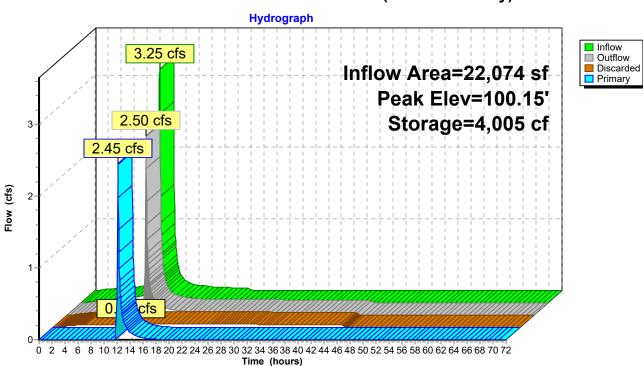
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 100.15' @ 12.19 hrs Surf.Area= 4,500 sf Storage= 4,005 cf

Plug-Flow detention time= 410.1 min calculated for 10,973 cf (100% of inflow) Center-of-Mass det. time= 410.5 min (1,155.8 - 745.3)

Volume	Invert	Ava	il.Storage	Storage Description					
#1	98.25'		622 cf	Custom Stage	Data (Conic)Listed	below (Recalc)			
			622 cf	x 9.00 = 5,598	cf Total Available	Storage			
Elevation (feet)		ırf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)			
98.25	5	374	0.0	0	0	374			
99.25	5	374	35.0	131	131	443			
99.50)	374	25.0	23	154	460			
100.00)	500	100.0	218	372	591			
100.25	5	500	100.0	125	497	611			
100.50		500	100.0	125	622	631			
Device Routing II #1 Discarded 9		3.25' 0.50 3.00' 2.0' Hea 2.50 Coe	long x 3.0' bread id (feet) 0.20 0.4 0 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2.	ea I Rectangular Weir X 9.00 1.20 1.40 1.60 1.80 2.00 65 2.64 2.64 2.68 2.68				

Discarded OutFlow Max=0.05 cfs @ 12.10 hrs HW=100.09' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=2.39 cfs @ 12.19 hrs HW=100.14' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 2.39 cfs @ 0.92 fps)



Pond 10P: Basic Rain Garden (infiltration only)

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Summary for Pond 11P: Basic Porous Pavement (infiltration only)

85,494 sf,100.00% Impervious, Inflow Depth = 5.97" for 10-Year 2100 event Inflow Area = Inflow 12.61 cfs @ 12.13 hrs, Volume= 42.545 cf = 0.99 cfs @ 11.15 hrs, Volume= 42,545 cf, Atten= 92%, Lag= 0.0 min Outflow = 0.99 cfs @ 11.15 hrs, Volume= Discarded = 42,545 cf Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf Routed to Link 3L : dA3

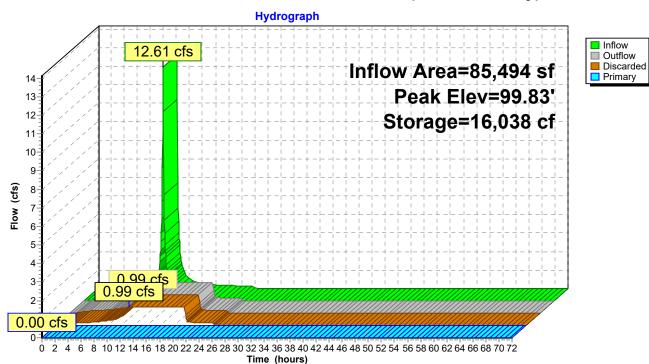
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 99.83' @ 13.14 hrs Surf.Area= 85,494 sf Storage= 16,038 cf

Plug-Flow detention time= 112.7 min calculated for 42,545 cf (100% of inflow) Center-of-Mass det. time= 112.6 min (858.0 - 745.3)

Volume	Inver	t Avail	.Storage	Storage Descrip	otion	
#1 99.25' 38		88,814 cf	Custom Stage	Data (Prismatic)Lis	ited below (Recalc)	
Elevatic (fee 99.2 99.7 99.8 100.0 100.2	et) 25 75 33 01	(sq-ft) 85,494 85,494 85,494 85,494 85,494	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 14,961 1,026 2,308 20,519	Cum.Store (cubic-feet) 0 14,961 15,987 18,296 38,814	
100.2 Device #1 #2	25 <u>Routing</u> Discarded Primary	Inv	vert Outle 25' 0.50 00' 15.0 Head 2.50 Coef	et Devices 0 in/hr Exfiltration 1 long x 1.0' bre d (feet) 0.20 0.4 3.00	on over Surface are adth Edge of Poro 0 0.60 0.80 1.00	ea us Asphalt X 76.00 1.20 1.40 1.60 1.80 2.00 98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=0.99 cfs @ 11.15 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.99 cfs)

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





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Summary for Pond 12P: Basic Porous Pavement (infiltration only)

Inflow Area = 4,605 sf,100.00% Impervious, Inflow Depth = 5.97" for 10-Year 2100 event Inflow 0.68 cfs @ 12.13 hrs, Volume= 2.292 cf = 0.05 cfs @ 11.20 hrs, Volume= Outflow = 2,291 cf, Atten= 92%, Lag= 0.0 min 0.05 cfs @ 11.20 hrs, Volume= Discarded = 2,291 cf 0.00 cfs @ 0.00 hrs, Volume= Primary = 0 cf Routed to Link 4L : DA 4: Combined Flows

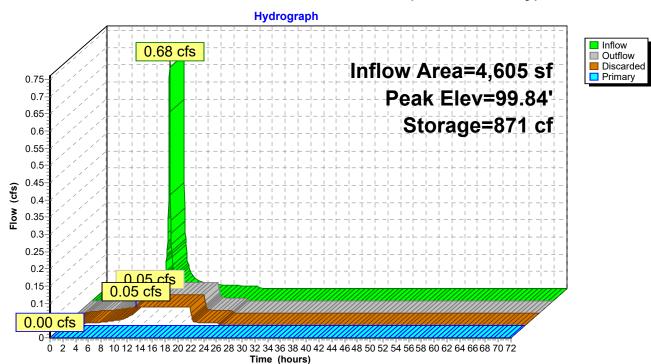
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 99.84' @ 13.14 hrs Surf.Area= 4,605 sf Storage= 871 cf

Plug-Flow detention time= 115.1 min calculated for 2,290 cf (100% of inflow) Center-of-Mass det. time= 115.0 min (860.3 - 745.3)

Volume	Invert	t Ava	il.Storage	age Storage Description				
#1 99.25'		1	4,393 cf	Custom Stage	Custom Stage Data (Prismatic)Listed below (Recalc)			
_					a a /			
Elevatio	on S	urf.Area	Voids	Inc.Store	Cum.Store			
(fee	et)	(sq-ft)	(%)	(cubic-feet)	(cubic-feet)			
99.2	25	4,605	0.0	0	0			
99.7	75	4,605	35.0	806	806			
99.8	33	4,605	15.0	55	861			
100.0)1	4,605	15.0	124	985			
100.2	25	4,605	100.0	1,105	2,091			
100.7	75	4,605	100.0	2,303	4,393			
Device	Routing	In	vert Out	let Devices				
#1	Discarded	99	.25' 0.5 (0 in/hr Exfiltrati	on over Surface a	rea		
#2	Primary	100.00' 15		15.0' long x 1.0' breadth Edge of Porous Asphalt X 76.00				
	,					1.20 1.40 1.60 1.80 2.00		
				3.00				
					272 275 285 2	.98 3.08 3.20 3.28 3.31		
) 3.31 3.32	2.12 2.10 2.00 2			
			0.00	0.01 0.02				
Discard	Discarded OutFlow Max=0.05 cfs @ 11.20 hrs. HW=99.27' (Free Discharge)							

Discarded OutFlow Max=0.05 cfs @ 11.20 hrs HW=99.27' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.05 cfs)

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



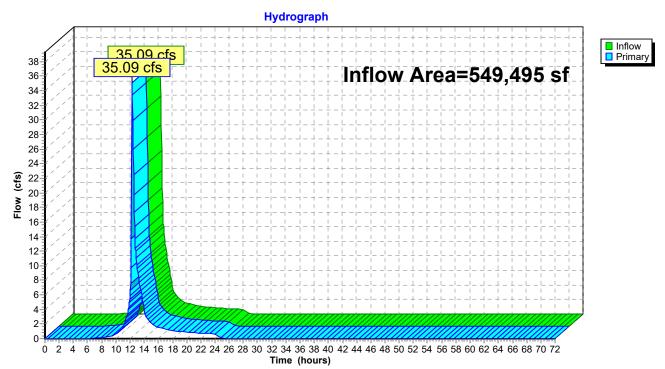
Pond 12P: Basic Porous Pavement (infiltration only)

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Summary for Link 1L: Combined Flows

Inflow Area = 549,495 sf, 18.28% Impervious, Inflow Depth = 3.25" for 10-Year _2100 event Inflow = 35.09 cfs @ 12.29 hrs, Volume= 149,036 cf Primary = 35.09 cfs @ 12.29 hrs, Volume= 149,036 cf, Atten= 0%, Lag= 0.0 min Routed to Reach 1Ri : Inlet Pipe

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



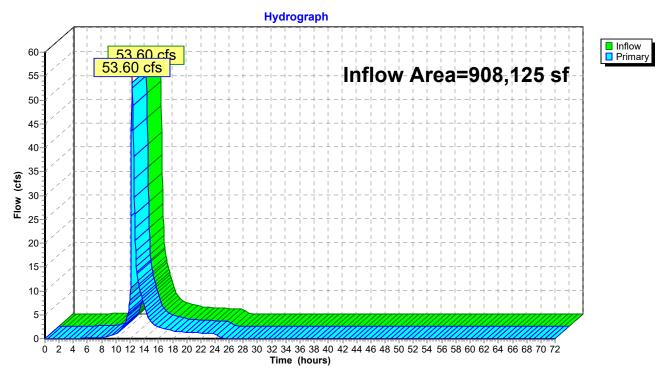
Link 1L: Combined Flows

20240629_PartridgeFarmRd_HCAD_BASINSNOAA 24-hr C10-Year _2100 Rainfall=6.21"Prepared by Rutgers Cooperative Extension Water Resources ProgramPrinted 6/29/2024HydroCAD® 10.10-7cs/n 03601© 2022 HydroCAD Software Solutions LLCPage 241

Summary for Link 2L: Combined Flows

Inflow Area = 908,125 sf, 25.71% Impervious, Inflow Depth = 3.15" for 10-Year _2100 event Inflow = 53.60 cfs @ 12.31 hrs, Volume= 238,680 cf Primary = 53.60 cfs @ 12.31 hrs, Volume= 238,680 cf, Atten= 0%, Lag= 0.0 min Routed to Reach 2Ri : Inlet Pipe

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



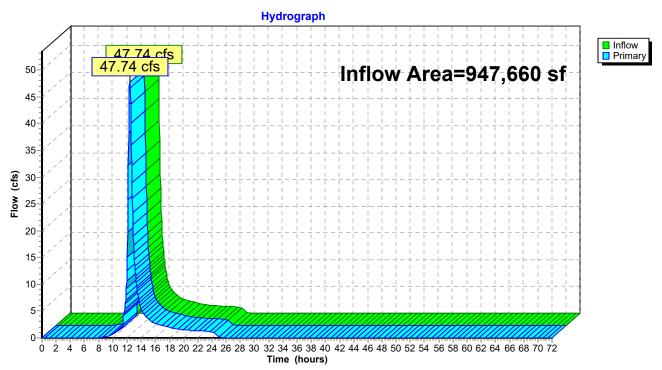
Link 2L: Combined Flows

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Summary for Link 3L: dA3

Inflow Are	a =	947,660 sf, 12.29% Impervious, Inflow Depth = 3.06" for 10-Year _2100 event
Inflow	=	47.74 cfs @ 12.40 hrs, Volume= 241,319 cf
Primary	=	47.74 cfs @ 12.40 hrs, Volume= 241,319 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



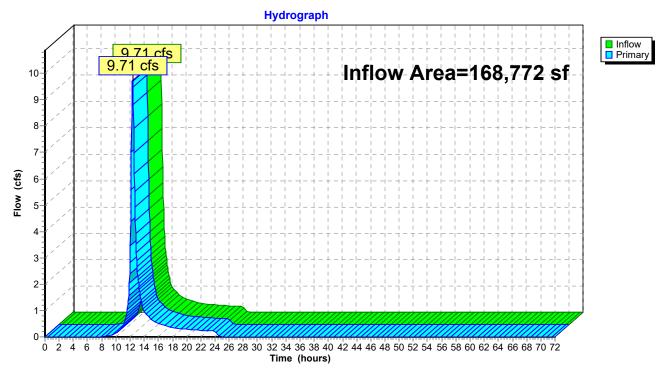
Link 3L: dA3

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Summary for Link 4L: DA 4: Combined Flows

Inflow Area	a =	168,772 sf,	3.14% Impervious,	Inflow Depth = 3.28"	for 10-Year _2100 event
Inflow	=	9.71 cfs @	12.35 hrs, Volume=	46,149 cf	
Primary	=	9.71 cfs @	12.35 hrs, Volume=	46,149 cf, Atter	n= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Link 4L: DA 4: Combined Flows

20240629_PartridgeFarmRd_HCAD_BASI NOAA 24-hr C 100-Year_	Current Rainfall=8.95"
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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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

Subcatchment1S: DA 1: CN w/ IC areas	Runoff Area=549,495 sf 18.28% Impervious Runoff Depth=6.32" Tc=19.8 min CN=74/98 Runoff=64.89 cfs 289,328 cf
Subcatchment1Sa: DA 1: CN w/ IC areas	Runoff Area=492,891 sf 8.90% Impervious Runoff Depth=6.04" Tc=19.8 min CN=74/98 Runoff=56.62 cfs 248,245 cf
Subcatchment1Sb: DA 1: Roofs	Runoff Area=21,359 sf 100.00% Impervious Runoff Depth=8.71" Tc=6.0 min CN=0/98 Runoff=4.55 cfs 15,502 cf
Subcatchment1Sc: DA1: Driveways	Runoff Area=35,245 sf 100.00% Impervious Runoff Depth=8.71" Tc=6.0 min CN=0/98 Runoff=7.50 cfs 25,581 cf
Subcatchment2S: DA 2: CN w/ IC areas	Runoff Area=908,125 sf 25.71% Impervious Runoff Depth=6.54" Tc=21.8 min CN=74/98 Runoff=104.81 cfs 494,606 cf
Subcatchment2Sa: DA 2: CN w/ IC areas	Runoff Area=759,404 sf 11.16% Impervious Runoff Depth=6.11" Tc=21.8 min CN=74/98 Runoff=84.00 cfs 386,664 cf
Subcatchment2Sb: DA 2: Roofs	Runoff Area=53,997 sf 100.00% Impervious Runoff Depth=8.71" Tc=6.0 min CN=0/98 Runoff=11.50 cfs 39,191 cf
Subcatchment2Sc: DA 2: Driveways	Runoff Area=94,724 sf 100.00% Impervious Runoff Depth=8.71" Tc=6.0 min CN=0/98 Runoff=20.17 cfs 68,751 cf
Subcatchment3S: DA 3: CN w/ IC areas	Runoff Area=947,660 sf 12.29% Impervious Runoff Depth=6.14" Tc=27.9 min CN=74/98 Runoff=93.25 cfs 485,138 cf
Subcatchment3Sa: DA 3: CN w/ IC areas	Runoff Area=840,092 sf 1.06% Impervious Runoff Depth=5.81" Tc=27.9 min CN=74/98 Runoff=79.86 cfs 407,065 cf
Subcatchment3Sb: DA 3: Roofs	Runoff Area=22,074 sf 100.00% Impervious Runoff Depth=8.71" Tc=6.0 min CN=0/98 Runoff=4.70 cfs 16,021 cf
Subcatchment3Sc: DA 3: Driveways	Runoff Area=85,494 sf 100.00% Impervious Runoff Depth=8.71" Tc=6.0 min CN=0/98 Runoff=18.20 cfs 62,052 cf
Subcatchment4S: DA 4: CN w/ IC areas	Runoff Area=168,772 sf 3.14% Impervious Runoff Depth=5.88" Tc=24.4 min CN=74/98 Runoff=17.26 cfs 82,633 cf
Subcatchment4Sa: DA 4: CN w/ IC areas	Runoff Area=163,472 sf 0.00% Impervious Runoff Depth=5.78" Tc=24.4 min CN=74/0 Runoff=16.56 cfs 78,786 cf
Subcatchment4Sb: DA 4: Roofs	Runoff Area=695 sf 100.00% Impervious Runoff Depth=8.71" Tc=6.0 min CN=0/98 Runoff=0.15 cfs 504 cf
Subcatchment4Sc: DA 4: Driveways	Runoff Area=4,605 sf 100.00% Impervious Runoff Depth=8.71" Tc=6.0 min CN=0/98 Runoff=0.98 cfs 3,342 cf

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Avg. Flow Depth=1.83' Max Vel=10.96 fps Inflow=61.95 cfs 258,325 cf **Reach 1Ri: Inlet Pipe** 48.0" Round Pipe n=0.013 L=100.0' S=0.0100 '/' Capacity=143.64 cfs Outflow=61.11 cfs 258,349 cf Avg. Flow Depth=1.45' Max Vel=6.34 fps Inflow=18.73 cfs 251,095 cf Reach 1Ro: outlet 30.0" Round Pipe n=0.013 L=925.0' S=0.0051 '/' Capacity=29.39 cfs Outflow=18.70 cfs 251,085 cf Avg. Flow Depth=2.39' Max Vel=12.24 fps Inflow=96.27 cfs 415,331 cf **Reach 2Ri: Inlet Pipe** 48.0" Round Pipe n=0.013 L=100.0' S=0.0100 '/' Capacity=143.64 cfs Outflow=95.81 cfs 415.351 cf **Reach 2Ro: Outlet** Avg. Flow Depth=1.98' Max Vel=11.96 fps Inflow=67.33 cfs 410,553 cf 42.0" Round Pipe n=0.013 L=190.0' S=0.0118 '/' Capacity=109.48 cfs Outflow=67.10 cfs 410,558 cf Peak Elev=100.63' Storage=13,875 cf Inflow=56.62 cfs 248,245 cf Pond 1P: Basic Rain Garden (w/ Primary=12.65 cfs 181,157 cf Secondary=35.42 cfs 59,902 cf Tertiary=8.48 cfs 5,934 cf Outflow=56.56 cfs 246,993 cf Pond 2P: Basic Rain Garden (infiltration Peak Elev=100.19' Storage=4,670 cf Inflow=4.55 cfs 15,502 cf Discarded=0.06 cfs 7,843 cf Primary=4.05 cfs 7,660 cf Outflow=4.10 cfs 15,502 cf Pond 3P: Basic Porous Pavement Peak Elev=100.01' Storage=7,568 cf Inflow=7.50 cfs 25,581 cf Discarded=0.41 cfs 21,952 cf Primary=3.49 cfs 3,672 cf Outflow=3.90 cfs 25,624 cf Pond 4P: Basin 1 Medium Case Peak Elev=77.52' Storage=107,417 cf Inflow=61.11 cfs 258,349 cf Primary=6.29 cfs 182,526 cf Secondary=12.44 cfs 68,570 cf Tertiary=0.00 cfs 0 cf Outflow=18.73 cfs 251,095 cf Peak Elev=100.73' Storage=15,583 cf Inflow=84.00 cfs 386,664 cf Pond 5P: Basic Rain Garden (w/ Primary=14.17 cfs 256,614 cf Secondary=48.50 cfs 108,157 cf Tertiary=21.26 cfs 21,242 cf Outflow=83.93 cfs 386,013 cf Pond 6P: Basic Rain Garden (infiltration Peak Elev=100.19' Storage=11,682 cf Inflow=11.50 cfs 39,191 cf Discarded=0.14 cfs 19,631 cf Primary=10.16 cfs 19,565 cf Outflow=10.30 cfs 39,196 cf Pond 7P: Basic Porous Pavement Peak Elev=100.02' Storage=21,097 cf Inflow=20.17 cfs 68,751 cf Discarded=1.10 cfs 58,998 cf Primary=8.34 cfs 9,753 cf Outflow=9.43 cfs 68,751 cf Pond 8P: Basin 2 Medium Case Peak Elev=72.86' Storage=91,215 cf Inflow=95.81 cfs 415,351 cf Primary=28.77 cfs 331,164 cf Secondary=38.57 cfs 79,389 cf Tertiary=0.00 cfs 0 cf Outflow=67.33 cfs 410,553 cf Pond 9P: Basic Rain Garden (w/ Peak Elev=101.58' Storage=3,415 cf Inflow=79.86 cfs 407,065 cf Primary=3.03 cfs 139,078 cf Secondary=34.33 cfs 162,270 cf Tertiary=42.50 cfs 105,501 cf Outflow=79.85 cfs 406,849 cf Pond 10P: Basic Rain Garden (infiltration Peak Elev=100.21' Storage=4,287 cf Inflow=4.70 cfs 16,021 cf Discarded=0.05 cfs 7.145 cf Primary=4.20 cfs 8.874 cf Outflow=4.25 cfs 16.020 cf Pond 11P: Basic Porous Pavement Peak Elev=100.02' Storage=18,975 cf Inflow=18.20 cfs 62,052 cf Discarded=0.99 cfs 53,249 cf Primary=7.81 cfs 8,803 cf Outflow=8.80 cfs 62,052 cf

Pond 12P: Basic Porous Pavement (infiltration Peak Elev=100.00' Storage=981 cf Inflow=0.98 cfs 3,342 cf Discarded=0.05 cfs 2,861 cf Primary=0.91 cfs 542 cf Outflow=0.97 cfs 3,403 cf

Inflow=61.95 cfs 258,325 cf Primary=61.95 cfs 258,325 cf

Inflow=96.27 cfs 415,331 cf Primary=96.27 cfs 415,331 cf

Link 1L: Combined Flows

Link 2L: Combined Flows

Link 3L: dA3

Inflow=85.96 cfs 424,526 cf Primary=85.96 cfs 424,526 cf

Link 4L: DA 4: Combined Flows

Inflow=16.76 cfs 79,832 cf Primary=16.76 cfs 79,832 cf

Total Runoff Area = 5,148,104 sf Runoff Volume = 2,703,410 cf Average Runoff Depth = 6.30" 82.29% Pervious = 4,236,632 sf 17.71% Impervious = 911,472 sf 20240629_PartridgeFarmRd_HCAD_BASI NOAA 24-hr C 100-Year _Current Rainfall=8.95"Prepared by Rutgers Cooperative Extension Water Resources ProgramPrinted 6/29/2024HydroCAD® 10.10-7c s/n 03601 © 2022 HydroCAD Software Solutions LLCPage 247

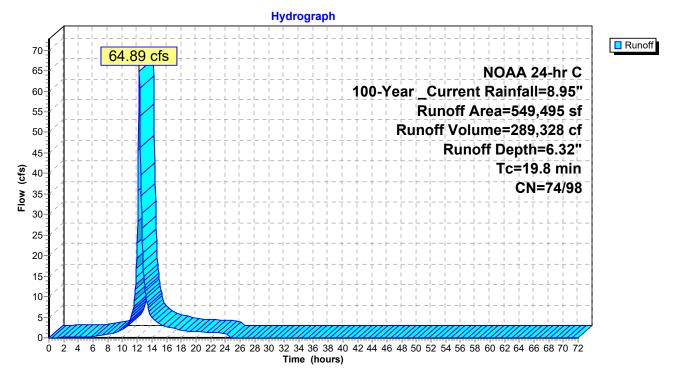
Summary for Subcatchment 1S: DA 1: CN w/ IC areas

