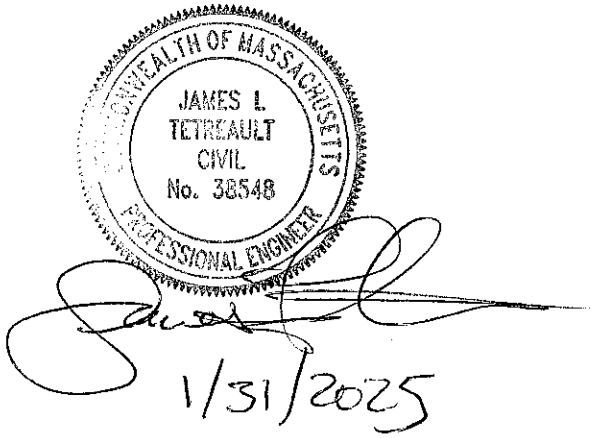
DRAINAGE REPORT
FOR COMPREHENSIVE PERMIT DEVELOPMENT
AT
AT 250 TURNPIKE ROAD, SOUTHBOROUGH, MA

Job #245-502 Client #502

APRIL 15, 2024
REVISED NOVEMBER 20, 2024
REVISED JANUARY 31, 2025



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INTRODUCTION

The purpose of this Drainage Report is to confirm that, following the construction of 32 townhouse style rental units in a combination of duplex and triplex layouts under a comprehensive permit process, that the peak rate of runoff from this property to the two properties that receive runoff from it, Turnpike Road (Route 9) and Parkerville Road, will not increase in any of the 2, 10, 25 or 100 year return frequency storm events.

The property at 250 Turnpike Road receives runoff from the abutting Eagle Leasing site and from the Sarsen Stone Way subdivision. There are two existing detention basins on site that receive discharge from the existing drainage systems behind the existing building and from the lower parking area. There is also an existing detention basin on the east side of two Sarsen Stone Way lots and a small existing detention basin on the Eagle Leasing site.

In addition to constructing 32 townhouse style units, the Applicant proposes to construct parking spaces, driving aisles, sidewalks and landscaped areas that would all increase the peak rate of flow of runoff from the property if no mitigation was undertaken. The Applicant will construct a total of four in ground detention/infiltration structures to both infiltrate and detain runoff and thereby keep the peak rate of flow from the site will be kept at or below the predevelopment rate of flow.

These calculations were modified to address comments from the Zoning Board of Appeals' peer reviewer including adding subcatchments to compare the runoff to the abutters Pendergast & Wittcoff and Palmer.

Soils on site are a mix of Woodbridge series soils categorized as hydrologic soil group C soils and Canton series soils categorized as hydrologic soil group B soils.

Calculations were made using the HydroCAD stormwater modeling program. The first table, below, compares the peak predevelopment and postdevelopment rates of flows of stormwater at the design points:

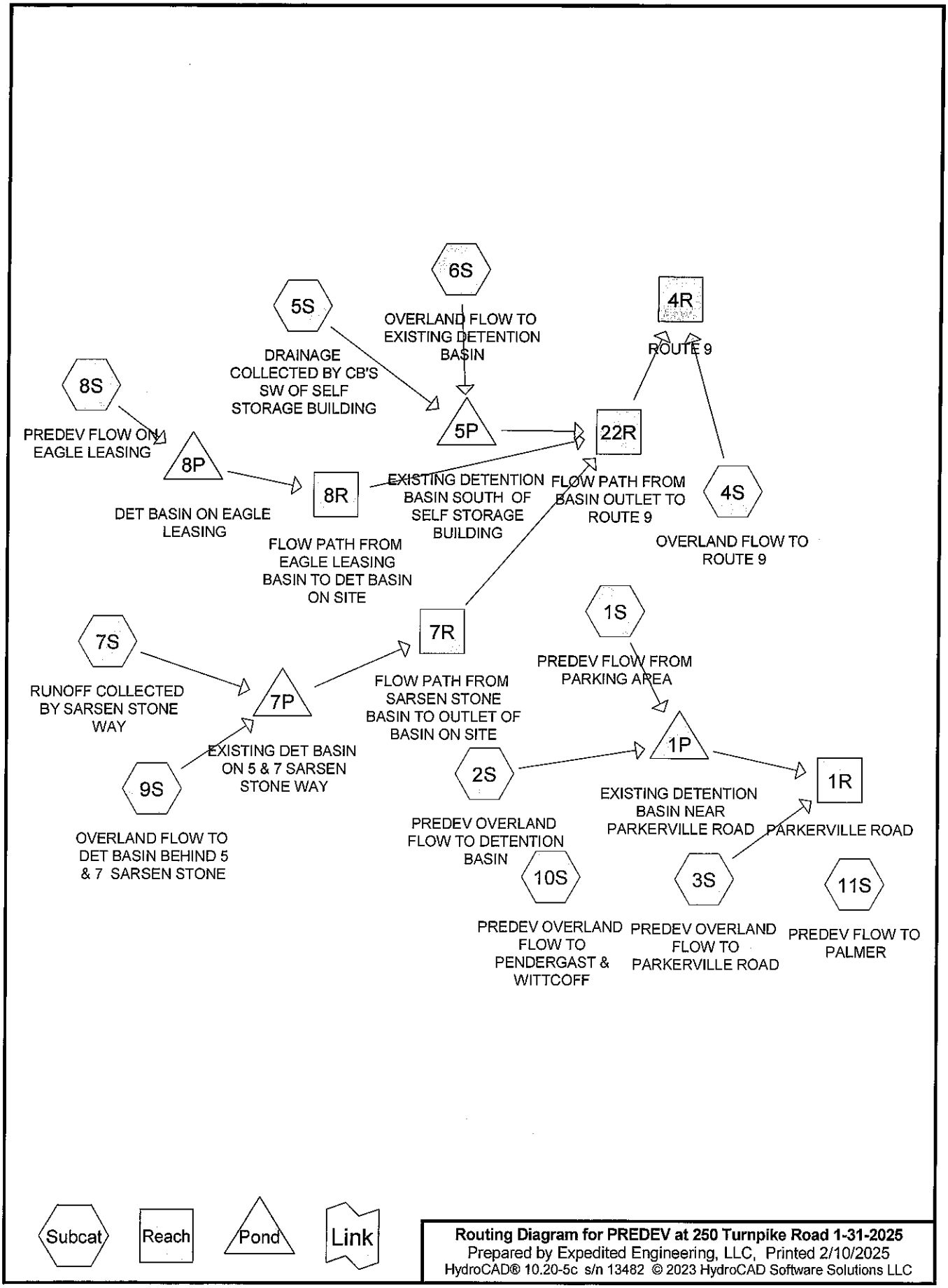
DESIGN POINT	PEAK FLOW RATE (in cfs)			
	2 yr storm	10 yr storm	25 yr storm	100 yr storm
Flow to Turnpike Road				
Reach #4 pre	13.04 pre	22.72 pre	44.69 pre	79.06 pre
Reach #14 post	13.04	22.71	44.69	79.06
Flow to Parkerville Road				
Reach #1 pre	3.71 pre	9.01 pre	12.61 pre	18.40 pre
Reach #11 post	3.71	8.68	11.64	16.14
Flow to abutter Pendergast & Wittcoff				
Subcatchment #10 pre	0.20 pre	0.53 pre	0.76 pre	1.14 pre
Subcatchment #20 post	0.19	0.48	0.69	1.03
Flow to abutter Palmer				
Subcatchment #11 pre	0.01 pre	0.03 pre	0.05 pre	0.07 pre
Subcatchment #21 post	0.01	0.03	0.04	0.06

The next table compares the volume of runoff leaving the site in the pre and postdevelopment conditions at the design points.

DESIGN POINT	VOLUME OF FLOW (in acre-feet)			
	2 yr storm	10 yr storm	25 yr storm	100 yr storm
Flow to Turnpike Road				
Reach #4 pre	2.198 pre	4.962 pre	6.907 pre	10.096 pre
Reach #14 post	2.198	4.962	6.907	10.096
Flow to Parkerville Road				
Reach #1 pre	0.550 pre	1.199 pre	1.664 pre	2.435 pre
Reach #11 post	0.584	1.279	1.763	2.555
Flow to abutter Pendergast & Wittcoff				
Subcatchment #10 pre	0.020 pre	0.049 pre	0.069 pre	0.103 pre
Subcatchment #20 post	0.017	0.039	0.056	0.082
Flow to abutter Palmer				
Subcatchment #11 pre	0.001 pre	0.002 pre	0.003 pre	0.005 pre
Subcatchment #21 post	0.001	0.002	0.003	0.004

2 YEAR STORM

PREDEVELOPMENT



Routing Diagram for PREDEV at 250 Turnpike Road 1-31-2025
Prepared by Expedited Engineering, LLC, Printed 2/10/2025

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
23.106	HSG B	1S, 2S, 3S, 4S, 5S, 7S, 8S, 9S, 10S
9.873	HSG C	1S, 2S, 3S, 4S, 5S, 6S, 8S, 9S, 10S, 11S
0.000	HSG D	
0.000	Other	
32.979		**TOTAL AREA**

Summary for Subcatchment 1S: PREDEV FLOW FROM PARKING AREA

Runoff = 3.14 cfs @ 12.08 hrs, Volume= 0.247 af, Depth> 2.98"
Routed to Pond 1P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
31,021	98	Paved parking, HSG B
280	74	>75% Grass cover, Good, HSG C
1,049	61	>75% Grass cover, Good, HSG B
10,964	98	Paved parking, HSG C
43,314	97	Weighted Average
1,329		3.07% Pervious Area
41,985		96.93% Impervious Area

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

Summary for Subcatchment 2S: PREDEV OVERLAND FLOW TO DETENTION BASIN

Runoff = 0.16 cfs @ 12.20 hrs, Volume= 0.020 af, Depth> 0.54"
Routed to Pond 1P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
2,913	98	Water Surface, HSG B
1,161	70	Woods, Good, HSG C
14,991	55	Woods, Good, HSG B
19,065	62	Weighted Average
16,152		84.72% Pervious Area
2,913		15.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	58	0.1600	2.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	108	Total			

Summary for Subcatchment 3S: PREDEV OVERLAND FLOW TO PARKERVILLE ROAD

Runoff = 2.02 cfs @ 12.42 hrs, Volume= 0.284 af, Depth> 0.66"
Routed to Reach 1R : PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
144,569	70	Woods, Good, HSG C
63,690	55	Woods, Good, HSG B
16,200	61	>75% Grass cover, Good, HSG B
780	98	Roofs, HSG B
225,239	65	Weighted Average
224,459		99.65% Pervious Area
780		0.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.20"
9.9	754	0.0640	1.26		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	243	0.0370	4.76	57.07	**Channel Flow, 2' WIDE BOTTOM, 10:1 SIDE SLOPES,1'DEEP** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
24.6	1,047	Total			

Summary for Subcatchment 4S: OVERLAND FLOW TO ROUTE 9

Runoff = 3.03 cfs @ 12.28 hrs, Volume= 0.342 af, Depth> 0.90"
Routed to Reach 4R : ROUTE 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
54,059	55	Woods, Good, HSG B
24,068	55	Woods, Good, HSG B
36,060	70	Woods, Good, HSG C
33,500	61	>75% Grass cover, Good, HSG B
1,900	74	>75% Grass cover, Good, HSG C
42,307	98	Paved parking, HSG B
2,250	98	Paved parking, HSG B
4,349	98	Paved parking, HSG C
198,493	70	Weighted Average
149,587		75.36% Pervious Area
48,906		24.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.1	242	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
9.1	709	0.0680	1.30		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	365	0.0160	3.13	37.53	**Channel Flow,** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
18.3	1,366	Total			

Summary for Subcatchment 5S: DRAINAGE COLLECTED BY CB'S SW OF SELF STORAGE BUILDING

Runoff = 1.04 cfs @ 12.09 hrs, Volume= 0.075 af, Depth> 1.79"
Routed to Pond 5P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
6,345	61	>75% Grass cover, Good, HSG B
3,301	74	>75% Grass cover, Good, HSG C
6,254	98	Paved parking, HSG B
5,860	98	Paved parking, HSG C
21,760	84	Weighted Average
9,646		44.33% Pervious Area
12,114		55.67% Impervious Area

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

Summary for Subcatchment 6S: OVERLAND FLOW TO EXISTING DETENTION BASIN

Runoff = 0.93 cfs @ 12.19 hrs, Volume= 0.090 af, Depth> 0.95"
Routed to Pond 5P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
46,762	70	Woods, Good, HSG C
2,500	98	Water Surface, HSG C
49,262	71	Weighted Average
46,762		94.93% Pervious Area
2,500		5.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	50	0.0450	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	324	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.7	374	Total			

Summary for Subcatchment 7S: RUNOFF COLLECTED BY SARSEN STONE WAY

Runoff = 7.63 cfs @ 12.14 hrs, Volume= 0.680 af, Depth> 0.80"
Routed to Pond 7P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
317,393	68	1 acre lots, 20% imp, HSG B
125,360	68	1 acre lots, 20% imp, HSG B
442,753	68	Weighted Average
354,202		80.00% Pervious Area
88,551		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
2.0	214	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	175	0.1000	4.74		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	210	0.1000	6.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.4	649	Total			

Summary for Subcatchment 8S: PREDEV FLOW ON EAGLE LEASING

Runoff = 8.93 cfs @ 12.18 hrs, Volume= 0.788 af, Depth> 1.57"
Routed to Pond 8P : DET BASIN ON EAGLE LEASING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
24,658	98	Paved parking, HSG B
8,220	61	>75% Grass cover, Good, HSG B
104,681	98	Paved parking, HSG C
34,894	74	>75% Grass cover, Good, HSG C
235	98	Paved parking, HSG B
6,197	61	>75% Grass cover, Good, HSG B
30,530	61	>75% Grass cover, Good, HSG B
5,140	98	Paved parking, HSG B
48,076	55	Woods, Good, HSG B
262,631	81	Weighted Average
127,917		48.71% Pervious Area
134,714		51.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
4.2	413	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	360	0.0440	2.10		**Shallow Concentrated Flow,** Nearly Bare & Untilled Kv= 10.0 fps
12.4	823	Total			

Summary for Subcatchment 9S: OVERLAND FLOW TO DET BASIN BEHIND 5 & 7 SARSEN STONE

Runoff = 2.75 cfs @ 12.11 hrs, Volume= 0.233 af, Depth> 0.76"
Routed to Pond 7P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
20,407	70	Woods, Good, HSG C
3,300	98	Water Surface, HSG B
36,775	55	Woods, Good, HSG B
13,560	70	1/2 acre lots, 25% imp, HSG B
87,016	70	1/2 acre lots, 25% imp, HSG B
161,058	67	Weighted Average
132,614		82.34% Pervious Area
28,444		17.66% Impervious Area

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

Summary for Subcatchment 10S: PREDEV OVERLAND FLOW TO PENDERGAST & WITTCOFF

Runoff = 0.20 cfs @ 12.21 hrs, Volume= 0.020 af, Depth> 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
616	55	Woods, Good, HSG B
11,769	70	Woods, Good, HSG C
12,385	69	Weighted Average
12,385		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	265	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.4	315	Total			

Summary for Subcatchment 11S: PREDEV FLOW TO PALMER

Runoff = 0.01 cfs @ 12.10 hrs, Volume= 0.001 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
593	70	Woods, Good, HSG C
593		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	25	0.0300	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"

Summary for Reach 1R: PARKERVILLE ROAD

Inflow Area = 6.603 ac, 15.88% Impervious, Inflow Depth > 1.00" for 2 YEAR event
Inflow = 3.71 cfs @ 12.36 hrs, Volume= 0.550 af
Outflow = 3.71 cfs @ 12.36 hrs, Volume= 0.550 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Summary for Reach 4R: ROUTE 9

Inflow Area = 26.078 ac, 27.75% Impervious, Inflow Depth > 1.01" for 2 YEAR event
Inflow = 13.04 cfs @ 12.38 hrs, Volume= 2.198 af
Outflow = 13.04 cfs @ 12.38 hrs, Volume= 2.198 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

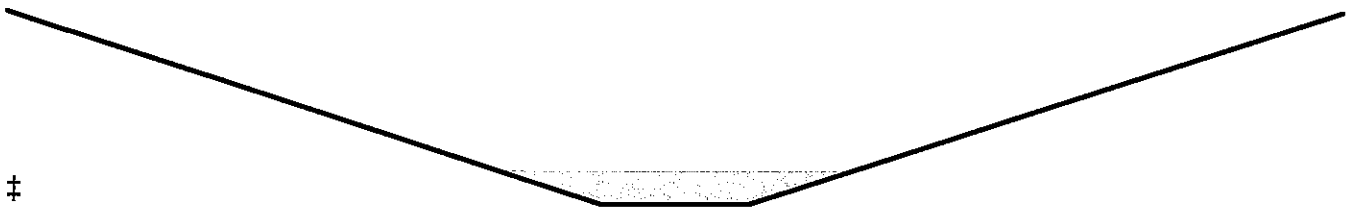
Summary for Reach 7R: FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 0.79" for 2 YEAR event
Inflow = 4.29 cfs @ 12.48 hrs, Volume= 0.909 af
Outflow = 4.29 cfs @ 12.53 hrs, Volume= 0.907 af, Atten= 0%, Lag= 3.1 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.65 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 2.03 fps, Avg. Travel Time= 3.3 min

Peak Storage= 466 cf @ 12.50 hrs
Average Depth at Peak Storage= 0.35' , Surface Width= 4.77'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 198.41 cfs

2.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 4.0 '/' Top Width= 18.00'
Length= 397.0' Slope= 0.0642 '/'
Inlet Invert= 349.00', Outlet Invert= 323.50'



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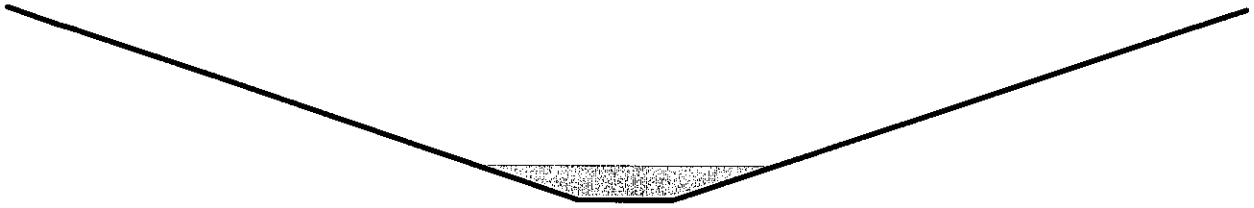
Summary for Reach 8R: FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 1.57" for 2 YEAR event
Inflow = 5.25 cfs @ 12.40 hrs, Volume= 0.788 af
Outflow = 5.24 cfs @ 12.41 hrs, Volume= 0.787 af, Atten= 0%, Lag= 0.7 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.09 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 3.30 fps, Avg. Travel Time= 0.8 min

Peak Storage= 116 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.36' , Surface Width= 3.14'
Bank-Full Depth= 2.00' Flow Area= 14.0 sf, Capacity= 271.03 cfs

1.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 '/' Top Width= 13.00'
Length= 157.0' Slope= 0.1025 '/'
Inlet Invert= 342.10', Outlet Invert= 326.00'



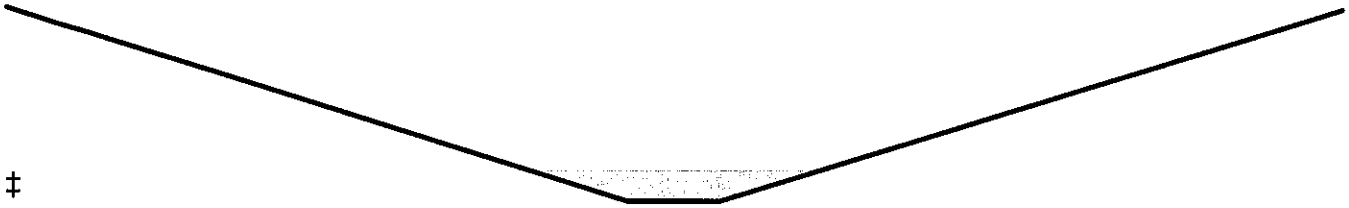
Summary for Reach 22R: FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Inflow Area = 21.521 ac, 28.41% Impervious, Inflow Depth > 1.04" for 2 YEAR event
Inflow = 10.49 cfs @ 12.45 hrs, Volume= 1.858 af
Outflow = 10.48 cfs @ 12.49 hrs, Volume= 1.856 af, Atten= 0%, Lag= 2.1 min
Routed to Reach 4R : ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.24 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 2.52 fps, Avg. Travel Time= 2.5 min

Peak Storage= 767 cf @ 12.47 hrs
Average Depth at Peak Storage= 0.32' , Surface Width= 9.44'
Bank-Full Depth= 2.00' Flow Area= 46.0 sf, Capacity= 707.92 cfs

3.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 10.0 '/' Top Width= 43.00'
Length= 383.0' Slope= 0.0888 '/'
Inlet Invert= 349.00', Outlet Invert= 315.00'



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Summary for Pond 1P: EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Inflow Area = 1.432 ac, 71.98% Impervious, Inflow Depth > 2.24" for 2 YEAR event
Inflow = 3.23 cfs @ 12.09 hrs, Volume= 0.267 af
Outflow = 2.00 cfs @ 12.20 hrs, Volume= 0.266 af, Atten= 38%, Lag= 6.8 min
Primary = 2.00 cfs @ 12.20 hrs, Volume= 0.266 af
Routed to Reach 1R : PARKERVILLE ROAD

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 309.29' @ 12.20 hrs Surf.Area= 3,644 sf Storage= 1,431 cf

Plug-Flow detention time= 9.9 min calculated for 0.266 af (100% of inflow)

Center-of-Mass det. time= 8.8 min (783.9 - 775.0)

Volume	Invert	Avail.Storage	Storage Description
#1	308.50'	20,440 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.50	0	0	0
310.00	6,960	5,220	5,220
312.00	8,260	15,220	20,440

Device	Routing	Invert	Outlet Devices
#1	Primary	308.50'	**12.0" Round Culvert** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 308.50' / 308.10' S= 0.0133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	311.50'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.00 cfs @ 12.20 hrs HW=309.29' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 2.00 cfs @ 3.02 fps)
└—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Inflow Area = 1.630 ac, 20.58% Impervious, Inflow Depth > 1.21" for 2 YEAR event
Inflow = 1.75 cfs @ 12.13 hrs, Volume= 0.164 af
Outflow = 1.02 cfs @ 12.38 hrs, Volume= 0.164 af, Atten= 42%, Lag= 15.3 min
Primary = 1.02 cfs @ 12.38 hrs, Volume= 0.164 af
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 326.08' @ 12.38 hrs Surf.Area= 3,729 sf Storage= 1,230 cf

Plug-Flow detention time= 18.4 min calculated for 0.164 af (99% of inflow)
Center-of-Mass det. time= 15.5 min (868.1 - 852.6)

Volume	Invert	Avail.Storage	Storage Description
#1	325.50'	12,719 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.50	0	0	0
326.00	3,700	925	925
328.00	4,400	8,100	9,025
328.75	5,450	3,694	12,719

Device	Routing	Invert	Outlet Devices
#1	Primary	325.50'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 325.50' / 325.25' S= 0.0066 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	328.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=1.02 cfs @ 12.38 hrs HW=326.08' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 1.02 cfs @ 3.10 fps)
└—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7P: EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 0.79" for 2 YEAR event
Inflow = 10.28 cfs @ 12.13 hrs, Volume= 0.912 af
Outflow = 4.29 cfs @ 12.48 hrs, Volume= 0.909 af, Atten= 58%, Lag= 21.1 min
Primary = 4.29 cfs @ 12.48 hrs, Volume= 0.909 af
Routed to Reach 7R : FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 352.79' @ 12.48 hrs Surf.Area= 6,550 sf Storage= 7,154 cf

Plug-Flow detention time= 16.3 min calculated for 0.908 af (99% of inflow)
Center-of-Mass det. time= 14.4 min (895.7 - 881.4)

Volume	Invert	Avail.Storage	Storage Description
#1	351.00'	37,428 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
351.00	0	0	0
352.00	5,106	2,553	2,553
354.00	8,764	13,870	16,423
356.00	12,241	21,005	37,428

Device	Routing	Invert	Outlet Devices
#1	Primary	351.00'	**12.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 351.00' / 349.00' S= 0.0333 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	355.00'	**20.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=4.29 cfs @ 12.48 hrs HW=352.79' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 4.29 cfs @ 5.47 fps)
└—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 8P: DET BASIN ON EAGLE LEASING

