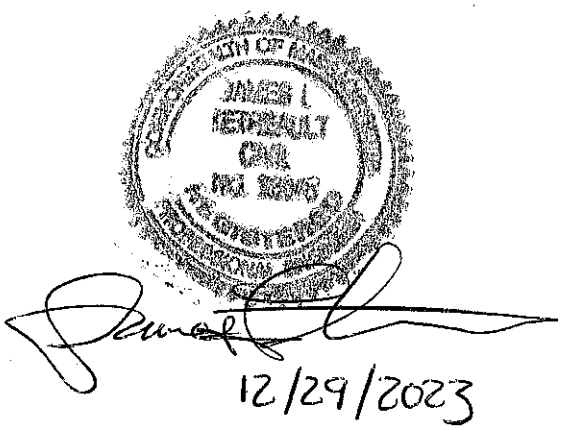
DRAINAGE REPORT

for

RICE POND VILLAGE
17 RICE ROAD, MILLBURY

OCTOBER 24, 2023
REVISED DECEMBER 29, 2023



AZIMUTH LAND DESIGN, LLC
118 Turnpike Road, Suite 200, Southborough, MA 01772 (508) 485-0137

INTRODUCTION

The proposed Rice Pond Village development is an apartment development of three buildings each with 64 units for a total of 192 and located at 17 Rice Road in Millbury. The site has an area of 15.6 acres and contains one single family home, a garage and pool area with a large lawn around it but is otherwise undeveloped and wooded.

The topography of the site is defined by a ridge in the middle of the site which separates areas sloping downward to the northeast to the abutting Providence & Worcester Railroad property from areas sloping downward to the southwesterly side of the property to an existing unnamed pond.

The pond receives overland runoff from this site and also from abutters to the south of this property, having frontage on Rice Road. In addition, it receives runoff from some 58 acres of the residential areas south of South Main Street.

A copy of the Web Soil Survey by NRCS is included at the back of this Report and it shows that soils on site are almost all Merrimac series soils categorized as hydrologic soil group A soils. We have excavated some official deep observation holes on site and, at several of these, observed soils had a sandy loam texture inconsistent with that mapping. Nevertheless, this report makes the conservative assumption that that mapping is correct.

There is a small area of Scarboro & Walpole series soils categorized as hydrologic soil group D soils immediately south of the unnamed pond.

There is also a small area of Canton series soils categorized as hydrologic soil group B soils at the southwesterly corner of the property and the entirety of the above referenced offsite drainage area lies over hydrologic soil group B soils, mostly Canton series soils.

Because wooded cover is being converted to lawn and landscaped areas, paved driveways, parking and roofs, the rate of stormwater runoff from the site would increase if no measures were taken to prevent it.

Except for the first few feet of the proposed entrance drive, all of the runoff from the new impervious surfaces will be collected by the site's drainage system and infiltrated.

Roof runoff from building #3 as well as nearly all the proposed parking area will be directed to infiltration structure #1 located near the abutting railroad property.

Roof runoff from building #1, from the clubhouse and a small portion of the parking area will be directed to infiltration structure #2 located on the west side of the proposed entrance driveway.

Roof runoff from building #1 will be directed to infiltration structure #3 located on the east side of the proposed entrance driveway.

In all three cases, because of the very significant size of the proposed structures and because they are located in sand texture soils, there will be no piped outflow of stormwater, even in the 100 year storm event.

The body of this report contains the results of drainage calculations performed for the predevelopment and postdevelopment conditions during 2, 10, 25 and 100 year return frequency type III storm events. The 24 hour rainfalls associated with these storms are 3.20, 4.90, 6.10 and 8.50 inches respectively. Calculations were made using the HydroCAD stormwater modeling program. This program calculates hydrographs using a method very similar to that outlined in the Soil Conservation Service Technical Release Number 20 (TR-20). HydroCAD uses the TR-20 "curve number" evaluations of ground cover and the same times of concentration.

In calculating runoff, we have made certain assumptions. We assume that the maximum distance over which sheet flow will occur is 50 feet.

The following table compares the peak predevelopment and postdevelopment flows of stormwater at the design point:

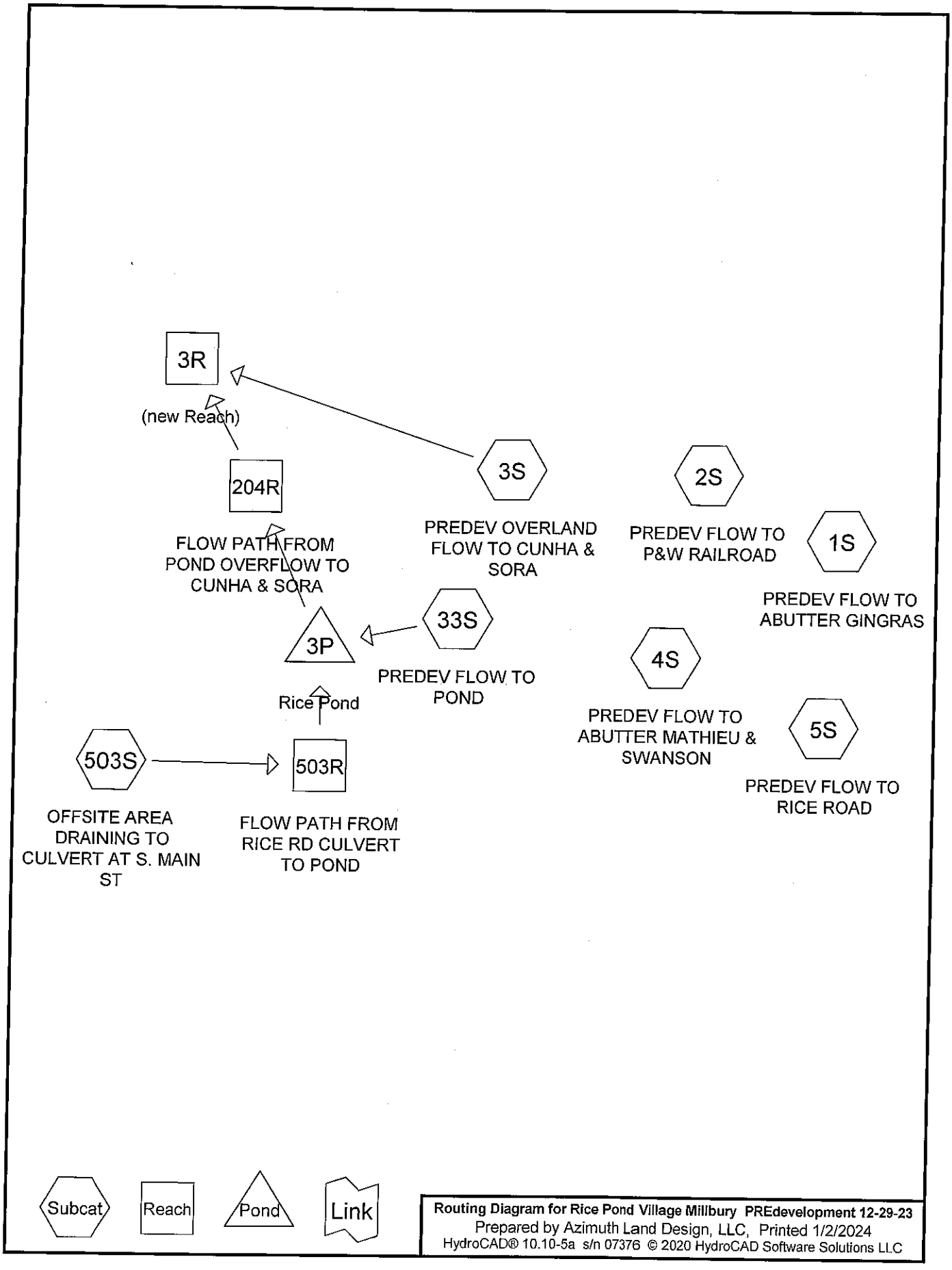
DESIGN POINT

	PEAK FLOW RATE (in cfs)			
	2 yr storm	10 yr storm	25 yr storm	100 yr storm
Abutter Gingras property line				
Subcat #1 pre	0.00 pre	0.00 pre	0.02 pre	0.23 pre
Subcat #11 post	0.00	0.00	0.00	0.06
Providence & Worcester railroad property line				
Subcat #2 pre	0.00 pre	0.02	0.13 pre	1.79 pre
Subcat #12 post	0.00	0.01	0.08	0.75
Abutter Cunha & Sora property line				
Reach #3 pre	21.21 pre	62.99 pre	97.00 pre	170.93 pre
Reach #13 post	21.10	61.78	94.51	164.97
Abutter Mathieu & Swanson property line				
Subcat #4 pre	0.00 pre	0.00 pre	0.01 pre	0.09 pre
Subcat #14 post	0.00	0.01	0.05	0.28
Rice Road right of way line				
Subcat #5 pre	0.00 pre	0.09 pre	0.37 pre	1.71 pre
Subcat #15 post	0.00	0.01	0.07	0.37

EXPLANATION OF HOW PRE AND POST DRAINAGE AREAS ARE THE SAME

I want to also take this opportunity to explain how these drainage calculations correctly compare the same drainage area in pre and postdevelopment conditions.