Runoff = 64.89 cfs @ 12.29 hrs, Volume= 289,328 cf, Depth= 6.32"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description			
*	100,459	98	Impervious			
	317,162	74	>75% Grass cover, Good, HSG C			
	131,575	73	Woods, Fair, HSG C			
	299	70	Woods, Good, HSG C			
	549,495	78	Weighted Average			
	449,036	74	81.72% Pervious Area			
	100,459	98	18.28% Impervious Area			
	Tc Length	Slop				
(m	nin) (feet)	(ft/	ft) (ft/sec) (cfs)			
1	9.8		Direct Entry, Direct			

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



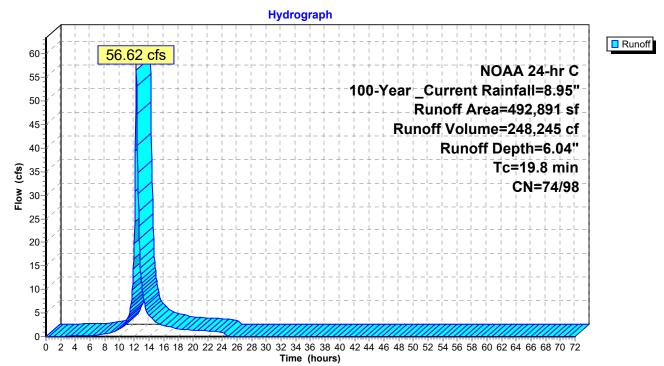
Summary for Subcatchment 1Sa: DA 1: CN w/ IC areas

Runoff = 56.62 cfs @ 12.29 hrs, Volume= 248,245 cf, Depth= 6.04" 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description			
*	43,855	98	Impervious			
	317,162	74	>75% Gras	s cover, Go	bod, HSG C	
	131,575	73	Woods, Fai	r, HSG C		
	299	70	Woods, Go	od, HSG C		
	492,891	391 76 Weighted Average				
	449,036	74 91.10% Pervious Area				
	43,855	98	8.90% Impe	ervious Are	а	
_		~		•		
	c Length	Slop		Capacity	Description	
(mi	n) (feet)	(ft/f	t) (ft/sec)	(cfs)		
19	.8				Direct Entry, Direct	

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

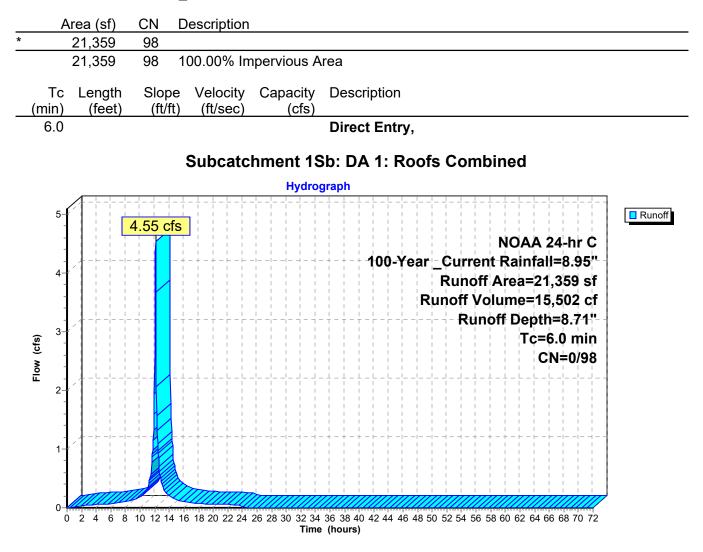


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Summary for Subcatchment 1Sb: DA 1: Roofs Combined

Runoff = 4.55 cfs @ 12.13 hrs, Volume= 15,502 cf, Depth= 8.71" Routed to Pond 2P : Basic Rain Garden (infiltration only)

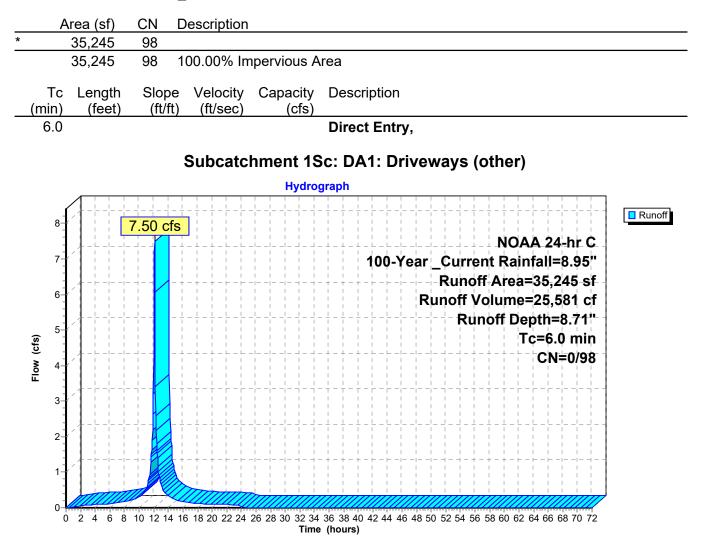
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"



Summary for Subcatchment 1Sc: DA1: Driveways (other)

Runoff = 7.50 cfs @ 12.13 hrs, Volume= 25,581 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"



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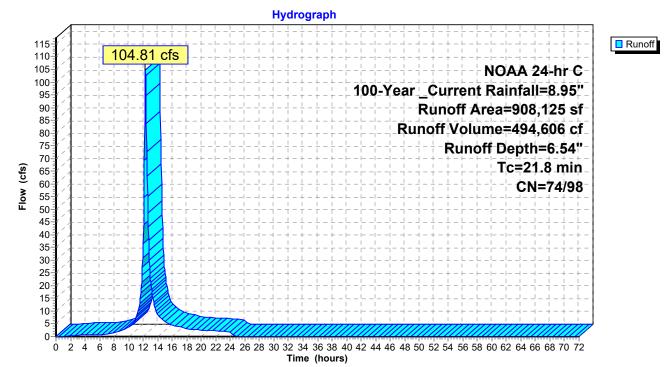
Summary for Subcatchment 2S: DA 2: CN w/ IC areas

Runoff = 104.81 cfs @ 12.31 hrs, Volume= 494,606 cf, Depth= 6.54"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description			
*	233,471	98	Impervious			
	1	65	Brush, Goo	d, HSG C		
	620,871	74	>75% Gras	s cover, Go	bod, HSG C	
	1,845	72	Woods/gras	s comb., G	Good, HSG C	
	51,937	73	Woods, Fai	r, HSG C		
	908,125	80	Weighted A	verage		
	674,654	74	74.29% Per	vious Area	1	
	233,471	98	25.71% Imp	ervious Ar	ea	
		~		•		
	Tc Length	Slop		Capacity	Description	
<u> </u>	nin) (feet)	(ft/	ft) (ft/sec)	(cfs)		
2	1.8				Direct Entry, Direct	

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



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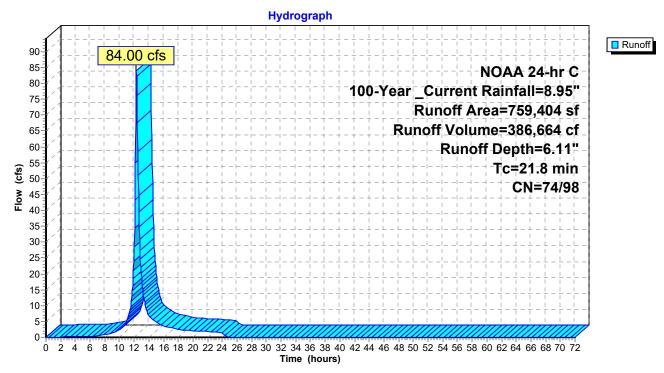
Summary for Subcatchment 2Sa: DA 2: CN w/ IC areas

Runoff = 84.00 cfs @ 12.31 hrs, Volume= 386,664 cf, Depth= 6.11" Routed to Pond 5P : 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description		
*	84,750	98	Impervious		
	1	65	Brush, Good, HSG C		
	620,871	74	>75% Grass cover, Good, HSG C		
	1,845	72	Woods/grass comb., Good, HSG C		
	51,937	73	Woods, Fair, HSG C		
	759,404	77	Weighted Average		
	674,654	74 88.84% Pervious Area			
	84,750	98	11.16% Impervious Area		
(n	Tc Length nin) (feet)	Slop (ft/			
2	21.8		Direct Entry, Direct		

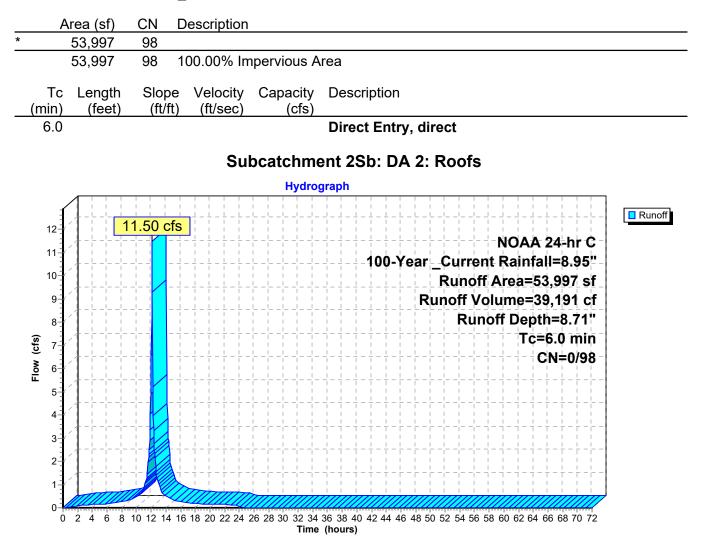
Subcatchment 2Sa: DA 2: CN w/ IC areas



Summary for Subcatchment 2Sb: DA 2: Roofs

Runoff = 11.50 cfs @ 12.13 hrs, Volume= 39,191 cf, Depth= 8.71" Routed to Pond 6P : Basic Rain Garden (infiltration only)

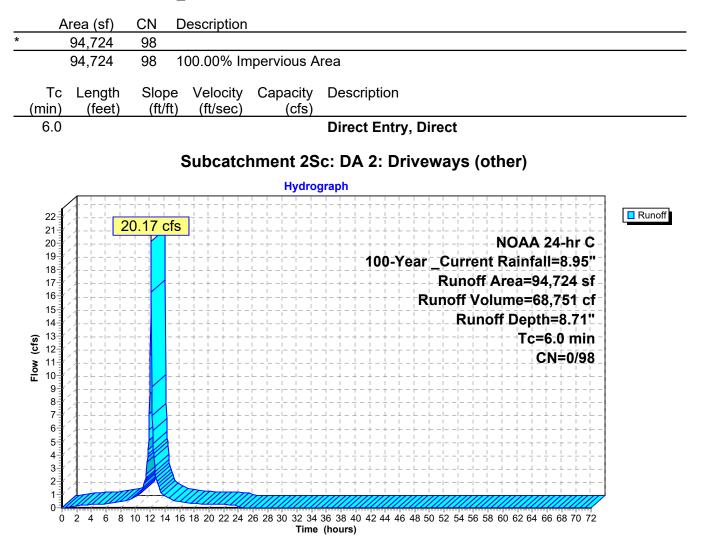
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"



Summary for Subcatchment 2Sc: DA 2: Driveways (other)

Runoff = 20.17 cfs @ 12.13 hrs, Volume= 68,751 cf, Depth= 8.71" Routed to Pond 7P : Basic Porous Pavement (infiltration only)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"



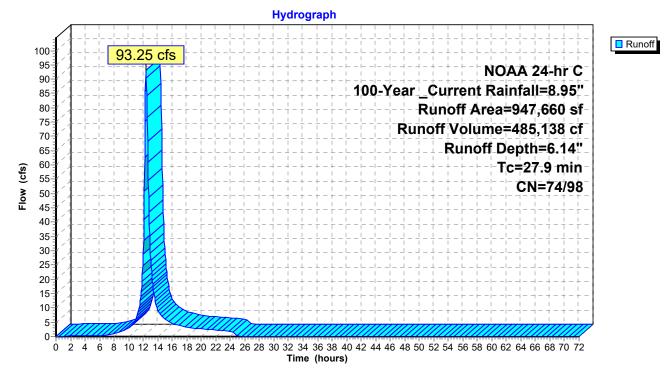
Summary for Subcatchment 3S: DA 3: CN w/ IC areas

Runoff = 93.25 cfs @ 12.39 hrs, Volume= 485,138 cf, Depth= 6.14"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description	_
*	116,506	98	Impervious	
	4,930	79	50-75% Grass cover, Fair, HSG C	
	592,347	74	>75% Grass cover, Good, HSG C	
	169,305	73	Woods, Fair, HSG C	
	64,572	70	Woods, Good, HSG C	_
	947,660	77	Weighted Average	
	831,154	74	87.71% Pervious Area	
	116,506	98	12.29% Impervious Area	
(m	Tc Length nin) (feet)	Slop (ft/		_
2	7.9		Direct Entry, direct	

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



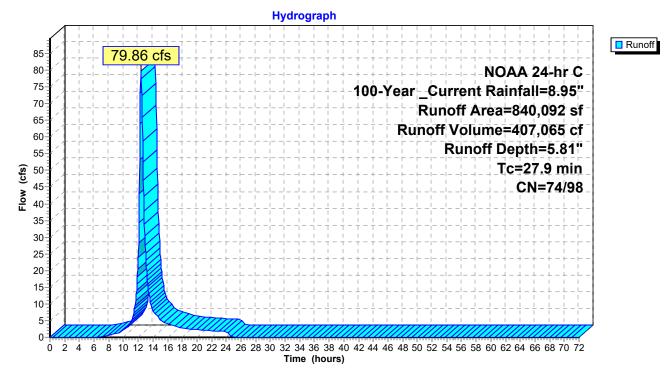
Summary for Subcatchment 3Sa: DA 3: CN w/ IC areas

Runoff = 79.86 cfs @ 12.39 hrs, Volume= 407,065 cf, Depth= 5.81" Routed to Pond 9P : 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description
*	8,938	98	Impervious
	4,930	79	50-75% Grass cover, Fair, HSG C
	592,347	74	>75% Grass cover, Good, HSG C
	169,305	73	Woods, Fair, HSG C
	64,572	70	Woods, Good, HSG C
	840,092	74	Weighted Average
	831,154	74	98.94% Pervious Area
	8,938	98	1.06% Impervious Area
_(m	Tc Length nin) (feet)	Slop (ft/	
2	7.9		Direct Entry, direct

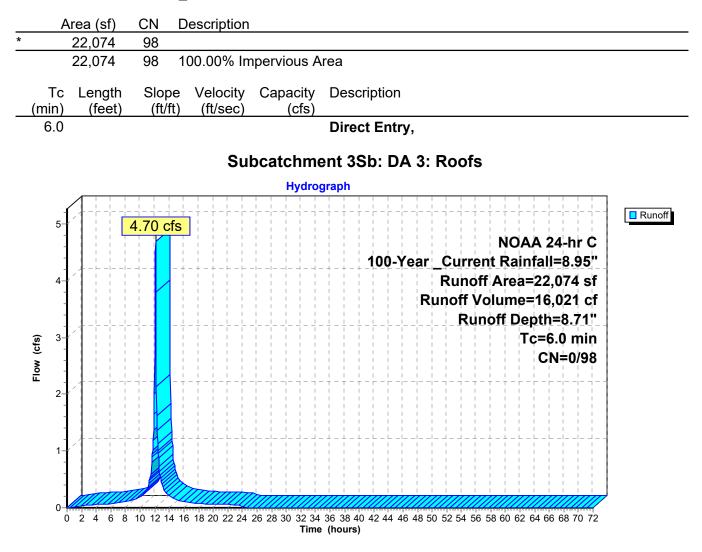
Subcatchment 3Sa: DA 3: CN w/ IC areas



Summary for Subcatchment 3Sb: DA 3: Roofs

Runoff = 4.70 cfs @ 12.13 hrs, Volume= 16,021 cf, Depth= 8.71" Routed to Pond 10P : Basic Rain Garden (infiltration only)

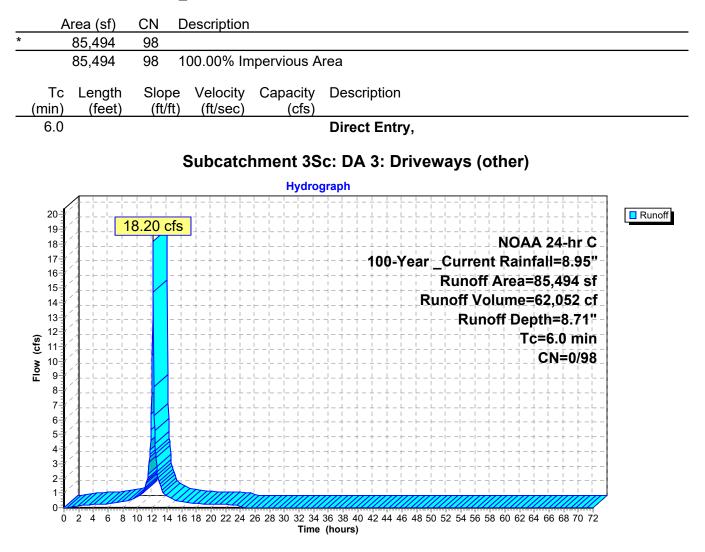
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"



Summary for Subcatchment 3Sc: DA 3: Driveways (other)

Runoff = 18.20 cfs @ 12.13 hrs, Volume= 62,052 cf, Depth= 8.71" Routed to Pond 11P : Basic Porous Pavement (infiltration only)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"



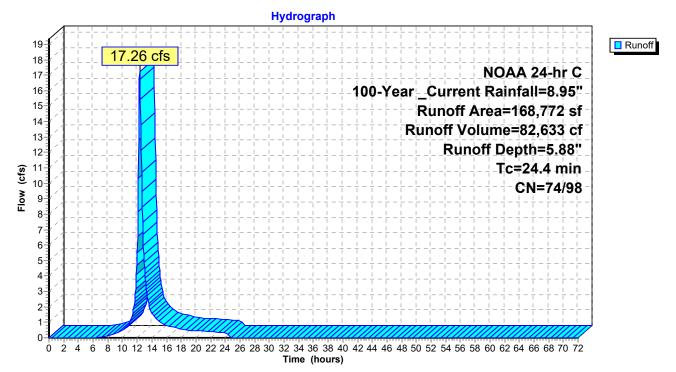
Summary for Subcatchment 4S: DA 4: CN w/ IC areas

Runoff = 17.26 cfs @ 12.35 hrs, Volume= 82,633 cf, Depth= 5.88"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description	
*	5,300	98	Impervious	
	117,799	74	>75% Grass cover, Good, HSG C	
	4,778	72	Woods/grass comb., Good, HSG C	
	40,895	73	Woods, Fair, HSG C	
	168,772	74	Weighted Average	
	163,472	74	96.86% Pervious Area	
	5,300	98	3.14% Impervious Area	
	Tc Length	Slop		
(m	nin) (feet)	(ft/	/ft) (ft/sec) (cfs)	
2	4.4		Direct Entry, Direct	

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



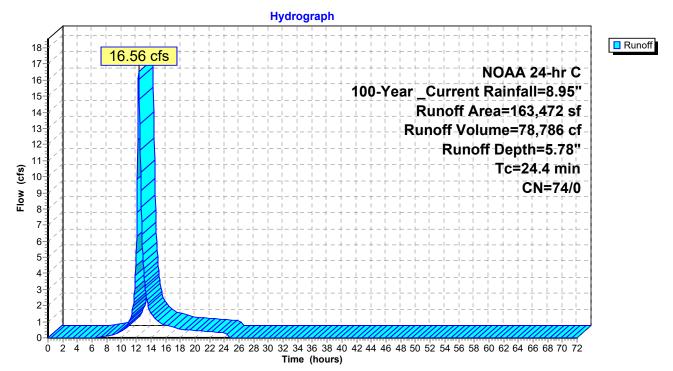
Summary for Subcatchment 4Sa: DA 4: CN w/ IC areas

Runoff = 16.56 cfs @ 12.35 hrs, Volume= 78,786 cf, Depth= 5.78" Routed to Link 4L : DA 4: Combined Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	Area (sf)	CN	Description						
*	0	98	Impervious						
	117,799	74	>75% Grass	s cover, Go	bod, HSG C				
	4,778	72	Woods/gras	Woods/grass comb., Good, HSG C					
	40,895	73	Woods, Fai	r, HSG C					
	163,472	74	Weighted A	verage					
	163,472	74	100.00% Pe	ervious Are	a				
۲ mi)	c Length n) (feet)	Slop (ft/f	,	Capacity (cfs)	Description				
24	.4				Direct Entry, Direct				

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



Summary for Subcatchment 4Sb: DA 4: Roofs

Runoff = 0.15 cfs @ 12.13 hrs, Volume= Routed to Link 4L : DA 4: Combined Flows 504 cf, Depth= 8.71"

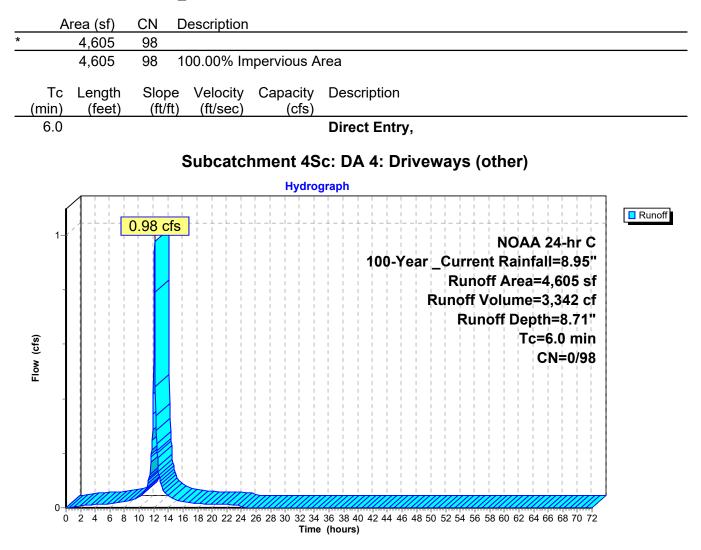
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"

	<u>695</u> 695	<u>98</u> 98 1	100.00% Im	pervious A	rea		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
6.0					Direct Entry,		
			Sul	ocatchme	ent 4Sb: DA	4: Roofs	
				Hydro	graph		
0.16 0.15 0.14 0.13 0.12 0.11 0.1 0.09 0.08 0.07		0.15 cfs			100-Y ea		=8.95" - 695 sf - 504 cf -
0.06 0.05 0.04							
0.03 0.02 0.01							

Summary for Subcatchment 4Sc: DA 4: Driveways (other)

Runoff = 0.98 cfs @ 12.13 hrs, Volume= 3,342 cf, Depth= 8.71" Routed to Pond 12P : Basic Porous Pavement (infiltration only)

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _Current Rainfall=8.95"