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 1.57" for 2 YEAR event
Inflow = 8.93 cfs @ 12.18 hrs, Volume= 0.788 af
Outflow = 5.25 cfs @ 12.40 hrs, Volume= 0.788 af, Atten= 41%, Lag= 13.2 min
Primary = 5.25 cfs @ 12.40 hrs, Volume= 0.788 af
Routed to Reach 8R : FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 344.92' @ 12.40 hrs Surf.Area= 5,269 sf Storage= 3,684 cf

Plug-Flow detention time= 4.4 min calculated for 0.788 af (100% of inflow)
Center-of-Mass det. time= 4.2 min (846.2 - 842.0)

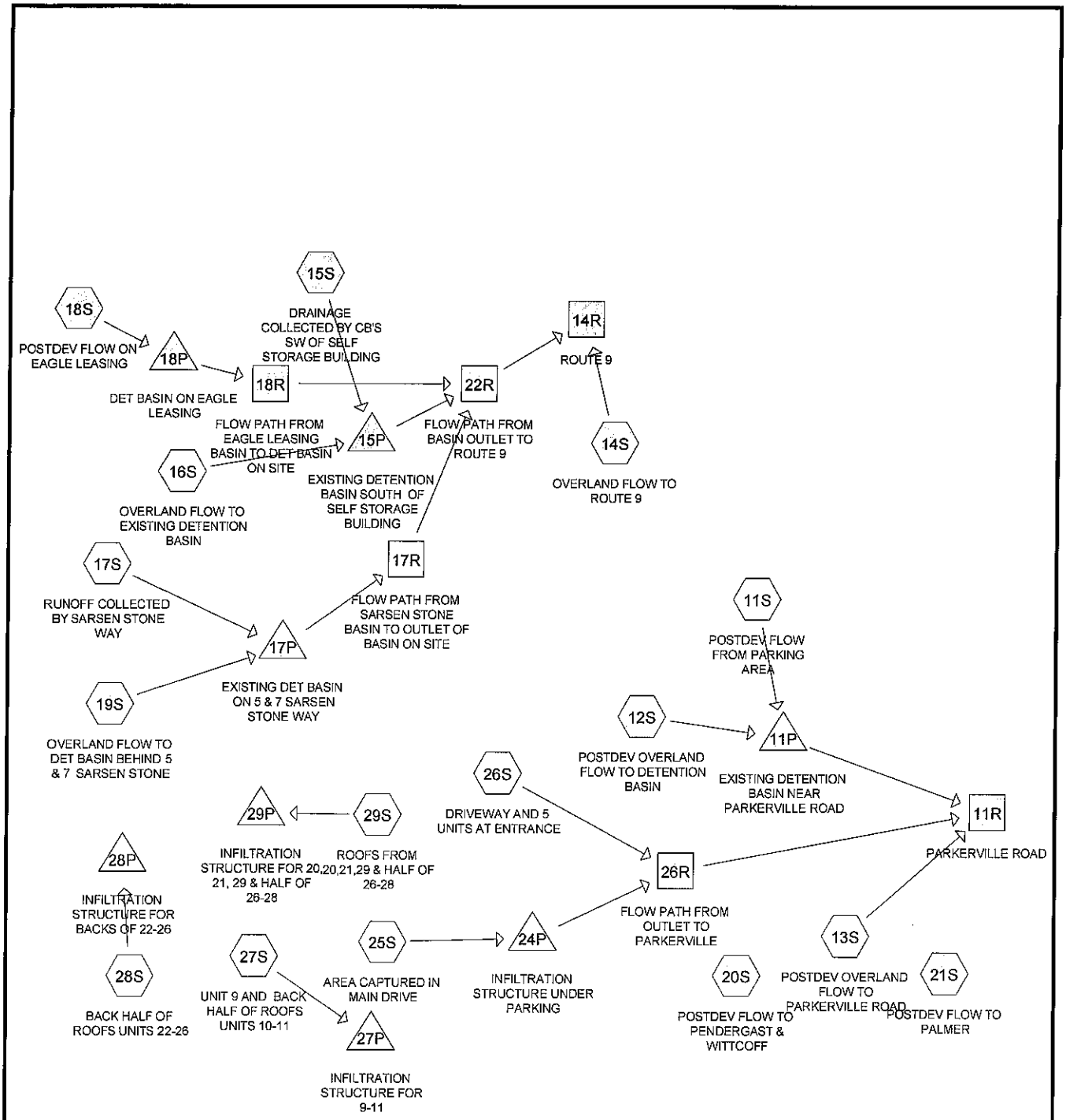
Volume	Invert	Avail.Storage	Storage Description
#1	342.50'	46,903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
342.50	0	0	0
344.00	1,030	773	773
346.00	10,200	11,230	12,003
348.00	24,700	34,900	46,903

Device	Routing	Invert	Outlet Devices
#1	Primary	342.50'	**12.0" Round Culvert** L= 33.0' Ke= 0.500 Inlet / Outlet Invert= 342.50' / 342.10' S= 0.0121 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	347.00'	**12.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 4.5' Crest Height

Primary OutFlow Max=5.25 cfs @ 12.40 hrs HW=344.92' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 5.25 cfs @ 6.68 fps)
└—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

POSTDEVELOPMENT



Routing Diagram for POSTDEV for Ch40B at 250 Turnpike Rd Southborough 1-31-2025

Prepared by Expedited Engineering, LLC, Printed 2/10/2025

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
23.106	HSG B	11S, 12S, 13S, 14S, 15S, 17S, 18S, 19S, 20S, 25S, 26S
9.873	HSG C	11S, 12S, 13S, 14S, 15S, 16S, 18S, 19S, 20S, 21S, 25S, 26S, 27S, 28S, 29S
0.000	HSG D	
0.000	Other	
32.979		**TOTAL AREA**

Summary for Subcatchment 11S: POSTDEV FLOW FROM PARKING AREA

Runoff = 2.92 cfs @ 12.08 hrs, Volume= 0.230 af, Depth> 2.98"
Routed to Pond 11P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
28,308	98	Paved parking, HSG B
610	61	>75% Grass cover, Good, HSG B
10,964	98	Paved parking, HSG C
390	74	>75% Grass cover, Good, HSG C
40,272	97	Weighted Average
1,000		2.48% Pervious Area
39,272		97.52% Impervious Area

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

Summary for Subcatchment 12S: POSTDEV OVERLAND FLOW TO DETENTION BASIN

Runoff = 0.18 cfs @ 12.19 hrs, Volume= 0.020 af, Depth> 0.58"
Routed to Pond 11P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
2,913	98	Water Surface, HSG B
850	70	Woods, Good, HSG C
14,581	55	Woods, Good, HSG B
18,344	63	Weighted Average
15,431		84.12% Pervious Area
2,913		15.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	58	0.1600	2.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	108	Total			

Summary for Subcatchment 13S: POSTDEV OVERLAND FLOW TO PARKERVILLE ROAD

Runoff = 1.28 cfs @ 12.37 hrs, Volume= 0.169 af, Depth> 0.70"
Routed to Reach 11R : PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
3,898	70	Woods, Good, HSG C
3,546	74	>75% Grass cover, Good, HSG C
18,640	55	Woods, Good, HSG B
285	61	>75% Grass cover, Good, HSG B
160	55	Woods, Good, HSG B
14,938	61	>75% Grass cover, Good, HSG B
789	98	Unconnected roofs, HSG B
2,869	55	Woods, Good, HSG B
1,012	61	>75% Grass cover, Good, HSG B
4,580	55	Woods, Good, HSG B
1,369	98	Roofs, HSG B
1,507	98	Roofs, HSG C
186	74	>75% Grass cover, Good, HSG C
23,192	70	Woods, Good, HSG C
1,585	74	>75% Grass cover, Good, HSG C
7,295	55	Woods, Good, HSG B
2,016	98	Roofs, HSG C
2,757	74	>75% Grass cover, Good, HSG C
1,655	98	Roofs, HSG C
21,881	74	>75% Grass cover, Good, HSG C
8,648	55	Woods, Good, HSG B
2,419	70	Woods, Good, HSG C
125,227	66	Weighted Average
117,891		94.14% Pervious Area
7,336		5.86% Impervious Area
789		10.76% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0350	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.20"
2.7	196	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	39	0.1500	5.44	10.87	**Channel Flow, 1' WIDE BOTTOM, 1:1 SIDE SLOPES,1'DEEP** Area= 2.0 sf Perim= 3.8' r= 0.53' n= 0.069 Riprap, 6-inch
1.0	83	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	284	0.0320	4.42	53.08	**Channel Flow,** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
22.1	652	Total			

Summary for Subcatchment 14S: OVERLAND FLOW TO ROUTE 9

Runoff = 3.03 cfs @ 12.28 hrs, Volume= 0.342 af, Depth> 0.90"
Routed to Reach 14R : ROUTE 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
31,704	70	Woods, Good, HSG C
0	98	Roofs, HSG C
4,306	98	Roofs, HSG C
11,703	74	>75% Grass cover, Good, HSG C
75,805	55	Woods, Good, HSG B
44,135	98	Paved parking, HSG B
30,829	61	>75% Grass cover, Good, HSG B
198,482	70	Weighted Average
150,041		75.59% Pervious Area
48,441		24.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.1	242	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
9.1	709	0.0680	1.30		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	365	0.0160	3.13	37.53	**Channel Flow,** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
18.3	1,366	Total			

Summary for Subcatchment 15S: DRAINAGE COLLECTED BY CB'S SW OF SELF STORAGE BUILDING

Runoff = 1.04 cfs @ 12.09 hrs, Volume= 0.075 af, Depth> 1.79"
Routed to Pond 15P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
6,345	61	>75% Grass cover, Good, HSG B
3,301	74	>75% Grass cover, Good, HSG C
6,254	98	Paved parking, HSG B
5,860	98	Paved parking, HSG C
21,760	84	Weighted Average
9,646		44.33% Pervious Area
12,114		55.67% Impervious Area

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

Summary for Subcatchment 16S: OVERLAND FLOW TO EXISTING DETENTION BASIN

Runoff = 0.93 cfs @ 12.19 hrs, Volume= 0.090 af, Depth> 0.95"
Routed to Pond 15P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
46,762	70	Woods, Good, HSG C
2,500	98	Water Surface, HSG C
49,262	71	Weighted Average
46,762		94.93% Pervious Area
2,500		5.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	50	0.0450	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	324	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.7	374	Total			

Summary for Subcatchment 17S: RUNOFF COLLECTED BY SARSEN STONE WAY

Runoff = 7.63 cfs @ 12.14 hrs, Volume= 0.680 af, Depth> 0.80"
Routed to Pond 17P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
317,393	68	1 acre lots, 20% imp, HSG B
125,360	68	1 acre lots, 20% imp, HSG B
442,753	68	Weighted Average
354,202		80.00% Pervious Area
88,551		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
2.0	214	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	175	0.1000	4.74		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	210	0.1000	6.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.4	649	Total			

Summary for Subcatchment 18S: POSTDEV FLOW ON EAGLE LEASING

Runoff = 8.93 cfs @ 12.18 hrs, Volume= 0.788 af, Depth> 1.57"
Routed to Pond 18P : DET BASIN ON EAGLE LEASING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
24,658	98	Paved parking, HSG B
8,220	61	>75% Grass cover, Good, HSG B
104,681	98	Paved parking, HSG C
34,894	74	>75% Grass cover, Good, HSG C
235	98	Paved parking, HSG B
6,197	61	>75% Grass cover, Good, HSG B
30,530	61	>75% Grass cover, Good, HSG B
5,140	98	Paved parking, HSG B
48,076	55	Woods, Good, HSG B
262,631	81	Weighted Average
127,917		48.71% Pervious Area
134,714		51.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
4.2	413	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	360	0.0440	2.10		**Shallow Concentrated Flow,** Nearly Bare & Untilled Kv= 10.0 fps
12.4	823	Total			

Summary for Subcatchment 19S: OVERLAND FLOW TO DET BASIN BEHIND 5 & 7 SARSEN STONE

Runoff = 2.75 cfs @ 12.11 hrs, Volume= 0.233 af, Depth> 0.76"
Routed to Pond 17P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
20,407	70	Woods, Good, HSG C
3,300	98	Water Surface, HSG B
36,775	55	Woods, Good, HSG B
13,560	70	1/2 acre lots, 25% imp, HSG B
87,016	70	1/2 acre lots, 25% imp, HSG B
161,058	67	Weighted Average
132,614		82.34% Pervious Area
28,444		17.66% Impervious Area

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

Summary for Subcatchment 20S: POSTDEV FLOW TO PENDERGAST & WITTCOFF

Runoff = 0.19 cfs @ 12.15 hrs, Volume= 0.017 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
644	55	Woods, Good, HSG B
386	61	>75% Grass cover, Good, HSG B
4,671	70	Woods, Good, HSG C
3,921	74	>75% Grass cover, Good, HSG C
9,622	70	Weighted Average
9,622		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
2.3	207	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.4	257	Total			

Summary for Subcatchment 21S: POSTDEV FLOW TO PALMER

Runoff = 0.01 cfs @ 12.08 hrs, Volume= 0.001 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
480	70	Woods, Good, HSG C
480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	17	0.0300	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"

Summary for Subcatchment 25S: AREA CAPTURED IN MAIN DRIVE

Runoff = 3.09 cfs @ 12.22 hrs, Volume= 0.299 af, Depth> 1.94"
Routed to Pond 24P : INFILTRATION STRUCTURE UNDER PARKING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
37,220	98	Paved parking, HSG C
10,950	98	Paved parking, HSG B
9,981	61	>75% Grass cover, Good, HSG B
15,395	74	>75% Grass cover, Good, HSG C
3,684	55	Woods, Good, HSG B
1,155	98	Roofs, HSG B
548	61	>75% Grass cover, Good, HSG B
1,555	55	Woods, Good, HSG B
80,488	86	Weighted Average
31,163		38.72% Pervious Area
49,325		61.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.20"
0.5	55	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	79	0.0380	1.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	167	0.0240	3.14		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
16.2	351	Total			

Summary for Subcatchment 26S: DRIVEWAY AND 5 UNITS AT ENTRANCE

Runoff = 0.77 cfs @ 12.29 hrs, Volume= 0.087 af, Depth> 2.66"
Routed to Reach 26R : FLOW PATH FROM OUTLET TO PARKERVILLE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
2,804	74	>75% Grass cover, Good, HSG C
13,548	98	Paved parking, HSG C
776	98	Paved parking, HSG B
17,128	94	Weighted Average
2,804		16.37% Pervious Area
14,324		83.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.3	19	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
21.8	69	Total			

Summary for Subcatchment 27S: UNIT 9 AND BACK HALF OF ROOFS UNITS 10-11

Runoff = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af, Depth> 3.10"
Routed to Pond 27P : INFILTRATION STRUCTURE FOR 9-11

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
2,016	98	Roofs, HSG C
2,016		100.00% Impervious Area

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

Summary for Subcatchment 28S: BACK HALF OF ROOFS UNITS 22-26

Runoff = 0.19 cfs @ 12.07 hrs, Volume= 0.015 af, Depth> 3.10"
Routed to Pond 28P : INFILTRATION STRUCTURE FOR BACKS OF 22-26

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
2,520	98	Roofs, HSG C
2,520		100.00% Impervious Area

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

Summary for Subcatchment 29S: ROOFS FROM 20,21,29 & HALF OF 26-28

Runoff = 0.34 cfs @ 12.07 hrs, Volume= 0.027 af, Depth> 3.10"
Routed to Pond 29P : INFILTRATION STRUCTURE FOR 20, 21, 29 & HALF OF 26-28

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 YEAR Rainfall=3.33"

Area (sf)	CN	Description
4,032	98	Roofs, HSG C
504	98	Roofs, HSG C
4,536	98	Weighted Average
4,536		100.00% Impervious Area

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

Summary for Reach 11R: PARKERVILLE ROAD

Inflow Area = 6.461 ac, 40.21% Impervious, Inflow Depth > 1.08" for 2 YEAR event
Inflow = 3.71 cfs @ 12.33 hrs, Volume= 0.584 af
Outflow = 3.71 cfs @ 12.33 hrs, Volume= 0.584 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Summary for Reach 14R: ROUTE 9

Inflow Area = 26.078 ac, 27.71% Impervious, Inflow Depth > 1.01" for 2 YEAR event
Inflow = 13.04 cfs @ 12.38 hrs, Volume= 2.198 af
Outflow = 13.04 cfs @ 12.38 hrs, Volume= 2.198 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

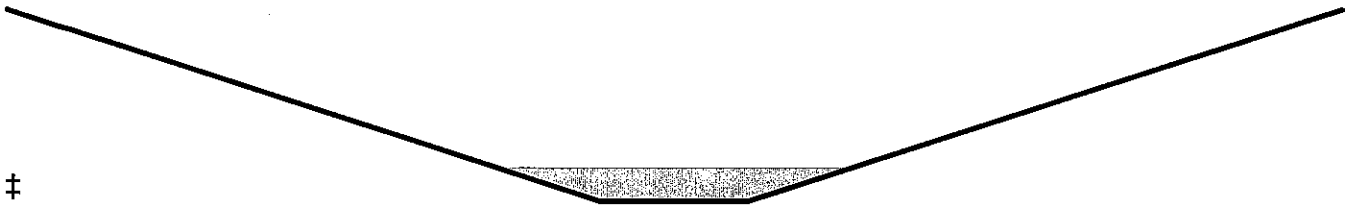
Summary for Reach 17R: FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 0.79" for 2 YEAR event
Inflow = 4.29 cfs @ 12.48 hrs, Volume= 0.909 af
Outflow = 4.29 cfs @ 12.53 hrs, Volume= 0.907 af, Atten= 0%, Lag= 3.1 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.65 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 2.03 fps, Avg. Travel Time= 3.3 min

Peak Storage= 466 cf @ 12.50 hrs
Average Depth at Peak Storage= 0.35' , Surface Width= 4.77'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 198.41 cfs

2.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 4.0 '/' Top Width= 18.00'
Length= 397.0' Slope= 0.0642 '/'
Inlet Invert= 349.00', Outlet Invert= 323.50'



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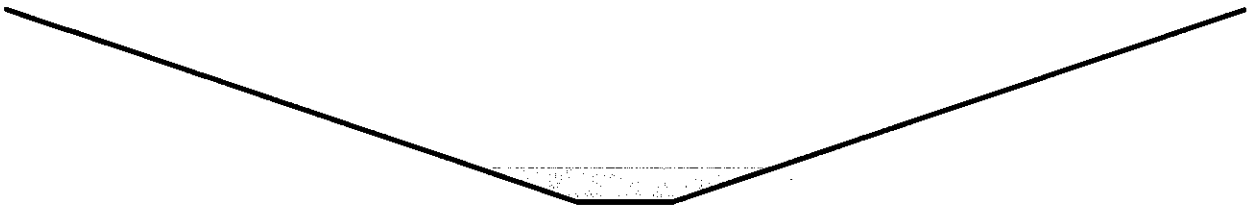
Summary for Reach 18R: FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 1.57" for 2 YEAR event
Inflow = 5.25 cfs @ 12.40 hrs, Volume= 0.788 af
Outflow = 5.24 cfs @ 12.41 hrs, Volume= 0.787 af, Atten= 0%, Lag= 0.7 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.09 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 3.30 fps, Avg. Travel Time= 0.8 min

Peak Storage= 116 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.36' , Surface Width= 3.14'
Bank-Full Depth= 2.00' Flow Area= 14.0 sf, Capacity= 271.03 cfs

1.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 '/' Top Width= 13.00'
Length= 157.0' Slope= 0.1025 '/'
Inlet Invert= 342.10', Outlet Invert= 326.00'



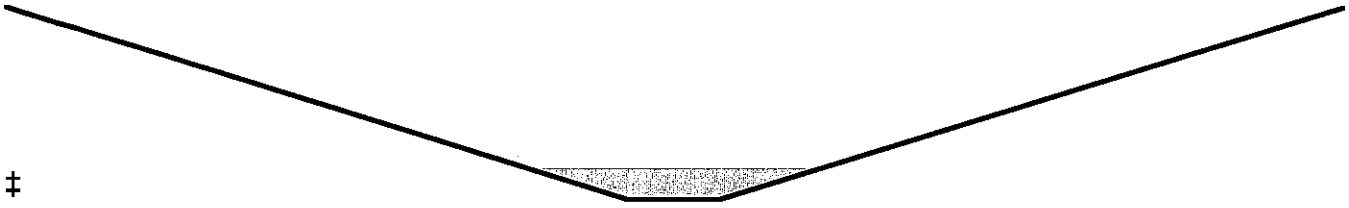
Summary for Reach 22R: FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Inflow Area = 21.521 ac, 28.41% Impervious, Inflow Depth > 1.04" for 2 YEAR event
Inflow = 10.49 cfs @ 12.45 hrs, Volume= 1.858 af
Outflow = 10.48 cfs @ 12.49 hrs, Volume= 1.856 af, Atten= 0%, Lag= 2.1 min
Routed to Reach 14R : ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.24 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 2.52 fps, Avg. Travel Time= 2.5 min

Peak Storage= 767 cf @ 12.47 hrs
Average Depth at Peak Storage= 0.32' , Surface Width= 9.44'
Bank-Full Depth= 2.00' Flow Area= 46.0 sf, Capacity= 707.92 cfs

3.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 10.0 '/' Top Width= 43.00'
Length= 383.0' Slope= 0.0888 '/'
Inlet Invert= 349.00', Outlet Invert= 315.00'



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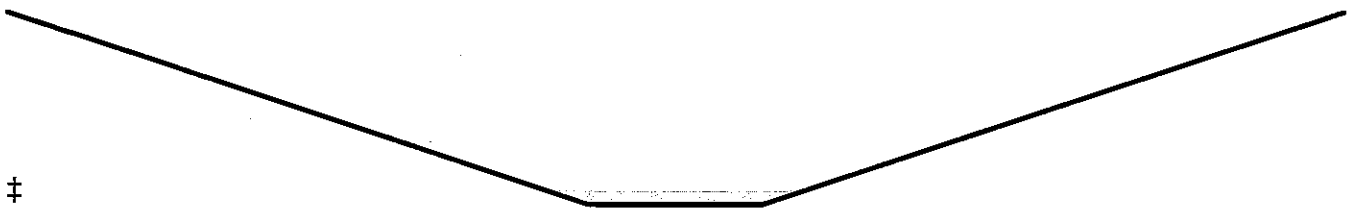
Summary for Reach 26R: FLOW PATH FROM OUTLET TO PARKERVILLE

Inflow Area = 2.241 ac, 65.20% Impervious, Inflow Depth > 0.89" for 2 YEAR event
Inflow = 1.02 cfs @ 12.51 hrs, Volume= 0.165 af
Outflow = 1.01 cfs @ 12.60 hrs, Volume= 0.165 af, Atten= 1%, Lag= 5.6 min
Routed to Reach 11R : PARKERVILLE ROAD

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 1.97 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 0.77 fps, Avg. Travel Time= 7.8 min

Peak Storage= 185 cf @ 12.55 hrs
Average Depth at Peak Storage= 0.07' , Surface Width= 8.78'
Bank-Full Depth= 1.00' Flow Area= 26.0 sf, Capacity= 232.32 cfs

6.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 20.0 '/' Top Width= 46.00'
Length= 360.0' Slope= 0.0375 '/'
Inlet Invert= 318.00', Outlet Invert= 304.50'



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Summary for Pond 11P: EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Inflow Area = 1.346 ac, 71.97% Impervious, Inflow Depth > 2.23" for 2 YEAR event
Inflow = 3.03 cfs @ 12.09 hrs, Volume= 0.250 af
Outflow = 1.89 cfs @ 12.20 hrs, Volume= 0.250 af, Atten= 38%, Lag= 6.8 min
Primary = 1.89 cfs @ 12.20 hrs, Volume= 0.250 af
Routed to Reach 11R : PARKERVILLE ROAD

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 309.26' @ 12.20 hrs Surf.Area= 3,511 sf Storage= 1,328 cf

Plug-Flow detention time= 9.8 min calculated for 0.250 af (100% of inflow)
Center-of-Mass det. time= 8.8 min (784.5 - 775.8)

Volume	Invert	Avail.Storage	Storage Description
#1	308.50'	20,440 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.50	0	0	0
310.00	6,960	5,220	5,220
312.00	8,260	15,220	20,440