At first glance, this might not seem to be the case. But that is because subcatchments #'s 4 and 14, the pre and postdevelopment flows from the site to the abutter Mathieu & Swanson are also parts of subcatchments #'s 33 and 233. They're being double counted and they're not the same pre and post. Leaving aside subcatchments 4 and 14 the total areas pre and post are the same.



Routing Diagram for Rice Pond Village Millbury PREdevelopment 12-29-23
Prepared by Azimuth Land Design, LLC, Printed 1/2/2024
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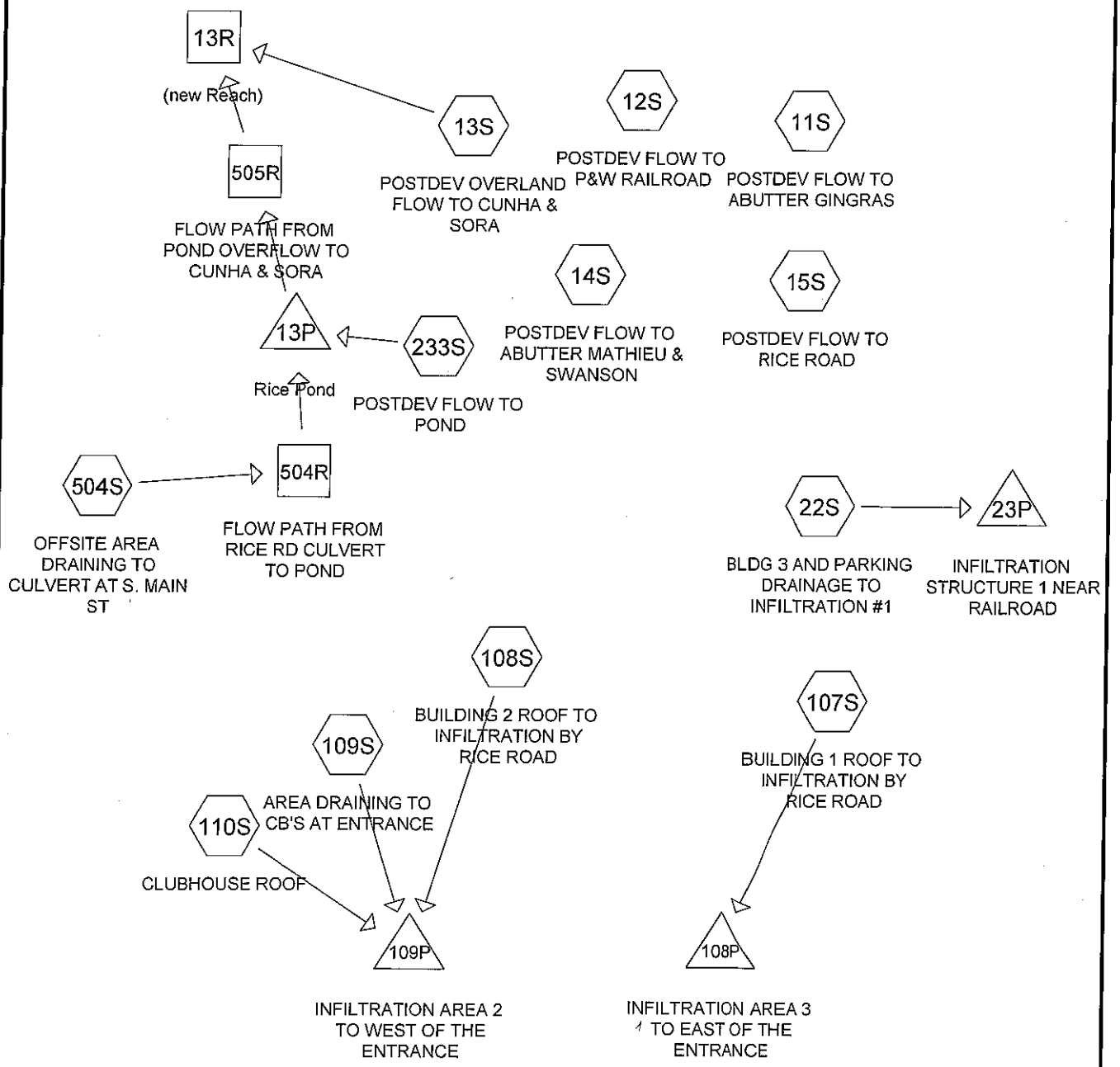

Routing Diagram for Rice Pond Village Millbury POSTdevelopment 12-29-23
Prepared by Azimuth Land Design, LLC, Printed 1/2/2024
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2 YEAR STORM

PREDEVELOPMENT

Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (sf)	CN	Description
6,858	30	Woods, Good, HSG A
10,008	39	>75% Grass cover, Good, HSG A
16,866	35	Weighted Average
16,866		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.9	100	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.2	150	Total			

Summary for Subcatchment 2S: PREDEV FLOW TO P&W RAILROAD

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (sf)	CN	Description
179,428	30	Woods, Good, HSG A
35,859	39	>75% Grass cover, Good, HSG A
3,896	98	Paved parking, HSG A
219,183	33	Weighted Average
215,287		98.22% Pervious Area
3,896		1.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
0.9	91	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	197	0.1060	4.99	14.98	**Channel Flow,** Area= 3.0 sf Perim= 4.0' r= 0.75' n= 0.080 Earth, long dense weeds
11.0	338	Total			

Summary for Subcatchment 3S: PREDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 0.01 cfs @ 20.00 hrs, Volume= 0.002 af, Depth> 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (sf)	CN	Description
148,793	30	Woods, Good, HSG A
30,807	98	Water Surface, HSG A
179,600	42	Weighted Average
148,793		82.85% Pervious Area
30,807		17.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
29.1	636	Total			

Summary for Subcatchment 4S: PREDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (sf)	CN	Description
21,387	30	Woods, Good, HSG A
21,387		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.4	57	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	107	Total			

Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Depth> 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

	Area (sf)	CN	Description
	22,350	30	Woods, Good, HSG A
	30,632	39	>75% Grass cover, Good, HSG A
*	5,307	98	Existing roof and driveway
	58,289	41	Weighted Average
	52,982		90.90% Pervious Area
	5,307		9.10% 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= 3.15"
3.7	212	0.0370	0.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.0	262	Total			

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff = 1.76 cfs @ 12.32 hrs, Volume= 0.231 af, Depth> 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	71,225	39	>75% Grass cover, Good, HSG A
	49,927	30	Woods, Good, HSG A
	14,588	30	Woods, Good, HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	313,497	61	Weighted Average
	250,155		79.80% Pervious Area
	63,342		20.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0900	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
3.9	242	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	292	Total			

Summary for Subcatchment 503S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 24.93 cfs @ 12.63 hrs, Volume= 3.584 af, Depth> 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 3R: (new Reach)

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 0.61" for 2 YR STORM event
Inflow = 21.21 cfs @ 13.09 hrs, Volume= 3.558 af
Outflow = 21.21 cfs @ 13.09 hrs, Volume= 3.558 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

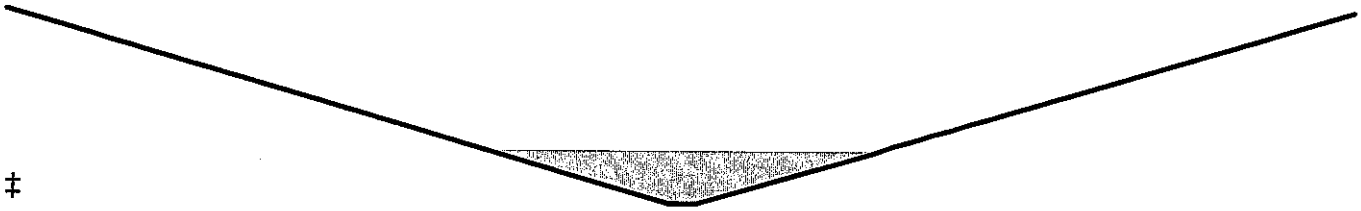
Summary for Reach 204R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 0.66" for 2 YR STORM event
Inflow = 21.62 cfs @ 12.93 hrs, Volume= 3.591 af
Outflow = 21.21 cfs @ 13.09 hrs, Volume= 3.556 af, Atten= 2%, Lag= 9.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.78 fps, Min. Travel Time= 5.1 min
Avg. Velocity = 1.18 fps, Avg. Travel Time= 7.7 min

Peak Storage= 6,528 cf @ 13.00 hrs
Average Depth at Peak Storage= 0.83' , Surface Width= 26.83'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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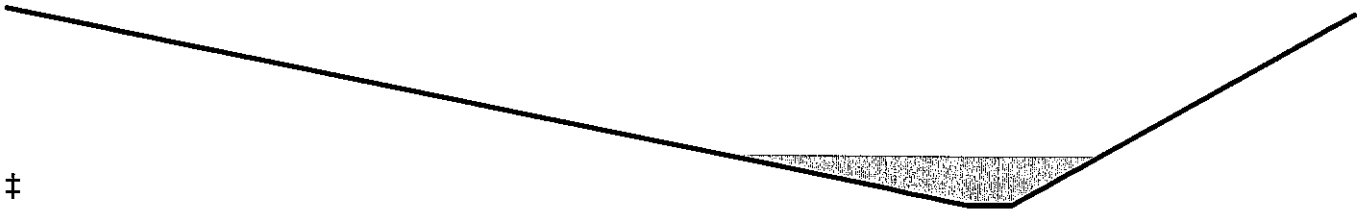
Summary for Reach 503R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 0.73" for 2 YR STORM event
Inflow = 24.93 cfs @ 12.63 hrs, Volume= 3.584 af
Outflow = 24.73 cfs @ 12.72 hrs, Volume= 3.565 af, Atten= 1%, Lag= 5.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 3.39 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 2.03 fps, Avg. Travel Time= 5.0 min