Summary for Reach 1Ri: Inlet Pipe

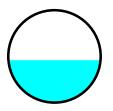
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 549,495 sf, 18.28% Impervious, Inflow Depth = 5.64" for 100-Year _Current event Inflow = 61.95 cfs @ 12.27 hrs, Volume= 258,325 cf Outflow = 61.11 cfs @ 12.28 hrs, Volume= 258,349 cf, Atten= 1%, Lag= 0.2 min Routed to Pond 4P : Basin 1 Medium Case

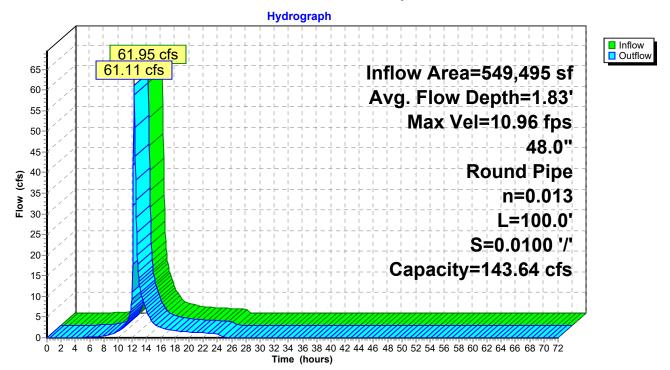
Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 10.96 fps, Min. Travel Time= 0.2 min Avg. Velocity = 3.35 fps, Avg. Travel Time= 0.5 min

Peak Storage= 561 cf @ 12.27 hrs Average Depth at Peak Storage= 1.83', Surface Width= 3.99' Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 143.64 cfs

48.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 100.0' Slope= 0.0100 '/' Inlet Invert= 75.00', Outlet Invert= 74.00'



Reach 1Ri: Inlet Pipe



Summary for Reach 1Ro: outlet

[52] Hint: Inlet/Outlet conditions not evaluated

 Inflow Area =
 549,495 sf, 18.28% Impervious, Inflow Depth > 5.48" for 100-Year _Current event

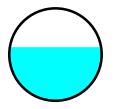
 Inflow =
 18.73 cfs @ 12.78 hrs, Volume=
 251,095 cf

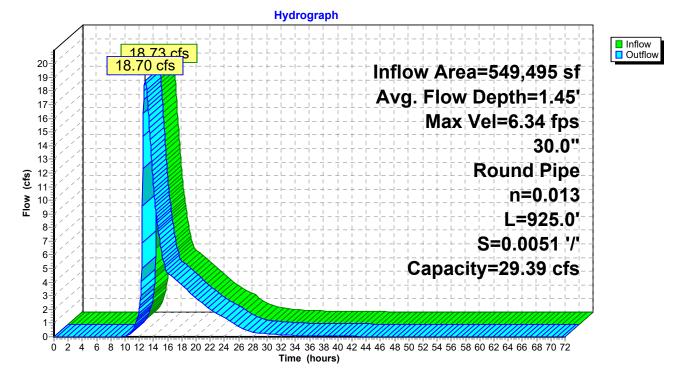
 Outflow =
 18.70 cfs @ 12.85 hrs, Volume=
 251,085 cf, Atten= 0%, Lag= 4.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Max. Velocity= 6.34 fps, Min. Travel Time= 2.4 min Avg. Velocity = 1.73 fps, Avg. Travel Time= 8.9 min

Peak Storage= 2,728 cf @ 12.81 hrs Average Depth at Peak Storage= 1.45', Surface Width= 2.47' Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 29.39 cfs

30.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 925.0' Slope= 0.0051 '/' Inlet Invert= 70.75', Outlet Invert= 66.00'





Reach 1Ro: outlet

Summary for Reach 2Ri: Inlet Pipe

[52] Hint: Inlet/Outlet conditions not evaluated

 Inflow Area =
 908,125 sf, 25.71% Impervious, Inflow Depth =
 5.49" for 100-Year _Current event

 Inflow =
 96.27 cfs @
 12.30 hrs, Volume=
 415,331 cf

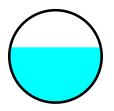
 Outflow =
 95.81 cfs @
 12.30 hrs, Volume=
 415,351 cf, Atten= 0%, Lag= 0.3 min

 Routed to Pond 8P : Basin 2 Medium Case
 96.27 cfs @
 12.30 hrs, Volume=
 96.27 cfs @

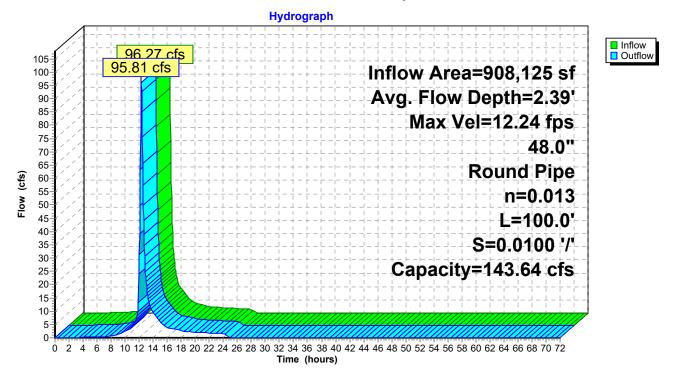
Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 12.24 fps, Min. Travel Time= 0.1 min Avg. Velocity = 3.82 fps, Avg. Travel Time= 0.4 min

Peak Storage= 784 cf @ 12.30 hrs Average Depth at Peak Storage= 2.39', Surface Width= 3.92' Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 143.64 cfs

48.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 100.0' Slope= 0.0100 '/' Inlet Invert= 70.00', Outlet Invert= 69.00'



Reach 2Ri: Inlet Pipe



Summary for Reach 2Ro: Outlet

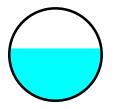
[52] Hint: Inlet/Outlet conditions not evaluated

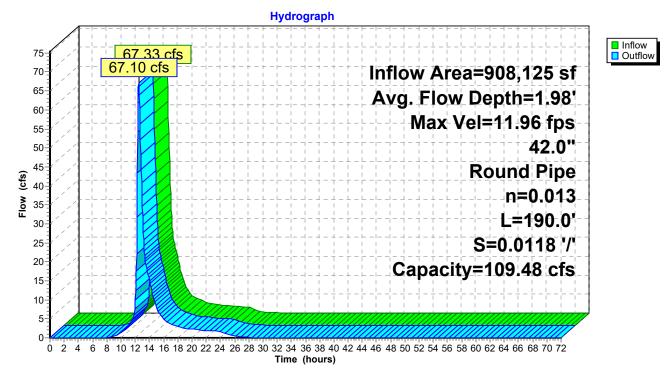
Inflow Are	a =	908,125 sf, 25.71% Impervious, Inflow Depth = 5.43" for 100-Year Current event
Inflow	=	67.33 cfs @ 12.49 hrs, Volume= 410,553 cf
Outflow	=	67.10 cfs @ 12.50 hrs, Volume= 410,558 cf, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 11.96 fps, Min. Travel Time= 0.3 min Avg. Velocity = 2.26 fps, Avg. Travel Time= 1.4 min

Peak Storage= 1,067 cf @ 12.50 hrs Average Depth at Peak Storage= 1.98', Surface Width= 3.47' Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 109.48 cfs

42.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 190.0' Slope= 0.0118 '/' Inlet Invert= 65.75', Outlet Invert= 63.50'





Reach 2Ro: Outlet

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

Inflow Area =	492,891 sf, 8.90% Impervious,	Inflow Depth = 6.04" for 100-Year _Current event
Inflow =	56.62 cfs @ 12.29 hrs, Volume=	248,245 cf
Outflow =	56.56 cfs @ 12.29 hrs, Volume=	246,993 cf, Atten= 0%, Lag= 0.2 min
Primary =	12.65 cfs @ 12.29 hrs, Volume=	181,157 cf
Routed to Link	(1L : Combined Flows	
Secondary =	35.42 cfs @ 12.29 hrs, Volume=	59,902 cf
Routed to Link	1L : Combined Flows	
Tertiary =	8.48 cfs @ 12.29 hrs, Volume=	5,934 cf
Routed to Link	1L : Combined Flows	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 100.63' @ 12.29 hrs Surf.Area= 6,125 sf Storage= 13,875 cf

Plug-Flow detention time= 15.0 min calculated for 246,993 cf (99% of inflow) Center-of-Mass det. time= 11.5 min (829.5 - 818.0)

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 9.00 - 15.635 cf. Total Available Storage

 $1,737 \text{ cf} \times 9.00 = 15,635 \text{ cf}$ Total Available Storage

Storage Group A created with Chamber Wizard

Elevatio	on	Surf.Area	Void	s Inc.Store	Cum.Store	Wet.Area	
(fee	et)	(sq-ft)	(%) (cubic-feet)	(cubic-feet)	(sq-ft)	
97.7	75	175	0.	0 0	0	175	
98.2	25	175	35.) 31	31	198	
99.2	25	175	35.	D 61	92	245	
99.5	50	175	25.	D 11	103	257	
100.0	00	175	100.	88	190	281	
100.5	51	175	100.) 89	280	304	
101.7	75	175	100.	217	497	363	
Device	Routing	In	vert	Outlet Devices			
#1	Primary	94	.17'	6.0" Round Culve	rt X 9.00 L= 10.0'	Ke= 0.500	
	,	-		Inlet / Outlet Invert=			.900
				n= 0.020 Corrugate	ed PE, corrugated	interior, Flow Area	= 0.20 sf
#2	Device 1	94	.33'	6.0" Round 6" HD	PE Underdrain X	9.00 L= 32.0' Ke=	0.500
				Inlet / Outlet Invert=	= 94.33' / 94.17' S	S= 0.0050 '/' Cc= 0	.900
				n= 0.020 Corrugate	ed PE, corrugated	interior, Flow Area	= 0.20 sf
#3	Seconda	ry 100	0.00'	3.0' long x 2.0' bre	eadth Broad-Cres	ted Rectangular W	/eir X 9.00
				Head (feet) 0.20 0	0.40 0.60 0.80 1.0	00 1.20 1.40 1.60	1.80 2.00
				2.50 3.00 3.50			
				Coef. (English) 2.5		2.66 2.70 2.77 2	2.89 2.88
				2.85 3.07 3.20 3.3	32		

#4 Tertiary 100.50' 6.0' long Sharp-Crested Rectangular Weir X 9.00 2 End Contraction(s)

Primary OutFlow Max=12.65 cfs @ 12.29 hrs HW=100.63' (Free Discharge) 1=Culvert (Passes 12.65 cfs of 18.93 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 12.65 cfs @ 7.16 fps)

Secondary OutFlow Max=35.25 cfs @ 12.29 hrs HW=100.63' (Free Discharge) —3=Broad-Crested Rectangular Weir (Weir Controls 35.25 cfs @ 2.07 fps)

Tertiary OutFlow Max=8.28 cfs @ 12.29 hrs HW=100.63' (Free Discharge) **4=Sharp-Crested Rectangular Weir** (Weir Controls 8.28 cfs @ 1.18 fps)

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

Chamber Model = ADS_StormTechSC-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

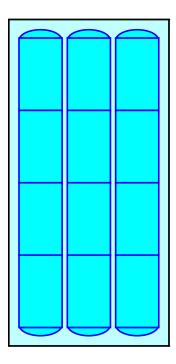
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

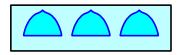
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

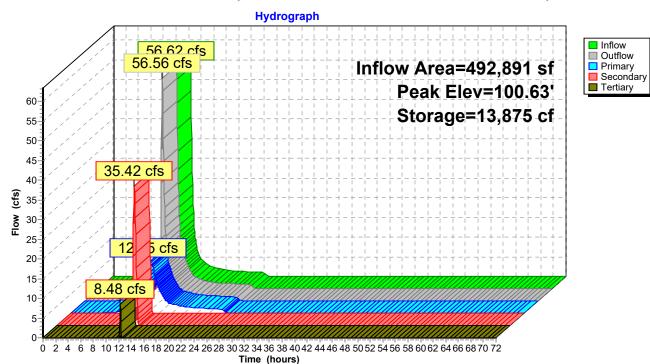
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

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

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: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	21,359 sf,100.00% Impervious,	Inflow Depth = 8.71" for 100-Year Current event					
Inflow =	4.55 cfs @ 12.13 hrs, Volume=	15,502 cf					
Outflow =	4.10 cfs @ 12.16 hrs, Volume=	15,502 cf, Atten= 10%, Lag= 2.1 min					
Discarded =	0.06 cfs @ 11.90 hrs, Volume=	7,843 cf					
Primary =	4.05 cfs @ 12.16 hrs, Volume=	7,660 cf					
Routed to Link 1L : Combined Flows							

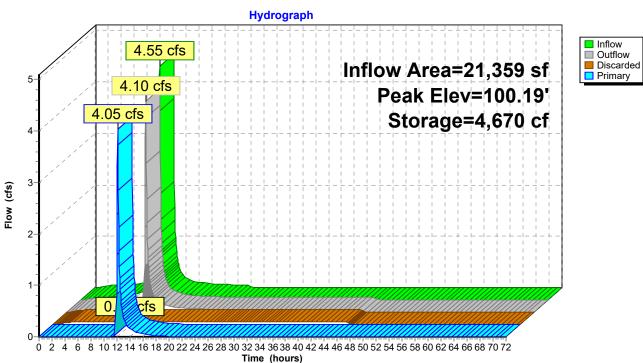
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.19' @ 12.16 hrs Surf.Area= 5,000 sf Storage= 4,670 cf

Plug-Flow detention time= 347.2 min calculated for 15,492 cf (100% of inflow) Center-of-Mass det. time= 347.9 min (1,088.3 - 740.4)

Volume	Invert	Ava	il.Storage	Storage Descrip	otion	
#1	98.25'		622 cf	Custom Stage	Data (Conic)Listed	l below (Recalc)
			622 cf	x 10.00 = 6,22	20 cf Total Availabl	e Storage
Elevatio (fee		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
98.2	25	374	0.0	0	0	374
99.2	25	374	35.0	131	131	443
99.5	50	374	25.0	23	154	460
100.0	0	500	100.0	218	372	591
100.2	25	500	100.0	125	497	611
100.5	50	500	100.0	125	622	631
Device Routing #1 Discarded #2 Primary		98	3.25' 0.50 3.00' 2.0' Hea 2.50 Coe	long x 3.0' brea ad (feet) 0.20 0.4 0 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2	rea d Rectangular Weir X 10.00 1.20 1.40 1.60 1.80 2.00 .65 2.64 2.64 2.68 2.68

Discarded OutFlow Max=0.06 cfs @ 11.90 hrs HW=100.02' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=3.96 cfs @ 12.16 hrs HW=100.19' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 3.96 cfs @ 1.06 fps)



Pond 2P: Basic Rain Garden (infiltration only)

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

Inflow Area = 35,245 sf,100.00% Impervious, Inflow Depth = 8.71" for 100-Year Current event Inflow 7.50 cfs @ 12.13 hrs, Volume= 25.581 cf = 3.90 cfs @ 12.24 hrs, Volume= Outflow = 25,624 cf, Atten= 48%, Lag= 7.1 min 0.41 cfs @ 10.75 hrs, Volume= Discarded = 21,952 cf 3.49 cfs @ 12.24 hrs, Volume= Primary = 3,672 cf Routed to Link 1L : Combined Flows

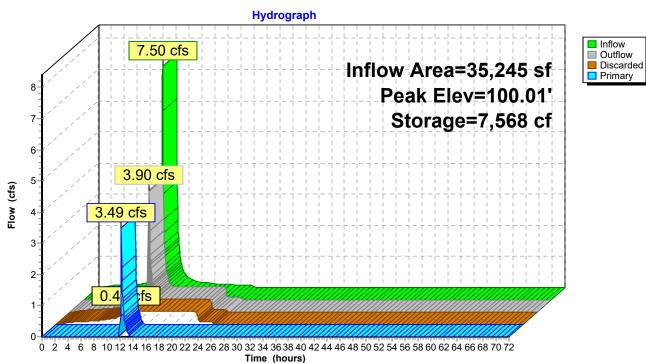
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 100.01' @ 12.25 hrs Surf.Area= 35,245 sf Storage= 7,568 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow) Center-of-Mass det. time= 115.1 min (855.5 - 740.4)

Volume	Inver	t Avail.	.Storage	Storage Descri	ption	
#1	99.25	' 1	6,001 cf	Custom Stage	Data (Prismatic	Listed below (Recalc)
Elevatio (fee 99.2 99.7 99.8 100.0 100.2	et) 25 75 33 01	(sq-ft) 35,245 35,245 35,245 35,245 35,245	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 6,168 423 952 8,459	Cum.Store (cubic-feet) 0 6,168 6,591 7,542 16,001	
Device	Routing	Inv	ert Outle	et Devices		
#1 #2	Discarded Primary	99.2 100.0	00' 15.0 Head 2.50 Coef	long x 1.0' bre d (feet) 0.20 0.4 3.00	40 0.60 0.80 1.0	area brous Asphalt X 76.00 00 1.20 1.40 1.60 1.80 2.00 2.98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=0.41 cfs @ 10.75 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.41 cfs)

Primary OutFlow Max=3.30 cfs @ 12.24 hrs HW=100.01' (Free Discharge) ←2=Edge of Porous Asphalt (Weir Controls 3.30 cfs @ 0.28 fps)



Pond 3P: Basic Porous Pavement (infiltration only)

Summary for Pond 4P: Basin 1 Medium Case

[63] Warning: Exceeded Reach 1Ri INLET depth by 1.65' @ 12.95 hrs

Inflow Area = 549,495 sf, 18.28% Impervious, Inflow Depth = 5.64" for 100-Year Current event 61.11 cfs @ 12.28 hrs, Volume= Inflow = 258,349 cf Outflow = 18.73 cfs @ 12.78 hrs, Volume= 251,095 cf, Atten= 69%, Lag= 30.1 min Primary = 6.29 cfs @ 12.78 hrs, Volume= 182,526 cf Routed to Reach 1Ro : outlet Secondary = 12.44 cfs @ 12.78 hrs, Volume= 68.570 cf Routed to Reach 1Ro : outlet 0 cf Tertiary = 0.00 cfs @ 0.00 hrs, Volume= Routed to Reach 1Ro : outlet

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 77.52' @ 12.78 hrs Surf.Area= 35,409 sf Storage= 107,417 cf

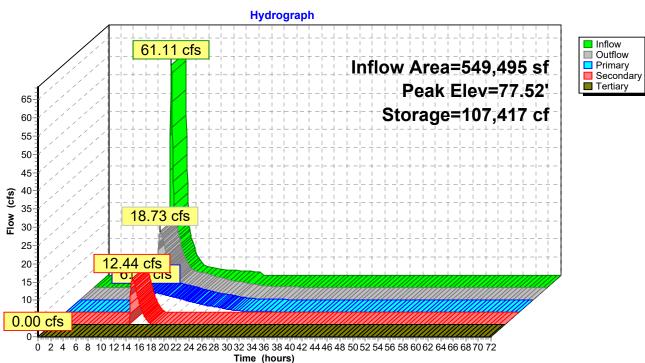
Plug-Flow detention time= 185.7 min calculated for 250,921 cf (97% of inflow) Center-of-Mass det. time= 170.7 min (997.8 - 827.1)

Volume	Invert	Avail.Stor	rage Storage	Description			
#1	74.00'	162,84	10 cf Custom	i Stage Data (Pri	i smatic) Listed below (Recalc)		
Elevatio	et)	f.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
74.0 79.0		5,611 9,525	0 162,840	0 162,840			
75.0	50 5	3,020	102,040	102,040			
Device	Routing	Invert	Outlet Device	S			
#1	Primary	74.25'	12.0" Vert. Low Flow Orifice Limited to weir flow at low here				
#2	#2 Secondary 76.25'		18.0" W x 12.0" H Vert. 2-YR Orifice X 2.00 C= 0.600				
#3	Tertiary	78.75'	Limited to weir flow at low heads 24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads		rate C= 0.600		

Primary OutFlow Max=6.29 cfs @ 12.78 hrs HW=77.52' (Free Discharge) **1=Low Flow Orifice** (Orifice Controls 6.29 cfs @ 8.01 fps)

Secondary OutFlow Max=12.43 cfs @ 12.78 hrs HW=77.52' (Free Discharge) 2=2-YR Orifice (Orifice Controls 12.43 cfs @ 4.14 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=74.00' (Free Discharge) -3=Orifice/Grate (Controls 0.00 cfs)



Pond 4P: Basin 1 Medium Case

Summary for Pond 5P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

event

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 100.73' @ 12.32 hrs Surf.Area= 6,805 sf Storage= 15,583 cf

Plug-Flow detention time= 11.2 min calculated for 386,013 cf (100% of inflow) Center-of-Mass det. time= 9.9 min (827.5 - 817.6)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	365 cf	Custom Stage Data (Conic)Listed below (Recalc)
#2A	93.75'		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
		1 606 cf	x 10.00 - 16.060 cf Total Available Storage

 $1,606 \text{ cf} \times 10.00 = 16,060 \text{ cf}$ Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)		Surf.Area (sq-ft)	Void %)		Cum.Store (cubic-feet)	Wet.Area (sq-ft)		
97.75		<u>(34-11)</u> 175	0.	· · · ·	0	175		
98.2		175	35.		31	198		
99.2	-	175	35.		92	245		
99.5	-	175	25.		103	257		
100.0	00	175	100.	0 88	190	281		
100.5	51	175	100.	0 89	280	304		
101.0	00	175	100.	0 86	365	327		
Device	Routing	In	vert	Outlet Devices				
#1	Primary	94	1.17'	17' 6.0" Round Culvert X 10.00 L= 10.0' Ke= 0.500				
	,			Inlet / Outlet Invert=	94.17'/94.12' S	= 0.0050 '/' Cc= 0.900		
				n= 0.020 Corrugate	ed PE, corrugated	interior, Flow Area= 0.20 sf		
#2	Device 1	94	.33'	6.0" Round 6" HDPE Underdrain X 10.00 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 10.00					
		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	1 2 61 2 61 2 60	266 270 277 280 289		
				2.85 3.07 3.20 3.3		2.66 2.70 2.77 2.89 2.88		
				2.00 0.07 0.20 0.0				

#4 Tertiary 100.50' **6.0' long Sharp-Crested Rectangular Weir X 10.00** 2 End Contraction(s)

Primary OutFlow Max=14.17 cfs @ 12.32 hrs HW=100.72' (Free Discharge) 1=Culvert (Passes 14.17 cfs of 21.20 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 14.17 cfs @ 7.21 fps)

Secondary OutFlow Max=48.17 cfs @ 12.32 hrs HW=100.72' (Free Discharge) —3=Broad-Crested Rectangular Weir (Weir Controls 48.17 cfs @ 2.22 fps)

Tertiary OutFlow Max=20.72 cfs @ 12.32 hrs HW=100.72' (Free Discharge) **4=Sharp-Crested Rectangular Weir** (Weir Controls 20.72 cfs @ 1.55 fps)

ond 5P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

Chamber Model = ADS_StormTechSC-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

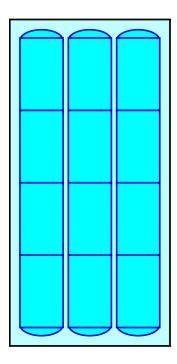
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

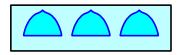
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