Device	Routing	Invert	Outlet Devices
#1	Primary	308.50'	**12.0" Round Culvert** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 308.50' / 308.10' S= 0.0133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	311.50'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.89 cfs @ 12.20 hrs HW=309.26' (Free Discharge)
└**1=Culvert** (Inlet Controls 1.89 cfs @ 2.96 fps)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 15P: EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Inflow Area = 1.630 ac, 20.58% Impervious, Inflow Depth > 1.21" for 2 YEAR event
Inflow = 1.75 cfs @ 12.13 hrs, Volume= 0.164 af
Outflow = 1.02 cfs @ 12.38 hrs, Volume= 0.164 af, Atten= 42%, Lag= 15.3 min
Primary = 1.02 cfs @ 12.38 hrs, Volume= 0.164 af
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 326.08' @ 12.38 hrs Surf.Area= 3,729 sf Storage= 1,230 cf

Plug-Flow detention time= 18.4 min calculated for 0.164 af (99% of inflow)
Center-of-Mass det. time= 15.5 min (868.1 - 852.6)

Volume	Invert	Avail.Storage	Storage Description
#1	325.50'	12,719 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.50	0	0	0
326.00	3,700	925	925
328.00	4,400	8,100	9,025
328.75	5,450	3,694	12,719

Device	Routing	Invert	Outlet Devices
#1	Primary	325.50'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 325.50' / 325.25' S= 0.0066 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	328.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=1.02 cfs @ 12.38 hrs HW=326.08' (Free Discharge)
└**1=Culvert** (Barrel Controls 1.02 cfs @ 3.10 fps)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 17P: EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 0.79" for 2 YEAR event
Inflow = 10.28 cfs @ 12.13 hrs, Volume= 0.912 af
Outflow = 4.29 cfs @ 12.48 hrs, Volume= 0.909 af, Atten= 58%, Lag= 21.1 min
Primary = 4.29 cfs @ 12.48 hrs, Volume= 0.909 af
Routed to Reach 17R : FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 352.79' @ 12.48 hrs Surf.Area= 6,550 sf Storage= 7,154 cf

Plug-Flow detention time= 16.3 min calculated for 0.908 af (99% of inflow)
Center-of-Mass det. time= 14.4 min (895.7 - 881.4)

Volume	Invert	Avail.Storage	Storage Description
#1	351.00'	37,428 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
351.00	0	0	0
352.00	5,106	2,553	2,553
354.00	8,764	13,870	16,423
356.00	12,241	21,005	37,428

Device	Routing	Invert	Outlet Devices
#1	Primary	351.00'	**12.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 351.00' / 349.00' S= 0.0333 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	355.00'	**20.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=4.29 cfs @ 12.48 hrs HW=352.79' (Free Discharge)
└**1=Culvert** (Inlet Controls 4.29 cfs @ 5.47 fps)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 18P: DET BASIN ON EAGLE LEASING

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 1.57" for 2 YEAR event
Inflow = 8.93 cfs @ 12.18 hrs, Volume= 0.788 af
Outflow = 5.25 cfs @ 12.40 hrs, Volume= 0.788 af, Atten= 41%, Lag= 13.2 min
Primary = 5.25 cfs @ 12.40 hrs, Volume= 0.788 af
Routed to Reach 18R : FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 344.92' @ 12.40 hrs Surf.Area= 5,269 sf Storage= 3,684 cf

Plug-Flow detention time= 4.4 min calculated for 0.788 af (100% of inflow)
Center-of-Mass det. time= 4.2 min (846.2 - 842.0)

Volume	Invert	Avail.Storage	Storage Description
#1	342.50'	46,903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
342.50	0	0	0
344.00	1,030	773	773
346.00	10,200	11,230	12,003
348.00	24,700	34,900	46,903

Device	Routing	Invert	Outlet Devices
#1	Primary	342.50'	**12.0" Round Culvert** L= 33.0' Ke= 0.500 Inlet / Outlet Invert= 342.50' / 342.10' S= 0.0121 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	347.00'	**12.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 4.5' Crest Height

Primary OutFlow Max=5.25 cfs @ 12.40 hrs HW=344.92' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 5.25 cfs @ 6.68 fps)
└—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 24P: INFILTRATION STRUCTURE UNDER PARKING

Inflow Area = 1.848 ac, 61.28% Impervious, Inflow Depth > 1.94" for 2 YEAR event
Inflow = 3.09 cfs @ 12.22 hrs, Volume= 0.299 af
Outflow = 0.78 cfs @ 12.75 hrs, Volume= 0.288 af, Atten= 75%, Lag= 31.4 min
Discarded = 0.18 cfs @ 11.32 hrs, Volume= 0.210 af
Primary = 0.60 cfs @ 12.75 hrs, Volume= 0.078 af
Routed to Reach 26R : FLOW PATH FROM OUTLET TO PARKERVILLE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 322.65' @ 12.75 hrs Surf.Area= 3,284 sf Storage= 4,993 cf

Plug-Flow detention time= 158.1 min calculated for 0.288 af (96% of inflow)
Center-of-Mass det. time= 137.2 min (965.6 - 828.4)

Volume	Invert	Avail.Storage	Storage Description
#1	320.50'	3,836 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 26,272 cf Overall - 16,683 cf Embedded = 9,589 cf x 40.0% Voids
#2	321.00'	12,422 cf	**retain_it retain_it 5.0'** x 46 Inside #1 Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf 1 Rows adjusted for 976.7 cf perimeter wall
		16,258 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
320.50	3,284	0	0
328.50	3,284	26,272	26,272

Device	Routing	Invert	Outlet Devices
#1	Discarded	320.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	326.70'	**6.0" Round Culvert** L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 326.70' / 319.00' S= 0.4278 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	322.00'	**6.0" Round Culvert** L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 322.00' / 320.00' S= 0.1111 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.18 cfs @ 11.32 hrs HW=320.58' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.60 cfs @ 12.75 hrs HW=322.65' (Free Discharge)
├**2=Culvert** (Controls 0.00 cfs)
└**3=Culvert** (Inlet Controls 0.60 cfs @ 3.06 fps)

Summary for Pond 27P: INFILTRATION STRUCTURE FOR 9-11

Inflow Area = 0.046 ac,100.00% Impervious, Inflow Depth > 3.10" for 2 YEAR event
Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af
Outflow = 0.01 cfs @ 10.40 hrs, Volume= 0.010 af, Atten= 95%, Lag= 0.0 min
Discarded = 0.01 cfs @ 10.40 hrs, Volume= 0.010 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 338.35' @ 14.11 hrs Surf.Area= 319 sf Storage= 239 cf

Plug-Flow detention time= 245.9 min calculated for 0.010 af (86% of inflow)
Center-of-Mass det. time= 183.2 min (937.5 - 754.3)

Volume	Invert	Avail.Storage	Storage Description
#1	337.00'	339 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,595 cf Overall - 748 cf Embedded = 847 cf x 40.0% Voids
#2	337.50'	557 cf	**Shea Dry Well 300gal** x 12 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf 12 Chambers in 2 Rows
		895 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
337.00	319	0	0
342.00	319	1,595	1,595

Device	Routing	Invert	Outlet Devices
#1	Discarded	337.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 10.40 hrs HW=337.05' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Summary for Pond 28P: INFILTRATION STRUCTURE FOR BACKS OF 22-26

Inflow Area = 0.058 ac,100.00% Impervious, Inflow Depth > 3.10" for 2 YEAR event
Inflow = 0.19 cfs @ 12.07 hrs, Volume= 0.015 af
Outflow = 0.01 cfs @ 10.76 hrs, Volume= 0.014 af, Atten= 94%, Lag= 0.0 min
Discarded = 0.01 cfs @ 10.76 hrs, Volume= 0.014 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 333.18' @ 13.77 hrs Surf.Area= 462 sf Storage= 281 cf

Plug-Flow detention time= 214.6 min calculated for 0.014 af (97% of inflow)
Center-of-Mass det. time= 194.7 min (949.0 - 754.3)

Volume	Invert	Avail.Storage	Storage Description
#1	332.00'	575 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,310 cf Overall - 873 cf Embedded = 1,437 cf x 40.0% Voids
#2	332.50'	649 cf	**Shea Dry Well 300gal** x 14 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf 14 Chambers in 2 Rows
		1,224 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
332.00	462	0	0
337.00	462	2,310	2,310

Device	Routing	Invert	Outlet Devices
#1	Discarded	332.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 10.76 hrs HW=332.05' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Summary for Pond 29P: INFILTRATION STRUCTURE FOR 20, 21, 29 & HALF OF 26-28

Inflow Area = 0.104 ac,100.00% Impervious, Inflow Depth > 3.10" for 2 YEAR event
Inflow = 0.34 cfs @ 12.07 hrs, Volume= 0.027 af
Outflow = 0.02 cfs @ 10.24 hrs, Volume= 0.021 af, Atten= 95%, Lag= 0.0 min
Discarded = 0.02 cfs @ 10.24 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 328.47' @ 14.45 hrs Surf.Area= 659 sf Storage= 560 cf

Plug-Flow detention time= 254.0 min calculated for 0.021 af (80% of inflow)
Center-of-Mass det. time= 177.1 min (931.3 - 754.3)

Volume	Invert	Avail.Storage	Storage Description
#1	327.00'	777 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 3,625 cf Overall - 1,683 cf Embedded = 1,942 cf x 40.0% Voids
#2	327.50'	1,252 cf	**Shea Dry Well 300gal** x 27 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf
		2,029 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
327.00	659	0	0
332.50	659	3,625	3,625

Device	Routing	Invert	Outlet Devices
#1	Discarded	327.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 10.24 hrs HW=327.06' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

10 YEAR STORM

PREDEVELOPMENT

Summary for Subcatchment 1S: PREDEV FLOW FROM PARKING AREA

Runoff = 4.92 cfs @ 12.08 hrs, Volume= 0.396 af, Depth> 4.78"
Routed to Pond 1P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
31,021	98	Paved parking, HSG B
280	74	>75% Grass cover, Good, HSG C
1,049	61	>75% Grass cover, Good, HSG B
10,964	98	Paved parking, HSG C
43,314	97	Weighted Average
1,329		3.07% Pervious Area
41,985		96.93% Impervious Area

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

Summary for Subcatchment 2S: PREDEV OVERLAND FLOW TO DETENTION BASIN

Runoff = 0.61 cfs @ 12.17 hrs, Volume= 0.055 af, Depth> 1.52"
Routed to Pond 1P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
2,913	98	Water Surface, HSG B
1,161	70	Woods, Good, HSG C
14,991	55	Woods, Good, HSG B
19,065	62	Weighted Average
16,152		84.72% Pervious Area
2,913		15.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	58	0.1600	2.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	108	Total			

Summary for Subcatchment 3S: PREDEV OVERLAND FLOW TO PARKERVILLE ROAD

Runoff = 6.22 cfs @ 12.37 hrs, Volume= 0.748 af, Depth> 1.74"
Routed to Reach 1R : PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
144,569	70	Woods, Good, HSG C
63,690	55	Woods, Good, HSG B
16,200	61	>75% Grass cover, Good, HSG B
780	98	Roofs, HSG B
225,239	65	Weighted Average
224,459		99.65% Pervious Area
780		0.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.20"
9.9	754	0.0640	1.26		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	243	0.0370	4.76	57.07	**Channel Flow, 2' WIDE BOTTOM, 10:1 SIDE SLOPES,1'DEEP** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
24.6	1,047	Total			

Summary for Subcatchment 4S: OVERLAND FLOW TO ROUTE 9

Runoff = 7.81 cfs @ 12.26 hrs, Volume= 0.810 af, Depth> 2.13"
Routed to Reach 4R : ROUTE 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
54,059	55	Woods, Good, HSG B
24,068	55	Woods, Good, HSG B
36,060	70	Woods, Good, HSG C
33,500	61	>75% Grass cover, Good, HSG B
1,900	74	>75% Grass cover, Good, HSG C
42,307	98	Paved parking, HSG B
2,250	98	Paved parking, HSG B
4,349	98	Paved parking, HSG C
198,493	70	Weighted Average
149,587		75.36% Pervious Area
48,906		24.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.1	242	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
9.1	709	0.0680	1.30		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	365	0.0160	3.13	37.53	**Channel Flow,** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
18.3	1,366	Total			

Summary for Subcatchment 5S: DRAINAGE COLLECTED BY CB'S SW OF SELF STORAGE BUILDING

Runoff = 1.96 cfs @ 12.09 hrs, Volume= 0.141 af, Depth> 3.40"
Routed to Pond 5P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
6,345	61	>75% Grass cover, Good, HSG B
3,301	74	>75% Grass cover, Good, HSG C
6,254	98	Paved parking, HSG B
5,860	98	Paved parking, HSG C
21,760	84	Weighted Average
9,646		44.33% Pervious Area
12,114		55.67% Impervious Area

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

Summary for Subcatchment 6S: OVERLAND FLOW TO EXISTING DETENTION BASIN

Runoff = 2.32 cfs @ 12.18 hrs, Volume= 0.209 af, Depth> 2.22"
Routed to Pond 5P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
46,762	70	Woods, Good, HSG C
2,500	98	Water Surface, HSG C
49,262	71	Weighted Average
46,762		94.93% Pervious Area
2,500		5.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	50	0.0450	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	324	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.7	374	Total			

Summary for Subcatchment 7S: RUNOFF COLLECTED BY SARSEN STONE WAY

Runoff = 21.01 cfs @ 12.13 hrs, Volume= 1.674 af, Depth> 1.98"
Routed to Pond 7P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
317,393	68	1 acre lots, 20% imp, HSG B
125,360	68	1 acre lots, 20% imp, HSG B
442,753	68	Weighted Average
354,202		80.00% Pervious Area
88,551		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
2.0	214	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	175	0.1000	4.74		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	210	0.1000	6.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.4	649	Total			

Summary for Subcatchment 8S: PREDEV FLOW ON EAGLE LEASING

Runoff = 17.78 cfs @ 12.17 hrs, Volume= 1.559 af, Depth> 3.10"
Routed to Pond 8P : DET BASIN ON EAGLE LEASING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
24,658	98	Paved parking, HSG B
8,220	61	>75% Grass cover, Good, HSG B
104,681	98	Paved parking, HSG C
34,894	74	>75% Grass cover, Good, HSG C
235	98	Paved parking, HSG B
6,197	61	>75% Grass cover, Good, HSG B
30,530	61	>75% Grass cover, Good, HSG B
5,140	98	Paved parking, HSG B
48,076	55	Woods, Good, HSG B
262,631	81	Weighted Average
127,917		48.71% Pervious Area
134,714		51.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
4.2	413	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	360	0.0440	2.10		**Shallow Concentrated Flow,** Nearly Bare & Untilled Kv= 10.0 fps
12.4	823	Total			

Summary for Subcatchment 9S: OVERLAND FLOW TO DET BASIN BEHIND 5 & 7 SARSEN STONE

Runoff = 7.92 cfs @ 12.09 hrs, Volume= 0.585 af, Depth> 1.90"
Routed to Pond 7P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
20,407	70	Woods, Good, HSG C
3,300	98	Water Surface, HSG B
36,775	55	Woods, Good, HSG B
13,560	70	1/2 acre lots, 25% imp, HSG B
87,016	70	1/2 acre lots, 25% imp, HSG B
161,058	67	Weighted Average
132,614		82.34% Pervious Area
28,444		17.66% Impervious Area

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

Summary for Subcatchment 10S: PREDEV OVERLAND FLOW TO PENDERGAST & WITTCOFF

Runoff = 0.53 cfs @ 12.20 hrs, Volume= 0.049 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
616	55	Woods, Good, HSG B
11,769	70	Woods, Good, HSG C
12,385	69	Weighted Average
12,385		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	265	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.4	315	Total			

Summary for Subcatchment 11S: PREDEV FLOW TO PALMER

Runoff = 0.03 cfs @ 12.09 hrs, Volume= 0.002 af, Depth> 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
593	70	Woods, Good, HSG C
593		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	25	0.0300	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"

Summary for Reach 1R: PARKERVILLE ROAD

Inflow Area = 6.603 ac, 15.88% Impervious, Inflow Depth > 2.18" for 10 YEAR event
Inflow = 9.01 cfs @ 12.36 hrs, Volume= 1.199 af
Outflow = 9.01 cfs @ 12.36 hrs, Volume= 1.199 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Summary for Reach 4R: ROUTE 9

Inflow Area = 26.078 ac, 27.75% Impervious, Inflow Depth > 2.28" for 10 YEAR event
Inflow = 22.72 cfs @ 12.32 hrs, Volume= 4.962 af
Outflow = 22.72 cfs @ 12.32 hrs, Volume= 4.962 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

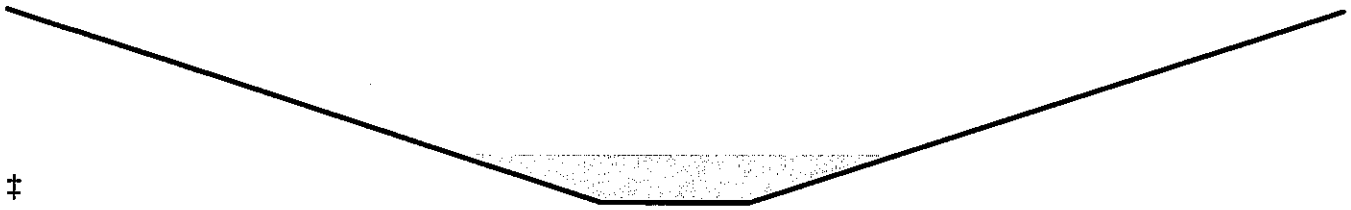
Summary for Reach 7R: FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 1.95" for 10 YEAR event
Inflow = 8.90 cfs @ 12.51 hrs, Volume= 2.253 af
Outflow = 8.80 cfs @ 12.56 hrs, Volume= 2.249 af, Atten= 1%, Lag= 2.8 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.45 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 2.55 fps, Avg. Travel Time= 2.6 min

Peak Storage= 789 cf @ 12.53 hrs
Average Depth at Peak Storage= 0.50' , Surface Width= 5.98'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 198.41 cfs

2.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 4.0 '/' Top Width= 18.00'
Length= 397.0' Slope= 0.0642 '/'
Inlet Invert= 349.00', Outlet Invert= 323.50'



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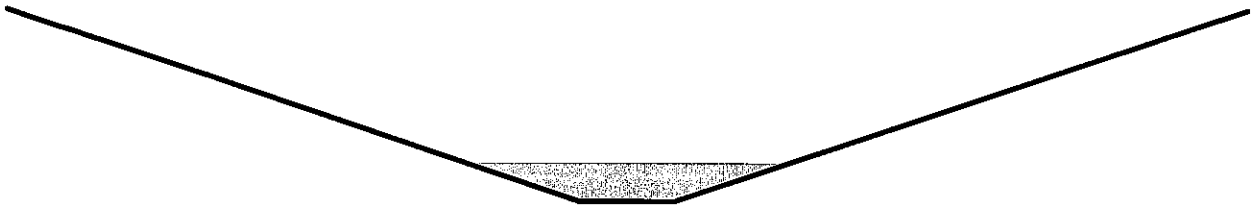
Summary for Reach 8R: FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 3.10" for 10 YEAR event
Inflow = 6.71 cfs @ 12.53 hrs, Volume= 1.558 af
Outflow = 6.71 cfs @ 12.54 hrs, Volume= 1.558 af, Atten= 0%, Lag= 0.6 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.56 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.89 fps, Avg. Travel Time= 0.7 min

Peak Storage= 139 cf @ 12.53 hrs
Average Depth at Peak Storage= 0.40' , Surface Width= 3.41'
Bank-Full Depth= 2.00' Flow Area= 14.0 sf, Capacity= 271.03 cfs

1.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 '/' Top Width= 13.00'
Length= 157.0' Slope= 0.1025 '/'
Inlet Invert= 342.10', Outlet Invert= 326.00'



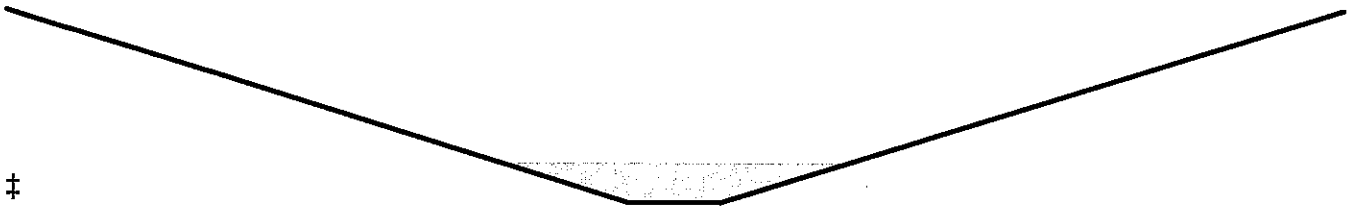
Summary for Reach 22R: FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Inflow Area = 21.521 ac, 28.41% Impervious, Inflow Depth > 2.32" for 10 YEAR event
Inflow = 17.55 cfs @ 12.55 hrs, Volume= 4.156 af
Outflow = 17.47 cfs @ 12.58 hrs, Volume= 4.152 af, Atten= 0%, Lag= 1.9 min
Routed to Reach 4R : ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.00 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 3.02 fps, Avg. Travel Time= 2.1 min

Peak Storage= 1,118 cf @ 12.56 hrs
Average Depth at Peak Storage= 0.41' , Surface Width= 11.21'
Bank-Full Depth= 2.00' Flow Area= 46.0 sf, Capacity= 707.92 cfs

3.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 10.0 '/' Top Width= 43.00'
Length= 383.0' Slope= 0.0888 '/'
Inlet Invert= 349.00', Outlet Invert= 315.00'



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Summary for Pond 1P: EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Inflow Area = 1.432 ac, 71.98% Impervious, Inflow Depth > 3.79" for 10 YEAR event
Inflow = 5.38 cfs @ 12.09 hrs, Volume= 0.452 af
Outflow = 2.89 cfs @ 12.24 hrs, Volume= 0.451 af, Atten= 46%, Lag= 9.3 min
Primary = 2.89 cfs @ 12.24 hrs, Volume= 0.451 af
Routed to Reach 1R : PARKERVILLE ROAD

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 309.58' @ 12.24 hrs Surf.Area= 5,028 sf Storage= 2,725 cf

Plug-Flow detention time= 11.0 min calculated for 0.451 af (100% of inflow)

Center-of-Mass det. time= 9.9 min (778.9 - 769.0)

Volume	Invert	Avail.Storage	Storage Description
#1	308.50'	20,440 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.50	0	0	0
310.00	6,960	5,220	5,220
312.00	8,260	15,220	20,440

Device	Routing	Invert	Outlet Devices
#1	Primary	308.50'	**12.0" Round Culvert** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 308.50' / 308.10' S= 0.0133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	311.50'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.89 cfs @ 12.24 hrs HW=309.58' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 2.89 cfs @ 3.68 fps)
└—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Inflow Area = 1.630 ac, 20.58% Impervious, Inflow Depth > 2.58" for 10 YEAR event
Inflow = 3.86 cfs @ 12.13 hrs, Volume= 0.350 af
Outflow = 2.32 cfs @ 12.35 hrs, Volume= 0.349 af, Atten= 40%, Lag= 13.4 min
Primary = 2.32 cfs @ 12.35 hrs, Volume= 0.349 af
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 326.48' @ 12.35 hrs Surf.Area= 3,869 sf Storage= 2,757 cf

Plug-Flow detention time= 18.8 min calculated for 0.349 af (100% of inflow)
Center-of-Mass det. time= 16.3 min (848.6 - 832.4)

Volume	Invert	Avail.Storage	Storage Description
#1	325.50'	12,719 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.50	0	0	0
326.00	3,700	925	925
328.00	4,400	8,100	9,025
328.75	5,450	3,694	12,719

Device	Routing	Invert	Outlet Devices
#1	Primary	325.50'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 325.50' / 325.25' S= 0.0066 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	328.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=2.32 cfs @ 12.35 hrs HW=326.48' (Free Discharge)
1=Culvert (Barrel Controls 2.32 cfs @ 3.73 fps)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 7P: EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 1.96" for 10 YEAR event
Inflow = 28.52 cfs @ 12.12 hrs, Volume= 2.259 af
Outflow = 8.90 cfs @ 12.51 hrs, Volume= 2.253 af, Atten= 69%, Lag= 23.7 min
Primary = 8.90 cfs @ 12.51 hrs, Volume= 2.253 af
Routed to Reach 7R : FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 355.11' @ 12.51 hrs Surf.Area= 10,691 sf Storage= 27,204 cf