Peak Storage= 4,436 cf @ 12.67 hrs
Average Depth at Peak Storage= 0.78' , Surface Width= 16.77'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'



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Summary for Pond 3P: Rice Pond

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 0.69" for 2 YR STORM event
Inflow = 25.63 cfs @ 12.71 hrs, Volume= 3.796 af
Outflow = 21.62 cfs @ 12.93 hrs, Volume= 3.591 af, Atten= 16%, Lag= 13.3 min
Primary = 21.62 cfs @ 12.93 hrs, Volume= 3.591 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 390.66' @ 12.93 hrs Surf.Area= 40,641 sf Storage= 27,033 cf

Plug-Flow detention time= 37.9 min calculated for 3.591 af (95% of inflow)
Center-of-Mass det. time= 21.0 min (880.3 - 859.3)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=21.58 cfs @ 12.93 hrs HW=390.66' (Free Discharge)
↑**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 21.58 cfs @ 2.23 fps)

POSTDEVELOPMENT

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (sf)	CN	Description
2,556	39	>75% Grass cover, Good, HSG A
4,142	30	Woods, Good, HSG A
6,698	33	Weighted Average
6,698		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.1400	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	17	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.1	67	Total			

Summary for Subcatchment 12S: POSTDEV FLOW TO P&W RAILROAD

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (sf)	CN	Description
26,710	30	Woods, Good, HSG A
41,448	39	>75% Grass cover, Good, HSG A
68,158	35	Weighted Average
68,158		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.9	109	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.8	159	Total			

Summary for Subcatchment 13S: POSTDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 0.01 cfs @ 20.00 hrs, Volume= 0.002 af, Depth> 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (sf)	CN	Description
30,807	98	Water Surface, HSG A
6,132	39	>75% Grass cover, Good, HSG A
138,178	30	Woods, Good, HSG A
175,117	42	Weighted Average
144,310		82.41% Pervious Area
30,807		17.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	50	0.0540	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
12.5	636	Total			

Summary for Subcatchment 14S: POSTDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (sf)	CN	Description
3,100	30	Woods, Good, HSG A
15,305	39	>75% Grass cover, Good, HSG A
18,405	37	Weighted Average
18,405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	50	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	81	0.1200	5.20		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	32	0.0750	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	163	Total			

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (sf)	CN	Description
200	98	Paved parking, HSG A
1,420	30	Woods, Good, HSG A
14,011	39	>75% Grass cover, Good, HSG A
15,631	39	Weighted Average
15,431		98.72% Pervious Area
200		1.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.2	26	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.5	76	Total			

Summary for Subcatchment 22S: BLDG 3 AND PARKING DRAINAGE TO INFILTRATION #1

Runoff = 8.96 cfs @ 12.08 hrs, Volume= 0.598 af, Depth> 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

	Area (sf)	CN	Description
	23,213	39	>75% Grass cover, Good, HSG A
*	136,909	98	Drive, driveways & roofs HSG A
	160,122	89	Weighted Average
	23,213		14.50% Pervious Area
	136,909		85.50% 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= 3.15"
0.4	78	0.0220	3.01		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.7	128	Total			

Summary for Subcatchment 107S: BUILDING 1 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 1.55 cfs @ 12.07 hrs, Volume= 0.112 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 108S: BUILDING 2 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 1.55 cfs @ 12.07 hrs, Volume= 0.112 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 109S: AREA DRAINING TO CB'S AT ENTRANCE

Runoff = 0.31 cfs @ 12.08 hrs, Volume= 0.020 af, Depth> 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (sf)	CN	Description
1,699	39	>75% Grass cover, Good, HSG A
5,151	98	Paved parking, HSG A
6,850	83	Weighted Average
1,699		24.80% Pervious Area
5,151		75.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	45	0.0800	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.5	85	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.9	130	Total			

Summary for Subcatchment 110S: CLUBHOUSE ROOF

Runoff = 0.35 cfs @ 12.07 hrs, Volume= 0.025 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (sf)	CN	Description
4,800	98	Roofs, HSG A
4,800		100.00% Impervious Area

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

Summary for Subcatchment 233S: POSTDEV FLOW TO POND

Runoff = 2.41 cfs @ 12.11 hrs, Volume= 0.229 af, Depth> 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
	85,544	39	>75% Grass cover, Good, HSG A
	45,408	30	Woods, Good, HSG A
*	12,710	98	Roofs & Driveways HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	308,219	61	Weighted Average
	245,367		79.61% Pervious Area
	62,852		20.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.15"
1.1	188	0.0350	2.81		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.1	92	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.7	330	Total			

Summary for Subcatchment 504S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 24.93 cfs @ 12.63 hrs, Volume= 3.584 af, Depth> 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR STORM Rainfall=3.20"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 13R: (new Reach)

Inflow Area = 69.656 ac, 24.10% Impervious, Inflow Depth > 0.61" for 2 YR STORM event
Inflow = 21.10 cfs @ 13.09 hrs, Volume= 3.556 af
Outflow = 21.10 cfs @ 13.09 hrs, Volume= 3.556 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

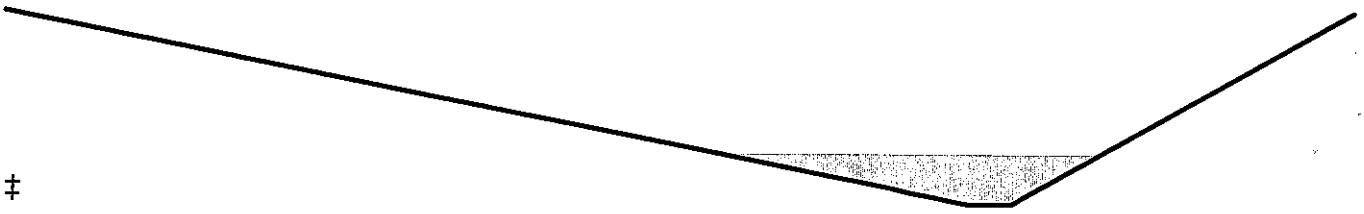
Summary for Reach 504R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 0.73" for 2 YR STORM event
Inflow = 24.93 cfs @ 12.63 hrs, Volume= 3.584 af
Outflow = 24.73 cfs @ 12.72 hrs, Volume= 3.565 af, Atten= 1%, Lag= 5.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 3.39 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 2.03 fps, Avg. Travel Time= 5.0 min

Peak Storage= 4,436 cf @ 12.67 hrs
Average Depth at Peak Storage= 0.78' , Surface Width= 16.77'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'



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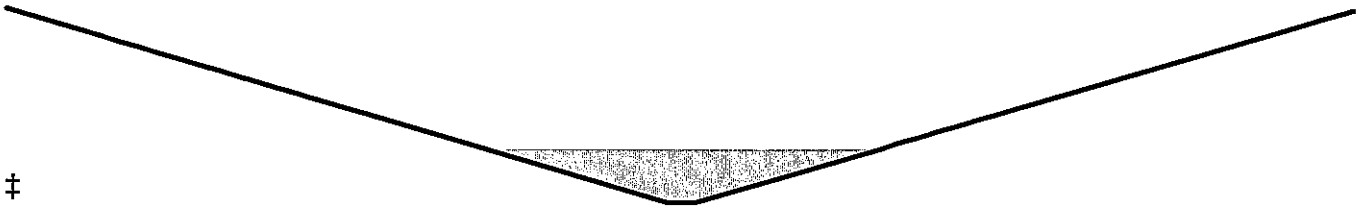
Summary for Reach 505R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.636 ac, 24.50% Impervious, Inflow Depth > 0.66" for 2 YR STORM event
Inflow = 21.50 cfs @ 12.93 hrs, Volume= 3.589 af
Outflow = 21.10 cfs @ 13.09 hrs, Volume= 3.554 af, Atten= 2%, Lag= 9.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.78 fps, Min. Travel Time= 5.1 min
Avg. Velocity = 1.18 fps, Avg. Travel Time= 7.7 min

Peak Storage= 6,501 cf @ 13.00 hrs
Average Depth at Peak Storage= 0.83' , Surface Width= 26.78'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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Summary for Pond 13P: Rice Pond

Inflow Area = 65.636 ac, 24.50% Impervious, Inflow Depth > 0.69" for 2 YR STORM event
Inflow = 25.35 cfs @ 12.71 hrs, Volume= 3.794 af
Outflow = 21.50 cfs @ 12.93 hrs, Volume= 3.589 af, Atten= 15%, Lag= 12.8 min
Primary = 21.50 cfs @ 12.93 hrs, Volume= 3.589 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 390.66' @ 12.93 hrs Surf.Area= 40,599 sf Storage= 26,956 cf