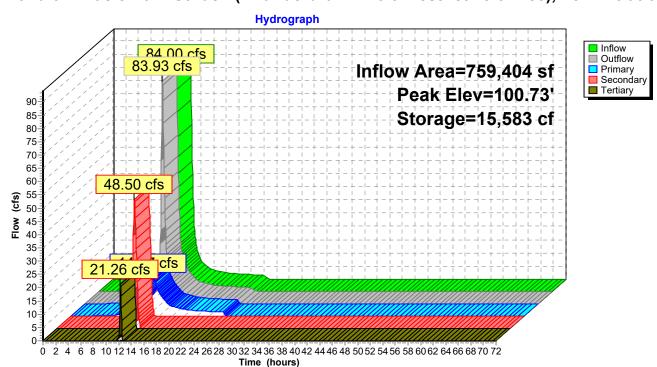
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

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

12 Chambers 84.3 cy Field 63.8 cy Stone







Pond 5P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Summary for Pond 6P: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	53,997 sf,100.00% Impervious,	Inflow Depth = 8.71" for 100-Year _Current event					
Inflow =	11.50 cfs @ 12.13 hrs, Volume=	39,191 cf					
Outflow =	10.30 cfs @ 12.16 hrs, Volume=	39,196 cf, Atten= 10%, Lag= 1.9 min					
Discarded =	0.14 cfs @ 11.90 hrs, Volume=	19,631 cf					
Primary =	10.16 cfs @ 12.16 hrs, Volume=	19,565 cf					
Routed to Link 2L : Combined Flows							

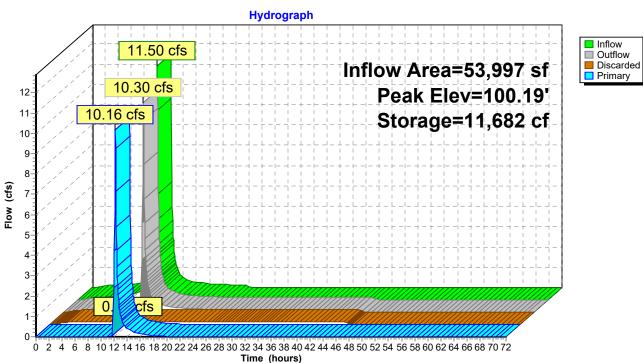
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 100.19' @ 12.16 hrs Surf.Area= 12,500 sf Storage= 11,682 cf

Plug-Flow detention time= 344.3 min calculated for 39,169 cf (100% of inflow) Center-of-Mass det. time= 345.0 min (1,085.4 - 740.4)

Volume	Invert	Ava	il.Storage	Storage Description					
#1	98.25'		622 cf	Custom Stage	Custom Stage Data (Conic)Listed below (Recalc)				
622 cf		x 25.00 = 15,5	x 25.00 = 15,550 cf Total Available Storage						
		Voids (%)	Inc.Store (cubic-feet)						
98.25		374	0.0	0	0	<u>(sq-ft)</u> 374			
99.25		374	35.0	131	131	443			
99.50		374	25.0	23	154	460			
100.00		500	100.0	218	372	591			
100.25		500	100.0	125	497	611			
100.50		500	100.0	125	622	631			
#1 C	#1 Discarded 98.25' 0.50 #2 Primary 100.00' 2.0' Head 2.50 Coef			'long x 3.0' brea ad (feet) 0.20 0.4 0 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2	rea d Rectangular Weir X 25.00 1.20 1.40 1.60 1.80 2.00 2.65 2.64 2.64 2.68 2.68			

Discarded OutFlow Max=0.14 cfs @ 11.90 hrs HW=100.03' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=9.97 cfs @ 12.16 hrs HW=100.19' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 9.97 cfs @ 1.06 fps)



Pond 6P: Basic Rain Garden (infiltration only)

Summary for Pond 7P: Basic Porous Pavement (infiltration only)

Inflow Area = 94,724 sf,100.00% Impervious, Inflow Depth = 8.71" for 100-Year Current event Inflow 20.17 cfs @ 12.13 hrs, Volume= 68.751 cf = 9.43 cfs @ 12.27 hrs, Volume= Outflow = 68,751 cf, Atten= 53%, Lag= 8.6 min 1.10 cfs @ 10.75 hrs, Volume= Discarded = 58,998 cf 8.34 cfs @ 12.27 hrs, Volume= Primary = 9,753 cf Routed to Link 2L : Combined Flows

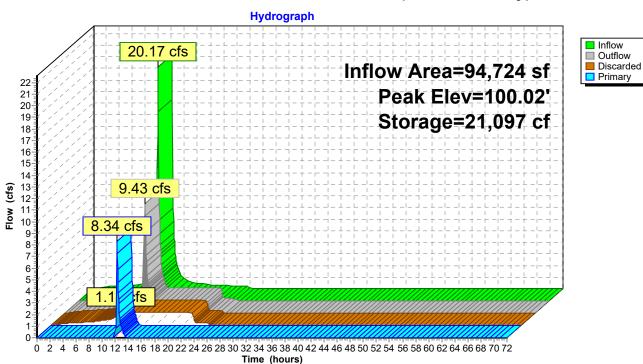
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.02' @ 12.25 hrs Surf.Area= 94,724 sf Storage= 21,097 cf

Plug-Flow detention time= 115.5 min calculated for 68,704 cf (100% of inflow) Center-of-Mass det. time= 115.4 min (855.8 - 740.4)

Volume	Invert	t Avail.S	Storage	Storage Description		
#1	99.25	5' 43,005 cf		Custom Stage Data (Prismatic)Listed below (Recalc)		
Elevatio (fee 99.2 99.7 99.8 100.0 100.2	et) 25 75 33 01	(sq-ft) 94,724 94,724 94,724 94,724 94,724	/oids (%) 0.0 35.0 15.0 15.0 15.0	Inc.Store (cubic-feet) 0 16,577 1,137 2,558 22,734	Cum.Store (cubic-feet) 0 16,577 17,713 20,271 43,005	
Device	evice Routing Invert Outle		et Devices			
#1 #2	Discarded Primary	99.2 100.0	0' 15.0 ' Head 2.50 Coef	long x 1.0' br d (feet) 0.20 0. 3.00	.40 0.60 0.80 1.	e area orous Asphalt X 76.00 .00 1.20 1.40 1.60 1.80 2.00 5 2.98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=1.10 cfs @ 10.75 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 1.10 cfs)

Primary OutFlow Max=7.57 cfs @ 12.27 hrs HW=100.02' (Free Discharge) ←2=Edge of Porous Asphalt (Weir Controls 7.57 cfs @ 0.36 fps)



Pond 7P: Basic Porous Pavement (infiltration only)

Summary for Pond 8P: Basin 2 Medium Case

[63] Warning: Exceeded Reach 2Ri INLET depth by 1.14' @ 12.65 hrs

Inflow Area = 908,125 sf, 25.71% Impervious, Inflow Depth = 5.49" for 100-Year Current event 95.81 cfs @ 12.30 hrs, Volume= Inflow = 415,351 cf Outflow = 67.33 cfs @ 12.49 hrs, Volume= 410,553 cf, Atten= 30%, Lag= 11.6 min Primary = 28.77 cfs @ 12.49 hrs, Volume= 331,164 cf Routed to Reach 2Ro : Outlet Secondary = 38.57 cfs @ 12.49 hrs, Volume= 79.389 cf Routed to Reach 2Ro : Outlet 0 cf Tertiary = 0.00 cfs @ 0.00 hrs, Volume= Routed to Reach 2Ro : Outlet

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 72.86' @ 12.49 hrs Surf.Area= 28,404 sf Storage= 91,215 cf

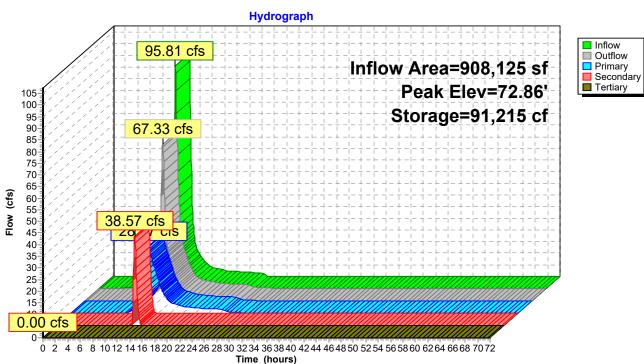
Plug-Flow detention time= 56.3 min calculated for 410,553 cf (99% of inflow) Center-of-Mass det. time= 48.8 min (872.3 - 823.5)

Volume	Invert	Avail.Sto	rage Storage	e Description		
#1	69.00'	125,28	80 cf Custor	m Stage Data (Pri	ismatic)Listed below (Recalc)	
Elevatio (fee 69.0	et) 00	rf.Area (sq-ft) 18,889	Inc.Store (cubic-feet) 0	Cum.Store (cubic-feet) 0		
74.0	00	31,223	125,280	125,280		
Device	Routing	Invert	Outlet Devic	es		
#1	Primary	69.25'		Low Flow Orifice eir flow at low hea	X 2.00 C= 0.600 ds	
#2	#2 Secondary 71.25'		24.0" W x 18.0" H Vert. 2-YR Orifice X 3.00 C= 0.600			
#3	Tertiary	73.75'	Limited to weir flow at low heads 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads			

Primary OutFlow Max=28.75 cfs @ 12.49 hrs HW=72.85' (Free Discharge) —1=Low Flow Orifice (Orifice Controls 28.75 cfs @ 8.14 fps)

Secondary OutFlow Max=38.49 cfs @ 12.49 hrs HW=72.85' (Free Discharge) 2=2-YR Orifice (Orifice Controls 38.49 cfs @ 4.28 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.00' (Free Discharge) -3=Orifice/Grate (Controls 0.00 cfs)



Pond 8P: Basin 2 Medium Case

20240629_PartridgeFarmRd_HCAD_BASINOAA 24-hr C100-Year_Current Rainfall=8.95"Prepared by Rutgers Cooperative Extension Water Resources ProgramPrinted 6/29/2024HydroCAD® 10.10-7cs/n 03601© 2022 HydroCAD Software Solutions LLCPage 289

Summary for Pond 9P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

840,092 sf, 1.06% Impervious, Inflow Depth = 5.81" for 100-Year Current event Inflow Area = 79.86 cfs @ 12.39 hrs, Volume= Inflow 407.065 cf = 79.85 cfs @ 12.39 hrs, Volume= 406,849 cf, Atten= 0%, Lag= 0.1 min Outflow = 3.03 cfs @ 12.39 hrs, Volume= Primary = 139.078 cf Routed to Link 3L : dA3 34.33 cfs @ 12.39 hrs, Volume= Secondary = 162,270 cf Routed to Link 3L : dA3 Tertiary = 42.50 cfs @ 12.39 hrs, Volume= 105,501 cf Routed to Link 3L : dA3

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 101.58' @ 12.39 hrs Surf.Area= 1,361 sf Storage= 3,415 cf

Plug-Flow detention time= 6.2 min calculated for 406,566 cf (100% of inflow) Center-of-Mass det. time= 5.9 min (839.8 - 833.9)

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 2.00 - 3.475 cf. Total Available Storage

 $1,737 \text{ cf} \times 2.00 = 3,475 \text{ cf}$ Total Available Storage

Storage Group A created with Chamber Wizard

Elevatio	on	Surf.Area	Void	Inc.Store	Cum.Store	Wet.Area			
(fee	et)	(sq-ft)	(%) (cubic-feet)	(cubic-feet)	<u>(sq-ft)</u>			
97.7	75	175	0.) 0	0	175			
98.2	25	175	35.) 31	31	198			
99.2	25	175	35.) 61	92	245			
99.8	50	175	25.) 11	103	257			
100.0	00	175	100.) 88	190	281			
100.5	51	175	100.) 89	280	304			
101.7	75	175	100.) 217	497	363			
	_								
Device	Routing	In	vert	Outlet Devices					
#1	Primary	94	17'	6.0" Round Culvert X 2.00 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 2.00 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	Seconda	iry 100.00'		3.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 2.00					
				· · ·	0.40 0.60 0.80 1.0	00 1.20 1.40 1.60 1.80 2.00			
				2.50 3.00 3.50					
				(e)		2.66 2.70 2.77 2.89 2.88			
				2.85 3.07 3.20 3.3	32				

20240629_PartridgeFarmRd_HCAD_BASINOAA 24-hr C100-Year _Current Rainfall=8.95"Prepared by Rutgers Cooperative Extension Water Resources ProgramPrinted 6/29/2024HydroCAD® 10.10-7cs/n 03601© 2022 HydroCAD Software Solutions LLCPage 290

#4 Tertiary 100.50' 6.0' long Sharp-Crested Rectangular Weir X 2.00 2 End Contraction(s)

Primary OutFlow Max=3.03 cfs @ 12.39 hrs HW=101.58' (Free Discharge) 1=Culvert (Passes 3.03 cfs of 4.53 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 3.03 cfs @ 7.71 fps)

Secondary OutFlow Max=34.23 cfs @ 12.39 hrs HW=101.58' (Free Discharge) —3=Broad-Crested Rectangular Weir (Weir Controls 34.23 cfs @ 3.61 fps)

Tertiary OutFlow Max=42.36 cfs @ 12.39 hrs HW=101.58' (Free Discharge) **4=Sharp-Crested Rectangular Weir** (Weir Controls 42.36 cfs @ 3.40 fps) 20240629_PartridgeFarmRd_HCAD_BASINOAA 24-hr C100-Year _Current Rainfall=8.95"Prepared by Rutgers Cooperative Extension Water Resources ProgramPrinted 6/29/2024HydroCAD® 10.10-7cs/n 03601© 2022 HydroCAD Software Solutions LLCPage 291

ond 9P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

Chamber Model = ADS_StormTechSC-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

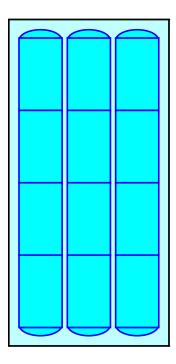
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

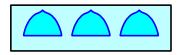
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

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

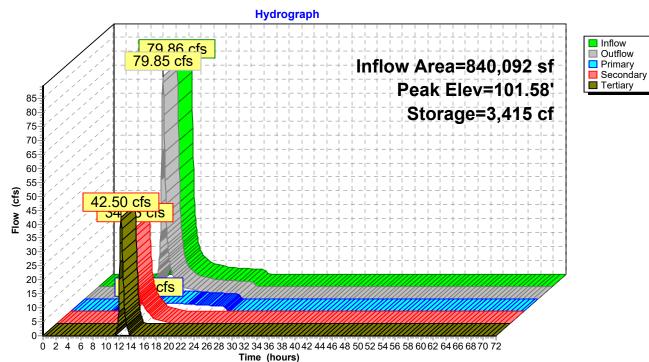
Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af Overall Storage Efficiency = 54.5%Overall System Size = $32.10' \times 15.75' \times 4.50'$

12 Chambers 84.3 cy Field 63.8 cy Stone









Summary for Pond 10P: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	22,074 sf,100.00% Impervious,	Inflow Depth = 8.71" for 100-Year Current event
Inflow =	4.70 cfs @ 12.13 hrs, Volume=	16,021 cf
Outflow =	4.25 cfs @ 12.16 hrs, Volume=	16,020 cf, Atten= 10%, Lag= 1.8 min
Discarded =	0.05 cfs @ 11.75 hrs, Volume=	7,145 cf
Primary =	4.20 cfs @ 12.16 hrs, Volume=	8,874 cf
Routed to Link	3L : dA3	

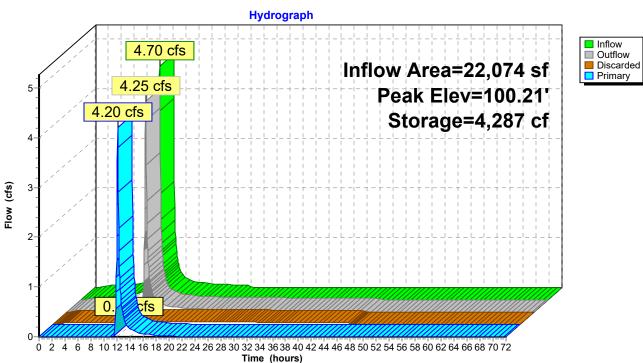
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 100.21' @ 12.16 hrs Surf.Area= 4,500 sf Storage= 4,287 cf

Plug-Flow detention time= 313.5 min calculated for 16,020 cf (100% of inflow) Center-of-Mass det. time= 313.3 min (1,053.7 - 740.4)

Volume	Invert	Ava	il.Storage	Storage Description					
#1	98.25'		622 cf	Custom Stage	below (Recalc)				
			622 cf	x 9.00 = 5,598	x 9.00 = 5,598 cf Total Available Storage				
Elevation Surf.Area Voids (feet) (sq-ft) (%)		Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)				
98.2	25	374	0.0	0	0	374			
99.2	25	374	35.0	131	131	443			
99.5	50	374	25.0	23	154	460			
100.0	0	500	100.0	218	372	591			
100.2	25	500	100.0	125	497	611			
100.5	00.50 500 100.0		100.0	125	622	631			
Device #1 #2	Routing Discarded Primary	98	3.25' 0.50 3.00' 2.0' Hea 2.50 Coe	Outlet Devices 0.500 in/hr Exfiltration over Surface area 2.0' long x 3.0' breadth Broad-Crested Rectangular Wein Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1. 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.68 2.72 2.81 2.92 2.97 3.07 3.32					

Discarded OutFlow Max=0.05 cfs @ 11.75 hrs HW=100.03' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=4.14 cfs @ 12.16 hrs HW=100.21' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 4.14 cfs @ 1.11 fps)



Pond 10P: Basic Rain Garden (infiltration only)

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Summary for Pond 11P: Basic Porous Pavement (infiltration only)

85,494 sf,100.00% Impervious, Inflow Depth = 8.71" for 100-Year Current event Inflow Area = Inflow 18.20 cfs @ 12.13 hrs, Volume= 62.052 cf = 8.80 cfs @ 12.27 hrs, Volume= Outflow = 62,052 cf, Atten= 52%, Lag= 8.4 min 0.99 cfs @ 10.75 hrs, Volume= Discarded = 53.249 cf Primary = 7.81 cfs @ 12.27 hrs, Volume= 8,803 cf Routed to Link 3L : dA3

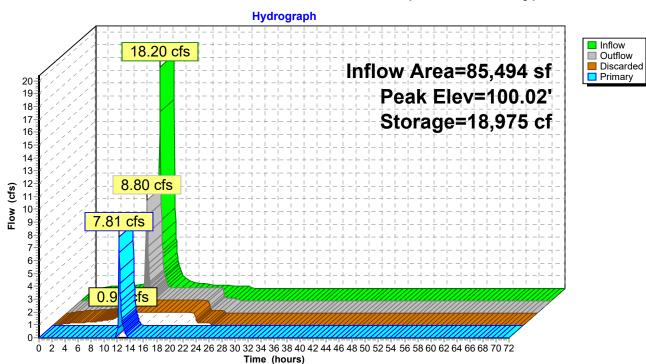
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.02' @ 12.25 hrs Surf.Area= 85,494 sf Storage= 18,975 cf

Plug-Flow detention time= 115.5 min calculated for 62,009 cf (100% of inflow) Center-of-Mass det. time= 115.4 min (855.8 - 740.4)

Volume	Inver	t Avai	il.Storage	Storage Description		
#1	99.25		38,814 cf	Custom Stage	e Data (Prismatio	c) Listed below (Recalc)
Elevation Surf (feet) (99.25 85 99.75 85 99.83 85 100.01 85		urf.Area (sq-ft) 85,494 85,494 85,494 85,494 85,494	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 14,961 1,026 2,308 20,519	Cum.Store (cubic-feet) 0 14,961 15,987 18,296 38,814	
Device	Routing	In	vert Outl	et Devices		
#1 #2	Discarded Primary		0.00' 15.0 Hea 2.50 Coe	' long x 1.0' br d (feet) 0.20 0. 0 3.00	.40 0.60 0.80 1.	e area orous Asphalt X 76.00 00 1.20 1.40 1.60 1.80 2.00 5 2.98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=0.99 cfs @ 10.75 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.99 cfs)

Primary OutFlow Max=7.04 cfs @ 12.27 hrs HW=100.02' (Free Discharge) ←2=Edge of Porous Asphalt (Weir Controls 7.04 cfs @ 0.35 fps)



Pond 11P: Basic Porous Pavement (infiltration only)

Summary for Pond 12P: Basic Porous Pavement (infiltration only)

[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 4,605 sf,100.00% Impervious, Inflow Depth = 8.71" for 100-Year Current event Inflow 0.98 cfs @ 12.13 hrs, Volume= = 3.342 cf 3,403 cf, Atten= 1%, Lag= 4.6 min Outflow = 0.97 cfs @ 12.20 hrs, Volume= Discarded = 0.05 cfs @ 10.80 hrs, Volume= 2,861 cf Primary = 0.91 cfs @ 12.20 hrs, Volume= 542 cf Routed to Link 4L : DA 4: Combined Flows

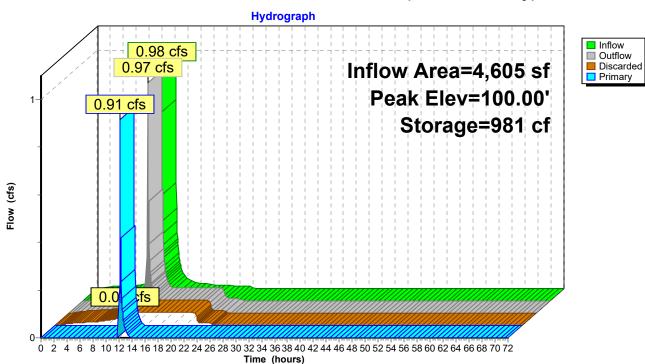
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 100.00' @ 12.20 hrs Surf.Area= 4,605 sf Storage= 981 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow) Center-of-Mass det. time= 113.7 min (854.1 - 740.4)

Volume	Invert	: Ava	il.Storage	e Storage Description			
#1	99.25	I	4,393 cf	Custom Stage	Data (Prismatic)	Listed below (Recalc)	
_							
Elevatio	on S	urf.Area	Voids	Inc.Store	Cum.Store		
(fee	et)	(sq-ft)	(%)	(cubic-feet)	(cubic-feet)		
99.2	25	4,605	0.0	0	0		
99.7	75	4,605	35.0	806	806		
99.8	33	4,605	15.0	55	861		
100.0	D1	4,605	15.0	124	985		
100.2	25	4,605	100.0	1,105	2,091		
100.7	75	4,605	100.0	2,303	4,393		
Device	Routing	In	vert Out	let Devices			
#1	Discarded	99	.25' 0.5	00 in/hr Exfiltratio	on over Surface	area	
#2	Primary	100	.00' 15. 0	0' long x 1.0' bre	adth Edge of Po	rous Asphalt X 76.00	
,			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00				
		2.50	2.50 3.00				
			Coe	ef. (English) 2.69	2.72 2.75 2.85	2.98 3.08 3.20 3.28 3.31	
				3.31 3.32			
Discarded OutElow Max-0.05 cfc @ 10.80 brs HW-00.27' (Free Discharge)							

Discarded OutFlow Max=0.05 cfs @ 10.80 hrs HW=99.27' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.46 cfs @ 12.20 hrs HW=100.00' (Free Discharge) 2=Edge of Porous Asphalt (Weir Controls 0.46 cfs @ 0.14 fps)