Plug-Flow detention time= 33.5 min calculated for 2.253 af (100% of inflow)
Center-of-Mass det. time= 31.8 min (884.4 - 852.6)

Volume	Invert	Avail.Storage	Storage Description
#1	351.00'	37,428 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
351.00	0	0	0
352.00	5,106	2,553	2,553
354.00	8,764	13,870	16,423
356.00	12,241	21,005	37,428

Device	Routing	Invert	Outlet Devices
#1	Primary	351.00'	**12.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 351.00' / 349.00' S= 0.0333 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	355.00'	**20.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=8.85 cfs @ 12.51 hrs HW=355.11' (Free Discharge)
1=Culvert (Inlet Controls 7.18 cfs @ 9.14 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 1.67 cfs @ 0.78 fps)

Summary for Pond 8P: DET BASIN ON EAGLE LEASING

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 3.10" for 10 YEAR event
Inflow = 17.78 cfs @ 12.17 hrs, Volume= 1.559 af
Outflow = 6.71 cfs @ 12.53 hrs, Volume= 1.558 af, Atten= 62%, Lag= 21.4 min
Primary = 6.71 cfs @ 12.53 hrs, Volume= 1.558 af
Routed to Reach 8R : FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 346.15' @ 12.53 hrs Surf.Area= 11,290 sf Storage= 13,617 cf

Plug-Flow detention time= 12.5 min calculated for 1.556 af (100% of inflow)
Center-of-Mass det. time= 12.3 min (834.8 - 822.5)

Volume	Invert	Avail.Storage	Storage Description
#1	342.50'	46,903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
342.50	0	0	0
344.00	1,030	773	773
346.00	10,200	11,230	12,003
348.00	24,700	34,900	46,903

Device	Routing	Invert	Outlet Devices
#1	Primary	342.50'	**12.0" Round Culvert** L= 33.0' Ke= 0.500 Inlet / Outlet Invert= 342.50' / 342.10' S= 0.0121 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	347.00'	**12.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 4.5' Crest Height

Primary OutFlow Max=6.71 cfs @ 12.53 hrs HW=346.15' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 6.71 cfs @ 8.54 fps)
└—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

POSTDEVELOPMENT

Summary for Subcatchment 11S: POSTDEV FLOW FROM PARKING AREA

Runoff = 4.58 cfs @ 12.08 hrs, Volume= 0.369 af, Depth> 4.78"
Routed to Pond 11P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
28,308	98	Paved parking, HSG B
610	61	>75% Grass cover, Good, HSG B
10,964	98	Paved parking, HSG C
390	74	>75% Grass cover, Good, HSG C
40,272	97	Weighted Average
1,000		2.48% Pervious Area
39,272		97.52% Impervious Area

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

Summary for Subcatchment 12S: POSTDEV OVERLAND FLOW TO DETENTION BASIN

Runoff = 0.62 cfs @ 12.17 hrs, Volume= 0.056 af, Depth> 1.59"
Routed to Pond 11P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
2,913	98	Water Surface, HSG B
850	70	Woods, Good, HSG C
14,581	55	Woods, Good, HSG B
18,344	63	Weighted Average
15,431		84.12% Pervious Area
2,913		15.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	58	0.1600	2.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	108	Total			

Summary for Subcatchment 13S: POSTDEV OVERLAND FLOW TO PARKERVILLE ROAD

Runoff = 3.80 cfs @ 12.33 hrs, Volume= 0.435 af, Depth> 1.81"
Routed to Reach 11R : PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
3,898	70	Woods, Good, HSG C
3,546	74	>75% Grass cover, Good, HSG C
18,640	55	Woods, Good, HSG B
285	61	>75% Grass cover, Good, HSG B
160	55	Woods, Good, HSG B
14,938	61	>75% Grass cover, Good, HSG B
789	98	Unconnected roofs, HSG B
2,869	55	Woods, Good, HSG B
1,012	61	>75% Grass cover, Good, HSG B
4,580	55	Woods, Good, HSG B
1,369	98	Roofs, HSG B
1,507	98	Roofs, HSG C
186	74	>75% Grass cover, Good, HSG C
23,192	70	Woods, Good, HSG C
1,585	74	>75% Grass cover, Good, HSG C
7,295	55	Woods, Good, HSG B
2,016	98	Roofs, HSG C
2,757	74	>75% Grass cover, Good, HSG C
1,655	98	Roofs, HSG C
21,881	74	>75% Grass cover, Good, HSG C
8,648	55	Woods, Good, HSG B
2,419	70	Woods, Good, HSG C
125,227	66	Weighted Average
117,891		94.14% Pervious Area
7,336		5.86% Impervious Area
789		10.76% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0350	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.20"
2.7	196	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	39	0.1500	5.44	10.87	**Channel Flow, 1' WIDE BOTTOM, 1:1 SIDE SLOPES,1'DEEP** Area= 2.0 sf Perim= 3.8' r= 0.53' n= 0.069 Riprap, 6-inch
1.0	83	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	284	0.0320	4.42	53.08	**Channel Flow,** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
22.1	652	Total			

Summary for Subcatchment 14S: OVERLAND FLOW TO ROUTE 9

Runoff = 7.81 cfs @ 12.26 hrs, Volume= 0.810 af, Depth> 2.13"
Routed to Reach 14R : ROUTE 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
31,704	70	Woods, Good, HSG C
0	98	Roofs, HSG C
4,306	98	Roofs, HSG C
11,703	74	>75% Grass cover, Good, HSG C
75,805	55	Woods, Good, HSG B
44,135	98	Paved parking, HSG B
30,829	61	>75% Grass cover, Good, HSG B
198,482	70	Weighted Average
150,041		75.59% Pervious Area
48,441		24.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.1	242	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
9.1	709	0.0680	1.30		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	365	0.0160	3.13	37.53	**Channel Flow,** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
18.3	1,366	Total			

Summary for Subcatchment 15S: DRAINAGE COLLECTED BY CB'S SW OF SELF STORAGE BUILDING

Runoff = 1.96 cfs @ 12.09 hrs, Volume= 0.141 af, Depth> 3.40"
Routed to Pond 15P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
6,345	61	>75% Grass cover, Good, HSG B
3,301	74	>75% Grass cover, Good, HSG C
6,254	98	Paved parking, HSG B
5,860	98	Paved parking, HSG C
21,760	84	Weighted Average
9,646		44.33% Pervious Area
12,114		55.67% Impervious Area

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

Summary for Subcatchment 16S: OVERLAND FLOW TO EXISTING DETENTION BASIN

Runoff = 2.32 cfs @ 12.18 hrs, Volume= 0.209 af, Depth> 2.22"
Routed to Pond 15P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
46,762	70	Woods, Good, HSG C
2,500	98	Water Surface, HSG C
49,262	71	Weighted Average
46,762		94.93% Pervious Area
2,500		5.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	50	0.0450	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	324	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.7	374	Total			

Summary for Subcatchment 17S: RUNOFF COLLECTED BY SARSEN STONE WAY

Runoff = 21.01 cfs @ 12.13 hrs, Volume= 1.674 af, Depth> 1.98"
Routed to Pond 17P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
317,393	68	1 acre lots, 20% imp, HSG B
125,360	68	1 acre lots, 20% imp, HSG B
442,753	68	Weighted Average
354,202		80.00% Pervious Area
88,551		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
2.0	214	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	175	0.1000	4.74		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	210	0.1000	6.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.4	649	Total			

Summary for Subcatchment 18S: POSTDEV FLOW ON EAGLE LEASING

Runoff = 17.78 cfs @ 12.17 hrs, Volume= 1.559 af, Depth> 3.10"
Routed to Pond 18P : DET BASIN ON EAGLE LEASING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
24,658	98	Paved parking, HSG B
8,220	61	>75% Grass cover, Good, HSG B
104,681	98	Paved parking, HSG C
34,894	74	>75% Grass cover, Good, HSG C
235	98	Paved parking, HSG B
6,197	61	>75% Grass cover, Good, HSG B
30,530	61	>75% Grass cover, Good, HSG B
5,140	98	Paved parking, HSG B
48,076	55	Woods, Good, HSG B
262,631	81	Weighted Average
127,917		48.71% Pervious Area
134,714		51.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
4.2	413	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	360	0.0440	2.10		**Shallow Concentrated Flow,** Nearly Bare & Untilled Kv= 10.0 fps
12.4	823	Total			

Summary for Subcatchment 19S: OVERLAND FLOW TO DET BASIN BEHIND 5 & 7 SARSEN STONE

Runoff = 7.92 cfs @ 12.09 hrs, Volume= 0.585 af, Depth> 1.90"
Routed to Pond 17P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
20,407	70	Woods, Good, HSG C
3,300	98	Water Surface, HSG B
36,775	55	Woods, Good, HSG B
13,560	70	1/2 acre lots, 25% imp, HSG B
87,016	70	1/2 acre lots, 25% imp, HSG B
161,058	67	Weighted Average
132,614		82.34% Pervious Area
28,444		17.66% Impervious Area

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

Summary for Subcatchment 20S: POSTDEV FLOW TO PENDERGAST & WITTCOFF

Runoff = 0.48 cfs @ 12.14 hrs, Volume= 0.039 af, Depth> 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
644	55	Woods, Good, HSG B
386	61	>75% Grass cover, Good, HSG B
4,671	70	Woods, Good, HSG C
3,921	74	>75% Grass cover, Good, HSG C
9,622	70	Weighted Average
9,622		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
2.3	207	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.4	257	Total			

Summary for Subcatchment 21S: POSTDEV FLOW TO PALMER

Runoff = 0.03 cfs @ 12.07 hrs, Volume= 0.002 af, Depth> 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
480	70	Woods, Good, HSG C
480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	17	0.0300	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"

Summary for Subcatchment 25S: AREA CAPTURED IN MAIN DRIVE

Runoff = 5.65 cfs @ 12.22 hrs, Volume= 0.553 af, Depth> 3.59"
Routed to Pond 24P : INFILTRATION STRUCTURE UNDER PARKING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
37,220	98	Paved parking, HSG C
10,950	98	Paved parking, HSG B
9,981	61	>75% Grass cover, Good, HSG B
15,395	74	>75% Grass cover, Good, HSG C
3,684	55	Woods, Good, HSG B
1,155	98	Roofs, HSG B
548	61	>75% Grass cover, Good, HSG B
1,555	55	Woods, Good, HSG B
80,488	86	Weighted Average
31,163		38.72% Pervious Area
49,325		61.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.20"
0.5	55	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	79	0.0380	1.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	167	0.0240	3.14		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
16.2	351	Total			

Summary for Subcatchment 26S: DRIVEWAY AND 5 UNITS AT ENTRANCE

Runoff = 1.25 cfs @ 12.29 hrs, Volume= 0.145 af, Depth> 4.43"
Routed to Reach 26R : FLOW PATH FROM OUTLET TO PARKERVILLE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
2,804	74	>75% Grass cover, Good, HSG C
13,548	98	Paved parking, HSG C
776	98	Paved parking, HSG B
17,128	94	Weighted Average
2,804		16.37% Pervious Area
14,324		83.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.3	19	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
21.8	69	Total			

Summary for Subcatchment 27S: UNIT 9 AND BACK HALF OF ROOFS UNITS 10-11

Runoff = 0.24 cfs @ 12.07 hrs, Volume= 0.019 af, Depth> 4.90"
Routed to Pond 27P : INFILTRATION STRUCTURE FOR 9-11

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
2,016	98	Roofs, HSG C
2,016		100.00% Impervious Area

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

Summary for Subcatchment 28S: BACK HALF OF ROOFS UNITS 22-26

Runoff = 0.30 cfs @ 12.07 hrs, Volume= 0.024 af, Depth> 4.90"
Routed to Pond 28P : INFILTRATION STRUCTURE FOR BACKS OF 22-26

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
2,520	98	Roofs, HSG C
2,520		100.00% Impervious Area

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

Summary for Subcatchment 29S: ROOFS FROM 20,21,29 & HALF OF 26-28

Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.043 af, Depth> 4.90"
Routed to Pond 29P : INFILTRATION STRUCTURE FOR 20, 21, 29 & HALF OF 26-28

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 YEAR Rainfall=5.14"

Area (sf)	CN	Description
4,032	98	Roofs, HSG C
504	98	Roofs, HSG C
4,536	98	Weighted Average
4,536		100.00% Impervious Area

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

Summary for Reach 11R: PARKERVILLE ROAD

Inflow Area = 6.461 ac, 40.21% Impervious, Inflow Depth > 2.38" for 10 YEAR event
Inflow = 8.68 cfs @ 12.35 hrs, Volume= 1.279 af
Outflow = 8.68 cfs @ 12.35 hrs, Volume= 1.279 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Summary for Reach 14R: ROUTE 9

Inflow Area = 26.078 ac, 27.71% Impervious, Inflow Depth > 2.28" for 10 YEAR event
Inflow = 22.71 cfs @ 12.32 hrs, Volume= 4.962 af
Outflow = 22.71 cfs @ 12.32 hrs, Volume= 4.962 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

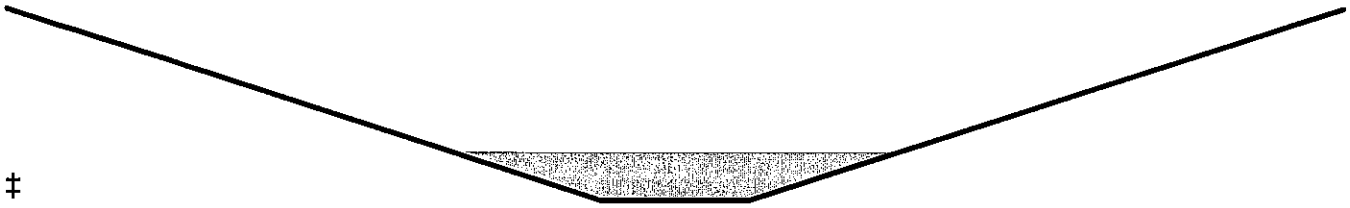
Summary for Reach 17R: FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 1.95" for 10 YEAR event
Inflow = 8.90 cfs @ 12.51 hrs, Volume= 2.253 af
Outflow = 8.80 cfs @ 12.56 hrs, Volume= 2.249 af, Atten= 1%, Lag= 2.8 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 4.45 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 2.55 fps, Avg. Travel Time= 2.6 min

Peak Storage= 789 cf @ 12.53 hrs
Average Depth at Peak Storage= 0.50' , Surface Width= 5.98'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 198.41 cfs

2.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 4.0 '/' Top Width= 18.00'
Length= 397.0' Slope= 0.0642 '/'
Inlet Invert= 349.00', Outlet Invert= 323.50'



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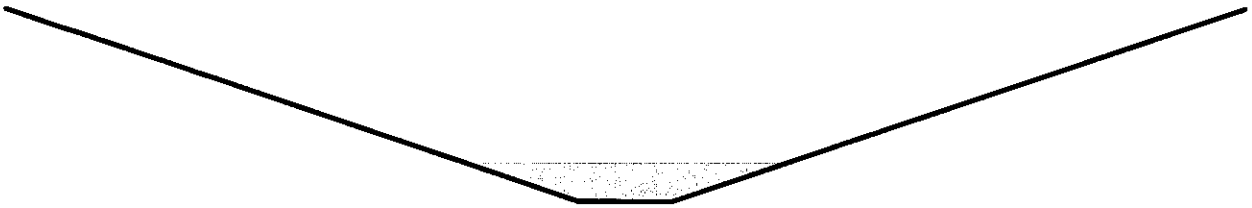
Summary for Reach 18R: FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 3.10" for 10 YEAR event
Inflow = 6.71 cfs @ 12.53 hrs, Volume= 1.558 af
Outflow = 6.71 cfs @ 12.54 hrs, Volume= 1.558 af, Atten= 0%, Lag= 0.6 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.56 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.89 fps, Avg. Travel Time= 0.7 min

Peak Storage= 139 cf @ 12.53 hrs
Average Depth at Peak Storage= 0.40' , Surface Width= 3.41'
Bank-Full Depth= 2.00' Flow Area= 14.0 sf, Capacity= 271.03 cfs

1.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 '/' Top Width= 13.00'
Length= 157.0' Slope= 0.1025 '/'
Inlet Invert= 342.10', Outlet Invert= 326.00'



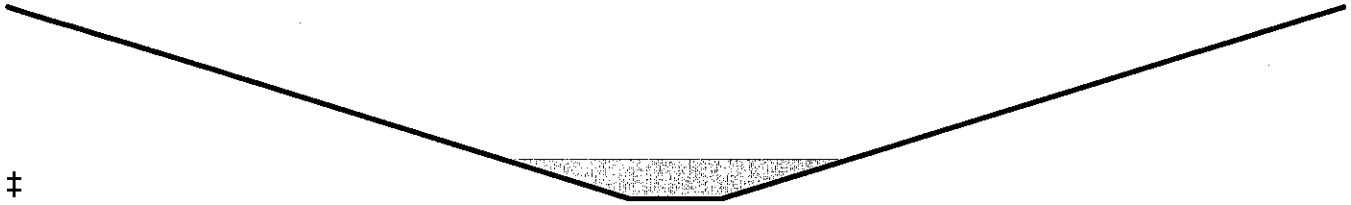
Summary for Reach 22R: FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Inflow Area = 21.521 ac, 28.41% Impervious, Inflow Depth > 2.32" for 10 YEAR event
Inflow = 17.55 cfs @ 12.55 hrs, Volume= 4.156 af
Outflow = 17.47 cfs @ 12.58 hrs, Volume= 4.152 af, Atten= 0%, Lag= 1.9 min
Routed to Reach 14R : ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 6.00 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 3.02 fps, Avg. Travel Time= 2.1 min

Peak Storage= 1,118 cf @ 12.56 hrs
Average Depth at Peak Storage= 0.41' , Surface Width= 11.21'
Bank-Full Depth= 2.00' Flow Area= 46.0 sf, Capacity= 707.92 cfs

3.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 10.0 '/' Top Width= 43.00'
Length= 383.0' Slope= 0.0888 '/'
Inlet Invert= 349.00', Outlet Invert= 315.00'



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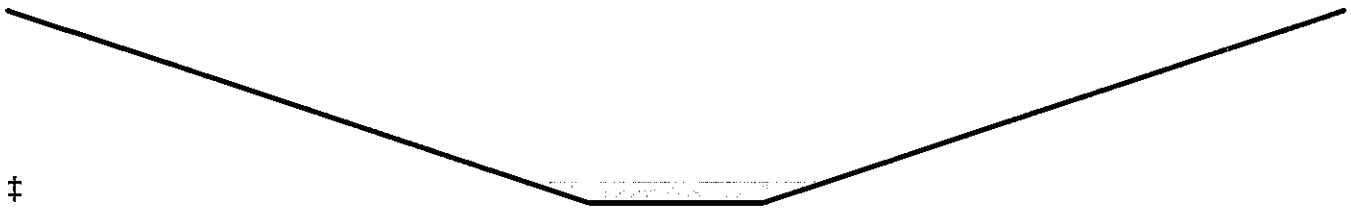
Summary for Reach 26R: FLOW PATH FROM OUTLET TO PARKERVILLE

Inflow Area = 2.241 ac, 65.20% Impervious, Inflow Depth > 2.26" for 10 YEAR event
Inflow = 2.31 cfs @ 12.36 hrs, Volume= 0.421 af
Outflow = 2.30 cfs @ 12.43 hrs, Volume= 0.421 af, Atten= 1%, Lag= 4.2 min
Routed to Reach 11R : PARKERVILLE ROAD

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.56 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 0.92 fps, Avg. Travel Time= 6.5 min

Peak Storage= 323 cf @ 12.39 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 10.39'
Bank-Full Depth= 1.00' Flow Area= 26.0 sf, Capacity= 232.32 cfs

6.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 20.0 '/' Top Width= 46.00'
Length= 360.0' Slope= 0.0375 '/'
Inlet Invert= 318.00', Outlet Invert= 304.50'



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Summary for Pond 11P: EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Inflow Area = 1.346 ac, 71.97% Impervious, Inflow Depth > 3.79" for 10 YEAR event
Inflow = 5.05 cfs @ 12.09 hrs, Volume= 0.424 af
Outflow = 2.78 cfs @ 12.24 hrs, Volume= 0.424 af, Atten= 45%, Lag= 8.9 min
Primary = 2.78 cfs @ 12.24 hrs, Volume= 0.424 af
Routed to Reach 11R : PARKERVILLE ROAD

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 309.54' @ 12.24 hrs Surf.Area= 4,825 sf Storage= 2,509 cf

Plug-Flow detention time= 10.8 min calculated for 0.424 af (100% of inflow)
Center-of-Mass det. time= 9.7 min (779.4 - 769.6)

Volume	Invert	Avail.Storage	Storage Description
#1	308.50'	20,440 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.50	0	0	0
310.00	6,960	5,220	5,220
312.00	8,260	15,220	20,440

Device	Routing	Invert	Outlet Devices
#1	Primary	308.50'	**12.0" Round Culvert** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 308.50' / 308.10' S= 0.0133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	311.50'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.78 cfs @ 12.24 hrs HW=309.54' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 2.78 cfs @ 3.54 fps)
└—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 15P: EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Inflow Area = 1.630 ac, 20.58% Impervious, Inflow Depth > 2.58" for 10 YEAR event
Inflow = 3.86 cfs @ 12.13 hrs, Volume= 0.350 af
Outflow = 2.32 cfs @ 12.35 hrs, Volume= 0.349 af, Atten= 40%, Lag= 13.4 min
Primary = 2.32 cfs @ 12.35 hrs, Volume= 0.349 af
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 326.48' @ 12.35 hrs Surf.Area= 3,869 sf Storage= 2,757 cf

Plug-Flow detention time= 18.8 min calculated for 0.349 af (100% of inflow)
Center-of-Mass det. time= 16.3 min (848.6 - 832.4)

Volume	Invert	Avail.Storage	Storage Description
#1	325.50'	12,719 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.50	0	0	0
326.00	3,700	925	925
328.00	4,400	8,100	9,025
328.75	5,450	3,694	12,719

Device	Routing	Invert	Outlet Devices
#1	Primary	325.50'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 325.50' / 325.25' S= 0.0066 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	328.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=2.32 cfs @ 12.35 hrs HW=326.48' (Free Discharge)
└**1=Culvert** (Barrel Controls 2.32 cfs @ 3.73 fps)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 17P: EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 1.96" for 10 YEAR event
Inflow = 28.52 cfs @ 12.12 hrs, Volume= 2.259 af
Outflow = 8.90 cfs @ 12.51 hrs, Volume= 2.253 af, Atten= 69%, Lag= 23.7 min
Primary = 8.90 cfs @ 12.51 hrs, Volume= 2.253 af
Routed to Reach 17R : FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 355.11' @ 12.51 hrs Surf.Area= 10,691 sf Storage= 27,204 cf

Plug-Flow detention time= 33.5 min calculated for 2.253 af (100% of inflow)
Center-of-Mass det. time= 31.8 min (884.4 - 852.6)

Volume	Invert	Avail.Storage	Storage Description
#1	351.00'	37,428 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
351.00	0	0	0
352.00	5,106	2,553	2,553
354.00	8,764	13,870	16,423
356.00	12,241	21,005	37,428

Device	Routing	Invert	Outlet Devices
#1	Primary	351.00'	**12.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 351.00' / 349.00' S= 0.0333 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	355.00'	**20.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=8.85 cfs @ 12.51 hrs HW=355.11' (Free Discharge)
└**1=Culvert** (Inlet Controls 7.18 cfs @ 9.14 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 1.67 cfs @ 0.78 fps)

Summary for Pond 18P: DET BASIN ON EAGLE LEASING

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 3.10" for 10 YEAR event
Inflow = 17.78 cfs @ 12.17 hrs, Volume= 1.559 af
Outflow = 6.71 cfs @ 12.53 hrs, Volume= 1.558 af, Atten= 62%, Lag= 21.4 min
Primary = 6.71 cfs @ 12.53 hrs, Volume= 1.558 af
Routed to Reach 18R : FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 346.15' @ 12.53 hrs Surf.Area= 11,290 sf Storage= 13,617 cf

Plug-Flow detention time= 12.5 min calculated for 1.556 af (100% of inflow)
Center-of-Mass det. time= 12.3 min (834.8 - 822.5)

Volume	Invert	Avail.Storage	Storage Description
#1	342.50'	46,903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
342.50	0	0	0
344.00	1,030	773	773
346.00	10,200	11,230	12,003
348.00	24,700	34,900	46,903