Plug-Flow detention time= 37.9 min calculated for 3.582 af (94% of inflow)
Center-of-Mass det. time= 21.1 min (879.9 - 858.9)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=21.46 cfs @ 12.93 hrs HW=390.66' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 21.46 cfs @ 2.23 fps)

Summary for Pond 23P: INFILTRATION STRUCTURE 1 NEAR RAILROAD

Inflow Area = 3.676 ac, 85.50% Impervious, Inflow Depth > 1.95" for 2 YR STORM event
Inflow = 8.96 cfs @ 12.08 hrs, Volume= 0.598 af
Outflow = 1.53 cfs @ 11.75 hrs, Volume= 0.598 af, Atten= 83%, Lag= 0.0 min
Discarded = 1.53 cfs @ 11.75 hrs, Volume= 0.598 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 375.00' @ 12.56 hrs Surf.Area= 7,984 sf Storage= 7,923 cf

Plug-Flow detention time= 35.2 min calculated for 0.598 af (100% of inflow)
Center-of-Mass det. time= 34.7 min (812.5 - 777.8)

Volume	Invert	Avail.Storage	Storage Description
#1	373.50'	14,382 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 75,848 cf Overall - 39,893 cf Embedded = 35,955 cf x 40.0% Voids
#2	374.00'	29,734 cf	**retain_it retain_it 5.0'** x 110 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 2,306.6 cf perimeter wall
		44,116 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
373.50	7,984	0	0
383.00	7,984	75,848	75,848

Device	Routing	Invert	Outlet Devices
#1	Discarded	373.50'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=1.53 cfs @ 11.75 hrs HW=373.60' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 1.53 cfs)

Summary for Pond 108P: INFILTRATION AREA 3 TO EAST OF THE ENTRANCE

Inflow Area = 0.485 ac,100.00% Impervious, Inflow Depth > 2.77" for 2 YR STORM event
Inflow = 1.55 cfs @ 12.07 hrs, Volume= 0.112 af
Outflow = 0.29 cfs @ 11.72 hrs, Volume= 0.112 af, Atten= 81%, Lag= 0.0 min
Discarded = 0.29 cfs @ 11.72 hrs, Volume= 0.112 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 394.33' @ 12.50 hrs Surf.Area= 1,520 sf Storage= 1,250 cf

Plug-Flow detention time= 24.2 min calculated for 0.112 af (100% of inflow)
Center-of-Mass det. time= 23.9 min (761.6 - 737.8)

Volume	Invert	Avail.Storage	Storage Description
#1	393.00'	1,498 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 9,120 cf Overall - 5,376 cf Embedded = 3,744 cf x 40.0% Voids
#2	393.50'	3,991 cf	**retain_it retain_it 4.0'** x 18 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 2 Rows adjusted for 166.1 cf perimeter wall
		5,488 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
393.00	1,520	0	0
399.00	1,520	9,120	9,120

Device	Routing	Invert	Outlet Devices
#1	Discarded	393.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.29 cfs @ 11.72 hrs HW=393.07' (Free Discharge)
↳**1=Exfiltration** (Exfiltration Controls 0.29 cfs)

Summary for Pond 109P: INFILTRATION AREA 2 TO WEST OF THE ENTRANCE

Inflow Area = 0.752 ac, 94.82% Impervious, Inflow Depth > 2.51" for 2 YR STORM event
Inflow = 2.20 cfs @ 12.07 hrs, Volume= 0.157 af
Outflow = 0.44 cfs @ 11.75 hrs, Volume= 0.157 af, Atten= 80%, Lag= 0.0 min
Discarded = 0.44 cfs @ 11.75 hrs, Volume= 0.157 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 393.19' @ 12.49 hrs Surf.Area= 2,320 sf Storage= 1,697 cf

Plug-Flow detention time= 21.7 min calculated for 0.157 af (100% of inflow)
Center-of-Mass det. time= 21.3 min (766.3 - 744.9)

Volume	Invert	Avail.Storage	Storage Description
#1	392.00'	2,912 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 16,240 cf Overall - 8,960 cf Embedded = 7,280 cf x 40.0% Voids
#2	392.50'	6,460 cf	**retain_it retain_it 4.0'** x 30 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 1 Rows adjusted for 468.1 cf perimeter wall
		9,372 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
392.00	2,320	0	0
399.00	2,320	16,240	16,240

Device	Routing	Invert	Outlet Devices
#1	Discarded	392.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.44 cfs @ 11.75 hrs HW=392.08' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.44 cfs)

10 YEAR STORM

PREDEVELOPMENT

Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.00 cfs @ 15.27 hrs, Volume= 0.002 af, Depth> 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (sf)	CN	Description
6,858	30	Woods, Good, HSG A
10,008	39	>75% Grass cover, Good, HSG A
16,866	35	Weighted Average
16,866		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.9	100	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.2	150	Total			

Summary for Subcatchment 2S: PREDEV FLOW TO P&W RAILROAD

Runoff = 0.02 cfs @ 17.23 hrs, Volume= 0.008 af, Depth> 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (sf)	CN	Description
179,428	30	Woods, Good, HSG A
35,859	39	>75% Grass cover, Good, HSG A
3,896	98	Paved parking, HSG A
219,183	33	Weighted Average
215,287		98.22% Pervious Area
3,896		1.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
0.9	91	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	197	0.1060	4.99	14.98	**Channel Flow,** Area= 3.0 sf Perim= 4.0' r= 0.75' n= 0.080 Earth, long dense weeds
11.0	338	Total			

Summary for Subcatchment 3S: PREDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 0.27 cfs @ 12.75 hrs, Volume= 0.079 af, Depth> 0.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (sf)	CN	Description
148,793	30	Woods, Good, HSG A
30,807	98	Water Surface, HSG A
179,600	42	Weighted Average
148,793		82.85% Pervious Area
30,807		17.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
29.1	636	Total			

Summary for Subcatchment 4S: PREDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.000 af, Depth> 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (sf)	CN	Description
21,387	30	Woods, Good, HSG A
21,387		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.4	57	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	107	Total			

Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

Runoff = 0.09 cfs @ 12.47 hrs, Volume= 0.022 af, Depth> 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

	Area (sf)	CN	Description
	22,350	30	Woods, Good, HSG A
	30,632	39	>75% Grass cover, Good, HSG A
*	5,307	98	Existing roof and driveway
	58,289	41	Weighted Average
	52,982		90.90% Pervious Area
	5,307		9.10% 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= 3.15"
3.7	212	0.0370	0.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.0	262	Total			

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff = 7.31 cfs @ 12.24 hrs, Volume= 0.706 af, Depth> 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	71,225	39	>75% Grass cover, Good, HSG A
	49,927	30	Woods, Good, HSG A
	14,588	30	Woods, Good, HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	313,497	61	Weighted Average
	250,155		79.80% Pervious Area
	63,342		20.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0900	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
3.9	242	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	292	Total			

Summary for Subcatchment 503S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 64.39 cfs @ 12.59 hrs, Volume= 8.686 af, Depth> 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 3R: (new Reach)

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 1.57" for 10 YR STORM event
Inflow = 62.99 cfs @ 12.88 hrs, Volume= 9.119 af
Outflow = 62.99 cfs @ 12.88 hrs, Volume= 9.119 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

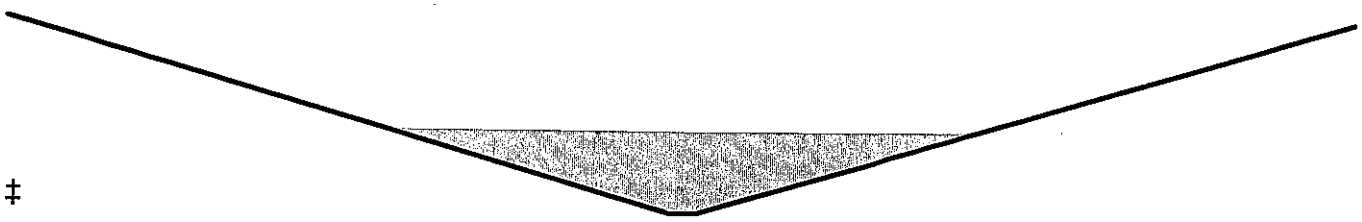
Summary for Reach 204R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 1.66" for 10 YR STORM event
Inflow = 63.42 cfs @ 12.76 hrs, Volume= 9.096 af
Outflow = 62.73 cfs @ 12.88 hrs, Volume= 9.040 af, Atten= 1%, Lag= 7.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.33 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 1.39 fps, Avg. Travel Time= 6.6 min

Peak Storage= 14,713 cf @ 12.82 hrs
Average Depth at Peak Storage= 1.27' , Surface Width= 40.22'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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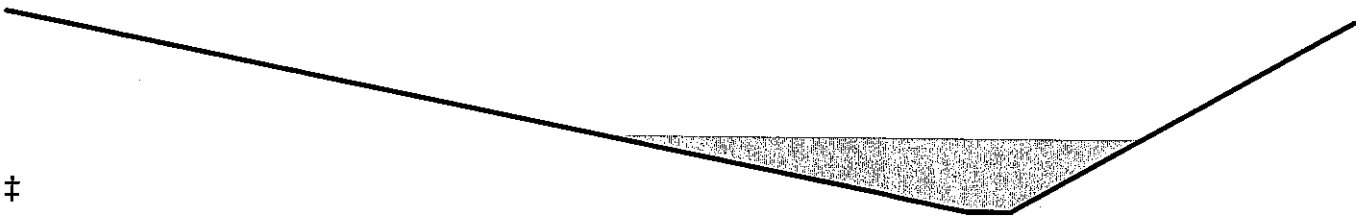
Summary for Reach 503R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 1.78" for 10 YR STORM event
Inflow = 64.39 cfs @ 12.59 hrs, Volume= 8.686 af
Outflow = 64.13 cfs @ 12.66 hrs, Volume= 8.656 af, Atten= 0%, Lag= 4.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 4.31 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 2.36 fps, Avg. Travel Time= 4.3 min