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Summary for Link 1L: Combined Flows

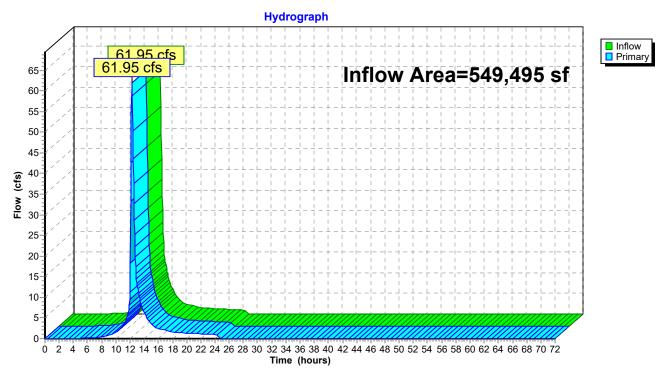
 Inflow Area =
 549,495 sf, 18.28% Impervious, Inflow Depth =
 5.64" for 100-Year _Current event

 Inflow =
 61.95 cfs @
 12.27 hrs, Volume=
 258,325 cf

 Primary =
 61.95 cfs @
 12.27 hrs, Volume=
 258,325 cf, Atten= 0%, Lag= 0.0 min

 Routed to Reach 1Ri : Inlet Pipe
 Inlet Pipe
 258,325 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



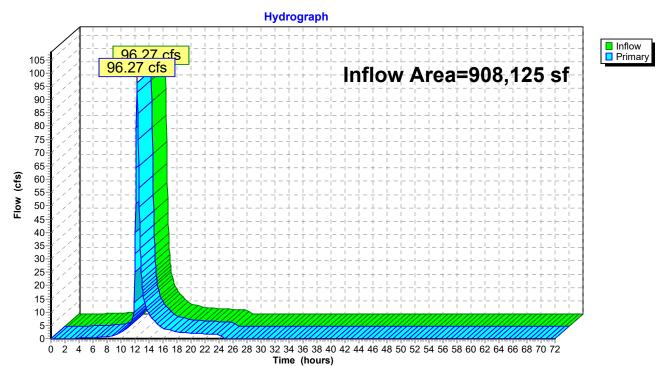
Link 1L: Combined Flows

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Summary for Link 2L: Combined Flows

Inflow Area = 908,125 sf, 25.71% Impervious, Inflow Depth = 5.49" for 100-Year _Current event Inflow = 96.27 cfs @ 12.30 hrs, Volume= 415,331 cf Primary = 96.27 cfs @ 12.30 hrs, Volume= 415,331 cf, Atten= 0%, Lag= 0.0 min Routed to Reach 2Ri : Inlet Pipe

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



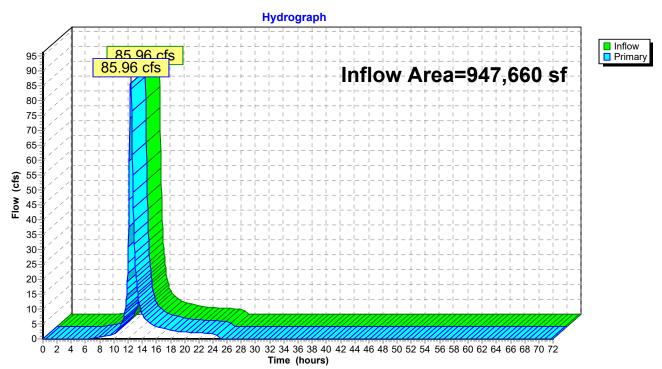
Link 2L: Combined Flows

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Summary for Link 3L: dA3

Inflow Are	a =	947,660 sf, 12.29% Impervious, Inflow Depth = 5.38" for 100-Year _Current event
Inflow	=	85.96 cfs @ 12.37 hrs, Volume= 424,526 cf
Primary	=	85.96 cfs @ 12.37 hrs, Volume= 424,526 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



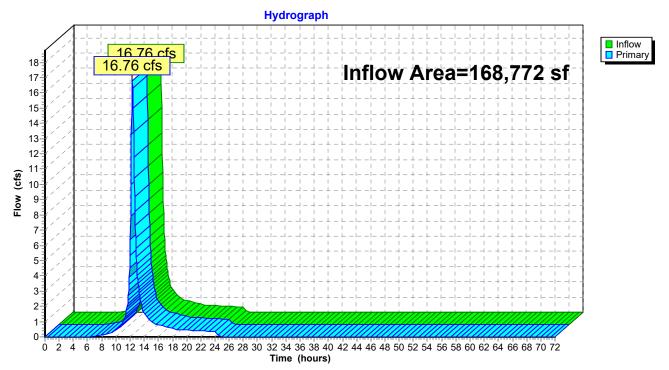
Link 3L: dA3

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Summary for Link 4L: DA 4: Combined Flows

Inflow Are	a =	168,772 sf, 3.14% Impervious, Inflow Depth = 5.68" for 100-Year _Current event
Inflow	=	16.76 cfs @ 12.34 hrs, Volume= 79,832 cf
Primary	=	16.76 cfs @ 12.34 hrs, Volume= 79,832 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Link 4L: DA 4: Combined Flows

20240629_PartridgeFarmRd_HCAD_BASIN NOAA 24-hr C 100-Year_	_2100 Rainfall=12.15"
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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 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

Subcatchment1S: DA 1: CN w/ IC areas	Runoff Area=549,495 sf 18.28% Impervious Runoff Depth=9.33" Tc=19.8 min CN=74/98 Runoff=94.96 cfs 427,449 cf
Subcatchment1Sa: DA 1: CN w/ IC areas	Runoff Area=492,891 sf 8.90% Impervious Runoff Depth=9.04" Tc=19.8 min CN=74/98 Runoff=83.71 cfs 371,277 cf
Subcatchment1Sb: DA 1: Roofs	Runoff Area=21,359 sf 100.00% Impervious Runoff Depth=11.91" Tc=6.0 min CN=0/98 Runoff=6.18 cfs 21,196 cf
Subcatchment1Sc: DA1: Driveways	Runoff Area=35,245 sf 100.00% Impervious Runoff Depth=11.91" Tc=6.0 min CN=0/98 Runoff=10.19 cfs 34,976 cf
Subcatchment 2S: DA 2: CN w/ IC areas	Runoff Area=908,125 sf 25.71% Impervious Runoff Depth=9.57" Tc=21.8 min CN=74/98 Runoff=152.20 cfs 724,127 cf
Subcatchment2Sa: DA 2: CN w/ IC areas	Runoff Area=759,404 sf 11.16% Impervious Runoff Depth=9.11" Tc=21.8 min CN=74/98 Runoff=123.91 cfs 576,541 cf
Subcatchment 2Sb: DA 2: Roofs	Runoff Area=53,997 sf 100.00% Impervious Runoff Depth=11.91" Tc=6.0 min CN=0/98 Runoff=15.62 cfs 53,585 cf
Subcatchment2Sc: DA 2: Driveways	Runoff Area=94,724 sf 100.00% Impervious Runoff Depth=11.91" Tc=6.0 min CN=0/98 Runoff=27.40 cfs 94,002 cf
Subcatchment3S: DA 3: CN w/ IC areas	Runoff Area=947,660 sf 12.29% Impervious Runoff Depth=9.15" Tc=27.9 min CN=74/98 Runoff=137.53 cfs 722,285 cf
Subcatchment3Sa: DA 3: CN w/ IC areas	Runoff Area=840,092 sf 1.06% Impervious Runoff Depth=8.79" Tc=27.9 min CN=74/98 Runoff=119.32 cfs 615,538 cf
Subcatchment3Sb: DA 3: Roofs	Runoff Area=22,074 sf 100.00% Impervious Runoff Depth=11.91" Tc=6.0 min CN=0/98 Runoff=6.38 cfs 21,906 cf
Subcatchment3Sc: DA 3: Driveways	Runoff Area=85,494 sf 100.00% Impervious Runoff Depth=11.91" Tc=6.0 min CN=0/98 Runoff=24.73 cfs 84,842 cf
Subcatchment4S: DA 4: CN w/ IC areas	Runoff Area=168,772 sf 3.14% Impervious Runoff Depth=8.86" Tc=24.4 min CN=74/98 Runoff=25.71 cfs 124,579 cf
Subcatchment4Sa: DA 4: CN w/ IC areas	Runoff Area=163,472 sf 0.00% Impervious Runoff Depth=8.76" Tc=24.4 min CN=74/0 Runoff=24.75 cfs 119,320 cf
Subcatchment4Sb: DA 4: Roofs	Runoff Area=695 sf 100.00% Impervious Runoff Depth=11.91" Tc=6.0 min CN=0/98 Runoff=0.20 cfs 690 cf
Subcatchment4Sc: DA 4: Driveways	Runoff Area=4,605 sf 100.00% Impervious Runoff Depth=11.91" Tc=6.0 min CN=0/98 Runoff=1.33 cfs 4,570 cf

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Avg. Flow Depth=2.31' Max Vel=12.07 fps Inflow=90.97 cfs 393,184 cf **Reach 1Ri: Inlet Pipe** 48.0" Round Pipe n=0.013 L=100.0' S=0.0100 '/' Capacity=143.64 cfs Outflow=90.54 cfs 393.202 cf Avg. Flow Depth=2.15' Max Vel=6.83 fps Inflow=30.73 cfs 385,914 cf Reach 1Ro: outlet 30.0" Round Pipe n=0.013 L=925.0' S=0.0051 '/' Capacity=29.39 cfs Outflow=30.55 cfs 385,903 cf Avg. Flow Depth=3.23' Max Vel=13.03 fps Inflow=141.97 cfs 634,068 cf **Reach 2Ri: Inlet Pipe** 48.0" Round Pipe n=0.013 L=100.0' S=0.0100 '/' Capacity=143.64 cfs Outflow=141.47 cfs 634,074 cf **Reach 2Ro: Outlet** Avg. Flow Depth=2.66' Max Vel=12.91 fps Inflow=101.15 cfs 626,147 cf 42.0" Round Pipe n=0.013 L=190.0' S=0.0118 '/' Capacity=109.48 cfs Outflow=101.18 cfs 626,155 cf Peak Elev=100.76' Storage=14,082 cf Inflow=83.71 cfs 371,277 cf Pond 1P: Basic Rain Garden (w/ Primary=12.79 cfs 242,221 cf Secondary=46.94 cfs 104,239 cf Tertiary=23.91 cfs 23,855 cf Outflow=83.64 cfs 370,315 cf Pond 2P: Basic Rain Garden (infiltration Peak Elev=100.24' Storage=4,898 cf Inflow=6.18 cfs 21,196 cf Discarded=0.06 cfs 8,049 cf Primary=5.64 cfs 13,147 cf Outflow=5.70 cfs 21,196 cf Peak Elev=100.02' Storage=7,930 cf Inflow=10.19 cfs 34,976 cf Pond 3P: Basic Porous Pavement Discarded=0.41 cfs 25,572 cf Primary=9.43 cfs 9,722 cf Outflow=9.83 cfs 35,294 cf Pond 4P: Basin 1 Medium Case Peak Elev=78.92' Storage=159,557 cf Inflow=90.54 cfs 393,202 cf Primary=7.72 cfs 229,725 cf Secondary=21.21 cfs 154,469 cf Tertiary=1.79 cfs 1,720 cf Outflow=30.73 cfs 385,914 cf Peak Elev=100.88' Storage=15,844 cf Inflow=123.91 cfs 576,541 cf Pond 5P: Basic Rain Garden (w/ Primary=14.34 cfs 340,579 cf Secondary=64.62 cfs 176,717 cf Tertiary=44.88 cfs 58,045 cf Outflow=123.85 cfs 575,341 cf Pond 6P: Basic Rain Garden (infiltration Peak Elev=100.24' Storage=12,250 cf Inflow=15.62 cfs 53,585 cf Discarded=0.14 cfs 20,133 cf Primary=14.14 cfs 33,455 cf Outflow=14.28 cfs 53,588 cf Pond 7P: Basic Porous Pavement Peak Elev=100.04' Storage=23,080 cf Inflow=27.40 cfs 94,002 cf Discarded=1.10 cfs 68,729 cf Primary=24.09 cfs 25,272 cf Outflow=25.19 cfs 94,002 cf Pond 8P: Basin 2 Medium Case Peak Elev=73.99' Storage=125,095 cf Inflow=141.47 cfs 634,074 cf Primary=34.01 cfs 447,640 cf Secondary=60.82 cfs 174,083 cf Tertiary=6.32 cfs 4,424 cf Outflow=101.15 cfs 626,147 cf Pond 9P: Basic Rain Garden (w/ Peak Elev=101.99' Storage=3,475 cf Inflow=119.32 cfs 615,538 cf Primary=3.12 cfs 165,622 cf Secondary=48.23 cfs 262,726 cf Tertiary=68.15 cfs 186,973 cf Outflow=119.49 cfs 615,321 cf Pond 10P: Basic Rain Garden (infiltration Peak Elev=100.26' Storage=4,505 cf Inflow=6.38 cfs 21,906 cf Discarded=0.05 cfs 7,291 cf Primary=5.82 cfs 14,614 cf Outflow=5.88 cfs 21,905 cf

 Pond 11P: Basic Porous Pavement
 Peak Elev=100.04' Storage=20,650 cf
 Inflow=24.73 cfs
 84,842 cf

 Discarded=0.99 cfs
 62,032 cf
 Primary=22.27 cfs
 22,810 cf
 Outflow=23.25 cfs
 84,842 cf

Pond 12P: Basic Porous Pavement (infiltration Peak Elev=100.00' Storage=981 cf Inflow=1.33 cfs 4,570 cf Discarded=0.05 cfs 3,333 cf Primary=1.28 cfs 1,244 cf Outflow=1.33 cfs 4,577 cf

Inflow=90.97 cfs 393,184 cf Primary=90.97 cfs 393,184 cf

Inflow=141.97 cfs 634,068 cf Primary=141.97 cfs 634,068 cf

Link 1L: Combined Flows

Link 2L: Combined Flows

Link 3L: dA3

Inflow=127.91 cfs 652,745 cf Primary=127.91 cfs 652,745 cf

Link 4L: DA 4: Combined Flows

Inflow=25.16 cfs 121,253 cf Primary=25.16 cfs 121,253 cf

Total Runoff Area = 5,148,104 sf Runoff Volume = 3,996,883 cf Average Runoff Depth = 9.32" 82.29% Pervious = 4,236,632 sf 17.71% Impervious = 911,472 sf 20240629_PartridgeFarmRd_HCAD_BASIN NOAA 24-hr C 100-Year _2100 Rainfall=12.15"Prepared by Rutgers Cooperative Extension Water Resources ProgramPrinted 6/29/2024HydroCAD® 10.10-7c s/n 03601 © 2022 HydroCAD Software Solutions LLCPage 306

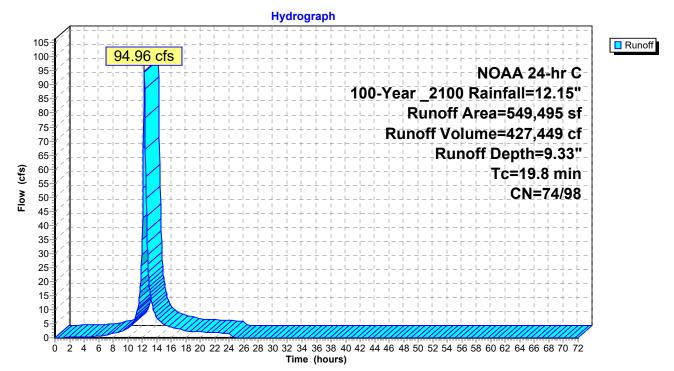
Summary for Subcatchment 1S: DA 1: CN w/ IC areas

Runoff = 94.96 cfs @ 12.28 hrs, Volume= 427,449 cf, Depth= 9.33"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

_	Area (sf)	CN	Description				
*	100,459	98	Impervious				
	317,162	74	>75% Grass	s cover, Go	bod, HSG C		
	131,575	73	Woods, Fair	, HSG C			
_	299	70	Woods, Goo	od, HSG C			
	549,495	78	Weighted A	verage			
	449,036	74	81.72% Per	vious Area			
	100,459	98	18.28% Imp	ervious Are	ea		
		~					
	Tc Length	Slop		Capacity	Description		
_	(min) (feet)	(ft/	ft) (ft/sec)	(cfs)			
	19.8				Direct Entry, Direct		

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



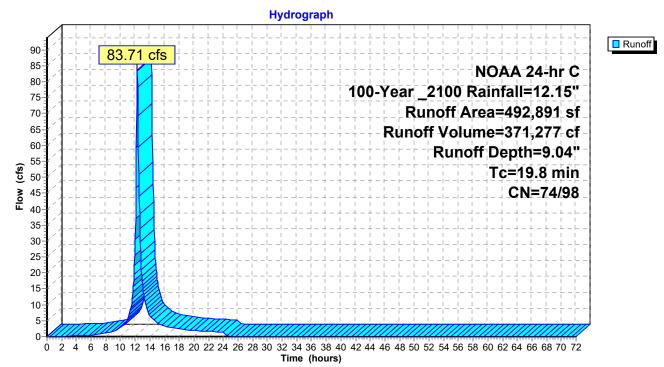
Summary for Subcatchment 1Sa: DA 1: CN w/ IC areas

Runoff = 83.71 cfs @ 12.29 hrs, Volume= 371,277 cf, Depth= 9.04" 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

	Area (sf)	CN	Description					
*	43,855	98	Impervious					
	317,162	74	>75% Gras	s cover, Go	bod, HSG C			
	131,575	73	Woods, Fai	r, HSG C				
	299	70	Woods, Go	od, HSG C				
	492,891	76	Weighted A	verage				
	449,036	74	91.10% Per	vious Area	1			
	43,855	98	8.90% Impe	ervious Are	а			
_				• •	– 1.4			
	c Length	Slop		Capacity	Description			
(mir	n) (feet)	(ft/1	ft) (ft/sec)	(cfs)				
19.	8				Direct Entry, Direct			

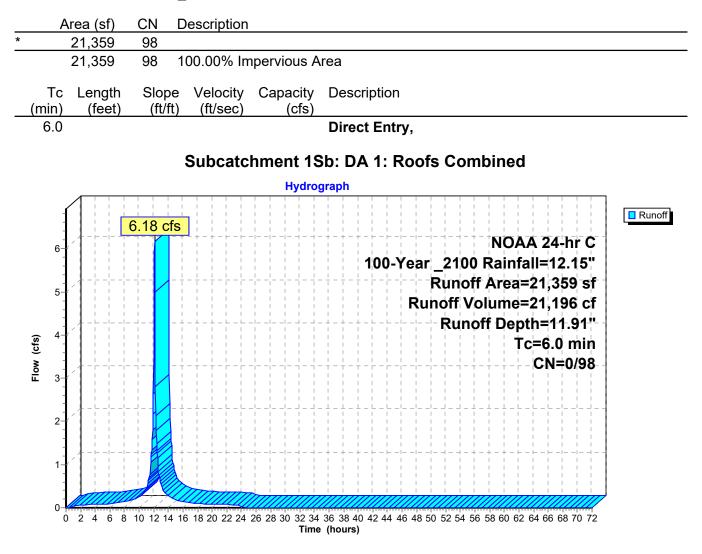
Subcatchment 1Sa: DA 1: CN w/ IC areas



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Summary for Subcatchment 1Sb: DA 1: Roofs Combined

Runoff = 6.18 cfs @ 12.13 hrs, Volume= 21,196 cf, Depth=11.91" Routed to Pond 2P : Basic Rain Garden (infiltration only)



Summary for Subcatchment 1Sc: DA1: Driveways (other)

Runoff = 10.19 cfs @ 12.13 hrs, Volume= 34,976 cf, Depth=11.91" Routed to Pond 3P : Basic Porous Pavement (infiltration only)

P	Area (sf)	CN E	Description							
	35,245	98								
	35,245	98 1	100.00% Im	pervious A	rea					
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description					
6.0					Direct Entry	Ι,				
			Subcatc	nment 1S	Sc: DA1: Dri	iveways	(other)		
				Hydro		5	·	,		
11 (-+-+-+-+-					- + - + - + 	- +	Runc
11-	 1	0.19 cfs						A 24-		
10-					· + - + - # 00-V			- I I I		
9-					100-1	ear _2100 Runof				
8-						Runoff V		1 1- 1		
7-							off Dep			
_ 1								c=6.0		
FIOW (CTS)			$\begin{array}{cccccccccccccccccccccccccccccccccccc$						0/98 -	
e 5-										
4				- 		- 		- + - + - +		
3-			$-\frac{1}{1} - \frac{1}{1} - \frac{1}{1} - \frac{1}{1} - \frac{1}{1} - \frac{1}{1}$		$-\frac{1}{1} - \frac{1}{1} - \frac{1}{1} - \frac{1}{1} - \frac{1}{1} - \frac{1}{1} - \frac{1}{1}$					
1			- + - + - + - + -							
2-										
1-										
- - 0										

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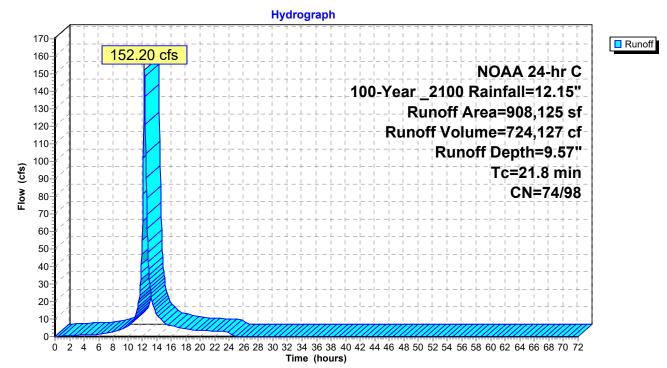
Summary for Subcatchment 2S: DA 2: CN w/ IC areas

Runoff = 152.20 cfs @ 12.31 hrs, Volume= 724,127 cf, Depth= 9.57"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

	Area (sf)	CN	Description	
*	233,471	98	Impervious	
	1	65	Brush, Good, HSG C	
	620,871	74	>75% Grass cover, Good, HSG C	
	1,845	72	Woods/grass comb., Good, HSG C	
	51,937	73	Woods, Fair, HSG C	
908,125 80 Weighted Average				
	674,654	74	74.29% Pervious Area	
	233,471	98	25.71% Impervious Area	
	Tc Length	Slop		
(m	nin) (feet)	(ft/	/ft) (ft/sec) (cfs)	
2	1.8		Direct Entry, Direct	

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



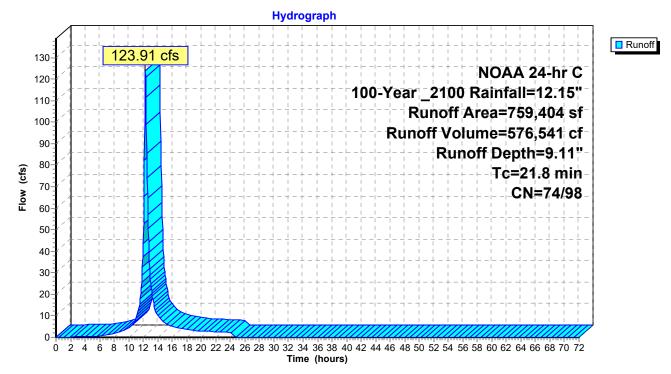
Summary for Subcatchment 2Sa: DA 2: CN w/ IC areas