Device	Routing	Invert	Outlet Devices
#1	Primary	342.50'	**12.0" Round Culvert** L= 33.0' Ke= 0.500 Inlet / Outlet Invert= 342.50' / 342.10' S= 0.0121 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	347.00'	**12.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 4.5' Crest Height

Primary OutFlow Max=6.71 cfs @ 12.53 hrs HW=346.15' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 6.71 cfs @ 8.54 fps)
└—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 24P: INFILTRATION STRUCTURE UNDER PARKING

Inflow Area = 1.848 ac, 61.28% Impervious, Inflow Depth > 3.59" for 10 YEAR event
Inflow = 5.65 cfs @ 12.22 hrs, Volume= 0.553 af
Outflow = 1.54 cfs @ 12.70 hrs, Volume= 0.510 af, Atten= 73%, Lag= 29.2 min
Discarded = 0.18 cfs @ 9.96 hrs, Volume= 0.234 af
Primary = 1.35 cfs @ 12.70 hrs, Volume= 0.276 af
Routed to Reach 26R : FLOW PATH FROM OUTLET TO PARKERVILLE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 324.30' @ 12.70 hrs Surf.Area= 3,284 sf Storage= 9,314 cf

Plug-Flow detention time= 122.5 min calculated for 0.509 af (92% of inflow)
Center-of-Mass det. time= 83.4 min (894.6 - 811.1)

Volume	Invert	Avail.Storage	Storage Description
#1	320.50'	3,836 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 26,272 cf Overall - 16,683 cf Embedded = 9,589 cf x 40.0% Voids
#2	321.00'	12,422 cf	**retain_it retain_it 5.0'** x 46 Inside #1 Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf 1 Rows adjusted for 976.7 cf perimeter wall
		16,258 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
320.50	3,284	0	0
328.50	3,284	26,272	26,272

Device	Routing	Invert	Outlet Devices
#1	Discarded	320.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	326.70'	**6.0" Round Culvert** L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 326.70' / 319.00' S= 0.4278 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	322.00'	**6.0" Round Culvert** L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 322.00' / 320.00' S= 0.1111 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.18 cfs @ 9.96 hrs HW=320.58' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=1.35 cfs @ 12.70 hrs HW=324.30' (Free Discharge)
├**2=Culvert** (Controls 0.00 cfs)
└**3=Culvert** (Inlet Controls 1.35 cfs @ 6.90 fps)

Summary for Pond 27P: INFILTRATION STRUCTURE FOR 9-11

Inflow Area = 0.046 ac,100.00% Impervious, Inflow Depth > 4.90" for 10 YEAR event
Inflow = 0.24 cfs @ 12.07 hrs, Volume= 0.019 af
Outflow = 0.01 cfs @ 8.96 hrs, Volume= 0.011 af, Atten= 97%, Lag= 0.0 min
Discarded = 0.01 cfs @ 8.96 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 339.38' @ 15.60 hrs Surf.Area= 319 sf Storage= 451 cf

Plug-Flow detention time= 252.2 min calculated for 0.011 af (60% of inflow)
Center-of-Mass det. time= 141.6 min (887.9 - 746.3)

Volume	Invert	Avail.Storage	Storage Description
#1	337.00'	339 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,595 cf Overall - 748 cf Embedded = 847 cf x 40.0% Voids
#2	337.50'	557 cf	**Shea Dry Well 300gal** x 12 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf 12 Chambers in 2 Rows
		895 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
337.00	319	0	0
342.00	319	1,595	1,595

Device	Routing	Invert	Outlet Devices
#1	Discarded	337.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 8.96 hrs HW=337.05' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Summary for Pond 28P: INFILTRATION STRUCTURE FOR BACKS OF 22-26

Inflow Area = 0.058 ac,100.00% Impervious, Inflow Depth > 4.90" for 10 YEAR event
Inflow = 0.30 cfs @ 12.07 hrs, Volume= 0.024 af
Outflow = 0.01 cfs @ 9.40 hrs, Volume= 0.016 af, Atten= 96%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.40 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 334.08' @ 15.17 hrs Surf.Area= 462 sf Storage= 530 cf

Plug-Flow detention time= 253.1 min calculated for 0.016 af (67% of inflow)
Center-of-Mass det. time= 154.0 min (900.3 - 746.3)

Volume	Invert	Avail.Storage	Storage Description
#1	332.00'	575 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,310 cf Overall - 873 cf Embedded = 1,437 cf x 40.0% Voids
#2	332.50'	649 cf	**Shea Dry Well 300gal** x 14 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf 14 Chambers in 2 Rows
		1,224 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
332.00	462	0	0
337.00	462	2,310	2,310

Device	Routing	Invert	Outlet Devices
#1	Discarded	332.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 9.40 hrs HW=332.05' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Summary for Pond 29P: INFILTRATION STRUCTURE FOR 20, 21, 29 & HALF OF 26-28

Inflow Area = 0.104 ac,100.00% Impervious, Inflow Depth > 4.90" for 10 YEAR event
Inflow = 0.53 cfs @ 12.07 hrs, Volume= 0.043 af
Outflow = 0.02 cfs @ 8.76 hrs, Volume= 0.024 af, Atten= 97%, Lag= 0.0 min
Discarded = 0.02 cfs @ 8.76 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 329.58' @ 15.83 hrs Surf.Area= 659 sf Storage= 1,051 cf

Plug-Flow detention time= 252.9 min calculated for 0.024 af (55% of inflow)
Center-of-Mass det. time= 135.0 min (881.3 - 746.3)

Volume	Invert	Avail.Storage	Storage Description
#1	327.00'	777 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 3,625 cf Overall - 1,683 cf Embedded = 1,942 cf x 40.0% Voids
#2	327.50'	1,252 cf	**Shea Dry Well 300gal** x 27 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf
		2,029 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
327.00	659	0	0
332.50	659	3,625	3,625

Device	Routing	Invert	Outlet Devices
#1	Discarded	327.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 8.76 hrs HW=327.06' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

25 YEAR STORM

PREDEVELOPMENT

Summary for Subcatchment 1S: PREDEV FLOW FROM PARKING AREA

Runoff = 6.03 cfs @ 12.08 hrs, Volume= 0.490 af, Depth> 5.91"
Routed to Pond 1P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
31,021	98	Paved parking, HSG B
280	74	>75% Grass cover, Good, HSG C
1,049	61	>75% Grass cover, Good, HSG B
10,964	98	Paved parking, HSG C
43,314	97	Weighted Average
1,329		3.07% Pervious Area
41,985		96.93% Impervious Area

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

Summary for Subcatchment 2S: PREDEV OVERLAND FLOW TO DETENTION BASIN

Runoff = 0.95 cfs @ 12.16 hrs, Volume= 0.083 af, Depth> 2.27"
Routed to Pond 1P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
2,913	98	Water Surface, HSG B
1,161	70	Woods, Good, HSG C
14,991	55	Woods, Good, HSG B
19,065	62	Weighted Average
16,152		84.72% Pervious Area
2,913		15.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	58	0.1600	2.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	108	Total			

Summary for Subcatchment 3S: PREDEV OVERLAND FLOW TO PARKERVILLE ROAD

Runoff = 9.32 cfs @ 12.36 hrs, Volume= 1.092 af, Depth> 2.53"
Routed to Reach 1R : PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
144,569	70	Woods, Good, HSG C
63,690	55	Woods, Good, HSG B
16,200	61	>75% Grass cover, Good, HSG B
780	98	Roofs, HSG B
225,239	65	Weighted Average
224,459		99.65% Pervious Area
780		0.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.20"
9.9	754	0.0640	1.26		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	243	0.0370	4.76	57.07	**Channel Flow, 2' WIDE BOTTOM, 10:1 SIDE SLOPES,1'DEEP** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
24.6	1,047	Total			

Summary for Subcatchment 4S: OVERLAND FLOW TO ROUTE 9

Runoff = 11.20 cfs @ 12.26 hrs, Volume= 1.143 af, Depth> 3.01"
Routed to Reach 4R : ROUTE 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
54,059	55	Woods, Good, HSG B
24,068	55	Woods, Good, HSG B
36,060	70	Woods, Good, HSG C
33,500	61	>75% Grass cover, Good, HSG B
1,900	74	>75% Grass cover, Good, HSG C
42,307	98	Paved parking, HSG B
2,250	98	Paved parking, HSG B
4,349	98	Paved parking, HSG C
198,493	70	Weighted Average
149,587		75.36% Pervious Area
48,906		24.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.1	242	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
9.1	709	0.0680	1.30		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	365	0.0160	3.13	37.53	**Channel Flow,** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
18.3	1,366	Total			

Summary for Subcatchment 5S: DRAINAGE COLLECTED BY CB'S SW OF SELF STORAGE BUILDING

Runoff = 2.54 cfs @ 12.09 hrs, Volume= 0.185 af, Depth> 4.45"
Routed to Pond 5P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
6,345	61	>75% Grass cover, Good, HSG B
3,301	74	>75% Grass cover, Good, HSG C
6,254	98	Paved parking, HSG B
5,860	98	Paved parking, HSG C
21,760	84	Weighted Average
9,646		44.33% Pervious Area
12,114		55.67% Impervious Area

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

Summary for Subcatchment 6S: OVERLAND FLOW TO EXISTING DETENTION BASIN

Runoff = 3.31 cfs @ 12.18 hrs, Volume= 0.293 af, Depth> 3.11"
Routed to Pond 5P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
46,762	70	Woods, Good, HSG C
2,500	98	Water Surface, HSG C
49,262	71	Weighted Average
46,762		94.93% Pervious Area
2,500		5.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	50	0.0450	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	324	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.7	374	Total			

Summary for Subcatchment 7S: RUNOFF COLLECTED BY SARSEN STONE WAY

Runoff = 30.56 cfs @ 12.12 hrs, Volume= 2.393 af, Depth> 2.83"
Routed to Pond 7P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
317,393	68	1 acre lots, 20% imp, HSG B
125,360	68	1 acre lots, 20% imp, HSG B
442,753	68	Weighted Average
354,202		80.00% Pervious Area
88,551		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
2.0	214	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	175	0.1000	4.74		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	210	0.1000	6.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.4	649	Total			

Summary for Subcatchment 8S: PREDEV FLOW ON EAGLE LEASING

Runoff = 23.50 cfs @ 12.17 hrs, Volume= 2.071 af, Depth> 4.12"
Routed to Pond 8P : DET BASIN ON EAGLE LEASING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
24,658	98	Paved parking, HSG B
8,220	61	>75% Grass cover, Good, HSG B
104,681	98	Paved parking, HSG C
34,894	74	>75% Grass cover, Good, HSG C
235	98	Paved parking, HSG B
6,197	61	>75% Grass cover, Good, HSG B
30,530	61	>75% Grass cover, Good, HSG B
5,140	98	Paved parking, HSG B
48,076	55	Woods, Good, HSG B
262,631	81	Weighted Average
127,917		48.71% Pervious Area
134,714		51.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
4.2	413	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	360	0.0440	2.10		**Shallow Concentrated Flow,** Nearly Bare & Untilled Kv= 10.0 fps
12.4	823	Total			

Summary for Subcatchment 9S: OVERLAND FLOW TO DET BASIN BEHIND 5 & 7 SARSEN STONE

Runoff = 11.62 cfs @ 12.09 hrs, Volume= 0.842 af, Depth> 2.73"
Routed to Pond 7P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
20,407	70	Woods, Good, HSG C
3,300	98	Water Surface, HSG B
36,775	55	Woods, Good, HSG B
13,560	70	1/2 acre lots, 25% imp, HSG B
87,016	70	1/2 acre lots, 25% imp, HSG B
161,058	67	Weighted Average
132,614		82.34% Pervious Area
28,444		17.66% Impervious Area

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

Summary for Subcatchment 10S: PREDEV OVERLAND FLOW TO PENDERGAST & WITTCOFF

Runoff = 0.76 cfs @ 12.19 hrs, Volume= 0.069 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
616	55	Woods, Good, HSG B
11,769	70	Woods, Good, HSG C
12,385	69	Weighted Average
12,385		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	265	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.4	315	Total			

Summary for Subcatchment 11S: PREDEV FLOW TO PALMER

Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
593	70	Woods, Good, HSG C
593		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	25	0.0300	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"

Summary for Reach 1R: PARKERVILLE ROAD

Inflow Area = 6.603 ac, 15.88% Impervious, Inflow Depth > 3.02" for 25 YEAR event
Inflow = 12.61 cfs @ 12.35 hrs, Volume= 1.664 af
Outflow = 12.61 cfs @ 12.35 hrs, Volume= 1.664 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Summary for Reach 4R: ROUTE 9

Inflow Area = 26.078 ac, 27.75% Impervious, Inflow Depth > 3.18" for 25 YEAR event
Inflow = 44.69 cfs @ 12.34 hrs, Volume= 6.907 af
Outflow = 44.69 cfs @ 12.34 hrs, Volume= 6.907 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

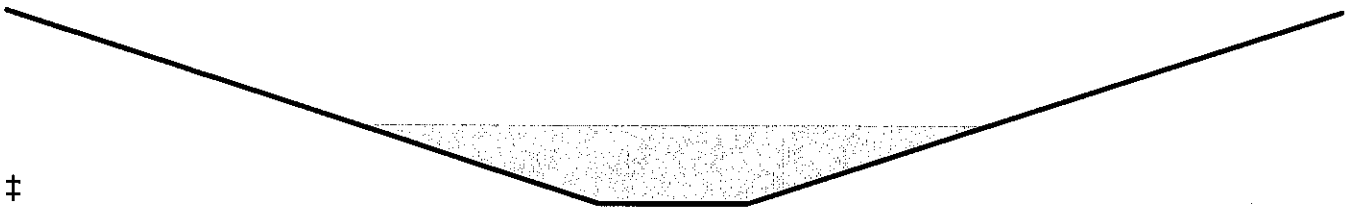
Summary for Reach 7R: FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 2.79" for 25 YEAR event
Inflow = 24.88 cfs @ 12.27 hrs, Volume= 3.226 af
Outflow = 24.51 cfs @ 12.32 hrs, Volume= 3.222 af, Atten= 1%, Lag= 2.5 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.85 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 2.76 fps, Avg. Travel Time= 2.4 min

Peak Storage= 1,695 cf @ 12.29 hrs
Average Depth at Peak Storage= 0.81' , Surface Width= 8.50'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 198.41 cfs

2.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 4.0 '/' Top Width= 18.00'
Length= 397.0' Slope= 0.0642 '/'
Inlet Invert= 349.00', Outlet Invert= 323.50'



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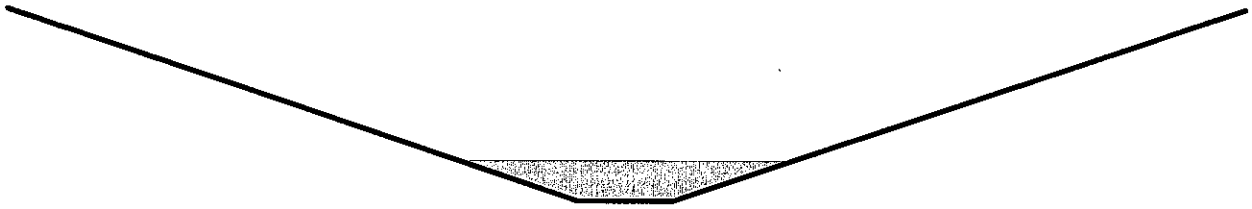
Summary for Reach 8R: FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 4.12" for 25 YEAR event
Inflow = 7.31 cfs @ 12.58 hrs, Volume= 2.070 af
Outflow = 7.31 cfs @ 12.59 hrs, Volume= 2.070 af, Atten= 0%, Lag= 0.6 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.74 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 4.17 fps, Avg. Travel Time= 0.6 min

Peak Storage= 148 cf @ 12.58 hrs
Average Depth at Peak Storage= 0.42' , Surface Width= 3.51'
Bank-Full Depth= 2.00' Flow Area= 14.0 sf, Capacity= 271.03 cfs

1.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 '/' Top Width= 13.00'
Length= 157.0' Slope= 0.1025 '/'
Inlet Invert= 342.10', Outlet Invert= 326.00'



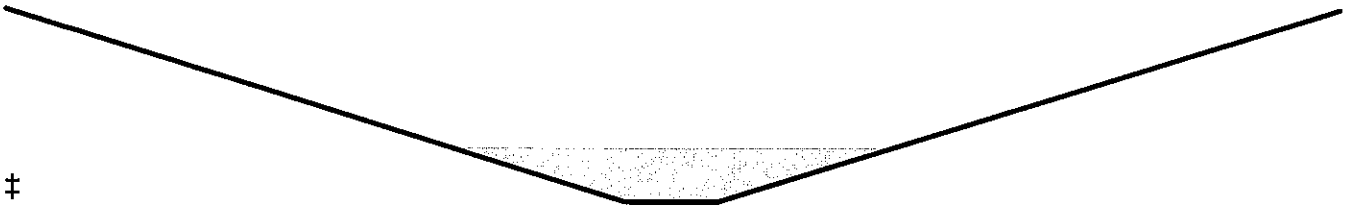
Summary for Reach 22R: FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Inflow Area = 21.521 ac, 28.41% Impervious, Inflow Depth > 3.22" for 25 YEAR event
Inflow = 34.57 cfs @ 12.32 hrs, Volume= 5.769 af
Outflow = 34.20 cfs @ 12.35 hrs, Volume= 5.764 af, Atten= 1%, Lag= 1.9 min
Routed to Reach 4R : ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.17 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 3.24 fps, Avg. Travel Time= 2.0 min

Peak Storage= 1,854 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.56' , Surface Width= 14.23'
Bank-Full Depth= 2.00' Flow Area= 46.0 sf, Capacity= 707.92 cfs

3.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 10.0 '/' Top Width= 43.00'
Length= 383.0' Slope= 0.0888 '/'
Inlet Invert= 349.00', Outlet Invert= 315.00'



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Summary for Pond 1P: EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Inflow Area = 1.432 ac, 71.98% Impervious, Inflow Depth > 4.80" for 25 YEAR event
Inflow = 6.77 cfs @ 12.09 hrs, Volume= 0.573 af
Outflow = 3.32 cfs @ 12.27 hrs, Volume= 0.572 af, Atten= 51%, Lag= 11.1 min
Primary = 3.32 cfs @ 12.27 hrs, Volume= 0.572 af
Routed to Reach 1R : PARKERVILLE ROAD

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 309.77' @ 12.27 hrs Surf.Area= 5,904 sf Storage= 3,757 cf

Plug-Flow detention time= 11.9 min calculated for 0.572 af (100% of inflow)

Center-of-Mass det. time= 10.9 min (777.3 - 766.4)

Volume	Invert	Avail.Storage	Storage Description
#1	308.50'	20,440 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.50	0	0	0
310.00	6,960	5,220	5,220
312.00	8,260	15,220	20,440

Device	Routing	Invert	Outlet Devices
#1	Primary	308.50'	**12.0" Round Culvert** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 308.50' / 308.10' S= 0.0133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	311.50'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.32 cfs @ 12.27 hrs HW=309.77' (Free Discharge)
└**1=Culvert** (Inlet Controls 3.32 cfs @ 4.23 fps)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Inflow Area = 1.630 ac, 20.58% Impervious, Inflow Depth > 3.52" for 25 YEAR event
Inflow = 5.29 cfs @ 12.13 hrs, Volume= 0.478 af
Outflow = 3.04 cfs @ 12.36 hrs, Volume= 0.476 af, Atten= 43%, Lag= 14.0 min
Primary = 3.04 cfs @ 12.36 hrs, Volume= 0.476 af
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 326.77' @ 12.36 hrs Surf.Area= 3,969 sf Storage= 3,867 cf

Plug-Flow detention time= 19.2 min calculated for 0.476 af (100% of inflow)
Center-of-Mass det. time= 16.7 min (840.8 - 824.1)

Volume	Invert	Avail.Storage	Storage Description
#1	325.50'	12,719 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.50	0	0	0
326.00	3,700	925	925
328.00	4,400	8,100	9,025
328.75	5,450	3,694	12,719

Device	Routing	Invert	Outlet Devices
#1	Primary	325.50'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 325.50' / 325.25' S= 0.0066 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	328.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=3.04 cfs @ 12.36 hrs HW=326.77' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 3.04 cfs @ 3.94 fps)
└—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7P: EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 2.80" for 25 YEAR event
Inflow = 41.58 cfs @ 12.12 hrs, Volume= 3.235 af
Outflow = 24.88 cfs @ 12.27 hrs, Volume= 3.226 af, Atten= 40%, Lag= 9.5 min
Primary = 24.88 cfs @ 12.27 hrs, Volume= 3.226 af
Routed to Reach 7R : FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 355.48' @ 12.27 hrs Surf.Area= 11,338 sf Storage= 31,302 cf

Plug-Flow detention time= 31.1 min calculated for 3.221 af (100% of inflow)
Center-of-Mass det. time= 29.4 min (871.5 - 842.1)

Volume	Invert	Avail.Storage	Storage Description
#1	351.00'	37,428 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
351.00	0	0	0
352.00	5,106	2,553	2,553
354.00	8,764	13,870	16,423
356.00	12,241	21,005	37,428

Device	Routing	Invert	Outlet Devices
#1	Primary	351.00'	**12.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 351.00' / 349.00' S= 0.0333 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	355.00'	**20.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=24.74 cfs @ 12.27 hrs HW=355.48' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 7.54 cfs @ 9.60 fps)
└—**2=Broad-Crested Rectangular Weir** (Weir Controls 17.20 cfs @ 1.80 fps)

Summary for Pond 8P: DET BASIN ON EAGLE LEASING

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 4.12" for 25 YEAR event
Inflow = 23.50 cfs @ 12.17 hrs, Volume= 2.071 af
Outflow = 7.31 cfs @ 12.58 hrs, Volume= 2.070 af, Atten= 69%, Lag= 24.4 min
Primary = 7.31 cfs @ 12.58 hrs, Volume= 2.070 af
Routed to Reach 8R : FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 346.74' @ 12.58 hrs Surf.Area= 15,568 sf Storage= 21,543 cf

Plug-Flow detention time= 18.9 min calculated for 2.067 af (100% of inflow)
Center-of-Mass det. time= 18.7 min (833.1 - 814.4)

Volume	Invert	Avail.Storage	Storage Description
#1	342.50'	46,903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
342.50	0	0	0
344.00	1,030	773	773
346.00	10,200	11,230	12,003
348.00	24,700	34,900	46,903

Device	Routing	Invert	Outlet Devices
#1	Primary	342.50'	**12.0" Round Culvert** L= 33.0' Ke= 0.500 Inlet / Outlet Invert= 342.50' / 342.10' S= 0.0121 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	347.00'	**12.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 4.5' Crest Height

Primary OutFlow Max=7.31 cfs @ 12.58 hrs HW=346.74' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 7.31 cfs @ 9.31 fps)
└—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

POSTDEVELOPMENT

Summary for Subcatchment 11S: POSTDEV FLOW FROM PARKING AREA

Runoff = 5.61 cfs @ 12.08 hrs, Volume= 0.455 af, Depth> 5.91"
Routed to Pond 11P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
28,308	98	Paved parking, HSG B
610	61	>75% Grass cover, Good, HSG B
10,964	98	Paved parking, HSG C
390	74	>75% Grass cover, Good, HSG C
40,272	97	Weighted Average
1,000		2.48% Pervious Area
39,272		97.52% Impervious Area

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

Summary for Subcatchment 12S: POSTDEV OVERLAND FLOW TO DETENTION BASIN

Runoff = 0.95 cfs @ 12.16 hrs, Volume= 0.083 af, Depth> 2.36"
Routed to Pond 11P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
2,913	98	Water Surface, HSG B
850	70	Woods, Good, HSG C
14,581	55	Woods, Good, HSG B
18,344	63	Weighted Average
15,431		84.12% Pervious Area
2,913		15.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	58	0.1600	2.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	108	Total			