Peak Storage= 9,051 cf @ 12.62 hrs
Average Depth at Peak Storage= 1.15' , Surface Width= 23.87'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'



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Summary for Pond 3P: Rice Pond

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 1.71" for 10 YR STORM event
Inflow = 67.29 cfs @ 12.64 hrs, Volume= 9.362 af
Outflow = 63.42 cfs @ 12.76 hrs, Volume= 9.096 af, Atten= 6%, Lag= 7.6 min
Primary = 63.42 cfs @ 12.76 hrs, Volume= 9.096 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.10' @ 12.76 hrs Surf.Area= 50,605 sf Storage= 47,281 cf

Plug-Flow detention time= 23.9 min calculated for 9.078 af (97% of inflow)
Center-of-Mass det. time= 14.2 min (852.9 - 838.6)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=63.38 cfs @ 12.76 hrs HW=391.10' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 63.38 cfs @ 2.77 fps)

POSTDEVELOPMENT

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.00 cfs @ 17.13 hrs, Volume= 0.000 af, Depth> 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (sf)	CN	Description
2,556	39	>75% Grass cover, Good, HSG A
4,142	30	Woods, Good, HSG A
6,698	33	Weighted Average
6,698		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.1400	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	17	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.1	67	Total			

Summary for Subcatchment 12S: POSTDEV FLOW TO P&W RAILROAD

Runoff = 0.01 cfs @ 15.43 hrs, Volume= 0.006 af, Depth> 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (sf)	CN	Description
26,710	30	Woods, Good, HSG A
41,448	39	>75% Grass cover, Good, HSG A
68,158	35	Weighted Average
68,158		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.9	109	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.8	159	Total			

Summary for Subcatchment 13S: POSTDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 0.34 cfs @ 12.49 hrs, Volume= 0.078 af, Depth> 0.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (sf)	CN	Description
30,807	98	Water Surface, HSG A
6,132	39	>75% Grass cover, Good, HSG A
138,178	30	Woods, Good, HSG A
175,117	42	Weighted Average
144,310		82.41% Pervious Area
30,807		17.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	50	0.0540	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
12.5	636	Total			

Summary for Subcatchment 14S: POSTDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.01 cfs @ 14.84 hrs, Volume= 0.003 af, Depth> 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (sf)	CN	Description
3,100	30	Woods, Good, HSG A
15,305	39	>75% Grass cover, Good, HSG A
18,405	37	Weighted Average
18,405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	50	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	81	0.1200	5.20		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	32	0.0750	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	163	Total			

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

Runoff = 0.01 cfs @ 12.54 hrs, Volume= 0.004 af, Depth> 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (sf)	CN	Description
200	98	Paved parking, HSG A
1,420	30	Woods, Good, HSG A
14,011	39	>75% Grass cover, Good, HSG A
15,631	39	Weighted Average
15,431		98.72% Pervious Area
200		1.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.2	26	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.5	76	Total			

Summary for Subcatchment 22S: BLDG 3 AND PARKING DRAINAGE TO INFILTRATION #1

Runoff = 15.49 cfs @ 12.08 hrs, Volume= 1.063 af, Depth> 3.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

	Area (sf)	CN	Description
	23,213	39	>75% Grass cover, Good, HSG A
*	136,909	98	Drive, driveways & roofs HSG A
	160,122	89	Weighted Average
	23,213		14.50% Pervious Area
	136,909		85.50% 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= 3.15"
0.4	78	0.0220	3.01		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.7	128	Total			

Summary for Subcatchment 107S: BUILDING 1 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 2.39 cfs @ 12.07 hrs, Volume= 0.175 af, Depth> 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 108S: BUILDING 2 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 2.39 cfs @ 12.07 hrs, Volume= 0.175 af, Depth> 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 109S: AREA DRAINING TO CB'S AT ENTRANCE

Runoff = 0.58 cfs @ 12.07 hrs, Volume= 0.038 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (sf)	CN	Description
1,699	39	>75% Grass cover, Good, HSG A
5,151	98	Paved parking, HSG A
6,850	83	Weighted Average
1,699		24.80% Pervious Area
5,151		75.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	45	0.0800	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.5	85	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.9	130	Total			

Summary for Subcatchment 110S: CLUBHOUSE ROOF

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 0.040 af, Depth> 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (sf)	CN	Description
4,800	98	Roofs, HSG A
4,800		100.00% Impervious Area

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

Summary for Subcatchment 233S: POSTDEV FLOW TO POND

Runoff = 10.24 cfs @ 12.08 hrs, Volume= 0.698 af, Depth> 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
	85,544	39	>75% Grass cover, Good, HSG A
	45,408	30	Woods, Good, HSG A
*	12,710	98	Roofs & Driveways HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	308,219	61	Weighted Average
	245,367		79.61% Pervious Area
	62,852		20.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.15"
1.1	188	0.0350	2.81		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.1	92	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.7	330	Total			

Summary for Subcatchment 504S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 64.39 cfs @ 12.59 hrs, Volume= 8.686 af, Depth> 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR STORM Rainfall=4.90"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 13R: (new Reach)

Inflow Area = 69.656 ac, 24.10% Impervious, Inflow Depth > 1.57" for 10 YR STORM event
Inflow = 61.78 cfs @ 12.89 hrs, Volume= 9.110 af
Outflow = 61.78 cfs @ 12.89 hrs, Volume= 9.110 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

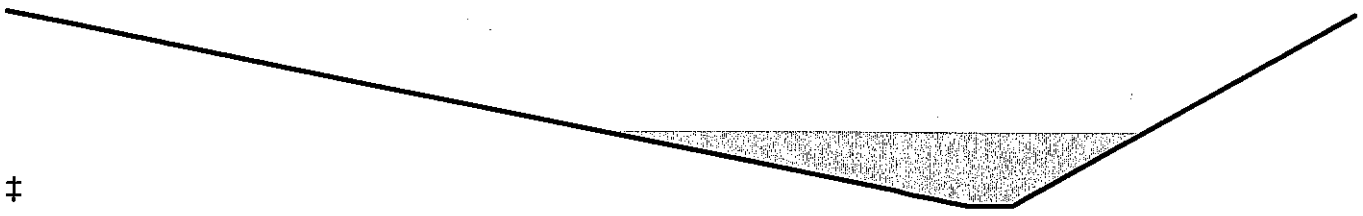
Summary for Reach 504R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 1.78" for 10 YR STORM event
Inflow = 64.39 cfs @ 12.59 hrs, Volume= 8.686 af
Outflow = 64.13 cfs @ 12.66 hrs, Volume= 8.656 af, Atten= 0%, Lag= 4.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 4.31 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 2.36 fps, Avg. Travel Time= 4.3 min

Peak Storage= 9,051 cf @ 12.62 hrs
Average Depth at Peak Storage= 1.15' , Surface Width= 23.87'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'



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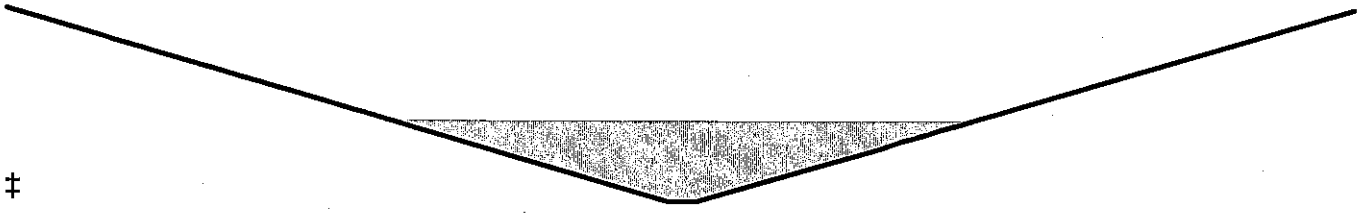
Summary for Reach 505R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.636 ac, 24.50% Impervious, Inflow Depth > 1.66" for 10 YR STORM event
Inflow = 62.24 cfs @ 12.77 hrs, Volume= 9.088 af
Outflow = 61.57 cfs @ 12.89 hrs, Volume= 9.032 af, Atten= 1%, Lag= 7.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.32 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 1.39 fps, Avg. Travel Time= 6.5 min

Peak Storage= 14,509 cf @ 12.82 hrs
Average Depth at Peak Storage= 1.26' , Surface Width= 39.94'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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Summary for Pond 13P: Rice Pond

Inflow Area =	65.636 ac, 24.50% Impervious, Inflow Depth > 1.71" for 10 YR STORM event			
Inflow =	65.88 cfs @	12.65 hrs, Volume=	9.354 af	
Outflow =	62.24 cfs @	12.77 hrs, Volume=	9.088 af, Atten= 6%, Lag= 7.2 min	
Primary =	62.24 cfs @	12.77 hrs, Volume=	9.088 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.09' @ 12.77 hrs Surf.Area= 50,389 sf Storage= 46,796 cf