Runoff = 123.91 cfs @ 12.31 hrs, Volume= 576,541 cf, Depth= 9.11" Routed to Pond 5P : 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

	Area (sf)	CN	Description	
*	84,750	98	Impervious	
	1	65	Brush, Good, HSG C	
	620,871	74	>75% Grass cover, Good, HSG C	
	1,845	72	Woods/grass comb., Good, HSG C	
	51,937	73	Woods, Fair, HSG C	
	759,404	77	Weighted Average	
	674,654	74	88.84% Pervious Area	
	84,750	98	11.16% Impervious Area	
	Tc Length in) (feet)	Slop (ft/		
2	1.8		Direct Entry, Direct	_

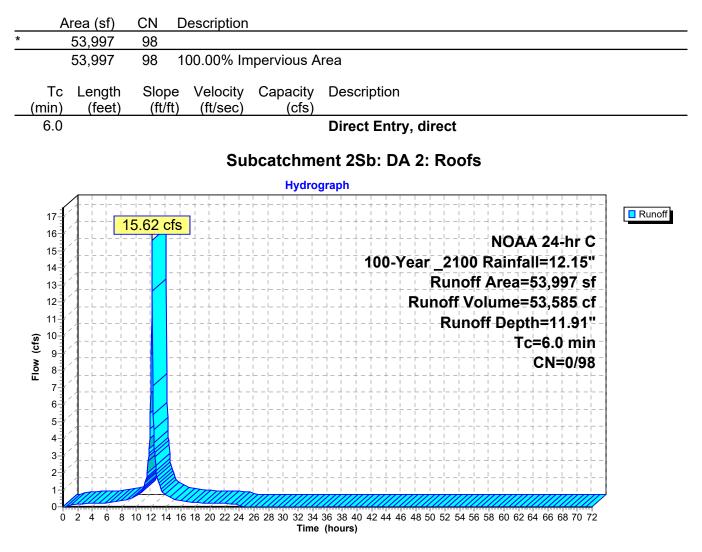
Subcatchment 2Sa: DA 2: CN w/ IC areas



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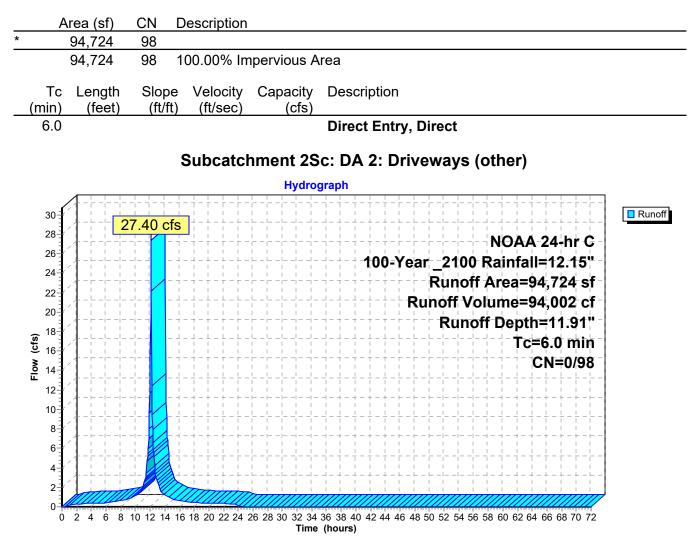
Summary for Subcatchment 2Sb: DA 2: Roofs

Runoff = 15.62 cfs @ 12.13 hrs, Volume= 53,585 cf, Depth=11.91" Routed to Pond 6P : Basic Rain Garden (infiltration only)



Summary for Subcatchment 2Sc: DA 2: Driveways (other)

Runoff = 27.40 cfs @ 12.13 hrs, Volume= 94,002 cf, Depth=11.91" Routed to Pond 7P : Basic Porous Pavement (infiltration only)



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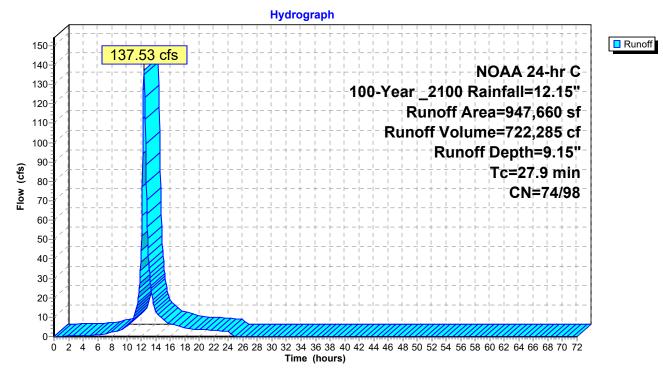
Summary for Subcatchment 3S: DA 3: CN w/ IC areas

Runoff = 137.53 cfs @ 12.39 hrs, Volume= 722,285 cf, Depth= 9.15"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

	Area (sf)	CN	Description
*	116,506	98	Impervious
	4,930	79	50-75% Grass cover, Fair, HSG C
	592,347	74	>75% Grass cover, Good, HSG C
	169,305	73	Woods, Fair, HSG C
	64,572	70	Woods, Good, HSG C
	947,660	77	Weighted Average
	831,154	74	87.71% Pervious Area
	116,506	98	12.29% Impervious Area
(n	Tc Length nin) (feet)	Slop (ft/	pe Velocity Capacity Description /ft) (ft/sec) (cfs)
2	7.9		Direct Entry, direct

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



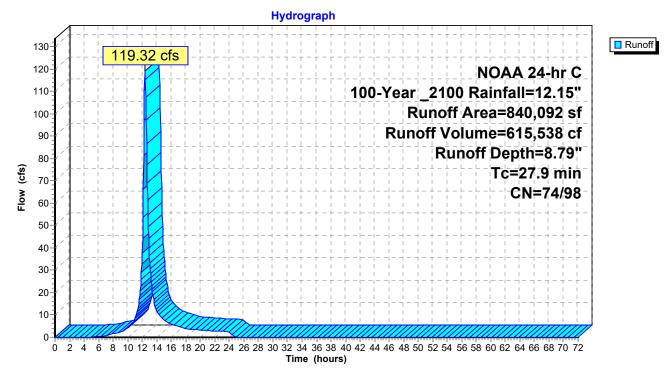
Summary for Subcatchment 3Sa: DA 3: CN w/ IC areas

Runoff = 119.32 cfs @ 12.39 hrs, Volume= 615,538 cf, Depth= 8.79" Routed to Pond 9P : 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= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

	Area (sf)	CN	Description
*	8,938	98	Impervious
	4,930	79	50-75% Grass cover, Fair, HSG C
	592,347	74	>75% Grass cover, Good, HSG C
	169,305	73	Woods, Fair, HSG C
	64,572	70	Woods, Good, HSG C
	840,092	74	Weighted Average
	831,154	74	98.94% Pervious Area
	8,938	98	1.06% Impervious Area
(m	Tc Length in) (feet)	Slop (ft/	
2	7.9		Direct Entry, direct

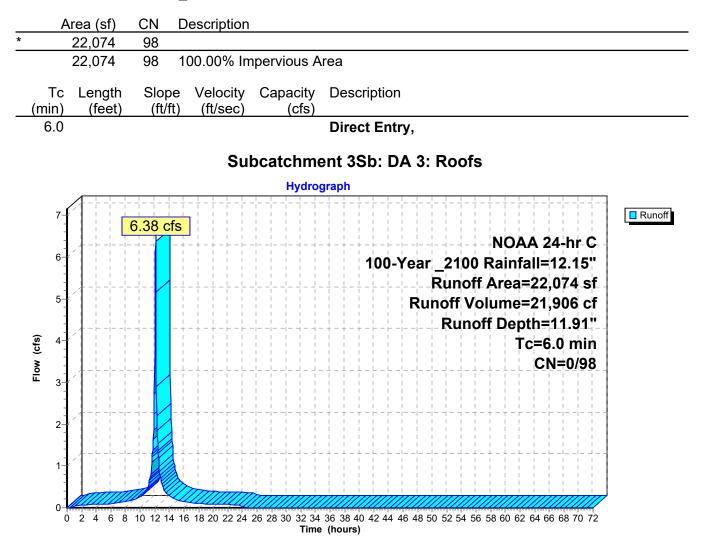
Subcatchment 3Sa: DA 3: CN w/ IC areas



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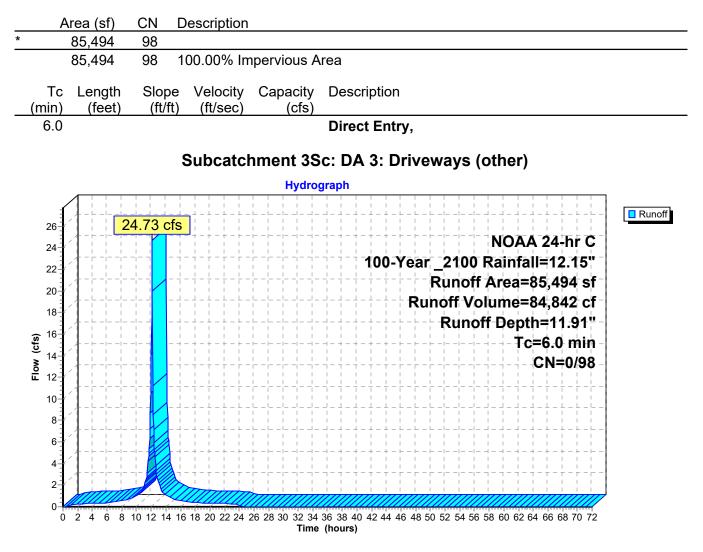
Summary for Subcatchment 3Sb: DA 3: Roofs

Runoff = 6.38 cfs @ 12.13 hrs, Volume= 21,906 cf, Depth=11.91" Routed to Pond 10P : Basic Rain Garden (infiltration only)



Summary for Subcatchment 3Sc: DA 3: Driveways (other)

Runoff = 24.73 cfs @ 12.13 hrs, Volume= 84,842 cf, Depth=11.91" Routed to Pond 11P : Basic Porous Pavement (infiltration only)



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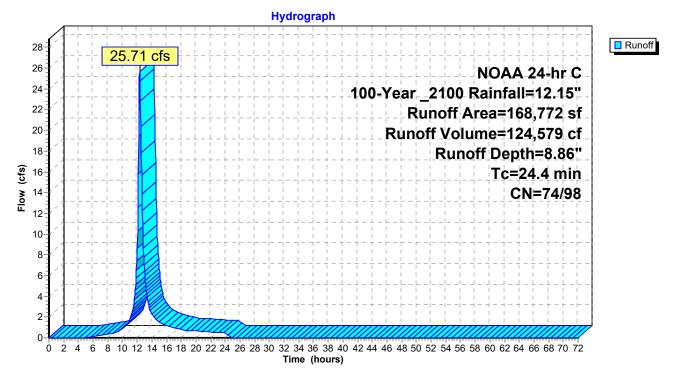
Summary for Subcatchment 4S: DA 4: CN w/ IC areas

Runoff = 25.71 cfs @ 12.34 hrs, Volume= 124,579 cf, Depth= 8.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

	Area (sf)	CN	Description
*	5,300	98	Impervious
	117,799	74	>75% Grass cover, Good, HSG C
	4,778	72	Woods/grass comb., Good, HSG C
	40,895	73	Woods, Fair, HSG C
	168,772	74	Weighted Average
	163,472	74	96.86% Pervious Area
	5,300	98	3.14% Impervious Area
	Tc Length	Slop	
(n	nin) (feet)	(ft/	ft) (ft/sec) (cfs)
2	4.4		Direct Entry, Direct

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



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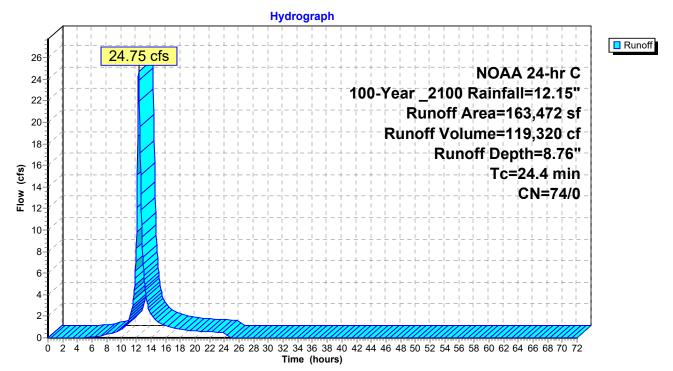
Summary for Subcatchment 4Sa: DA 4: CN w/ IC areas

Runoff = 24.75 cfs @ 12.34 hrs, Volume= 119,320 cf, Depth= 8.76" Routed to Link 4L : DA 4: Combined Flows

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05 NOAA 24-hr C 100-Year _2100 Rainfall=12.15"

	Area (sf)	CN	Description					
*	0	98	98 Impervious					
	117,799	74	>75% Grass	cover, Go	bod, HSG C			
	4,778 72 Woods/grass comb., G				Good, HSG C			
	40,895	73	Woods, Fair	, HSG C				
	163,472	74	Weighted Av	/erage				
	163,472	74	100.00% Pe	rvious Are	a			
Tc (min)	5	Slop (ft/f		Capacity (cfs)	Description			
24.4					Direct Entry, Direct			

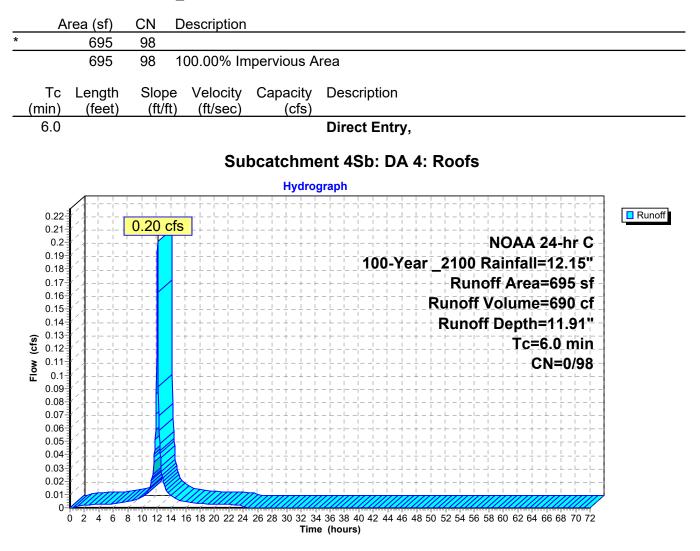
Subcatchment 4Sa: DA 4: CN w/ IC areas



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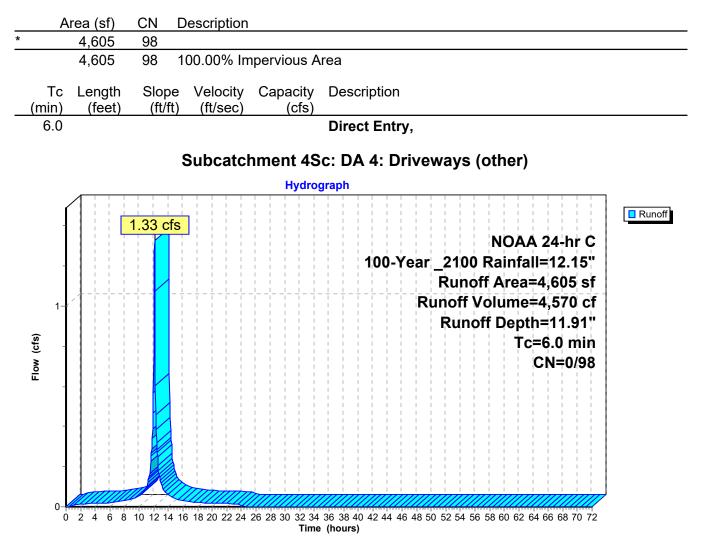
Summary for Subcatchment 4Sb: DA 4: Roofs

Runoff = 0.20 cfs @ 12.13 hrs, Volume= Routed to Link 4L : DA 4: Combined Flows 690 cf, Depth=11.91"



Summary for Subcatchment 4Sc: DA 4: Driveways (other)

Runoff = 1.33 cfs @ 12.13 hrs, Volume= 4,570 cf, Depth=11.91" Routed to Pond 12P : Basic Porous Pavement (infiltration only)



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Summary for Reach 1Ri: Inlet Pipe

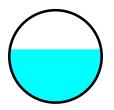
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 549,495 sf, 18.28% Impervious, Inflow Depth = 8.59" for 100-Year _2100 event Inflow = 90.97 cfs @ 12.27 hrs, Volume= 393,184 cf Outflow = 90.54 cfs @ 12.27 hrs, Volume= 393,202 cf, Atten= 0%, Lag= 0.2 min Routed to Pond 4P : Basin 1 Medium Case

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 12.07 fps, Min. Travel Time= 0.1 min Avg. Velocity = 3.73 fps, Avg. Travel Time= 0.4 min

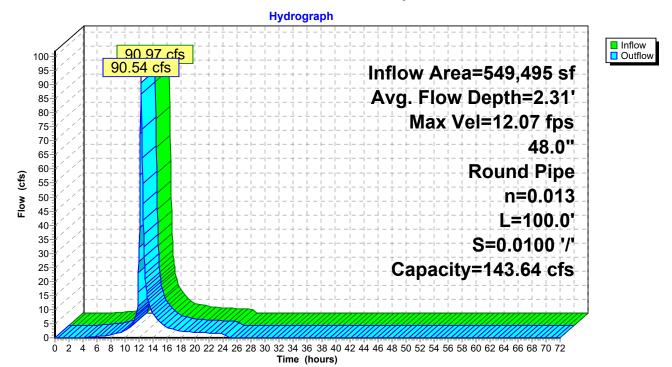
Peak Storage= 750 cf @ 12.27 hrs Average Depth at Peak Storage= 2.31', Surface Width= 3.95' Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 143.64 cfs

48.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 100.0' Slope= 0.0100 '/' Inlet Invert= 75.00', Outlet Invert= 74.00'



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Reach 1Ri: Inlet Pipe



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Summary for Reach 1Ro: outlet

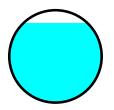
[52] Hint: Inlet/Outlet conditions not evaluated [55] Hint: Peak inflow is 105% of Manning's capacity

Inflow Are	a =	549,495 sf, 18.28% Impervious, Inflow Depth > 8.43" for 100-Year _2100 e	event
Inflow	=	30.73 cfs @ 12.72 hrs, Volume= 385,914 cf	
Outflow	=	30.55 cfs @ 12.81 hrs, Volume= 385,903 cf, Atten= 1%, Lag= 5.0 min	

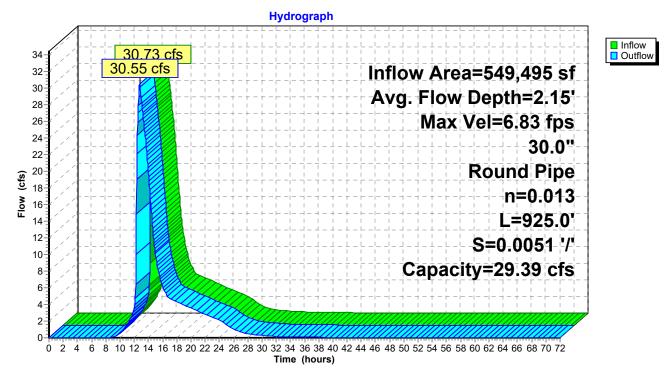
Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Max. Velocity= 6.83 fps, Min. Travel Time= 2.3 min Avg. Velocity = 1.87 fps, Avg. Travel Time= 8.2 min

Peak Storage= 4,160 cf @ 12.77 hrs Average Depth at Peak Storage= 2.15', Surface Width= 1.73' Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 29.39 cfs

30.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 925.0' Slope= 0.0051 '/' Inlet Invert= 70.75', Outlet Invert= 66.00'



Reach 1Ro: outlet



Summary for Reach 2Ri: Inlet Pipe

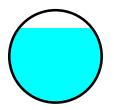
[52] Hint: Inlet/Outlet conditions not evaluated

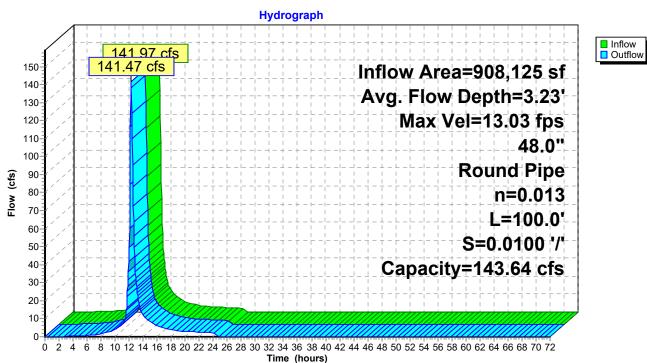
Inflow Area = 908,125 sf, 25.71% Impervious, Inflow Depth = 8.38" for 100-Year _2100 event Inflow = 141.97 cfs @ 12.28 hrs, Volume= 634,068 cf Outflow = 141.47 cfs @ 12.28 hrs, Volume= 634,074 cf, Atten= 0%, Lag= 0.2 min Routed to Pond 8P : Basin 2 Medium Case

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 13.03 fps, Min. Travel Time= 0.1 min Avg. Velocity = 4.26 fps, Avg. Travel Time= 0.4 min

Peak Storage= 1,087 cf @ 12.28 hrs Average Depth at Peak Storage= 3.23', Surface Width= 3.16' Bank-Full Depth= 4.00' Flow Area= 12.6 sf, Capacity= 143.64 cfs

48.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 100.0' Slope= 0.0100 '/' Inlet Invert= 70.00', Outlet Invert= 69.00'





Reach 2Ri: Inlet Pipe

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Summary for Reach 2Ro: Outlet

[52] Hint: Inlet/Outlet conditions not evaluated [88] Warning: Qout>Qin may require smaller dt or Finer Routing

 Inflow Area =
 908,125 sf, 25.71% Impervious, Inflow Depth =
 8.27" for 100-Year _2100 event

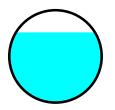
 Inflow =
 101.15 cfs @
 12.40 hrs, Volume=
 626,147 cf

 Outflow =
 101.18 cfs @
 12.48 hrs, Volume=
 626,155 cf, Atten= 0%, Lag= 4.9 min

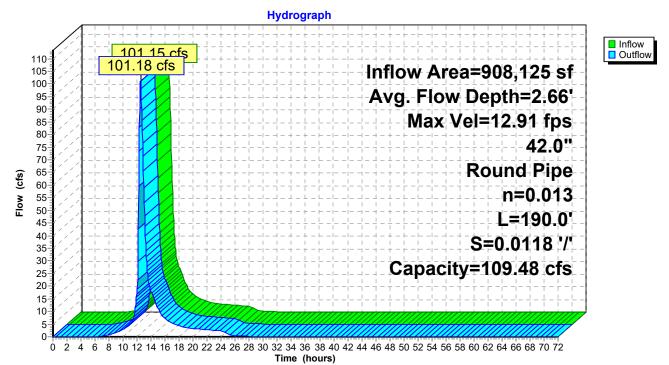
Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Max. Velocity= 12.91 fps, Min. Travel Time= 0.2 min Avg. Velocity = 2.47 fps, Avg. Travel Time= 1.3 min