Summary for Subcatchment 13S: POSTDEV OVERLAND FLOW TO PARKERVILLE ROAD

Runoff = 5.64 cfs @ 12.32 hrs, Volume= 0.630 af, Depth> 2.63"
Routed to Reach 11R : PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
3,898	70	Woods, Good, HSG C
3,546	74	>75% Grass cover, Good, HSG C
18,640	55	Woods, Good, HSG B
285	61	>75% Grass cover, Good, HSG B
160	55	Woods, Good, HSG B
14,938	61	>75% Grass cover, Good, HSG B
789	98	Unconnected roofs, HSG B
2,869	55	Woods, Good, HSG B
1,012	61	>75% Grass cover, Good, HSG B
4,580	55	Woods, Good, HSG B
1,369	98	Roofs, HSG B
1,507	98	Roofs, HSG C
186	74	>75% Grass cover, Good, HSG C
23,192	70	Woods, Good, HSG C
1,585	74	>75% Grass cover, Good, HSG C
7,295	55	Woods, Good, HSG B
2,016	98	Roofs, HSG C
2,757	74	>75% Grass cover, Good, HSG C
1,655	98	Roofs, HSG C
21,881	74	>75% Grass cover, Good, HSG C
8,648	55	Woods, Good, HSG B
2,419	70	Woods, Good, HSG C
125,227	66	Weighted Average
117,891		94.14% Pervious Area
7,336		5.86% Impervious Area
789		10.76% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0350	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.20"
2.7	196	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	39	0.1500	5.44	10.87	**Channel Flow, 1' WIDE BOTTOM, 1:1 SIDE SLOPES,1'DEEP** Area= 2.0 sf Perim= 3.8' r= 0.53' n= 0.069 Riprap, 6-inch
1.0	83	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	284	0.0320	4.42	53.08	**Channel Flow,** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
22.1	652	Total			

Summary for Subcatchment 14S: OVERLAND FLOW TO ROUTE 9

Runoff = 11.20 cfs @ 12.26 hrs, Volume= 1.143 af, Depth> 3.01"
Routed to Reach 14R : ROUTE 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
31,704	70	Woods, Good, HSG C
0	98	Roofs, HSG C
4,306	98	Roofs, HSG C
11,703	74	>75% Grass cover, Good, HSG C
75,805	55	Woods, Good, HSG B
44,135	98	Paved parking, HSG B
30,829	61	>75% Grass cover, Good, HSG B
198,482	70	Weighted Average
150,041		75.59% Pervious Area
48,441		24.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.1	242	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
9.1	709	0.0680	1.30		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	365	0.0160	3.13	37.53	**Channel Flow,** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
18.3	1,366	Total			

Summary for Subcatchment 15S: DRAINAGE COLLECTED BY CB'S SW OF SELF STORAGE BUILDING

Runoff = 2.54 cfs @ 12.09 hrs, Volume= 0.185 af, Depth> 4.45"
Routed to Pond 15P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
6,345	61	>75% Grass cover, Good, HSG B
3,301	74	>75% Grass cover, Good, HSG C
6,254	98	Paved parking, HSG B
5,860	98	Paved parking, HSG C
21,760	84	Weighted Average
9,646		44.33% Pervious Area
12,114		55.67% Impervious Area

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

Summary for Subcatchment 16S: OVERLAND FLOW TO EXISTING DETENTION BASIN

Runoff = 3.31 cfs @ 12.18 hrs, Volume= 0.293 af, Depth> 3.11"
Routed to Pond 15P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
46,762	70	Woods, Good, HSG C
2,500	98	Water Surface, HSG C
49,262	71	Weighted Average
46,762		94.93% Pervious Area
2,500		5.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	50	0.0450	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	324	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.7	374	Total			

Summary for Subcatchment 17S: RUNOFF COLLECTED BY SARSEN STONE WAY

Runoff = 30.56 cfs @ 12.12 hrs, Volume= 2.393 af, Depth> 2.83"
Routed to Pond 17P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
317,393	68	1 acre lots, 20% imp, HSG B
125,360	68	1 acre lots, 20% imp, HSG B
442,753	68	Weighted Average
354,202		80.00% Pervious Area
88,551		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
2.0	214	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	175	0.1000	4.74		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	210	0.1000	6.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.4	649	Total			

Summary for Subcatchment 18S: POSTDEV FLOW ON EAGLE LEASING

Runoff = 23.50 cfs @ 12.17 hrs, Volume= 2.071 af, Depth> 4.12"
Routed to Pond 18P : DET BASIN ON EAGLE LEASING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
24,658	98	Paved parking, HSG B
8,220	61	>75% Grass cover, Good, HSG B
104,681	98	Paved parking, HSG C
34,894	74	>75% Grass cover, Good, HSG C
235	98	Paved parking, HSG B
6,197	61	>75% Grass cover, Good, HSG B
30,530	61	>75% Grass cover, Good, HSG B
5,140	98	Paved parking, HSG B
48,076	55	Woods, Good, HSG B
262,631	81	Weighted Average
127,917		48.71% Pervious Area
134,714		51.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
4.2	413	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	360	0.0440	2.10		**Shallow Concentrated Flow,** Nearly Bare & Untilled Kv= 10.0 fps
12.4	823	Total			

Summary for Subcatchment 19S: OVERLAND FLOW TO DET BASIN BEHIND 5 & 7 SARSEN STONE

Runoff = 11.62 cfs @ 12.09 hrs, Volume= 0.842 af, Depth> 2.73"
Routed to Pond 17P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
20,407	70	Woods, Good, HSG C
3,300	98	Water Surface, HSG B
36,775	55	Woods, Good, HSG B
13,560	70	1/2 acre lots, 25% imp, HSG B
87,016	70	1/2 acre lots, 25% imp, HSG B
161,058	67	Weighted Average
132,614		82.34% Pervious Area
28,444		17.66% Impervious Area

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

Summary for Subcatchment 20S: POSTDEV FLOW TO PENDERGAST & WITTCOFF

Runoff = 0.69 cfs @ 12.14 hrs, Volume= 0.056 af, Depth> 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
644	55	Woods, Good, HSG B
386	61	>75% Grass cover, Good, HSG B
4,671	70	Woods, Good, HSG C
3,921	74	>75% Grass cover, Good, HSG C
9,622	70	Weighted Average
9,622		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
2.3	207	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.4	257	Total			

Summary for Subcatchment 21S: POSTDEV FLOW TO PALMER

Runoff = 0.04 cfs @ 12.07 hrs, Volume= 0.003 af, Depth> 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
480	70	Woods, Good, HSG C
480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	17	0.0300	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"

Summary for Subcatchment 25S: AREA CAPTURED IN MAIN DRIVE

Runoff = 7.26 cfs @ 12.22 hrs, Volume= 0.717 af, Depth> 4.65"
Routed to Pond 24P : INFILTRATION STRUCTURE UNDER PARKING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
37,220	98	Paved parking, HSG C
10,950	98	Paved parking, HSG B
9,981	61	>75% Grass cover, Good, HSG B
15,395	74	>75% Grass cover, Good, HSG C
3,684	55	Woods, Good, HSG B
1,155	98	Roofs, HSG B
548	61	>75% Grass cover, Good, HSG B
1,555	55	Woods, Good, HSG B
80,488	86	Weighted Average
31,163		38.72% Pervious Area
49,325		61.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.20"
0.5	55	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	79	0.0380	1.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	167	0.0240	3.14		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
16.2	351	Total			

Summary for Subcatchment 26S: DRIVEWAY AND 5 UNITS AT ENTRANCE

Runoff = 1.54 cfs @ 12.29 hrs, Volume= 0.182 af, Depth> 5.55"
Routed to Reach 26R : FLOW PATH FROM OUTLET TO PARKERVILLE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
2,804	74	>75% Grass cover, Good, HSG C
13,548	98	Paved parking, HSG C
776	98	Paved parking, HSG B
17,128	94	Weighted Average
2,804		16.37% Pervious Area
14,324		83.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.3	19	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
21.8	69	Total			

Summary for Subcatchment 27S: UNIT 9 AND BACK HALF OF ROOFS UNITS 10-11

Runoff = 0.29 cfs @ 12.07 hrs, Volume= 0.023 af, Depth> 6.03"
Routed to Pond 27P : INFILTRATION STRUCTURE FOR 9-11

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
2,016	98	Roofs, HSG C
2,016		100.00% Impervious Area

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

Summary for Subcatchment 28S: BACK HALF OF ROOFS UNITS 22-26

Runoff = 0.36 cfs @ 12.07 hrs, Volume= 0.029 af, Depth> 6.03"
Routed to Pond 28P : INFILTRATION STRUCTURE FOR BACKS OF 22-26

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
2,520	98	Roofs, HSG C
2,520		100.00% Impervious Area

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

Summary for Subcatchment 29S: ROOFS FROM 20,21,29 & HALF OF 26-28

Runoff = 0.65 cfs @ 12.07 hrs, Volume= 0.052 af, Depth> 6.03"
Routed to Pond 29P : INFILTRATION STRUCTURE FOR 20, 21, 29 & HALF OF 26-28

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 YEAR Rainfall=6.27"

Area (sf)	CN	Description
4,032	98	Roofs, HSG C
504	98	Roofs, HSG C
4,536	98	Weighted Average
4,536		100.00% Impervious Area

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

Summary for Reach 11R: PARKERVILLE ROAD

Inflow Area = 6.461 ac, 40.21% Impervious, Inflow Depth > 3.27" for 25 YEAR event
Inflow = 11.64 cfs @ 12.34 hrs, Volume= 1.763 af
Outflow = 11.64 cfs @ 12.34 hrs, Volume= 1.763 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Summary for Reach 14R: ROUTE 9

Inflow Area = 26.078 ac, 27.71% Impervious, Inflow Depth > 3.18" for 25 YEAR event
Inflow = 44.69 cfs @ 12.34 hrs, Volume= 6.907 af
Outflow = 44.69 cfs @ 12.34 hrs, Volume= 6.907 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

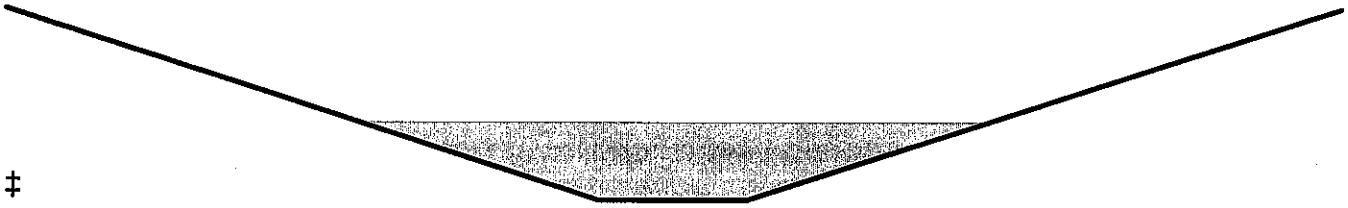
Summary for Reach 17R: FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 2.79" for 25 YEAR event
Inflow = 24.88 cfs @ 12.27 hrs, Volume= 3.226 af
Outflow = 24.51 cfs @ 12.32 hrs, Volume= 3.222 af, Atten= 1%, Lag= 2.5 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 5.85 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 2.76 fps, Avg. Travel Time= 2.4 min

Peak Storage= 1,695 cf @ 12.29 hrs
Average Depth at Peak Storage= 0.81' , Surface Width= 8.50'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 198.41 cfs

2.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 4.0 '/' Top Width= 18.00'
Length= 397.0' Slope= 0.0642 '/'
Inlet Invert= 349.00', Outlet Invert= 323.50'



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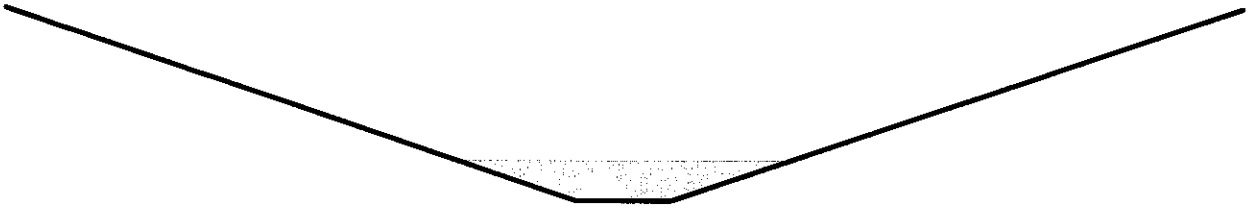
Summary for Reach 18R: FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 4.12" for 25 YEAR event
Inflow = 7.31 cfs @ 12.58 hrs, Volume= 2.070 af
Outflow = 7.31 cfs @ 12.59 hrs, Volume= 2.070 af, Atten= 0%, Lag= 0.6 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.74 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 4.17 fps, Avg. Travel Time= 0.6 min

Peak Storage= 148 cf @ 12.58 hrs
Average Depth at Peak Storage= 0.42' , Surface Width= 3.51'
Bank-Full Depth= 2.00' Flow Area= 14.0 sf, Capacity= 271.03 cfs

1.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 '/' Top Width= 13.00'
Length= 157.0' Slope= 0.1025 '/'
Inlet Invert= 342.10', Outlet Invert= 326.00'



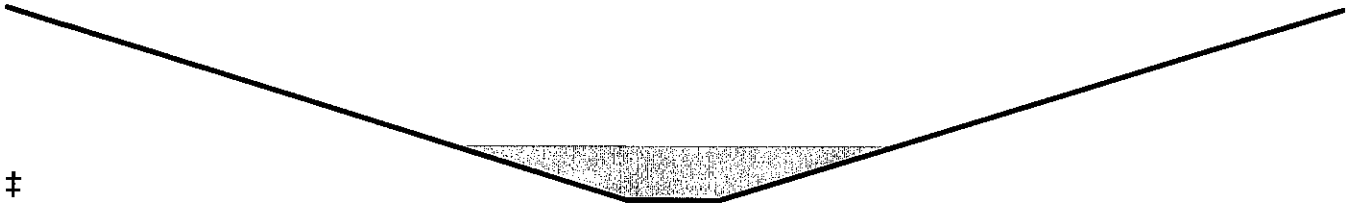
Summary for Reach 22R: FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Inflow Area = 21.521 ac, 28.41% Impervious, Inflow Depth > 3.22" for 25 YEAR event
Inflow = 34.57 cfs @ 12.32 hrs, Volume= 5.769 af
Outflow = 34.20 cfs @ 12.35 hrs, Volume= 5.764 af, Atten= 1%, Lag= 1.9 min
Routed to Reach 14R : ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.17 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 3.24 fps, Avg. Travel Time= 2.0 min

Peak Storage= 1,854 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.56' , Surface Width= 14.23'
Bank-Full Depth= 2.00' Flow Area= 46.0 sf, Capacity= 707.92 cfs

3.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 10.0 '/' Top Width= 43.00'
Length= 383.0' Slope= 0.0888 '/'
Inlet Invert= 349.00', Outlet Invert= 315.00'



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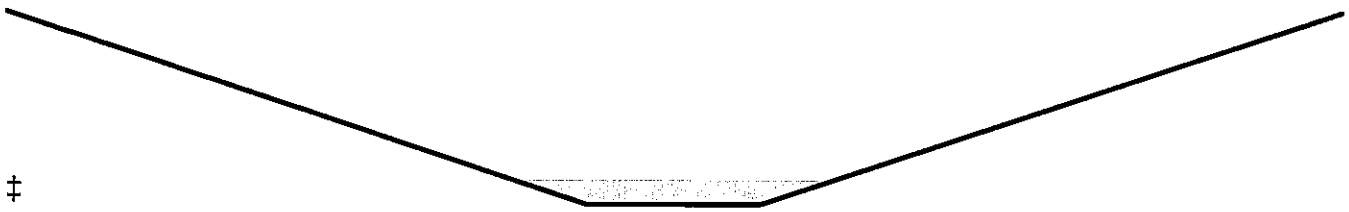
Summary for Reach 26R: FLOW PATH FROM OUTLET TO PARKERVILLE

Inflow Area = 2.241 ac, 65.20% Impervious, Inflow Depth > 3.19" for 25 YEAR event
Inflow = 2.94 cfs @ 12.34 hrs, Volume= 0.597 af
Outflow = 2.93 cfs @ 12.41 hrs, Volume= 0.596 af, Atten= 0%, Lag= 4.0 min
Routed to Reach 11R : PARKERVILLE ROAD

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 2.75 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 1.01 fps, Avg. Travel Time= 5.9 min

Peak Storage= 383 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.13' , Surface Width= 11.00'
Bank-Full Depth= 1.00' Flow Area= 26.0 sf, Capacity= 232.32 cfs

6.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 20.0 '/' Top Width= 46.00'
Length= 360.0' Slope= 0.0375 '/'
Inlet Invert= 318.00', Outlet Invert= 304.50'



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Summary for Pond 11P: EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Inflow Area = 1.346 ac, 71.97% Impervious, Inflow Depth > 4.80" for 25 YEAR event
Inflow = 6.35 cfs @ 12.09 hrs, Volume= 0.538 af
Outflow = 3.21 cfs @ 12.27 hrs, Volume= 0.537 af, Atten= 49%, Lag= 10.6 min
Primary = 3.21 cfs @ 12.27 hrs, Volume= 0.537 af
Routed to Reach 11R : PARKERVILLE ROAD

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 309.72' @ 12.27 hrs Surf.Area= 5,661 sf Storage= 3,453 cf

Plug-Flow detention time= 11.6 min calculated for 0.537 af (100% of inflow)
Center-of-Mass det. time= 10.6 min (777.6 - 767.0)

Volume	Invert	Avail.Storage	Storage Description
#1	308.50'	20,440 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.50	0	0	0
310.00	6,960	5,220	5,220
312.00	8,260	15,220	20,440

Device	Routing	Invert	Outlet Devices
#1	Primary	308.50'	**12.0" Round Culvert** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 308.50' / 308.10' S= 0.0133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	311.50'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.21 cfs @ 12.27 hrs HW=309.72' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 3.21 cfs @ 4.08 fps)
└—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 15P: EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Inflow Area = 1.630 ac, 20.58% Impervious, Inflow Depth > 3.52" for 25 YEAR event
Inflow = 5.29 cfs @ 12.13 hrs, Volume= 0.478 af
Outflow = 3.04 cfs @ 12.36 hrs, Volume= 0.476 af, Atten= 43%, Lag= 14.0 min
Primary = 3.04 cfs @ 12.36 hrs, Volume= 0.476 af
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 326.77' @ 12.36 hrs Surf.Area= 3,969 sf Storage= 3,867 cf

Plug-Flow detention time= 19.2 min calculated for 0.476 af (100% of inflow)
Center-of-Mass det. time= 16.7 min (840.8 - 824.1)

Volume	Invert	Avail.Storage	Storage Description
#1	325.50'	12,719 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.50	0	0	0
326.00	3,700	925	925
328.00	4,400	8,100	9,025
328.75	5,450	3,694	12,719

Device	Routing	Invert	Outlet Devices
#1	Primary	325.50'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 325.50' / 325.25' S= 0.0066 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	328.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=3.04 cfs @ 12.36 hrs HW=326.77' (Free Discharge)
└**1=Culvert** (Barrel Controls 3.04 cfs @ 3.94 fps)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 17P: EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 2.80" for 25 YEAR event
Inflow = 41.58 cfs @ 12.12 hrs, Volume= 3.235 af
Outflow = 24.88 cfs @ 12.27 hrs, Volume= 3.226 af, Atten= 40%, Lag= 9.5 min
Primary = 24.88 cfs @ 12.27 hrs, Volume= 3.226 af
Routed to Reach 17R : FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 355.48' @ 12.27 hrs Surf.Area= 11,338 sf Storage= 31,302 cf

Plug-Flow detention time= 31.1 min calculated for 3.221 af (100% of inflow)
Center-of-Mass det. time= 29.4 min (871.5 - 842.1)

Volume	Invert	Avail.Storage	Storage Description
#1	351.00'	37,428 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
351.00	0	0	0
352.00	5,106	2,553	2,553
354.00	8,764	13,870	16,423
356.00	12,241	21,005	37,428

Device	Routing	Invert	Outlet Devices
#1	Primary	351.00'	**12.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 351.00' / 349.00' S= 0.0333 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	355.00'	**20.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=24.74 cfs @ 12.27 hrs HW=355.48' (Free Discharge)
└**1=Culvert** (Inlet Controls 7.54 cfs @ 9.60 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 17.20 cfs @ 1.80 fps)

Summary for Pond 18P: DET BASIN ON EAGLE LEASING

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 4.12" for 25 YEAR event
Inflow = 23.50 cfs @ 12.17 hrs, Volume= 2.071 af
Outflow = 7.31 cfs @ 12.58 hrs, Volume= 2.070 af, Atten= 69%, Lag= 24.4 min
Primary = 7.31 cfs @ 12.58 hrs, Volume= 2.070 af
Routed to Reach 18R : FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 346.74' @ 12.58 hrs Surf.Area= 15,568 sf Storage= 21,543 cf

Plug-Flow detention time= 18.9 min calculated for 2.067 af (100% of inflow)
Center-of-Mass det. time= 18.7 min (833.1 - 814.4)

Volume	Invert	Avail.Storage	Storage Description
#1	342.50'	46,903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
342.50	0	0	0
344.00	1,030	773	773
346.00	10,200	11,230	12,003
348.00	24,700	34,900	46,903

Device	Routing	Invert	Outlet Devices
#1	Primary	342.50'	**12.0" Round Culvert** L= 33.0' Ke= 0.500 Inlet / Outlet Invert= 342.50' / 342.10' S= 0.0121 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	347.00'	**12.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 4.5' Crest Height

Primary OutFlow Max=7.31 cfs @ 12.58 hrs HW=346.74' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 7.31 cfs @ 9.31 fps)
└—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 24P: INFILTRATION STRUCTURE UNDER PARKING

Inflow Area = 1.848 ac, 61.28% Impervious, Inflow Depth > 4.65" for 25 YEAR event
Inflow = 7.26 cfs @ 12.22 hrs, Volume= 0.717 af
Outflow = 1.89 cfs @ 12.71 hrs, Volume= 0.660 af, Atten= 74%, Lag= 29.8 min
Discarded = 0.18 cfs @ 9.24 hrs, Volume= 0.245 af
Primary = 1.71 cfs @ 12.71 hrs, Volume= 0.415 af
Routed to Reach 26R : FLOW PATH FROM OUTLET TO PARKERVILLE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 325.51' @ 12.71 hrs Surf.Area= 3,284 sf Storage= 12,472 cf

Plug-Flow detention time= 116.0 min calculated for 0.659 af (92% of inflow)
Center-of-Mass det. time= 76.4 min (880.3 - 803.9)

Volume	Invert	Avail.Storage	Storage Description
#1	320.50'	3,836 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 26,272 cf Overall - 16,683 cf Embedded = 9,589 cf x 40.0% Voids
#2	321.00'	12,422 cf	**retain_it retain_it 5.0'** x 46 Inside #1 Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf 1 Rows adjusted for 976.7 cf perimeter wall
		16,258 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
320.50	3,284	0	0
328.50	3,284	26,272	26,272

Device	Routing	Invert	Outlet Devices
#1	Discarded	320.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	326.70'	**6.0" Round Culvert** L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 326.70' / 319.00' S= 0.4278 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	322.00'	**6.0" Round Culvert** L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 322.00' / 320.00' S= 0.1111 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.18 cfs @ 9.24 hrs HW=320.58' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=1.71 cfs @ 12.71 hrs HW=325.51' (Free Discharge)
├**2=Culvert** (Controls 0.00 cfs)
└**3=Culvert** (Inlet Controls 1.71 cfs @ 8.69 fps)

Summary for Pond 27P: INFILTRATION STRUCTURE FOR 9-11

Inflow Area = 0.046 ac,100.00% Impervious, Inflow Depth > 6.03" for 25 YEAR event
Inflow = 0.29 cfs @ 12.07 hrs, Volume= 0.023 af
Outflow = 0.01 cfs @ 8.40 hrs, Volume= 0.012 af, Atten= 97%, Lag= 0.0 min
Discarded = 0.01 cfs @ 8.40 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 340.08' @ 16.13 hrs Surf.Area= 319 sf Storage= 596 cf

Plug-Flow detention time= 250.3 min calculated for 0.012 af (51% of inflow)
Center-of-Mass det. time= 121.1 min (864.3 - 743.2)

Volume	Invert	Avail.Storage	Storage Description
#1	337.00'	339 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,595 cf Overall - 748 cf Embedded = 847 cf x 40.0% Voids
#2	337.50'	557 cf	**Shea Dry Well 300gal** x 12 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf 12 Chambers in 2 Rows
		895 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
337.00	319	0	0
342.00	319	1,595	1,595

Device	Routing	Invert	Outlet Devices
#1	Discarded	337.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 8.40 hrs HW=337.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Summary for Pond 28P: INFILTRATION STRUCTURE FOR BACKS OF 22-26