Plug-Flow detention time= 23.9 min calculated for 9.070 af (97% of inflow)
Center-of-Mass det. time= 14.3 min (852.3 - 838.0)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=62.20 cfs @ 12.77 hrs HW=391.09' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 62.20 cfs @ 2.76 fps)

Summary for Pond 23P: INFILTRATION STRUCTURE 1 NEAR RAILROAD

Inflow Area = 3.676 ac, 85.50% Impervious, Inflow Depth > 3.47" for 10 YR STORM event
Inflow = 15.49 cfs @ 12.08 hrs, Volume= 1.063 af
Outflow = 1.53 cfs @ 11.60 hrs, Volume= 1.062 af, Atten= 90%, Lag= 0.0 min
Discarded = 1.53 cfs @ 11.60 hrs, Volume= 1.062 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 376.55' @ 12.90 hrs Surf.Area= 7,984 sf Storage= 17,740 cf

Plug-Flow detention time= 93.0 min calculated for 1.060 af (100% of inflow)
Center-of-Mass det. time= 92.4 min (856.5 - 764.1)

Volume	Invert	Avail.Storage	Storage Description
#1	373.50'	14,382 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 75,848 cf Overall - 39,893 cf Embedded = 35,955 cf x 40.0% Voids
#2	374.00'	29,734 cf	**retain_it retain_it 5.0'** x 110 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 2,306.6 cf perimeter wall
		44,116 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
373.50	7,984	0	0
383.00	7,984	75,848	75,848

Device	Routing	Invert	Outlet Devices
#1	Discarded	373.50'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=1.53 cfs @ 11.60 hrs HW=373.60' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 1.53 cfs)

Summary for Pond 108P: INFILTRATION AREA 3 TO EAST OF THE ENTRANCE

Inflow Area = 0.485 ac,100.00% Impervious, Inflow Depth > 4.33" for 10 YR STORM event
Inflow = 2.39 cfs @ 12.07 hrs, Volume= 0.175 af
Outflow = 0.29 cfs @ 11.60 hrs, Volume= 0.175 af, Atten= 88%, Lag= 0.0 min
Discarded = 0.29 cfs @ 11.60 hrs, Volume= 0.175 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 395.37' @ 12.61 hrs Surf.Area= 1,520 sf Storage= 2,442 cf

Plug-Flow detention time= 54.9 min calculated for 0.174 af (100% of inflow)
Center-of-Mass det. time= 54.4 min (788.9 - 734.5)

Volume	Invert	Avail.Storage	Storage Description
#1	393.00'	1,498 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 9,120 cf Overall - 5,376 cf Embedded = 3,744 cf x 40.0% Voids
#2	393.50'	3,991 cf	**retain_it retain_it 4.0'** x 18 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 2 Rows adjusted for 166.1 cf perimeter wall
		5,488 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
393.00	1,520	0	0
399.00	1,520	9,120	9,120

Device	Routing	Invert	Outlet Devices
#1	Discarded	393.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.29 cfs @ 11.60 hrs HW=393.06' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.29 cfs)

Summary for Pond 109P: INFILTRATION AREA 2 TO WEST OF THE ENTRANCE

Inflow Area = 0.752 ac, 94.82% Impervious, Inflow Depth > 4.03" for 10 YR STORM event
Inflow = 3.51 cfs @ 12.07 hrs, Volume= 0.252 af
Outflow = 0.44 cfs @ 11.63 hrs, Volume= 0.252 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.44 cfs @ 11.63 hrs, Volume= 0.252 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 394.23' @ 12.60 hrs Surf.Area= 2,320 sf Storage= 3,529 cf

Plug-Flow detention time= 52.8 min calculated for 0.252 af (100% of inflow)
Center-of-Mass det. time= 52.3 min (793.6 - 741.3)

Volume	Invert	Avail.Storage	Storage Description
#1	392.00'	2,912 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 16,240 cf Overall - 8,960 cf Embedded = 7,280 cf x 40.0% Voids
#2	392.50'	6,460 cf	**retain_it retain_it 4.0'** x 30 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 1 Rows adjusted for 468.1 cf perimeter wall
		9,372 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
392.00	2,320	0	0
399.00	2,320	16,240	16,240

Device	Routing	Invert	Outlet Devices
#1	Discarded	392.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.44 cfs @ 11.63 hrs HW=392.08' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.44 cfs)

25 YEAR STORM

PREDEVELOPMENT

Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.02 cfs @ 12.44 hrs, Volume= 0.007 af, Depth> 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (sf)	CN	Description
6,858	30	Woods, Good, HSG A
10,008	39	>75% Grass cover, Good, HSG A
16,866	35	Weighted Average
16,866		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.9	100	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.2	150	Total			

Summary for Subcatchment 2S: PREDEV FLOW TO P&W RAILROAD

Runoff = 0.13 cfs @ 13.84 hrs, Volume= 0.059 af, Depth> 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (sf)	CN	Description
179,428	30	Woods, Good, HSG A
35,859	39	>75% Grass cover, Good, HSG A
3,896	98	Paved parking, HSG A
219,183	33	Weighted Average
215,287		98.22% Pervious Area
3,896		1.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
0.9	91	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	197	0.1060	4.99	14.98	**Channel Flow,** Area= 3.0 sf Perim= 4.0' r= 0.75' n= 0.080 Earth, long dense weeds
11.0	338	Total			

Summary for Subcatchment 3S: PREDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 1.03 cfs @ 12.60 hrs, Volume= 0.188 af, Depth> 0.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (sf)	CN	Description
148,793	30	Woods, Good, HSG A
30,807	98	Water Surface, HSG A
179,600	42	Weighted Average
148,793		82.85% Pervious Area
30,807		17.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
29.1	636	Total			

Summary for Subcatchment 4S: PREDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.01 cfs @ 15.46 hrs, Volume= 0.002 af, Depth> 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (sf)	CN	Description
21,387	30	Woods, Good, HSG A
21,387		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.4	57	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	107	Total			

Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

Runoff = 0.37 cfs @ 12.33 hrs, Volume= 0.056 af, Depth> 0.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

	Area (sf)	CN	Description
	22,350	30	Woods, Good, HSG A
	30,632	39	>75% Grass cover, Good, HSG A
*	5,307	98	Existing roof and driveway
	58,289	41	Weighted Average
	52,982		90.90% Pervious Area
	5,307		9.10% 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= 3.15"
3.7	212	0.0370	0.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.0	262	Total			

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff = 12.29 cfs @ 12.23 hrs, Volume= 1.131 af, Depth> 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	71,225	39	>75% Grass cover, Good, HSG A
	49,927	30	Woods, Good, HSG A
	14,588	30	Woods, Good, HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	313,497	61	Weighted Average
	250,155		79.80% Pervious Area
	63,342		20.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0900	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
3.9	242	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	292	Total			

Summary for Subcatchment 503S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 96.19 cfs @ 12.57 hrs, Volume= 12.871 af, Depth> 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 3R: (new Reach)

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 2.37" for 25 YR STORM event
Inflow = 97.00 cfs @ 12.82 hrs, Volume= 13.781 af
Outflow = 97.00 cfs @ 12.82 hrs, Volume= 13.781 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

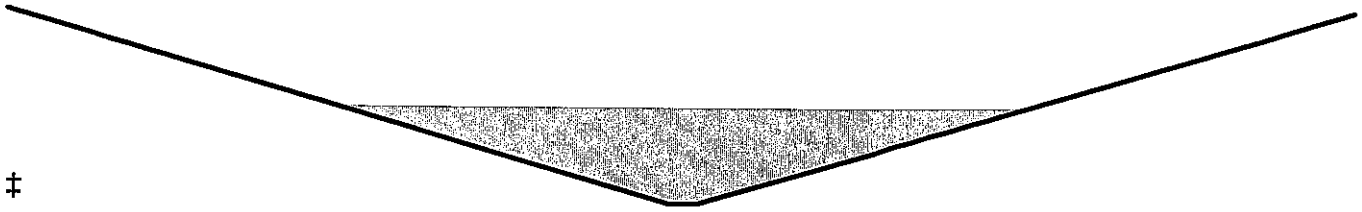
Summary for Reach 204R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 2.49" for 25 YR STORM event
Inflow = 96.97 cfs @ 12.72 hrs, Volume= 13.662 af
Outflow = 96.16 cfs @ 12.83 hrs, Volume= 13.592 af, Atten= 1%, Lag= 6.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.60 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 6.1 min