Peak Storage= 1,489 cf @ 12.48 hrs Average Depth at Peak Storage= 2.66', Surface Width= 2.99' Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 109.48 cfs

42.0" Round Pipe n= 0.013 Concrete pipe, bends & connections Length= 190.0' Slope= 0.0118 '/' Inlet Invert= 65.75', Outlet Invert= 63.50'







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

Inflow Area =	492,891 sf, 8.90% Impervious,	Inflow Depth = 9.04" for 100-Year _2100 event
Inflow =	83.71 cfs @ 12.29 hrs, Volume=	371,277 cf
Outflow =	83.64 cfs @ 12.29 hrs, Volume=	370,315 cf, Atten= 0%, Lag= 0.1 min
	12.79 cfs @ 12.29 hrs, Volume=	242,221 cf
Routed to Link	1L : Combined Flows	
Secondary =	46.94 cfs @ 12.29 hrs, Volume=	104,239 cf
Routed to Link	1L : Combined Flows	
	23.91 cfs @ 12.29 hrs, Volume=	23,855 cf
Routed to Link	C1L : Combined Flows	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 100.76' @ 12.29 hrs Surf.Area= 6,125 sf Storage= 14,082 cf

Plug-Flow detention time= 11.7 min calculated for 370,315 cf (100% of inflow) Center-of-Mass det. time= 9.7 min (817.6 - 807.9)

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 9.00 - 15.635 cf. Total Available Storage

 $1,737 \text{ cf} \times 9.00 = 15,635 \text{ cf}$ Total Available Storage

Storage Group A created with Chamber Wizard

Elevatio (fee		Surf.Area (sq-ft)	Void %)		Cum.Store (cubic-feet)	Wet.Area		
	1			/ /		(sq-ft)		
97.7		175	0.		0	175		
98.2	-	175	35.		31	198		
99.2	-	175	35.		92	245		
99.8		175	25.		103	257		
100.0	00	175	100.) 88	190	281		
100.5	51	175	100.) 89	280	304		
101.7	75	175	100.) 217	497	363		
Device	Routing	In	vert	Outlet Devices				
#1	Primary	94	17'	6.0" Round Culve	ert X 9.00 L= 10.0'	Ke= 0.500		
	,			Inlet / Outlet Invert=	= 94.17' / 94.12' S	= 0.0050 '/' Cc= 0.900		
				n= 0.020 Corrugate	ed PE. corrugated	interior, Flow Area= 0.20 sf		
#2	Device 1	94	.33'	6.0" Round 6" HDPE Underdrain X 9.00 L= 32.0' Ke= 0.500				
		001 04.00		Inlet / Outlet Invert= 94.33' / 94.17' S= 0.0050 '/' Cc= 0.900				
						interior, Flow Area= 0.20 sf		
#3	Seconda	rv 100).00'	0		ted Rectangular Weir X 9.00		
#5	Seconda	iy 100	.00	•		•		
					0.40 0.00 0.00 1.0	00 1.20 1.40 1.60 1.80 2.00		
				2.50 3.00 3.50				
				(e)		2.66 2.70 2.77 2.89 2.88		
				2.85 3.07 3.20 3.3	32			

#4 Tertiary 100.50' 6.0' long Sharp-Crested Rectangular Weir X 9.00 2 End Contraction(s)

Primary OutFlow Max=12.79 cfs @ 12.29 hrs HW=100.76' (Free Discharge) 1=Culvert (Passes 12.79 cfs of 19.14 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 12.79 cfs @ 7.24 fps)

Secondary OutFlow Max=46.65 cfs @ 12.29 hrs HW=100.76' (Free Discharge) —3=Broad-Crested Rectangular Weir (Weir Controls 46.65 cfs @ 2.27 fps)

Tertiary OutFlow Max=23.36 cfs @ 12.29 hrs HW=100.76' (Free Discharge) **4=Sharp-Crested Rectangular Weir** (Weir Controls 23.36 cfs @ 1.67 fps)

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

Chamber Model = ADS_StormTechSC-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

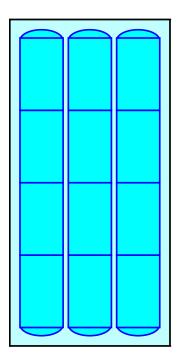
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

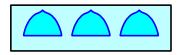
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

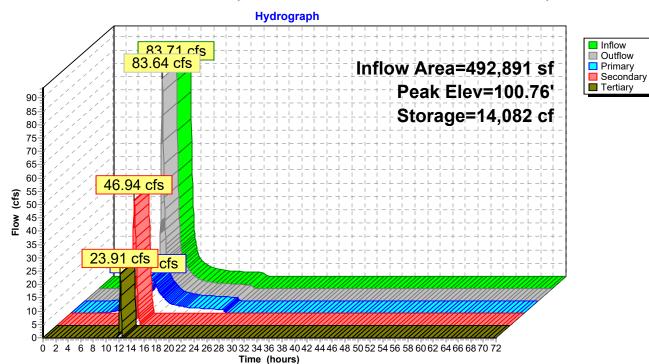
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

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

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: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	21,359 sf,100.00% Impervious,	Inflow Depth = 11.91" for 100-Year 2100 event					
Inflow =	6.18 cfs @ 12.13 hrs, Volume=	21,196 cf					
Outflow =	5.70 cfs @ 12.16 hrs, Volume=	21,196 cf, Atten= 8%, Lag= 1.8 min					
Discarded =	0.06 cfs @ 11.40 hrs, Volume=	8,049 cf					
Primary =	5.64 cfs @ 12.16 hrs, Volume=	13,147 cf					
Routed to Link 1L : Combined Flows							

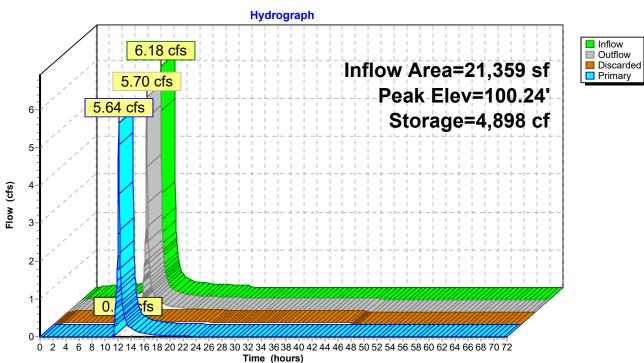
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.24' @ 12.16 hrs Surf.Area= 5,000 sf Storage= 4,898 cf

Plug-Flow detention time= 274.1 min calculated for 21,196 cf (100% of inflow) Center-of-Mass det. time= 274.0 min (1,011.2 - 737.1)

Volume	Invert	Ava	il.Storage	Storage Descrip	Storage Description			
#1	98.25'		622 cf	Custom Stage	Data (Conic)Listed	below (Recalc)		
			622 cf	x 10.00 = 6,22	20 cf Total Availab	le Storage		
Elevation (feet)		ırf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)		
98.25		374	0.0	0	0	374		
99.25	5	374	35.0	131	131	443		
99.50)	374	25.0	23	154	460		
100.00)	500	100.0	218	372	591		
100.25	5	500	100.0	125	497	611		
100.50		500	100.0	125	622	631		
#1	Routing Discarded Primary	98	0.25' 0.5 0.00' 2.0' Hea 2.50 Coe	' long x 3.0' brea ad (feet) 0.20 0.4 0 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2	rea d Rectangular Weir X 10.00 1.20 1.40 1.60 1.80 2.00 2.65 2.64 2.64 2.68 2.68		

Discarded OutFlow Max=0.06 cfs @ 11.40 hrs HW=100.01' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=5.55 cfs @ 12.16 hrs HW=100.23' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 5.55 cfs @ 1.19 fps)



Pond 2P: Basic Rain Garden (infiltration only)

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

35,245 sf,100.00% Impervious, Inflow Depth = 11.91" for 100-Year 2100 event Inflow Area = Inflow 10.19 cfs @ 12.13 hrs, Volume= 34.976 cf = 9.83 cfs @ 12.14 hrs, Volume= Outflow = 35,294 cf, Atten= 4%, Lag= 1.0 min 0.41 cfs @ 10.05 hrs, Volume= Discarded = 25.572 cf 9.43 cfs @ 12.14 hrs, Volume= Primary = 9,722 cf Routed to Link 1L : Combined Flows

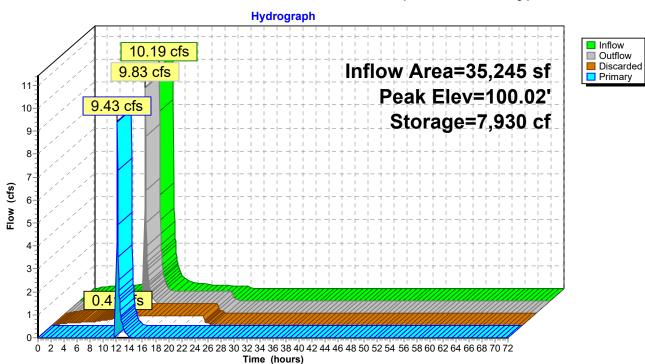
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 100.02' @ 12.15 hrs Surf.Area= 35,245 sf Storage= 7,930 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow) Center-of-Mass det. time= 101.5 min (838.6 - 737.1)

Volume	Inver	t Avail	.Storage	Storage Descri	ption	
#1	99.25	' 1	16,001 cf	Custom Stage	Data (Prismatic)	Listed below (Recalc)
Elevatio (fee 99.2 99.7 99.8 100.0 100.2	et) 25 75 33 01	(sq-ft) 35,245 35,245 35,245 35,245 35,245	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 6,168 423 952 8,459	Cum.Store (cubic-feet) 0 6,168 6,591 7,542 16,001	
Device	Routing	Inv	ert Outle	et Devices		
#1 #2	Discarded Primary	99. 100.	.00' 15.0 Head 2.50 Coef	long x 1.0' bre d (feet) 0.20 0.4 3.00	40 0.60 0.80 1.0	area prous Asphalt X 76.00 00 1.20 1.40 1.60 1.80 2.00 2.98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=0.41 cfs @ 10.05 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.41 cfs)

Primary OutFlow Max=9.15 cfs @ 12.14 hrs HW=100.02' (Free Discharge) ←2=Edge of Porous Asphalt (Weir Controls 9.15 cfs @ 0.39 fps)



Pond 3P: Basic Porous Pavement (infiltration only)

Summary for Pond 4P: Basin 1 Medium Case

[63] Warning: Exceeded Reach 1Ri INLET depth by 2.81' @ 12.95 hrs

Inflow Area = 549,495 sf, 18.28% Impervious, Inflow Depth = 8.59" for 100-Year 2100 event 90.54 cfs @ 12.27 hrs, Volume= Inflow = 393.202 cf Outflow = 30.73 cfs @ 12.72 hrs, Volume= 385,914 cf, Atten= 66%, Lag= 27.0 min Primary = 7.72 cfs @ 12.72 hrs, Volume= 229,725 cf Routed to Reach 1Ro : outlet Secondary = 21.21 cfs @ 12.72 hrs, Volume= 154.469 cf Routed to Reach 1Ro : outlet Tertiary = 1.79 cfs @ 12.72 hrs, Volume= 1,720 cf Routed to Reach 1Ro : outlet

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 78.92' @ 12.72 hrs Surf.Area= 39,293 sf Storage= 159,557 cf

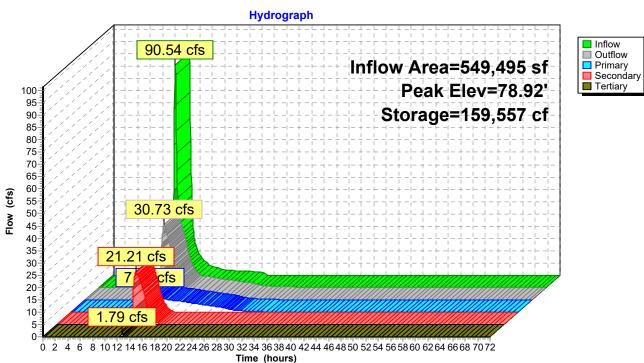
Plug-Flow detention time= 157.4 min calculated for 385,914 cf (98% of inflow) Center-of-Mass det. time= 145.9 min (960.8 - 814.9)

Volume	Invert	Avail.Sto	rage Storage	e Description	
#1	74.00'	162,84	40 cf Custor	n Stage Data (Pr	ismatic) Listed below (Recalc)
Elevatio (fee	et)	rf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
74.(25,611	0	0	
79.0	00	39,525	162,840	162,840	
Device	Routing	Invert	Outlet Device	es	
#1	Primary	74.25'		ow Flow Orifice	
	a 1	70.05		eir flow at low hea	
#2	Secondary	76.25'		2.0" H Vert. 2-YR eir flow at low hea	Orifice X 2.00 C= 0.600
#3	Tertiary	78.75'	24.0" x 24.0	" Horiz. Orifice/G eir flow at low hea	Grate C= 0.600

Primary OutFlow Max=7.72 cfs @ 12.72 hrs HW=78.91' (Free Discharge) —1=Low Flow Orifice (Orifice Controls 7.72 cfs @ 9.83 fps)

Secondary OutFlow Max=21.20 cfs @ 12.72 hrs HW=78.91' (Free Discharge) 2=2-YR Orifice (Orifice Controls 21.20 cfs @ 7.07 fps)

Tertiary OutFlow Max=1.74 cfs @ 12.72 hrs HW=78.91' (Free Discharge) **3=Orifice/Grate** (Weir Controls 1.74 cfs @ 1.33 fps)



Pond 4P: Basin 1 Medium Case

Summary for Pond 5P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Inflow Area =	759,404 sf, 11.16% Impervious,	Inflow Depth = 9.11" for 100-Year _2100 event
Inflow =	123.91 cfs @ 12.31 hrs, Volume=	576,541 cf
Outflow =	123.85 cfs @ 12.31 hrs, Volume=	575,341 cf, Atten= 0%, Lag= 0.1 min
	14.34 cfs @ 12.31 hrs, Volume=	340,579 cf
Routed to Li	nk 2L : Combined Flows	
	64.62 cfs @ 12.31 hrs, Volume=	176,717 cf
Routed to Li	nk 2L : Combined Flows	
	44.88 cfs @ 12.31 hrs, Volume=	58,045 cf
Routed to Li	nk 2L : Combined Flows	

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 100.88' @ 12.31 hrs Surf.Area= 6,805 sf Storage= 15,844 cf

Plug-Flow detention time= 10.0 min calculated for 574,942 cf (100% of inflow) Center-of-Mass det. time= 8.7 min (816.6 - 807.8)

Volume	Invert	Avail.Storage	Storage Description
#1	97.75'	365 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
		1 606 cf	x 10.00 - 16.060 cf. Total Available Storage

 $1,606 \text{ cf} \times 10.00 = 16,060 \text{ cf}$ Total Available Storage

Storage Group A created with Chamber Wizard

Elevatio		Surf.Area (sq-ft)	Void %)		Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
			0.	· · · ·	0	175	
98.2		175	35.		31	198	
99.2	-	175	35.		92	245	
99.5	-	175	25.		103	257	
100.0	00	175	100.	0 88	190	281	
100.5	51	175	100.	0 89	280	304	
101.0	00	175	100.	0 86	365	327	
Device	Routing	In	vert	Outlet Devices			
#1	Primary	94	1.17'	6.0" Round Culve	rt X 10.00 L= 10.0)' Ke= 0.500	
	,			Inlet / Outlet Invert=	94.17'/94.12' S	= 0.0050 '/' Cc= 0.900	
				n= 0.020 Corrugate	ed PE, corrugated	interior, Flow Area= 0.20 sf	
#2	Device 1	94	.33'	6.0" Round 6" HDPE Underdrain X 10.00 L= 32.0' Ke= 0.500			
			Inlet / Outlet Invert= 94.33' / 94.17' S= 0.0050 '/' Cc= 0.900				
	- ·			0		interior, Flow Area= 0.20 sf	
#3	Seconda	ry 100).00'	•		ted Rectangular Weir X 10.00	
					.40 0.60 0.80 1.0	00 1.20 1.40 1.60 1.80 2.00	
				2.50 3.00 3.50	1 2 61 2 61 2 60	266 270 277 280 288	
				2.85 3.07 3.20 3.3		2.66 2.70 2.77 2.89 2.88	
				2.00 0.07 0.20 0.0	<i>JL</i>		

#4 Tertiary 100.50' **6.0' long Sharp-Crested Rectangular Weir X 10.00** 2 End Contraction(s)

Primary OutFlow Max=14.34 cfs @ 12.31 hrs HW=100.87' (Free Discharge) 1=Culvert (Passes 14.34 cfs of 21.46 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 14.34 cfs @ 7.30 fps)

Secondary OutFlow Max=64.21 cfs @ 12.31 hrs HW=100.87' (Free Discharge) —3=Broad-Crested Rectangular Weir (Weir Controls 64.21 cfs @ 2.45 fps)

Tertiary OutFlow Max=44.22 cfs @ 12.31 hrs HW=100.87' (Free Discharge) **4=Sharp-Crested Rectangular Weir** (Weir Controls 44.22 cfs @ 2.00 fps)

ond 5P: 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

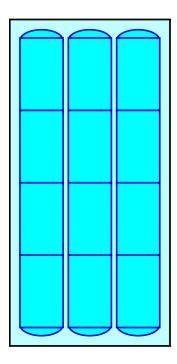
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

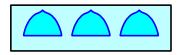
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

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

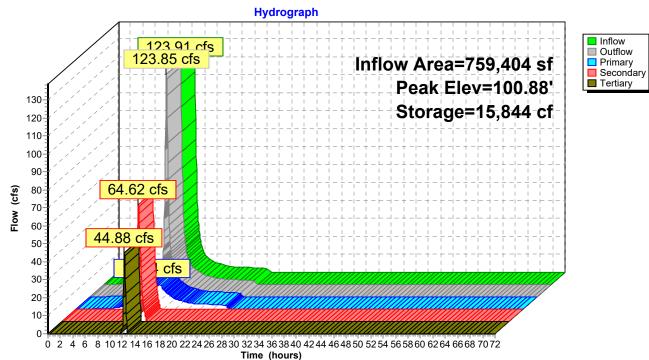
Chamber Storage + Stone Storage = 1,240.7 cf = 0.028 af Overall Storage Efficiency = 54.5%Overall System Size = $32.10' \times 15.75' \times 4.50'$

12 Chambers 84.3 cy Field 63.8 cy Stone









Summary for Pond 6P: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	53,997 sf,100.00% Impervious,	Inflow Depth = 11.91" for 100-Year 2100 event					
Inflow =	15.62 cfs @ 12.13 hrs, Volume=	53,585 cf					
Outflow =	14.28 cfs @ 12.15 hrs, Volume=	53,588 cf, Atten= 9%, Lag= 1.7 min					
Discarded =	0.14 cfs @ 11.35 hrs, Volume=	20,133 cf					
Primary =	14.14 cfs @ 12.15 hrs, Volume=	33,455 cf					
Routed to Link 2L : Combined Flows							

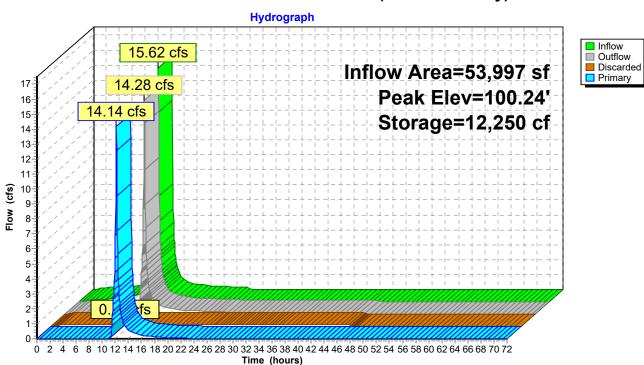
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 100.24' @ 12.15 hrs Surf.Area= 12,500 sf Storage= 12,250 cf

Plug-Flow detention time= 270.8 min calculated for 53,551 cf (100% of inflow) Center-of-Mass det. time= 271.6 min (1,008.7 - 737.1)

Volume	Invert	Ava	il.Storage	Storage Description			
#1	98.25'		622 cf	Custom Stage	Data (Conic)Listed	below (Recalc)	
			622 cf	x 25.00 = 15,5	50 cf Total Availab	le Storage	
Elevatic (fee		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
98.2	-	374	0.0	0	0	374	
99.2	25	374	35.0	131	131	443	
99.5	50	374	25.0	23	154	460	
100.0	00	500	100.0	218	372	591	
100.2	25	500	100.0	125	497	611	
100.5	50	500	100.0	125	622	631	
Device #1 #2	Routing Discarded Primary	98	2.25' 0.50 0.00' 2.0' Hea 2.50 Coe	long x 3.0' bread id (feet) 0.20 0.4 0 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2.	ea I Rectangular Weir X 25.00 1.20 1.40 1.60 1.80 2.00 65 2.64 2.64 2.68 2.68	

Discarded OutFlow Max=0.14 cfs @ 11.35 hrs HW=100.00' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=13.98 cfs @ 12.15 hrs HW=100.23' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 13.98 cfs @ 1.19 fps)



Pond 6P: Basic Rain Garden (infiltration only)

Summary for Pond 7P: Basic Porous Pavement (infiltration only)

94,724 sf,100.00% Impervious, Inflow Depth = 11.91" for 100-Year 2100 event Inflow Area = Inflow 27.40 cfs @ 12.13 hrs, Volume= 94.002 cf = 25.19 cfs @ 12.17 hrs, Volume= Outflow = 94,002 cf, Atten= 8%, Lag= 2.6 min 1.10 cfs @ 10.05 hrs, Volume= Discarded = 68,729 cf Primary = 24.09 cfs @ 12.17 hrs, Volume= 25,272 cf Routed to Link 2L : Combined Flows

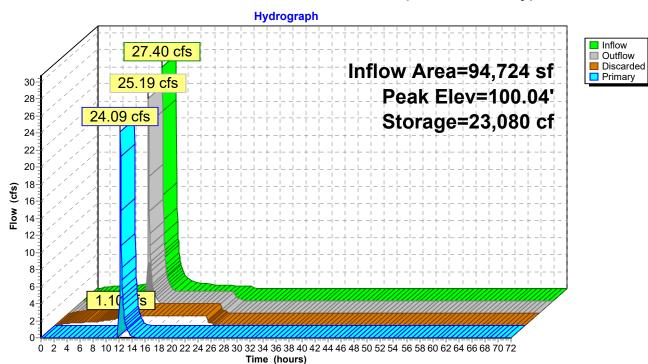
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.04' @ 12.17 hrs Surf.Area= 94,724 sf Storage= 23,080 cf

Plug-Flow detention time= 102.9 min calculated for 93,936 cf (100% of inflow) Center-of-Mass det. time= 102.8 min (840.0 - 737.1)