Inflow Area = 0.058 ac,100.00% Impervious, Inflow Depth > 6.03" for 25 YEAR event
Inflow = 0.36 cfs @ 12.07 hrs, Volume= 0.029 af
Outflow = 0.01 cfs @ 8.80 hrs, Volume= 0.017 af, Atten= 97%, Lag= 0.0 min
Discarded = 0.01 cfs @ 8.80 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 334.72' @ 15.74 hrs Surf.Area= 462 sf Storage= 705 cf

Plug-Flow detention time= 250.8 min calculated for 0.017 af (57% of inflow)
Center-of-Mass det. time= 134.1 min (877.3 - 743.2)

Volume	Invert	Avail.Storage	Storage Description
#1	332.00'	575 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,310 cf Overall - 873 cf Embedded = 1,437 cf x 40.0% Voids
#2	332.50'	649 cf	**Shea Dry Well 300gal** x 14 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf 14 Chambers in 2 Rows
		1,224 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
332.00	462	0	0
337.00	462	2,310	2,310

Device	Routing	Invert	Outlet Devices
#1	Discarded	332.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 8.80 hrs HW=332.05' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Summary for Pond 29P: INFILTRATION STRUCTURE FOR 20, 21, 29 & HALF OF 26-28

Inflow Area = 0.104 ac,100.00% Impervious, Inflow Depth > 6.03" for 25 YEAR event
Inflow = 0.65 cfs @ 12.07 hrs, Volume= 0.052 af
Outflow = 0.02 cfs @ 8.16 hrs, Volume= 0.025 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.02 cfs @ 8.16 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 330.34' @ 16.54 hrs Surf.Area= 659 sf Storage= 1,382 cf

Plug-Flow detention time= 252.4 min calculated for 0.025 af (47% of inflow)
Center-of-Mass det. time= 114.1 min (857.3 - 743.2)

Volume	Invert	Avail.Storage	Storage Description
#1	327.00'	777 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 3,625 cf Overall - 1,683 cf Embedded = 1,942 cf x 40.0% Voids
#2	327.50'	1,252 cf	**Shea Dry Well 300gal** x 27 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf
		2,029 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
327.00	659	0	0
332.50	659	3,625	3,625

Device	Routing	Invert	Outlet Devices
#1	Discarded	327.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 8.16 hrs HW=327.06' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

100 YEAR STORM

PREDEVELOPMENT

Summary for Subcatchment 1S: PREDEV FLOW FROM PARKING AREA

Runoff = 7.73 cfs @ 12.08 hrs, Volume= 0.634 af, Depth> 7.65"
Routed to Pond 1P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
31,021	98	Paved parking, HSG B
280	74	>75% Grass cover, Good, HSG C
1,049	61	>75% Grass cover, Good, HSG B
10,964	98	Paved parking, HSG C
43,314	97	Weighted Average
1,329		3.07% Pervious Area
41,985		96.93% Impervious Area

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

Summary for Subcatchment 2S: PREDEV OVERLAND FLOW TO DETENTION BASIN

Runoff = 1.52 cfs @ 12.16 hrs, Volume= 0.130 af, Depth> 3.56"
Routed to Pond 1P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
2,913	98	Water Surface, HSG B
1,161	70	Woods, Good, HSG C
14,991	55	Woods, Good, HSG B
19,065	62	Weighted Average
16,152		84.72% Pervious Area
2,913		15.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	58	0.1600	2.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	108	Total			

Summary for Subcatchment 3S: PREDEV OVERLAND FLOW TO PARKERVILLE ROAD

Runoff = 14.51 cfs @ 12.35 hrs, Volume= 1.673 af, Depth> 3.88"
Routed to Reach 1R : PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
144,569	70	Woods, Good, HSG C
63,690	55	Woods, Good, HSG B
16,200	61	>75% Grass cover, Good, HSG B
780	98	Roofs, HSG B
225,239	65	Weighted Average
224,459		99.65% Pervious Area
780		0.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.20"
9.9	754	0.0640	1.26		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	243	0.0370	4.76	57.07	**Channel Flow, 2' WIDE BOTTOM, 10:1 SIDE SLOPES,1'DEEP** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
24.6	1,047	Total			

Summary for Subcatchment 4S: OVERLAND FLOW TO ROUTE 9

Runoff = 16.69 cfs @ 12.25 hrs, Volume= 1.693 af, Depth> 4.46"
Routed to Reach 4R : ROUTE 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
54,059	55	Woods, Good, HSG B
24,068	55	Woods, Good, HSG B
36,060	70	Woods, Good, HSG C
33,500	61	>75% Grass cover, Good, HSG B
1,900	74	>75% Grass cover, Good, HSG C
42,307	98	Paved parking, HSG B
2,250	98	Paved parking, HSG B
4,349	98	Paved parking, HSG C
198,493	70	Weighted Average
149,587		75.36% Pervious Area
48,906		24.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.1	242	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
9.1	709	0.0680	1.30		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	365	0.0160	3.13	37.53	**Channel Flow,** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
18.3	1,366	Total			

Summary for Subcatchment 5S: DRAINAGE COLLECTED BY CB'S SW OF SELF STORAGE BUILDING

Runoff = 3.43 cfs @ 12.09 hrs, Volume= 0.254 af, Depth> 6.10"
Routed to Pond 5P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
6,345	61	>75% Grass cover, Good, HSG B
3,301	74	>75% Grass cover, Good, HSG C
6,254	98	Paved parking, HSG B
5,860	98	Paved parking, HSG C
21,760	84	Weighted Average
9,646		44.33% Pervious Area
12,114		55.67% Impervious Area

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

Summary for Subcatchment 6S: OVERLAND FLOW TO EXISTING DETENTION BASIN

Runoff = 4.88 cfs @ 12.18 hrs, Volume= 0.431 af, Depth> 4.58"
Routed to Pond 5P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
46,762	70	Woods, Good, HSG C
2,500	98	Water Surface, HSG C
49,262	71	Weighted Average
46,762		94.93% Pervious Area
2,500		5.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	50	0.0450	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	324	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.7	374	Total			

Summary for Subcatchment 7S: RUNOFF COLLECTED BY SARSEN STONE WAY

Runoff = 46.22 cfs @ 12.12 hrs, Volume= 3.589 af, Depth> 4.24"
Routed to Pond 7P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
317,393	68	1 acre lots, 20% imp, HSG B
125,360	68	1 acre lots, 20% imp, HSG B
442,753	68	Weighted Average
354,202		80.00% Pervious Area
88,551		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
2.0	214	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	175	0.1000	4.74		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	210	0.1000	6.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.4	649	Total			

Summary for Subcatchment 8S: PREDEV FLOW ON EAGLE LEASING

Runoff = 32.38 cfs @ 12.17 hrs, Volume= 2.884 af, Depth> 5.74"
Routed to Pond 8P : DET BASIN ON EAGLE LEASING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
24,658	98	Paved parking, HSG B
8,220	61	>75% Grass cover, Good, HSG B
104,681	98	Paved parking, HSG C
34,894	74	>75% Grass cover, Good, HSG C
235	98	Paved parking, HSG B
6,197	61	>75% Grass cover, Good, HSG B
30,530	61	>75% Grass cover, Good, HSG B
5,140	98	Paved parking, HSG B
48,076	55	Woods, Good, HSG B
262,631	81	Weighted Average
127,917		48.71% Pervious Area
134,714		51.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
4.2	413	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	360	0.0440	2.10		**Shallow Concentrated Flow,** Nearly Bare & Untilled Kv= 10.0 fps
12.4	823	Total			

Summary for Subcatchment 9S: OVERLAND FLOW TO DET BASIN BEHIND 5 & 7 SARSEN STONE

Runoff = 17.73 cfs @ 12.09 hrs, Volume= 1.271 af, Depth> 4.13"
Routed to Pond 7P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
20,407	70	Woods, Good, HSG C
3,300	98	Water Surface, HSG B
36,775	55	Woods, Good, HSG B
13,560	70	1/2 acre lots, 25% imp, HSG B
87,016	70	1/2 acre lots, 25% imp, HSG B
161,058	67	Weighted Average
132,614		82.34% Pervious Area
28,444		17.66% Impervious Area

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

Summary for Subcatchment 10S: PREDEV OVERLAND FLOW TO PENDERGAST & WITTCOFF

Runoff = 1.14 cfs @ 12.19 hrs, Volume= 0.103 af, Depth> 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
616	55	Woods, Good, HSG B
11,769	70	Woods, Good, HSG C
12,385	69	Weighted Average
12,385		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	265	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.4	315	Total			

Summary for Subcatchment 11S: PREDEV FLOW TO PALMER

Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
593	70	Woods, Good, HSG C
593		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	25	0.0300	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"

Summary for Reach 1R: PARKERVILLE ROAD

Inflow Area = 6.603 ac, 15.88% Impervious, Inflow Depth > 4.42" for 100 YEAR event
Inflow = 18.40 cfs @ 12.35 hrs, Volume= 2.435 af
Outflow = 18.40 cfs @ 12.35 hrs, Volume= 2.435 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Summary for Reach 4R: ROUTE 9

Inflow Area = 26.078 ac, 27.75% Impervious, Inflow Depth > 4.65" for 100 YEAR event
Inflow = 79.06 cfs @ 12.24 hrs, Volume= 10.096 af
Outflow = 79.06 cfs @ 12.24 hrs, Volume= 10.096 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

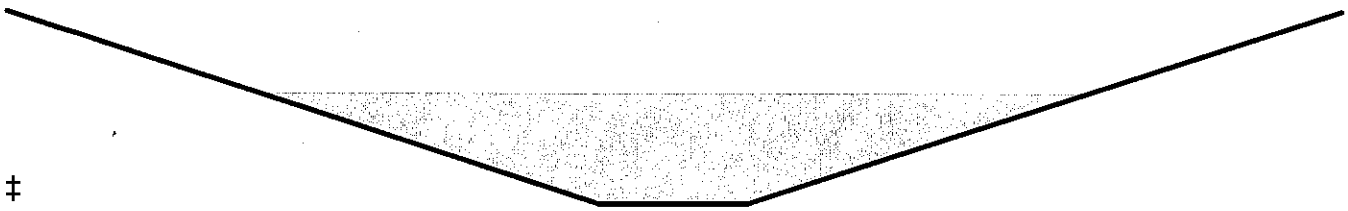
Summary for Reach 7R: FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 4.20" for 100 YEAR event
Inflow = 54.25 cfs @ 12.18 hrs, Volume= 4.848 af
Outflow = 52.93 cfs @ 12.21 hrs, Volume= 4.843 af, Atten= 2%, Lag= 2.1 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.11 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 3.00 fps, Avg. Travel Time= 2.2 min

Peak Storage= 2,976 cf @ 12.19 hrs
Average Depth at Peak Storage= 1.14' , Surface Width= 11.13'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 198.41 cfs

2.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 4.0 '/' Top Width= 18.00'
Length= 397.0' Slope= 0.0642 '/'
Inlet Invert= 349.00', Outlet Invert= 323.50'



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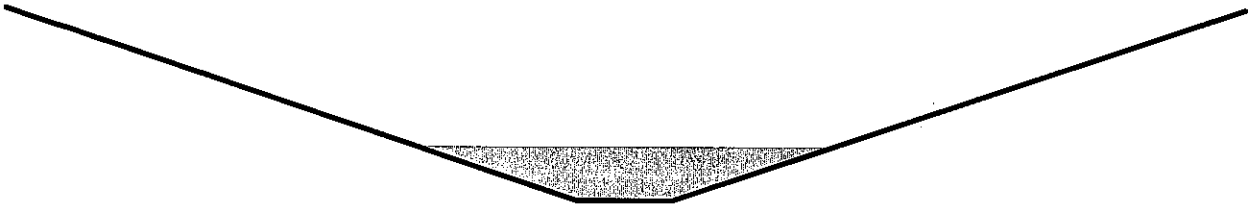
Summary for Reach 8R: FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 5.74" for 100 YEAR event
Inflow = 13.68 cfs @ 12.48 hrs, Volume= 2.883 af
Outflow = 13.65 cfs @ 12.49 hrs, Volume= 2.883 af, Atten= 0%, Lag= 0.6 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 9.10 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 4.50 fps, Avg. Travel Time= 0.6 min

Peak Storage= 236 cf @ 12.49 hrs
Average Depth at Peak Storage= 0.56' , Surface Width= 4.36'
Bank-Full Depth= 2.00' Flow Area= 14.0 sf, Capacity= 271.03 cfs

1.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 '/' Top Width= 13.00'
Length= 157.0' Slope= 0.1025 '/'
Inlet Invert= 342.10', Outlet Invert= 326.00'



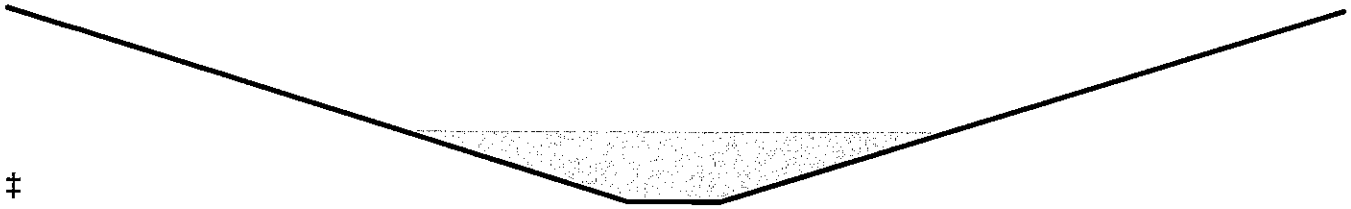
Summary for Reach 22R: FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Inflow Area = 21.521 ac, 28.41% Impervious, Inflow Depth > 4.69" for 100 YEAR event
Inflow = 63.79 cfs @ 12.21 hrs, Volume= 8.409 af
Outflow = 62.41 cfs @ 12.24 hrs, Volume= 8.403 af, Atten= 2%, Lag= 1.8 min
Routed to Reach 4R : ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 8.34 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 3.52 fps, Avg. Travel Time= 1.8 min

Peak Storage= 2,887 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.73' , Surface Width= 17.62'
Bank-Full Depth= 2.00' Flow Area= 46.0 sf, Capacity= 707.92 cfs

3.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 10.0 '/' Top Width= 43.00'
Length= 383.0' Slope= 0.0888 '/'
Inlet Invert= 349.00', Outlet Invert= 315.00'



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Summary for Pond 1P: EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Inflow Area = 1.432 ac, 71.98% Impervious, Inflow Depth > 6.40" for 100 YEAR event
Inflow = 8.95 cfs @ 12.09 hrs, Volume= 0.763 af
Outflow = 3.89 cfs @ 12.32 hrs, Volume= 0.762 af, Atten= 57%, Lag= 13.9 min
Primary = 3.89 cfs @ 12.32 hrs, Volume= 0.762 af
Routed to Reach 1R : PARKERVILLE ROAD

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 310.06' @ 12.32 hrs Surf.Area= 6,999 sf Storage= 5,636 cf

Plug-Flow detention time= 13.6 min calculated for 0.762 af (100% of inflow)

Center-of-Mass det. time= 12.6 min (776.0 - 763.4)

Volume	Invert	Avail.Storage	Storage Description
#1	308.50'	20,440 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.50	0	0	0
310.00	6,960	5,220	5,220
312.00	8,260	15,220	20,440

Device	Routing	Invert	Outlet Devices
#1	Primary	308.50'	**12.0" Round Culvert** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 308.50' / 308.10' S= 0.0133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	311.50'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.89 cfs @ 12.32 hrs HW=310.06' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 3.89 cfs @ 4.96 fps)
└—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Inflow Area = 1.630 ac, 20.58% Impervious, Inflow Depth > 5.04" for 100 YEAR event
Inflow = 7.56 cfs @ 12.13 hrs, Volume= 0.685 af
Outflow = 4.02 cfs @ 12.38 hrs, Volume= 0.683 af, Atten= 47%, Lag= 15.3 min
Primary = 4.02 cfs @ 12.38 hrs, Volume= 0.683 af
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 327.28' @ 12.38 hrs Surf.Area= 4,147 sf Storage= 5,932 cf

Plug-Flow detention time= 20.3 min calculated for 0.683 af (100% of inflow)
Center-of-Mass det. time= 18.0 min (832.5 - 814.5)

Volume	Invert	Avail.Storage	Storage Description
#1	325.50'	12,719 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.50	0	0	0
326.00	3,700	925	925
328.00	4,400	8,100	9,025
328.75	5,450	3,694	12,719

Device	Routing	Invert	Outlet Devices
#1	Primary	325.50'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 325.50' / 325.25' S= 0.0066 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	328.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00 3.50 4.00 4.50
Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=4.02 cfs @ 12.38 hrs HW=327.27' (Free Discharge)
└**1=Culvert** (Barrel Controls 4.02 cfs @ 5.12 fps)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7P: EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 4.21" for 100 YEAR event
Inflow = 63.00 cfs @ 12.11 hrs, Volume= 4.860 af
Outflow = 54.25 cfs @ 12.18 hrs, Volume= 4.848 af, Atten= 14%, Lag= 3.8 min
Primary = 54.25 cfs @ 12.18 hrs, Volume= 4.848 af
Routed to Reach 7R : FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 355.91' @ 12.18 hrs Surf.Area= 12,083 sf Storage= 36,320 cf

Plug-Flow detention time= 28.5 min calculated for 4.839 af (100% of inflow)
Center-of-Mass det. time= 26.9 min (857.2 - 830.3)

Volume	Invert	Avail.Storage	Storage Description
#1	351.00'	37,428 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
351.00	0	0	0
352.00	5,106	2,553	2,553
354.00	8,764	13,870	16,423
356.00	12,241	21,005	37,428

Device	Routing	Invert	Outlet Devices
#1	Primary	351.00'	**12.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 351.00' / 349.00' S= 0.0333 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	355.00'	**20.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=52.93 cfs @ 12.18 hrs HW=355.89' (Free Discharge)
└**1=Culvert** (Inlet Controls 7.92 cfs @ 10.09 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 45.00 cfs @ 2.53 fps)

Summary for Pond 8P: DET BASIN ON EAGLE LEASING

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 5.74" for 100 YEAR event
Inflow = 32.38 cfs @ 12.17 hrs, Volume= 2.884 af
Outflow = 13.68 cfs @ 12.48 hrs, Volume= 2.883 af, Atten= 58%, Lag= 18.8 min
Primary = 13.68 cfs @ 12.48 hrs, Volume= 2.883 af
Routed to Reach 8R : FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 347.28' @ 12.48 hrs Surf.Area= 19,484 sf Storage= 31,008 cf

Plug-Flow detention time= 23.4 min calculated for 2.879 af (100% of inflow)
Center-of-Mass det. time= 23.2 min (828.4 - 805.2)

Volume	Invert	Avail.Storage	Storage Description
#1	342.50'	46,903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
342.50	0	0	0
344.00	1,030	773	773
346.00	10,200	11,230	12,003
348.00	24,700	34,900	46,903

Device	Routing	Invert	Outlet Devices
#1	Primary	342.50'	**12.0" Round Culvert** L= 33.0' Ke= 0.500 Inlet / Outlet Invert= 342.50' / 342.10' S= 0.0121 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	347.00'	**12.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 4.5' Crest Height

Primary OutFlow Max=13.66 cfs @ 12.48 hrs HW=347.28' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 7.82 cfs @ 9.96 fps)
└—**2=Sharp-Crested Rectangular Weir** (Weir Controls 5.84 cfs @ 1.74 fps)

POSTDEVELOPMENT

Summary for Subcatchment 11S: POSTDEV FLOW FROM PARKING AREA

Runoff = 7.18 cfs @ 12.08 hrs, Volume= 0.589 af, Depth> 7.65"
Routed to Pond 11P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
28,308	98	Paved parking, HSG B
610	61	>75% Grass cover, Good, HSG B
10,964	98	Paved parking, HSG C
390	74	>75% Grass cover, Good, HSG C
40,272	97	Weighted Average
1,000		2.48% Pervious Area
39,272		97.52% Impervious Area

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

Summary for Subcatchment 12S: POSTDEV OVERLAND FLOW TO DETENTION BASIN

Runoff = 1.51 cfs @ 12.16 hrs, Volume= 0.129 af, Depth> 3.67"
Routed to Pond 11P : EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
2,913	98	Water Surface, HSG B
850	70	Woods, Good, HSG C
14,581	55	Woods, Good, HSG B
18,344	63	Weighted Average
15,431		84.12% Pervious Area
2,913		15.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	58	0.1600	2.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	108	Total			

Summary for Subcatchment 13S: POSTDEV OVERLAND FLOW TO PARKERVILLE ROAD

Runoff = 8.70 cfs @ 12.31 hrs, Volume= 0.958 af, Depth> 4.00"
Routed to Reach 11R : PARKERVILLE ROAD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
3,898	70	Woods, Good, HSG C
3,546	74	>75% Grass cover, Good, HSG C
18,640	55	Woods, Good, HSG B
285	61	>75% Grass cover, Good, HSG B
160	55	Woods, Good, HSG B
14,938	61	>75% Grass cover, Good, HSG B
789	98	Unconnected roofs, HSG B
2,869	55	Woods, Good, HSG B
1,012	61	>75% Grass cover, Good, HSG B
4,580	55	Woods, Good, HSG B
1,369	98	Roofs, HSG B
1,507	98	Roofs, HSG C
186	74	>75% Grass cover, Good, HSG C
23,192	70	Woods, Good, HSG C
1,585	74	>75% Grass cover, Good, HSG C
7,295	55	Woods, Good, HSG B
2,016	98	Roofs, HSG C
2,757	74	>75% Grass cover, Good, HSG C
1,655	98	Roofs, HSG C
21,881	74	>75% Grass cover, Good, HSG C
8,648	55	Woods, Good, HSG B
2,419	70	Woods, Good, HSG C
125,227	66	Weighted Average
117,891		94.14% Pervious Area
7,336		5.86% Impervious Area
789		10.76% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	50	0.0350	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.20"
2.7	196	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	39	0.1500	5.44	10.87	**Channel Flow, 1' WIDE BOTTOM, 1:1 SIDE SLOPES,1'DEEP** Area= 2.0 sf Perim= 3.8' r= 0.53' n= 0.069 Riprap, 6-inch
1.0	83	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	284	0.0320	4.42	53.08	**Channel Flow,** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
22.1	652	Total			

Summary for Subcatchment 14S: OVERLAND FLOW TO ROUTE 9

Runoff = 16.68 cfs @ 12.25 hrs, Volume= 1.692 af, Depth> 4.46"
Routed to Reach 14R : ROUTE 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
31,704	70	Woods, Good, HSG C
0	98	Roofs, HSG C
4,306	98	Roofs, HSG C
11,703	74	>75% Grass cover, Good, HSG C
75,805	55	Woods, Good, HSG B
44,135	98	Paved parking, HSG B
30,829	61	>75% Grass cover, Good, HSG B
198,482	70	Weighted Average
150,041		75.59% Pervious Area
48,441		24.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
1.1	242	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
9.1	709	0.0680	1.30		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.9	365	0.0160	3.13	37.53	**Channel Flow,** Area= 12.0 sf Perim= 22.1' r= 0.54' n= 0.040 Earth, cobble bottom, clean sides
18.3	1,366	Total			

Summary for Subcatchment 15S: DRAINAGE COLLECTED BY CB'S SW OF SELF STORAGE BUILDING

Runoff = 3.43 cfs @ 12.09 hrs, Volume= 0.254 af, Depth> 6.10"
Routed to Pond 15P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
6,345	61	>75% Grass cover, Good, HSG B
3,301	74	>75% Grass cover, Good, HSG C
6,254	98	Paved parking, HSG B
5,860	98	Paved parking, HSG C
21,760	84	Weighted Average
9,646		44.33% Pervious Area
12,114		55.67% Impervious Area

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

Summary for Subcatchment 16S: OVERLAND FLOW TO EXISTING DETENTION BASIN

Runoff = 4.88 cfs @ 12.18 hrs, Volume= 0.431 af, Depth> 4.58"
Routed to Pond 15P : EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
46,762	70	Woods, Good, HSG C
2,500	98	Water Surface, HSG C
49,262	71	Weighted Average
46,762		94.93% Pervious Area
2,500		5.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	50	0.0450	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	324	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.7	374	Total			