Peak Storage= 20,261 cf @ 12.77 hrs
Average Depth at Peak Storage= 1.51' , Surface Width= 47.18'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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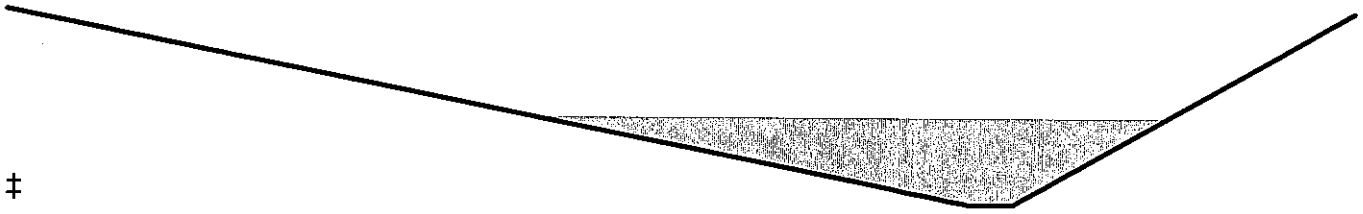
Summary for Reach 503R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 2.64" for 25 YR STORM event
Inflow = 96.19 cfs @ 12.57 hrs, Volume= 12.871 af
Outflow = 95.90 cfs @ 12.64 hrs, Volume= 12.833 af, Atten= 0%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 4.77 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 2.52 fps, Avg. Travel Time= 4.0 min

Peak Storage= 12,231 cf @ 12.60 hrs
Average Depth at Peak Storage= 1.35' , Surface Width= 27.72'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'



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Summary for Pond 3P: Rice Pond

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 2.55" for 25 YR STORM event
Inflow = 101.11 cfs @ 12.61 hrs, Volume= 13.964 af
Outflow = 96.97 cfs @ 12.72 hrs, Volume= 13.662 af, Atten= 4%, Lag= 6.4 min
Primary = 96.97 cfs @ 12.72 hrs, Volume= 13.662 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.34' @ 12.72 hrs Surf.Area= 55,878 sf Storage= 59,787 cf

Plug-Flow detention time= 20.1 min calculated for 13.662 af (98% of inflow)
Center-of-Mass det. time= 12.5 min (842.2 - 829.7)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=96.85 cfs @ 12.72 hrs HW=391.34' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 96.85 cfs @ 3.02 fps)

POSTDEVELOPMENT

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.00 cfs @ 13.73 hrs, Volume= 0.002 af, Depth> 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (sf)	CN	Description
2,556	39	>75% Grass cover, Good, HSG A
4,142	30	Woods, Good, HSG A
6,698	33	Weighted Average
6,698		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.1400	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	17	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.1	67	Total			

Summary for Subcatchment 12S: POSTDEV FLOW TO P&W RAILROAD

Runoff = 0.08 cfs @ 12.59 hrs, Volume= 0.028 af, Depth> 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (sf)	CN	Description
26,710	30	Woods, Good, HSG A
41,448	39	>75% Grass cover, Good, HSG A
68,158	35	Weighted Average
68,158		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.9	109	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.8	159	Total			

Summary for Subcatchment 13S: POSTDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 1.25 cfs @ 12.36 hrs, Volume= 0.186 af, Depth> 0.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (sf)	CN	Description
30,807	98	Water Surface, HSG A
6,132	39	>75% Grass cover, Good, HSG A
138,178	30	Woods, Good, HSG A
175,117	42	Weighted Average
144,310		82.41% Pervious Area
30,807		17.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	50	0.0540	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
12.5	636	Total			

Summary for Subcatchment 14S: POSTDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.05 cfs @ 12.53 hrs, Volume= 0.011 af, Depth> 0.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (sf)	CN	Description
3,100	30	Woods, Good, HSG A
15,305	39	>75% Grass cover, Good, HSG A
18,405	37	Weighted Average
18,405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	50	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	81	0.1200	5.20		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	32	0.0750	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	163	Total			

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

Runoff = 0.07 cfs @ 12.37 hrs, Volume= 0.012 af, Depth> 0.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (sf)	CN	Description
200	98	Paved parking, HSG A
1,420	30	Woods, Good, HSG A
14,011	39	>75% Grass cover, Good, HSG A
15,631	39	Weighted Average
15,431		98.72% Pervious Area
200		1.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.2	26	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.5	76	Total			

Summary for Subcatchment 22S: BLDG 3 AND PARKING DRAINAGE TO INFILTRATION #1

Runoff = 20.08 cfs @ 12.08 hrs, Volume= 1.399 af, Depth> 4.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

	Area (sf)	CN	Description
	23,213	39	>75% Grass cover, Good, HSG A
*	136,909	98	Drive, driveways & roofs HSG A
	160,122	89	Weighted Average
	23,213		14.50% Pervious Area
	136,909		85.50% 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= 3.15"
0.4	78	0.0220	3.01		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.7	128	Total			

Summary for Subcatchment 107S: BUILDING 1 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 2.98 cfs @ 12.07 hrs, Volume= 0.219 af, Depth> 5.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 108S: BUILDING 2 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 2.98 cfs @ 12.07 hrs, Volume= 0.219 af, Depth> 5.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 109S: AREA DRAINING TO CB'S AT ENTRANCE

Runoff = 0.79 cfs @ 12.07 hrs, Volume= 0.052 af, Depth> 3.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (sf)	CN	Description
1,699	39	>75% Grass cover, Good, HSG A
5,151	98	Paved parking, HSG A
6,850	83	Weighted Average
1,699		24.80% Pervious Area
5,151		75.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	45	0.0800	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.5	85	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.9	130	Total			

Summary for Subcatchment 110S: CLUBHOUSE ROOF

Runoff = 0.68 cfs @ 12.07 hrs, Volume= 0.050 af, Depth> 5.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (sf)	CN	Description
4,800	98	Roofs, HSG A
4,800		100.00% Impervious Area

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

Summary for Subcatchment 233S: POSTDEV FLOW TO POND

Runoff = 17.13 cfs @ 12.08 hrs, Volume= 1.117 af, Depth> 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
	85,544	39	>75% Grass cover, Good, HSG A
	45,408	30	Woods, Good, HSG A
*	12,710	98	Roofs & Driveways HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	308,219	61	Weighted Average
	245,367		79.61% Pervious Area
	62,852		20.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.15"
1.1	188	0.0350	2.81		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.1	92	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.7	330	Total			

Summary for Subcatchment 504S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 96.19 cfs @ 12.57 hrs, Volume= 12.871 af, Depth> 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR STORM Rainfall=6.10"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 13R: (new Reach)

Inflow Area = 69.656 ac, 24.10% Impervious, Inflow Depth > 2.37" for 25 YR STORM event
Inflow = 94.51 cfs @ 12.84 hrs, Volume= 13.765 af
Outflow = 94.51 cfs @ 12.84 hrs, Volume= 13.765 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

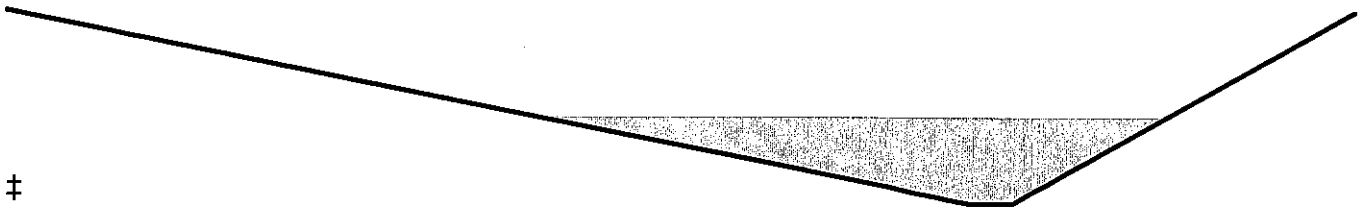
Summary for Reach 504R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 2.64" for 25 YR STORM event
Inflow = 96.19 cfs @ 12.57 hrs, Volume= 12.871 af
Outflow = 95.90 cfs @ 12.64 hrs, Volume= 12.833 af, Atten= 0%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 4.77 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 2.52 fps, Avg. Travel Time= 4.0 min

Peak Storage= 12,231 cf @ 12.60 hrs
Average Depth at Peak Storage= 1.35' , Surface Width= 27.72'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'



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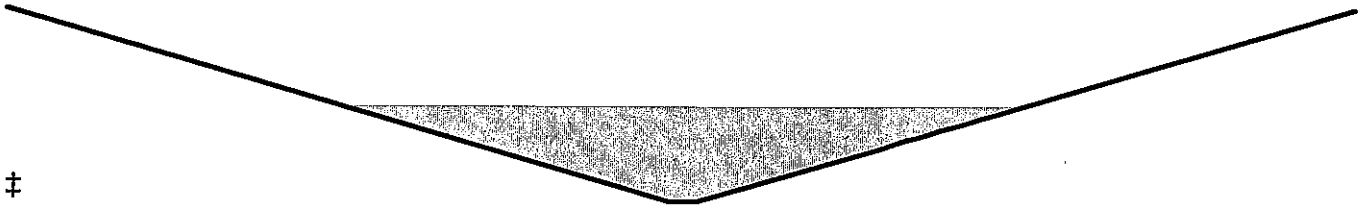
Summary for Reach 505R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.636 ac, 24.50% Impervious, Inflow Depth > 2.50" for 25 YR STORM event
Inflow = 94.75 cfs @ 12.73 hrs, Volume= 13.649 af
Outflow = 93.97 cfs @ 12.84 hrs, Volume= 13.579 af, Atten= 1%, Lag= 6.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.58 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 1.49 fps, Avg. Travel Time= 6.1 min

Peak Storage= 19,914 cf @ 12.78 hrs
Average Depth at Peak Storage= 1.49' , Surface Width= 46.78'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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Summary for Pond 13P: Rice Pond