Volume	Inver	t Avail	.Storage	Storage Descri	ption	
#1	99.25	' 4	13,005 cf	Custom Stage	Data (Prismatic)	Listed below (Recalc)
Elevatio (fee 99.2 99.7 99.8 100.0 100.2	et) 25 75 33 01	(sq-ft) 94,724 94,724 94,724 94,724 94,724	Voids (%) 0.0 35.0 15.0 15.0 100.0	Inc.Store (cubic-feet) 0 16,577 1,137 2,558 22,734	Cum.Store (cubic-feet) 0 16,577 17,713 20,271 43,005	
Device	Routing	Inv	ert Outle	et Devices		
#1 #2	Discarded Primary	99. 100.	00' 15.0 Head 2.50 Coef	' long x 1.0' bro d (feet) 0.20 0.4 3.00	40 0.60 0.80 1.0	area rous Asphalt X 76.00 0 1.20 1.40 1.60 1.80 2.00 2.98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=1.10 cfs @ 10.05 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 1.10 cfs)

Primary OutFlow Max=22.16 cfs @ 12.17 hrs HW=100.04' (Free Discharge) -2=Edge of Porous Asphalt (Weir Controls 22.16 cfs @ 0.52 fps)



Pond 7P: Basic Porous Pavement (infiltration only)

Summary for Pond 8P: Basin 2 Medium Case

[63] Warning: Exceeded Reach 2Ri INLET depth by 1.84' @ 12.65 hrs

Inflow Area = 908,125 sf, 25.71% Impervious, Inflow Depth = 8.38" for 100-Year 2100 event 141.47 cfs @ 12.28 hrs, Volume= Inflow = 634.074 cf Outflow = 101.15 cfs @ 12.40 hrs, Volume= 626,147 cf, Atten= 29%, Lag= 6.9 min Primary = 34.01 cfs @ 12.40 hrs, Volume= 447,640 cf Routed to Reach 2Ro : Outlet Secondary = 60.82 cfs @ 12.40 hrs. Volume= 174.083 cf Routed to Reach 2Ro : Outlet Tertiary = 6.32 cfs @ 12.40 hrs, Volume= 4,424 cf Routed to Reach 2Ro : Outlet

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 73.99' @ 12.40 hrs Surf.Area= 31,208 sf Storage= 125,095 cf

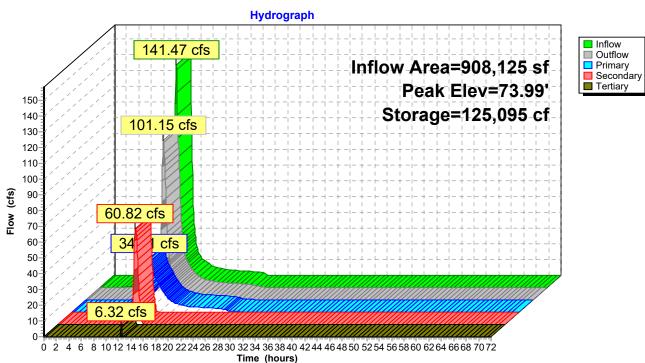
Plug-Flow detention time= 48.6 min calculated for 625,713 cf (99% of inflow) Center-of-Mass det. time= 41.7 min (853.9 - 812.2)

Volume	Invert	Avail.Sto	rage Stora	ge Description	
#1	69.00'	125,28	B0 cf Custo	om Stage Data (Pr	ismatic)Listed below (Recalc)
Elevatio (fee	et)	f.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
69.0 74.0		8,889 1,223	0 125,280	0 125,280	
74.0	JU 3	1,223	125,200	125,200	
Device	Routing	Invert	Outlet Devi	ces	
#1	Primary	69.25'		Low Flow Orifice veir flow at low hea	
#2	Secondary	71.25'		18.0" H Vert. 2-YR veir flow at low hea	Orifice X 3.00 C= 0.600
#3	Tertiary	73.75'	48.0" x 48.	0" Horiz. Orifice/G veir flow at low hea	Grate C= 0.600

Primary OutFlow Max=34.01 cfs @ 12.40 hrs HW=73.99' (Free Discharge) **1=Low Flow Orifice** (Orifice Controls 34.01 cfs @ 9.62 fps)

Secondary OutFlow Max=60.82 cfs @ 12.40 hrs HW=73.99' (Free Discharge) 2=2-YR Orifice (Orifice Controls 60.82 cfs @ 6.76 fps)

Tertiary OutFlow Max=6.31 cfs @ 12.40 hrs HW=73.99' (Free Discharge) **3=Orifice/Grate** (Weir Controls 6.31 cfs @ 1.62 fps)



Pond 8P: Basin 2 Medium Case

Summary for Pond 9P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

[93] Warning: Storage range exceeded by 0.24'[88] Warning: Qout>Qin may require smaller dt or Finer Routing

840,092 sf, 1.06% Impervious, Inflow Depth = 8.79" for 100-Year 2100 event Inflow Area = Inflow 119.32 cfs @ 12.39 hrs, Volume= 615,538 cf = 119.49 cfs @ 12.39 hrs, Volume= 615,321 cf, Atten= 0%, Lag= 0.1 min Outflow = Primarv = 3.12 cfs @ 12.39 hrs, Volume= 165,622 cf Routed to Link 3L : dA3 48.23 cfs @ 12.39 hrs, Volume= Secondary = 262,726 cf Routed to Link 3L : dA3 Tertiary = 68.15 cfs @ 12.39 hrs, Volume= 186,973 cf Routed to Link 3L : dA3

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 101.99' @ 12.39 hrs Surf.Area= 1,361 sf Storage= 3,475 cf

Plug-Flow detention time= 4.8 min calculated for 614,894 cf (100% of inflow) Center-of-Mass det. time= 4.6 min (826.7 - 822.1)

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
		1 727 of	x 2.00 = 3.475 of Total Available Storage

1,737 cf x 2.00 = 3,475 cf Total Available Storage

Storage Group A created with Chamber Wizard

Elevatio (fee		Surf.Area (sq-ft)	Void %)		Cum.Store (cubic-feet)	Wet.Area (sq-ft)
97.7		175	0.	//	0	175
98.2		175	35.		31	198
99.2	25	175	35.) 61	92	245
99.5	50	175	25.) 11	103	257
100.0	00	175	100.) 88	190	281
100.5	51	175	100.) 89	280	304
101.7	75	175	100.) 217	497	363
Device	Routing	In	vert	Outlet Devices		
#1	Primary	94	17'	6.0" Round Culve	ert X 2.00 L= 10.0	Ke= 0.500
						S= 0.0050 '/' Cc= 0.900
						interior, Flow Area= 0.20 sf
#2	Device 1	94	.33'	6.0" Round 6" HD	PE Underdrain X	2.00 L= 32.0' Ke= 0.500
					• •	S= 0.0050 '/' Cc= 0.900
						interior, Flow Area= 0.20 sf
#3	Seconda	ry 100).00'			sted Rectangular Weir X 2.00
				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
 2.60
 2.66
 2.70
 2.77
 2.89
 2.88

 #4
 Tertiary
 100.50'
 6.0' long Sharp-Crested Rectangular Weir X 2.00
 2 End Contraction(s)

Primary OutFlow Max=3.12 cfs @ 12.39 hrs HW=101.99' (Free Discharge) 1=Culvert (Passes 3.12 cfs of 4.66 cfs potential flow) 2=6" HDPE Underdrain (Barrel Controls 3.12 cfs @ 7.93 fps)

Secondary OutFlow Max=48.02 cfs @ 12.39 hrs HW=101.99' (Free Discharge) -3=Broad-Crested Rectangular Weir (Weir Controls 48.02 cfs @ 4.02 fps)

Tertiary OutFlow Max=67.80 cfs @ 12.39 hrs HW=101.99' (Free Discharge) **4=Sharp-Crested Rectangular Weir** (Weir Controls 67.80 cfs @ 3.99 fps)

ond 9P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration) - Chamber Wizard Fi

Chamber Model = ADS_StormTechSC-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

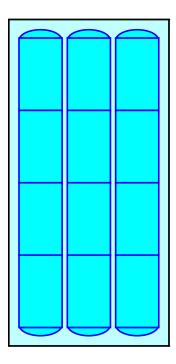
4 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 30.10' Row Length +12.0" End Stone x 2 = 32.10' Base Length 3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width 18.0" Stone Base + 30.0" Chamber Height + 6.0" Stone Cover = 4.50' Field Height

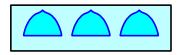
12 Chambers x 45.9 cf = 551.3 cf Chamber Storage

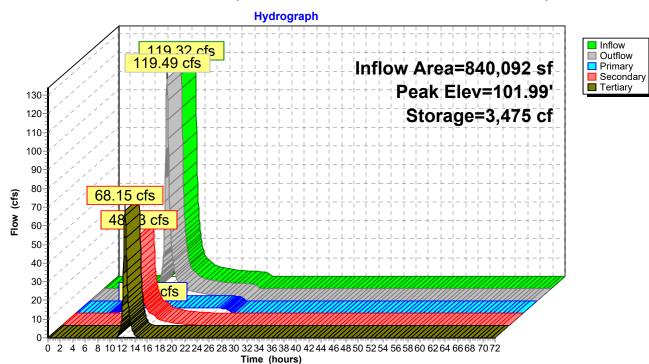
2,274.9 cf Field - 551.3 cf Chambers = 1,723.6 cf Stone x 40.0% Voids = 689.4 cf Stone Storage

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

12 Chambers 84.3 cy Field 63.8 cy Stone







Pond 9P: Basic Rain Garden (w/ underdrain w/ 0.5" restrictive orifice), no infiltration)

Summary for Pond 10P: Basic Rain Garden (infiltration only)

Assumes infiltration through media is non-limiting.

Inflow Area =	22,074 sf,100.00% Impervious,	Inflow Depth = 11.91" for 100-Year _2100 event
Inflow =	6.38 cfs @ 12.13 hrs, Volume=	21,906 cf
Outflow =	5.88 cfs @ 12.15 hrs, Volume=	21,905 cf, Atten= 8%, Lag= 1.6 min
Discarded =	0.05 cfs @ 11.05 hrs, Volume=	7,291 cf
Primary =	5.82 cfs @ 12.15 hrs, Volume=	14,614 cf
Routed to Link	3L : dA3	

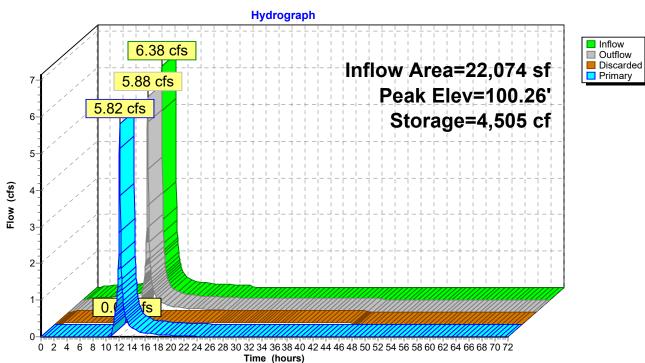
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 2 Peak Elev= 100.26' @ 12.15 hrs Surf.Area= 4,500 sf Storage= 4,505 cf

Plug-Flow detention time= 245.7 min calculated for 21,905 cf (100% of inflow) Center-of-Mass det. time= 245.6 min (982.7 - 737.1)

Volume	Invert	Ava	il.Storage	Storage Descrip	tion	
#1	98.25'		622 cf	Custom Stage	Data (Conic)Listed	below (Recalc)
			622 cf	x 9.00 = 5,598	cf Total Available	Storage
Elevation (feet)		ırf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
98.25	5	374	0.0	0	0	374
99.25	5	374	35.0	131	131	443
99.50)	374	25.0	23	154	460
100.00)	500	100.0	218	372	591
100.25	5	500	100.0	125	497	611
100.50		500	100.0	125	622	631
#1	Routing Discarded Primary	98	3.25' 0.50 3.00' 2.0' Hea 2.50 Coe	long x 3.0' bread id (feet) 0.20 0.4 0 3.00 3.50 4.00	0 0.60 0.80 1.00 4.50 2.58 2.68 2.67 2.	ea I Rectangular Weir X 9.00 1.20 1.40 1.60 1.80 2.00 65 2.64 2.64 2.68 2.68

Discarded OutFlow Max=0.05 cfs @ 11.05 hrs HW=100.01' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=5.78 cfs @ 12.15 hrs HW=100.26' (Free Discharge) ←2=Broad-Crested Rectangular Weir (Weir Controls 5.78 cfs @ 1.25 fps)



Pond 10P: Basic Rain Garden (infiltration only)

Summary for Pond 11P: Basic Porous Pavement (infiltration only)

85,494 sf,100.00% Impervious, Inflow Depth = 11.91" for 100-Year 2100 event Inflow Area = Inflow 24.73 cfs @ 12.13 hrs, Volume= 84.842 cf = 23.25 cfs @ 12.17 hrs, Volume= Outflow = 84,842 cf, Atten= 6%, Lag= 2.5 min 0.99 cfs @ 10.05 hrs, Volume= Discarded = 62.032 cf Primary = 22.27 cfs @ 12.17 hrs, Volume= 22,810 cf Routed to Link 3L : dA3

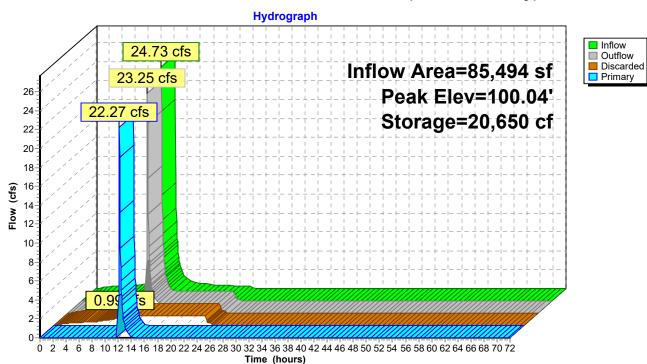
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs Peak Elev= 100.04' @ 12.17 hrs Surf.Area= 85,494 sf Storage= 20,650 cf

Plug-Flow detention time= 102.8 min calculated for 84,783 cf (100% of inflow) Center-of-Mass det. time= 102.8 min (839.9 - 737.1)

Volume	Inver	t Avail	.Storage	Storage Descri	ption	
#1	99.25	' 3	38,814 cf	Custom Stage	Data (Prismatic)	Listed below (Recalc)
Elevatio (fee 99.2 99.7 99.8 100.0	et) 25 75 83 01	(sq-ft) 85,494 85,494 85,494 85,494	Voids (%) 0.0 35.0 15.0 15.0	Inc.Store (cubic-feet) 0 14,961 1,026 2,308	Cum.Store (cubic-feet) 0 14,961 15,987 18,296	
100.2	25	85,494	100.0	20,519	38,814	
Device	Routing	Inv	ert Outle	et Devices		
#1 #2	Discarded Primary	99. 100.	.00' 15.0 Head 2.50 Coef	long x 1.0' bre d (feet) 0.20 0.4 3.00	40 0.60 0.80 1.0	area brous Asphalt X 76.00 00 1.20 1.40 1.60 1.80 2.00 2.98 3.08 3.20 3.28 3.31

Discarded OutFlow Max=0.99 cfs @ 10.05 hrs HW=99.26' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.99 cfs)

Primary OutFlow Max=20.45 cfs @ 12.17 hrs HW=100.04' (Free Discharge) ←2=Edge of Porous Asphalt (Weir Controls 20.45 cfs @ 0.51 fps)





Summary for Pond 12P: Basic Porous Pavement (infiltration only)

4,605 sf,100.00% Impervious, Inflow Depth = 11.91" for 100-Year 2100 event Inflow Area = Inflow = 1.33 cfs @ 12.13 hrs, Volume= 4.570 cf 1.33 cfs @ 12.13 hrs, Volume= Outflow = 4,577 cf, Atten= 0%, Lag= 0.0 min 0.05 cfs @ 10.10 hrs, Volume= Discarded = 3.333 cf Primary = 1.28 cfs @ 12.13 hrs, Volume= 1,244 cf Routed to Link 4L : DA 4: Combined Flows

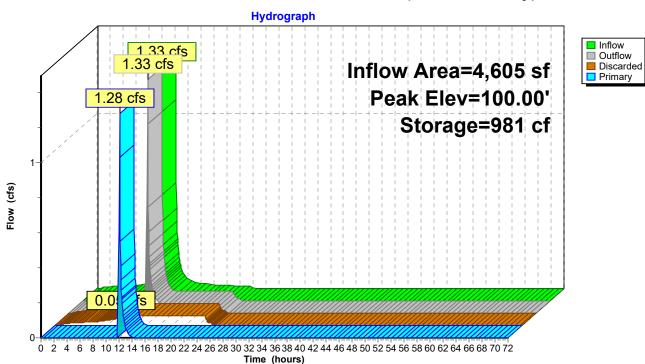
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 100.00' @ 12.15 hrs Surf.Area= 4,605 sf Storage= 981 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow) Center-of-Mass det. time= 102.8 min (839.9 - 737.1)

Volume	Invert	Avai	il.Storage	Storage Descri	ption			
#1	99.25'		4,393 cf	Custom Stage	e Data (Prismatic	Listed below (Recalc)		
_					a a <i>i</i>			
Elevatio		urf.Area	Voids	Inc.Store	Cum.Store			
(fee	et)	(sq-ft)	(%)	(cubic-feet)	(cubic-feet)			
99.2	25	4,605	0.0	0	0			
99.7	75	4,605	35.0	806	806			
99.8	33	4,605	15.0	55	861			
100.0	01	4,605	15.0	124	985			
100.2	25	4,605	100.0	1,105	2,091			
100.7	75	4,605	100.0	2,303	4,393			
		,		,				
Device	Routing	In	vert Out	let Devices				
#1	Discarded	99	.25' 0.5	00 in/hr Exfiltrati	ion over Surface	area		
#2	Primary	100	.00' 15.	0' lona x 1.0' bre	eadth Edge of Po	prous Asphalt X 76.00		
	,					00 1.20 1.40 1.60 1.80 2.00		
				0 3.00				
			-		272 275 285	2.98 3.08 3.20 3.28 3.31		
				0 3.31 3.32	2.00			
			0.0	0.010				
Discord	Discourded OutFlow Max -0.05 of a 2010 bra LIW/-00.27 (Free Discharge)							

Discarded OutFlow Max=0.05 cfs @ 10.10 hrs HW=99.27' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.78 cfs @ 12.13 hrs HW=100.00' (Free Discharge) 2=Edge of Porous Asphalt (Weir Controls 0.78 cfs @ 0.17 fps)

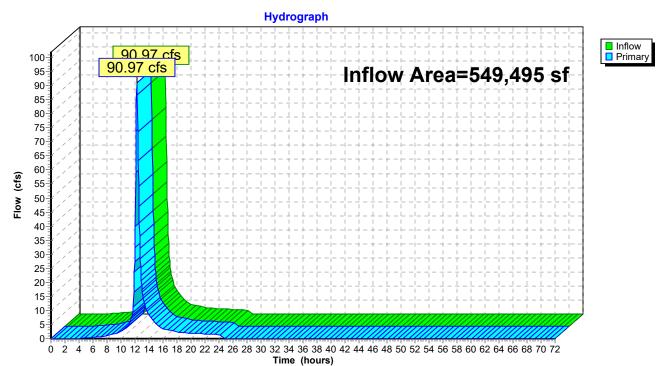


Pond 12P: Basic Porous Pavement (infiltration only)

Summary for Link 1L: Combined Flows

Inflow Area = 549,495 sf, 18.28% Impervious, Inflow Depth = 8.59" for 100-Year _2100 event Inflow = 90.97 cfs @ 12.27 hrs, Volume= 393,184 cf Primary = 90.97 cfs @ 12.27 hrs, Volume= 393,184 cf, Atten= 0%, Lag= 0.0 min Routed to Reach 1Ri : Inlet Pipe

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

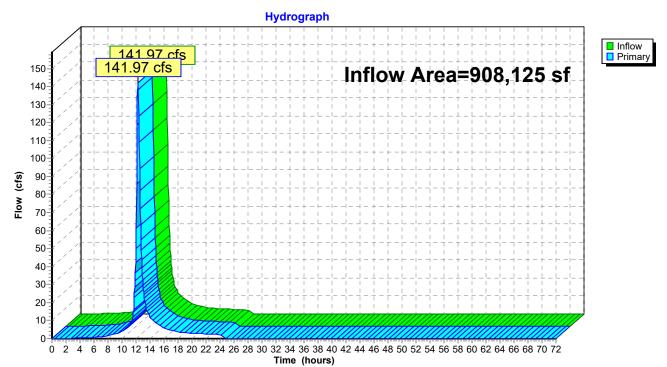


Link 1L: Combined Flows

Summary for Link 2L: Combined Flows

Inflow Area = 908,125 sf, 25.71% Impervious, Inflow Depth = 8.38" for 100-Year _2100 event Inflow = 141.97 cfs @ 12.28 hrs, Volume= 634,068 cf Primary = 141.97 cfs @ 12.28 hrs, Volume= 634,068 cf, Atten= 0%, Lag= 0.0 min Routed to Reach 2Ri : Inlet Pipe

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

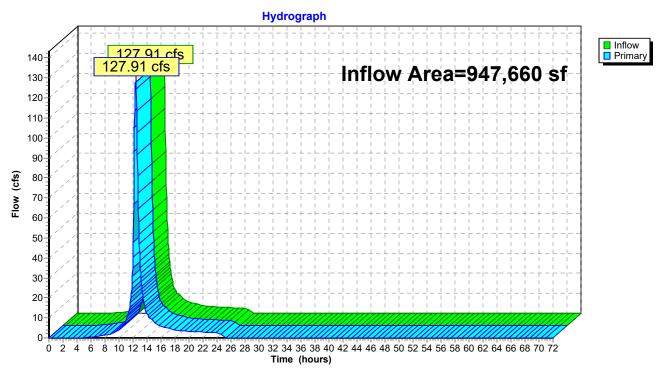


Link 2L: Combined Flows

Summary for Link 3L: dA3

Inflow Are	ea =	947,660 sf, 12.29% Impervious, Inflow Depth = 8.27" for 100-Year _2100 event	t
Inflow	=	127.91 cfs @ 12.37 hrs, Volume= 652,745 cf	
Primary	=	127.91 cfs $\overline{@}$ 12.37 hrs, Volume= 652,745 cf, Atten= 0%, Lag= 0.0 min	

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

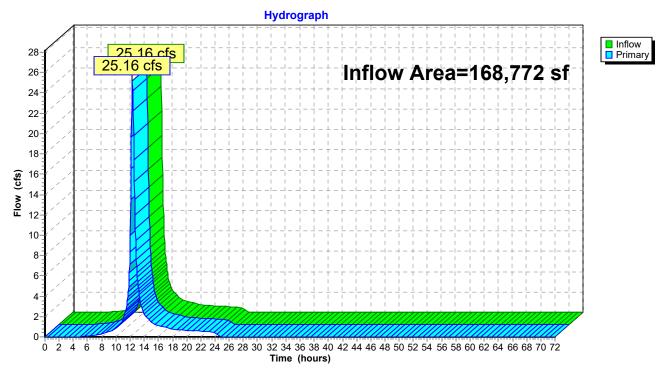


Link 3L: dA3

Summary for Link 4L: DA 4: Combined Flows

Inflow Are	a =	168,772 sf, 3.14% Impervious, Inflow Depth = 8.62" for 100-Year _2100 event	t
Inflow	=	25.16 cfs @ 12.34 hrs, Volume= 121,253 cf	
Primary	=	25.16 cfs @ 12.34 hrs, Volume= 121,253 cf, Atten= 0%, Lag= 0.0 min	

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs



Link 4L: DA 4: Combined Flows