Summary for Subcatchment 17S: RUNOFF COLLECTED BY SARSEN STONE WAY

Runoff = 46.22 cfs @ 12.12 hrs, Volume= 3.589 af, Depth> 4.24"
Routed to Pond 17P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
317,393	68	1 acre lots, 20% imp, HSG B
125,360	68	1 acre lots, 20% imp, HSG B
442,753	68	Weighted Average
354,202		80.00% Pervious Area
88,551		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
2.0	214	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	175	0.1000	4.74		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	210	0.1000	6.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.4	649	Total			

Summary for Subcatchment 18S: POSTDEV FLOW ON EAGLE LEASING

Runoff = 32.38 cfs @ 12.17 hrs, Volume= 2.884 af, Depth> 5.74"
Routed to Pond 18P : DET BASIN ON EAGLE LEASING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
24,658	98	Paved parking, HSG B
8,220	61	>75% Grass cover, Good, HSG B
104,681	98	Paved parking, HSG C
34,894	74	>75% Grass cover, Good, HSG C
235	98	Paved parking, HSG B
6,197	61	>75% Grass cover, Good, HSG B
30,530	61	>75% Grass cover, Good, HSG B
5,140	98	Paved parking, HSG B
48,076	55	Woods, Good, HSG B
262,631	81	Weighted Average
127,917		48.71% Pervious Area
134,714		51.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	50	0.0600	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.20"
4.2	413	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	360	0.0440	2.10		**Shallow Concentrated Flow,** Nearly Bare & Untilled Kv= 10.0 fps
12.4	823	Total			

Summary for Subcatchment 19S: OVERLAND FLOW TO DET BASIN BEHIND 5 & 7 SARSEN STONE

Runoff = 17.73 cfs @ 12.09 hrs, Volume= 1.271 af, Depth> 4.13"
Routed to Pond 17P : EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
20,407	70	Woods, Good, HSG C
3,300	98	Water Surface, HSG B
36,775	55	Woods, Good, HSG B
13,560	70	1/2 acre lots, 25% imp, HSG B
87,016	70	1/2 acre lots, 25% imp, HSG B
161,058	67	Weighted Average
132,614		82.34% Pervious Area
28,444		17.66% Impervious Area

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

Summary for Subcatchment 20S: POSTDEV FLOW TO PENDERGAST & WITTCOFF

Runoff = 1.03 cfs @ 12.13 hrs, Volume= 0.082 af, Depth> 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
644	55	Woods, Good, HSG B
386	61	>75% Grass cover, Good, HSG B
4,671	70	Woods, Good, HSG C
3,921	74	>75% Grass cover, Good, HSG C
9,622	70	Weighted Average
9,622		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
2.3	207	0.0900	1.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.4	257	Total			

Summary for Subcatchment 21S: POSTDEV FLOW TO PALMER

Runoff = 0.06 cfs @ 12.07 hrs, Volume= 0.004 af, Depth> 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
480	70	Woods, Good, HSG C
480		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	17	0.0300	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"

Summary for Subcatchment 25S: AREA CAPTURED IN MAIN DRIVE

Runoff = 9.72 cfs @ 12.22 hrs, Volume= 0.974 af, Depth> 6.33"
Routed to Pond 24P : INFILTRATION STRUCTURE UNDER PARKING

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
37,220	98	Paved parking, HSG C
10,950	98	Paved parking, HSG B
9,981	61	>75% Grass cover, Good, HSG B
15,395	74	>75% Grass cover, Good, HSG C
3,684	55	Woods, Good, HSG B
1,155	98	Roofs, HSG B
548	61	>75% Grass cover, Good, HSG B
1,555	55	Woods, Good, HSG B
80,488	86	Weighted Average
31,163		38.72% Pervious Area
49,325		61.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.20"
0.5	55	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	79	0.0380	1.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	167	0.0240	3.14		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
16.2	351	Total			

Summary for Subcatchment 26S: DRIVEWAY AND 5 UNITS AT ENTRANCE

Runoff = 2.00 cfs @ 12.29 hrs, Volume= 0.238 af, Depth> 7.27"
Routed to Reach 26R : FLOW PATH FROM OUTLET TO PARKERVILLE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
2,804	74	>75% Grass cover, Good, HSG C
13,548	98	Paved parking, HSG C
776	98	Paved parking, HSG B
17,128	94	Weighted Average
2,804		16.37% Pervious Area
14,324		83.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.20"
0.3	19	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
21.8	69	Total			

Summary for Subcatchment 27S: UNIT 9 AND BACK HALF OF ROOFS UNITS 10-11

Runoff = 0.37 cfs @ 12.07 hrs, Volume= 0.030 af, Depth> 7.77"
Routed to Pond 27P : INFILTRATION STRUCTURE FOR 9-11

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
2,016	98	Roofs, HSG C
2,016		100.00% Impervious Area

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

Summary for Subcatchment 28S: BACK HALF OF ROOFS UNITS 22-26

Runoff = 0.46 cfs @ 12.07 hrs, Volume= 0.037 af, Depth> 7.77"
Routed to Pond 28P : INFILTRATION STRUCTURE FOR BACKS OF 22-26

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
2,520	98	Roofs, HSG C
2,520		100.00% Impervious Area

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

Summary for Subcatchment 29S: ROOFS FROM 20,21,29 & HALF OF 26-28

Runoff = 0.84 cfs @ 12.07 hrs, Volume= 0.067 af, Depth> 7.77"
Routed to Pond 29P : INFILTRATION STRUCTURE FOR 20, 21, 29 & HALF OF 26-28

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 100 YEAR Rainfall=8.01"

Area (sf)	CN	Description
4,032	98	Roofs, HSG C
504	98	Roofs, HSG C
4,536	98	Weighted Average
4,536		100.00% Impervious Area

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

Summary for Reach 11R: PARKERVILLE ROAD

Inflow Area = 6.461 ac, 40.21% Impervious, Inflow Depth > 4.75" for 100 YEAR event
Inflow = 16.14 cfs @ 12.33 hrs, Volume= 2.555 af
Outflow = 16.14 cfs @ 12.33 hrs, Volume= 2.555 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Summary for Reach 14R: ROUTE 9

Inflow Area = 26.078 ac, 27.71% Impervious, Inflow Depth > 4.65" for 100 YEAR event
Inflow = 79.06 cfs @ 12.24 hrs, Volume= 10.096 af
Outflow = 79.06 cfs @ 12.24 hrs, Volume= 10.096 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

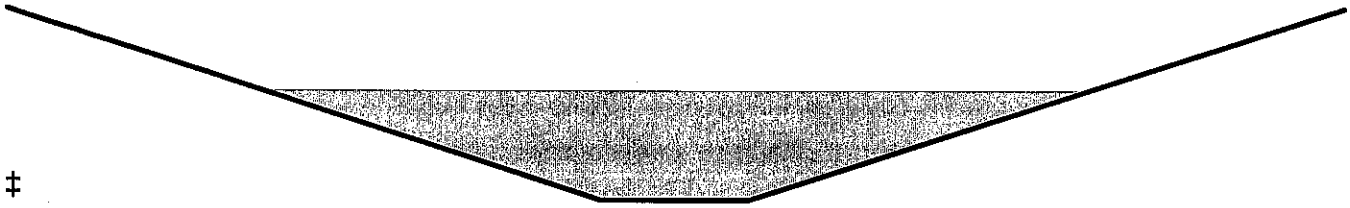
Summary for Reach 17R: FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 4.20" for 100 YEAR event
Inflow = 54.25 cfs @ 12.18 hrs, Volume= 4.848 af
Outflow = 52.93 cfs @ 12.21 hrs, Volume= 4.843 af, Atten= 2%, Lag= 2.1 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 7.11 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 3.00 fps, Avg. Travel Time= 2.2 min

Peak Storage= 2,976 cf @ 12.19 hrs
Average Depth at Peak Storage= 1.14' , Surface Width= 11.13'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 198.41 cfs

2.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 4.0 '/' Top Width= 18.00'
Length= 397.0' Slope= 0.0642 '/'
Inlet Invert= 349.00', Outlet Invert= 323.50'



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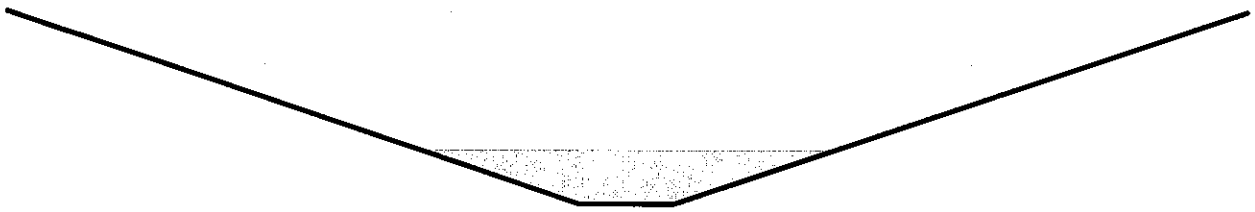
Summary for Reach 18R: FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 5.74" for 100 YEAR event
Inflow = 13.68 cfs @ 12.48 hrs, Volume= 2.883 af
Outflow = 13.65 cfs @ 12.49 hrs, Volume= 2.883 af, Atten= 0%, Lag= 0.6 min
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 9.10 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 4.50 fps, Avg. Travel Time= 0.6 min

Peak Storage= 236 cf @ 12.49 hrs
Average Depth at Peak Storage= 0.56' , Surface Width= 4.36'
Bank-Full Depth= 2.00' Flow Area= 14.0 sf, Capacity= 271.03 cfs

1.00' x 2.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 3.0 '/' Top Width= 13.00'
Length= 157.0' Slope= 0.1025 '/'
Inlet Invert= 342.10', Outlet Invert= 326.00'



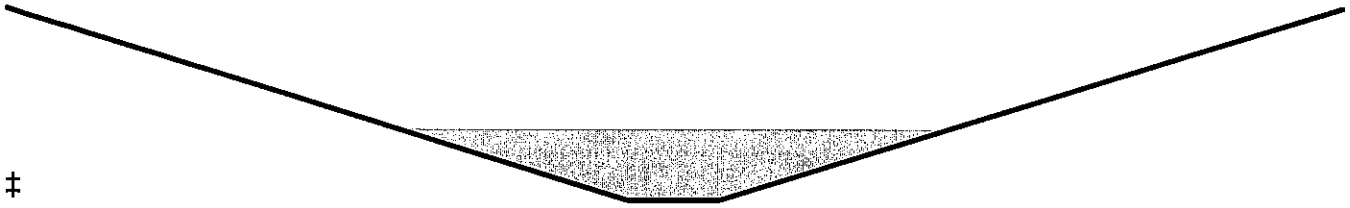
Summary for Reach 22R: FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Inflow Area = 21.521 ac, 28.41% Impervious, Inflow Depth > 4.69" for 100 YEAR event
Inflow = 63.79 cfs @ 12.21 hrs, Volume= 8.409 af
Outflow = 62.41 cfs @ 12.24 hrs, Volume= 8.403 af, Atten= 2%, Lag= 1.8 min
Routed to Reach 14R : ROUTE 9

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 8.34 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 3.52 fps, Avg. Travel Time= 1.8 min

Peak Storage= 2,887 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.73' , Surface Width= 17.62'
Bank-Full Depth= 2.00' Flow Area= 46.0 sf, Capacity= 707.92 cfs

3.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 10.0 '/' Top Width= 43.00'
Length= 383.0' Slope= 0.0888 '/'
Inlet Invert= 349.00', Outlet Invert= 315.00'



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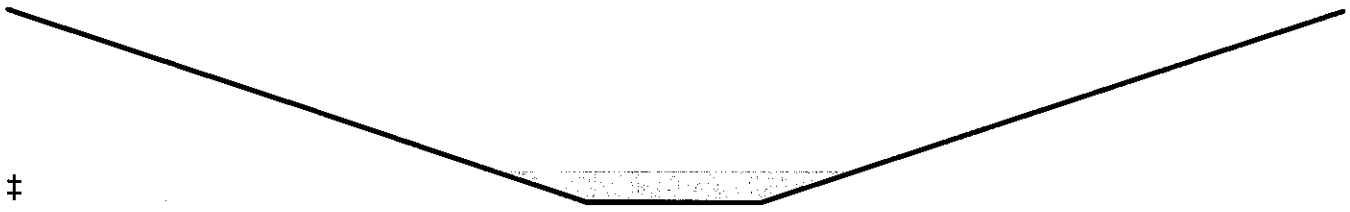
Summary for Reach 26R: FLOW PATH FROM OUTLET TO PARKERVILLE

Inflow Area = 2.241 ac, 65.20% Impervious, Inflow Depth > 4.72" for 100 YEAR event
Inflow = 4.79 cfs @ 12.47 hrs, Volume= 0.881 af
Outflow = 4.78 cfs @ 12.53 hrs, Volume= 0.881 af, Atten= 0%, Lag= 3.6 min
Routed to Reach 11R : PARKERVILLE ROAD

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Max. Velocity= 3.18 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 1.13 fps, Avg. Travel Time= 5.3 min

Peak Storage= 540 cf @ 12.49 hrs
Average Depth at Peak Storage= 0.16' , Surface Width= 12.49'
Bank-Full Depth= 1.00' Flow Area= 26.0 sf, Capacity= 232.32 cfs

6.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 20.0 '/' Top Width= 46.00'
Length= 360.0' Slope= 0.0375 '/'
Inlet Invert= 318.00', Outlet Invert= 304.50'



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Summary for Pond 11P: EXISTING DETENTION BASIN NEAR PARKERVILLE ROAD

Inflow Area = 1.346 ac, 71.97% Impervious, Inflow Depth > 6.40" for 100 YEAR event
Inflow = 8.41 cfs @ 12.09 hrs, Volume= 0.718 af
Outflow = 3.77 cfs @ 12.31 hrs, Volume= 0.717 af, Atten= 55%, Lag= 13.3 min
Primary = 3.77 cfs @ 12.31 hrs, Volume= 0.717 af
Routed to Reach 11R : PARKERVILLE ROAD

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 309.99' @ 12.31 hrs Surf.Area= 6,927 sf Storage= 5,171 cf

Plug-Flow detention time= 13.2 min calculated for 0.715 af (100% of inflow)
Center-of-Mass det. time= 12.2 min (776.1 - 763.9)

Volume	Invert	Avail.Storage	Storage Description
#1	308.50'	20,440 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
308.50	0	0	0
310.00	6,960	5,220	5,220
312.00	8,260	15,220	20,440

Device	Routing	Invert	Outlet Devices
#1	Primary	308.50'	**12.0" Round Culvert** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 308.50' / 308.10' S= 0.0133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	311.50'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.77 cfs @ 12.31 hrs HW=309.99' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 3.77 cfs @ 4.80 fps)
└—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 15P: EXISTING DETENTION BASIN SOUTH OF SELF STORAGE BUILDING

Inflow Area = 1.630 ac, 20.58% Impervious, Inflow Depth > 5.04" for 100 YEAR event
Inflow = 7.56 cfs @ 12.13 hrs, Volume= 0.685 af
Outflow = 4.02 cfs @ 12.38 hrs, Volume= 0.683 af, Atten= 47%, Lag= 15.3 min
Primary = 4.02 cfs @ 12.38 hrs, Volume= 0.683 af
Routed to Reach 22R : FLOW PATH FROM BASIN OUTLET TO ROUTE 9

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 327.28' @ 12.38 hrs Surf.Area= 4,147 sf Storage= 5,932 cf

Plug-Flow detention time= 20.3 min calculated for 0.683 af (100% of inflow)
Center-of-Mass det. time= 18.0 min (832.5 - 814.5)

Volume	Invert	Avail.Storage	Storage Description
#1	325.50'	12,719 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
325.50	0	0	0
326.00	3,700	925	925
328.00	4,400	8,100	9,025
328.75	5,450	3,694	12,719

Device	Routing	Invert	Outlet Devices
#1	Primary	325.50'	**12.0" Round Culvert** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 325.50' / 325.25' S= 0.0066 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	328.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=4.02 cfs @ 12.38 hrs HW=327.27' (Free Discharge)
└**1=Culvert** (Barrel Controls 4.02 cfs @ 5.12 fps)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 17P: EXISTING DET BASIN ON 5 & 7 SARSEN STONE WAY

Inflow Area = 13.862 ac, 19.38% Impervious, Inflow Depth > 4.21" for 100 YEAR event
Inflow = 63.00 cfs @ 12.11 hrs, Volume= 4.860 af
Outflow = 54.25 cfs @ 12.18 hrs, Volume= 4.848 af, Atten= 14%, Lag= 3.8 min
Primary = 54.25 cfs @ 12.18 hrs, Volume= 4.848 af
Routed to Reach 17R : FLOW PATH FROM SARSEN STONE BASIN TO OUTLET OF BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 355.91' @ 12.18 hrs Surf.Area= 12,083 sf Storage= 36,320 cf

Plug-Flow detention time= 28.5 min calculated for 4.839 af (100% of inflow)
Center-of-Mass det. time= 26.9 min (857.2 - 830.3)

Volume	Invert	Avail.Storage	Storage Description
#1	351.00'	37,428 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
351.00	0	0	0
352.00	5,106	2,553	2,553
354.00	8,764	13,870	16,423
356.00	12,241	21,005	37,428

Device	Routing	Invert	Outlet Devices
#1	Primary	351.00'	**12.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 351.00' / 349.00' S= 0.0333 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	355.00'	**20.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=52.93 cfs @ 12.18 hrs HW=355.89' (Free Discharge)
└**1=Culvert** (Inlet Controls 7.92 cfs @ 10.09 fps)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 45.00 cfs @ 2.53 fps)

Summary for Pond 18P: DET BASIN ON EAGLE LEASING

Inflow Area = 6.029 ac, 51.29% Impervious, Inflow Depth > 5.74" for 100 YEAR event
Inflow = 32.38 cfs @ 12.17 hrs, Volume= 2.884 af
Outflow = 13.68 cfs @ 12.48 hrs, Volume= 2.883 af, Atten= 58%, Lag= 18.8 min
Primary = 13.68 cfs @ 12.48 hrs, Volume= 2.883 af
Routed to Reach 18R : FLOW PATH FROM EAGLE LEASING BASIN TO DET BASIN ON SITE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 347.28' @ 12.48 hrs Surf.Area= 19,484 sf Storage= 31,008 cf

Plug-Flow detention time= 23.4 min calculated for 2.879 af (100% of inflow)
Center-of-Mass det. time= 23.2 min (828.4 - 805.2)

Volume	Invert	Avail.Storage	Storage Description
#1	342.50'	46,903 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
342.50	0	0	0
344.00	1,030	773	773
346.00	10,200	11,230	12,003
348.00	24,700	34,900	46,903

Device	Routing	Invert	Outlet Devices
#1	Primary	342.50'	**12.0" Round Culvert** L= 33.0' Ke= 0.500 Inlet / Outlet Invert= 342.50' / 342.10' S= 0.0121 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Primary	347.00'	**12.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 4.5' Crest Height

Primary OutFlow Max=13.66 cfs @ 12.48 hrs HW=347.28' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 7.82 cfs @ 9.96 fps)
└—**2=Sharp-Crested Rectangular Weir** (Weir Controls 5.84 cfs @ 1.74 fps)

Summary for Pond 24P: INFILTRATION STRUCTURE UNDER PARKING

Inflow Area = 1.848 ac, 61.28% Impervious, Inflow Depth > 6.33" for 100 YEAR event
Inflow = 9.72 cfs @ 12.22 hrs, Volume= 0.974 af
Outflow = 3.68 cfs @ 12.60 hrs, Volume= 0.904 af, Atten= 62%, Lag= 23.0 min
Discarded = 0.18 cfs @ 8.44 hrs, Volume= 0.260 af
Primary = 3.49 cfs @ 12.60 hrs, Volume= 0.643 af
Routed to Reach 26R : FLOW PATH FROM OUTLET TO PARKERVILLE

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 328.42' @ 12.60 hrs Surf.Area= 3,284 sf Storage= 16,148 cf

Plug-Flow detention time= 105.5 min calculated for 0.902 af (93% of inflow)
Center-of-Mass det. time= 68.4 min (864.0 - 795.6)

Volume	Invert	Avail.Storage	Storage Description
#1	320.50'	3,836 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 26,272 cf Overall - 16,683 cf Embedded = 9,589 cf x 40.0% Voids
#2	321.00'	12,422 cf	**retain_it retain_it 5.0'** x 46 Inside #1 Inside= 84.0"W x 60.0"H => 36.41 sf x 8.00'L = 291.3 cf Outside= 96.0"W x 68.0"H => 45.33 sf x 8.00'L = 362.7 cf 1 Rows adjusted for 976.7 cf perimeter wall
		16,258 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
320.50	3,284	0	0
328.50	3,284	26,272	26,272

Device	Routing	Invert	Outlet Devices
#1	Discarded	320.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	326.70'	**6.0" Round Culvert** L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 326.70' / 319.00' S= 0.4278 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	322.00'	**6.0" Round Culvert** L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 322.00' / 320.00' S= 0.1111 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.18 cfs @ 8.44 hrs HW=320.58' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=3.49 cfs @ 12.60 hrs HW=328.42' (Free Discharge)
├**2=Culvert** (Inlet Controls 1.14 cfs @ 5.83 fps)
└**3=Culvert** (Inlet Controls 2.35 cfs @ 11.96 fps)

Summary for Pond 27P: INFILTRATION STRUCTURE FOR 9-11

Inflow Area = 0.046 ac,100.00% Impervious, Inflow Depth > 7.77" for 100 YEAR event
Inflow = 0.37 cfs @ 12.07 hrs, Volume= 0.030 af
Outflow = 0.01 cfs @ 7.40 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.01 cfs @ 7.40 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 341.23' @ 17.24 hrs Surf.Area= 319 sf Storage= 830 cf

Plug-Flow detention time= 252.0 min calculated for 0.012 af (42% of inflow)
Center-of-Mass det. time= 94.6 min (834.6 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	337.00'	339 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,595 cf Overall - 748 cf Embedded = 847 cf x 40.0% Voids
#2	337.50'	557 cf	**Shea Dry Well 300gal** x 12 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf 12 Chambers in 2 Rows
		895 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
337.00	319	0	0
342.00	319	1,595	1,595

Device	Routing	Invert	Outlet Devices
#1	Discarded	337.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 7.40 hrs HW=337.05' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Summary for Pond 28P: INFILTRATION STRUCTURE FOR BACKS OF 22-26

Inflow Area = 0.058 ac,100.00% Impervious, Inflow Depth > 7.77" for 100 YEAR event
Inflow = 0.46 cfs @ 12.07 hrs, Volume= 0.037 af
Outflow = 0.01 cfs @ 8.00 hrs, Volume= 0.018 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.01 cfs @ 8.00 hrs, Volume= 0.018 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 335.75' @ 16.60 hrs Surf.Area= 462 sf Storage= 988 cf

Plug-Flow detention time= 249.3 min calculated for 0.018 af (47% of inflow)
Center-of-Mass det. time= 108.0 min (847.9 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	332.00'	575 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,310 cf Overall - 873 cf Embedded = 1,437 cf x 40.0% Voids
#2	332.50'	649 cf	**Shea Dry Well 300gal** x 14 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf 14 Chambers in 2 Rows
		1,224 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
332.00	462	0	0
337.00	462	2,310	2,310

Device	Routing	Invert	Outlet Devices
#1	Discarded	332.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 8.00 hrs HW=332.05' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Summary for Pond 29P: INFILTRATION STRUCTURE FOR 20, 21, 29 & HALF OF 26-28

Inflow Area = 0.104 ac,100.00% Impervious, Inflow Depth > 7.77" for 100 YEAR event
Inflow = 0.84 cfs @ 12.07 hrs, Volume= 0.067 af
Outflow = 0.02 cfs @ 7.08 hrs, Volume= 0.026 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.02 cfs @ 7.08 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 332.09' @ 17.57 hrs Surf.Area= 659 sf Storage= 1,920 cf

Plug-Flow detention time= 255.3 min calculated for 0.026 af (39% of inflow)
Center-of-Mass det. time= 87.7 min (827.7 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	327.00'	777 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 3,625 cf Overall - 1,683 cf Embedded = 1,942 cf x 40.0% Voids
#2	327.50'	1,252 cf	**Shea Dry Well 300gal** x 27 Inside #1 Inside= 42.2"W x 45.0"H => 13.25 sf x 3.50'L = 46.4 cf Outside= 54.0"W x 51.0"H => 15.58 sf x 4.00'L = 62.3 cf
		2,029 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
327.00	659	0	0
332.50	659	3,625	3,625

Device	Routing	Invert	Outlet Devices
#1	Discarded	327.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 7.08 hrs HW=327.06' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.02 cfs)