Inflow Area = 65.636 ac, 24.50% Impervious, Inflow Depth > 2.55" for 25 YR STORM event
Inflow = 98.60 cfs @ 12.63 hrs, Volume= 13.950 af
Outflow = 94.75 cfs @ 12.73 hrs, Volume= 13.649 af, Atten= 4%, Lag= 6.1 min
Primary = 94.75 cfs @ 12.73 hrs, Volume= 13.649 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.33' @ 12.73 hrs Surf.Area= 55,567 sf Storage= 59,014 cf

Plug-Flow detention time= 20.1 min calculated for 13.621 af (98% of inflow)
Center-of-Mass det. time= 12.5 min (841.6 - 829.0)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=94.66 cfs @ 12.73 hrs HW=391.32' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 94.66 cfs @ 3.00 fps)

Summary for Pond 23P: INFILTRATION STRUCTURE 1 NEAR RAILROAD

Inflow Area = 3.676 ac, 85.50% Impervious, Inflow Depth > 4.57" for 25 YR STORM event
Inflow = 20.08 cfs @ 12.08 hrs, Volume= 1.399 af
Outflow = 1.53 cfs @ 11.30 hrs, Volume= 1.316 af, Atten= 92%, Lag= 0.0 min
Discarded = 1.53 cfs @ 11.30 hrs, Volume= 1.316 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 377.80' @ 13.17 hrs Surf.Area= 7,984 sf Storage= 25,619 cf

Plug-Flow detention time= 144.1 min calculated for 1.316 af (94% of inflow)
Center-of-Mass det. time= 122.1 min (880.2 - 758.1)

Volume	Invert	Avail.Storage	Storage Description
#1	373.50'	14,382 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 75,848 cf Overall - 39,893 cf Embedded = 35,955 cf x 40.0% Voids
#2	374.00'	29,734 cf	**retain_it retain_it 5.0'** x 110 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 2,306.6 cf perimeter wall
		44,116 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
373.50	7,984	0	0
383.00	7,984	75,848	75,848

Device	Routing	Invert	Outlet Devices
#1	Discarded	373.50'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=1.53 cfs @ 11.30 hrs HW=373.60' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 1.53 cfs)

Summary for Pond 108P: INFILTRATION AREA 3 TO EAST OF THE ENTRANCE

Inflow Area = 0.485 ac,100.00% Impervious, Inflow Depth > 5.42" for 25 YR STORM event
Inflow = 2.98 cfs @ 12.07 hrs, Volume= 0.219 af
Outflow = 0.29 cfs @ 11.42 hrs, Volume= 0.219 af, Atten= 90%, Lag= 0.0 min
Discarded = 0.29 cfs @ 11.42 hrs, Volume= 0.219 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 396.16' @ 12.81 hrs Surf.Area= 1,520 sf Storage= 3,354 cf

Plug-Flow detention time= 81.5 min calculated for 0.218 af (100% of inflow)
Center-of-Mass det. time= 81.0 min (814.3 - 733.3)

Volume	Invert	Avail.Storage	Storage Description
#1	393.00'	1,498 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 9,120 cf Overall - 5,376 cf Embedded = 3,744 cf x 40.0% Voids
#2	393.50'	3,991 cf	**retain_it retain_it 4.0'** x 18 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 2 Rows adjusted for 166.1 cf perimeter wall
		5,488 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
393.00	1,520	0	0
399.00	1,520	9,120	9,120

Device	Routing	Invert	Outlet Devices
#1	Discarded	393.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.29 cfs @ 11.42 hrs HW=393.06' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.29 cfs)

Summary for Pond 109P: INFILTRATION AREA 2 TO WEST OF THE ENTRANCE

Inflow Area = 0.752 ac, 94.82% Impervious, Inflow Depth > 5.11" for 25 YR STORM event
Inflow = 4.44 cfs @ 12.07 hrs, Volume= 0.320 af
Outflow = 0.44 cfs @ 11.48 hrs, Volume= 0.320 af, Atten= 90%, Lag= 0.0 min
Discarded = 0.44 cfs @ 11.48 hrs, Volume= 0.320 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 395.02' @ 12.80 hrs Surf.Area= 2,320 sf Storage= 4,933 cf

Plug-Flow detention time= 79.9 min calculated for 0.320 af (100% of inflow)
Center-of-Mass det. time= 79.5 min (819.1 - 739.7)

Volume	Invert	Avail.Storage	Storage Description
#1	392.00'	2,912 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 16,240 cf Overall - 8,960 cf Embedded = 7,280 cf x 40.0% Voids
#2	392.50'	6,460 cf	**retain_it retain_it 4.0'** x 30 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 1 Rows adjusted for 468.1 cf perimeter wall
		9,372 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
392.00	2,320	0	0
399.00	2,320	16,240	16,240

Device	Routing	Invert	Outlet Devices
#1	Discarded	392.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.44 cfs @ 11.48 hrs HW=392.07' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.44 cfs)

100 YEAR STORM

PREDEVELOPMENT

Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.23 cfs @ 12.12 hrs, Volume= 0.027 af, Depth> 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (sf)	CN	Description
6,858	30	Woods, Good, HSG A
10,008	39	>75% Grass cover, Good, HSG A
16,866	35	Weighted Average
16,866		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.9	100	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.2	150	Total			

Summary for Subcatchment 2S: PREDEV FLOW TO P&W RAILROAD

Runoff = 1.79 cfs @ 12.37 hrs, Volume= 0.283 af, Depth> 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (sf)	CN	Description
179,428	30	Woods, Good, HSG A
35,859	39	>75% Grass cover, Good, HSG A
3,896	98	Paved parking, HSG A
219,183	33	Weighted Average
215,287		98.22% Pervious Area
3,896		1.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
0.9	91	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	197	0.1060	4.99	14.98	**Channel Flow,** Area= 3.0 sf Perim= 4.0' r= 0.75' n= 0.080 Earth, long dense weeds
11.0	338	Total			

Summary for Subcatchment 3S: PREDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 3.80 cfs @ 12.49 hrs, Volume= 0.509 af, Depth> 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (sf)	CN	Description
148,793	30	Woods, Good, HSG A
30,807	98	Water Surface, HSG A
179,600	42	Weighted Average
148,793		82.85% Pervious Area
30,807		17.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.0	50	0.0140	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
29.1	636	Total			

Summary for Subcatchment 4S: PREDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.09 cfs @ 12.45 hrs, Volume= 0.018 af, Depth> 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (sf)	CN	Description
21,387	30	Woods, Good, HSG A
21,387		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.4	57	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.0	107	Total			

Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

Runoff = 1.71 cfs @ 12.15 hrs, Volume= 0.156 af, Depth> 1.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

	Area (sf)	CN	Description
	22,350	30	Woods, Good, HSG A
	30,632	39	>75% Grass cover, Good, HSG A
*	5,307	98	Existing roof and driveway
	58,289	41	Weighted Average
	52,982		90.90% Pervious Area
	5,307		9.10% 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= 3.15"
3.7	212	0.0370	0.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.0	262	Total			

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff = 23.64 cfs @ 12.22 hrs, Volume= 2.116 af, Depth> 3.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	71,225	39	>75% Grass cover, Good, HSG A
	49,927	30	Woods, Good, HSG A
	14,588	30	Woods, Good, HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	313,497	61	Weighted Average
	250,155		79.80% Pervious Area
	63,342		20.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	50	0.0900	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
3.9	242	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	292	Total			

Summary for Subcatchment 503S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 164.56 cfs @ 12.55 hrs, Volume= 22.055 af, Depth> 4.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 3R: (new Reach)

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 4.15" for 100YR STORM event
Inflow = 170.93 cfs @ 12.76 hrs, Volume= 24.171 af
Outflow = 170.93 cfs @ 12.76 hrs, Volume= 24.171 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

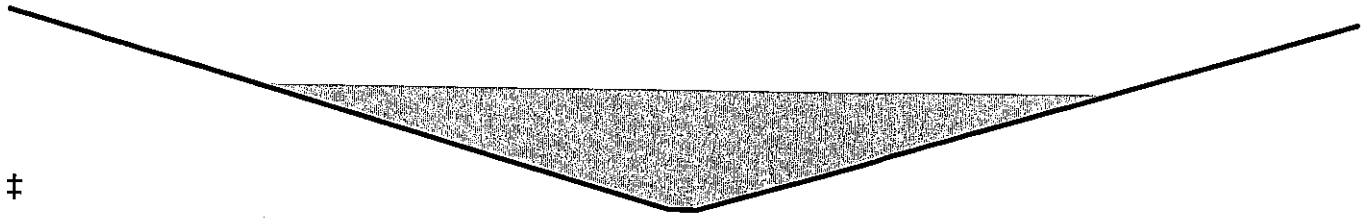
Summary for Reach 204R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 4.34" for 100YR STORM event
Inflow = 169.33 cfs @ 12.68 hrs, Volume= 23.757 af
Outflow = 168.17 cfs @ 12.77 hrs, Volume= 23.663 af, Atten= 1%, Lag= 5.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.99 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 1.63 fps, Avg. Travel Time= 5.6 min

Peak Storage= 30,822 cf @ 12.72 hrs
Average Depth at Peak Storage= 1.87' , Surface Width= 58.18'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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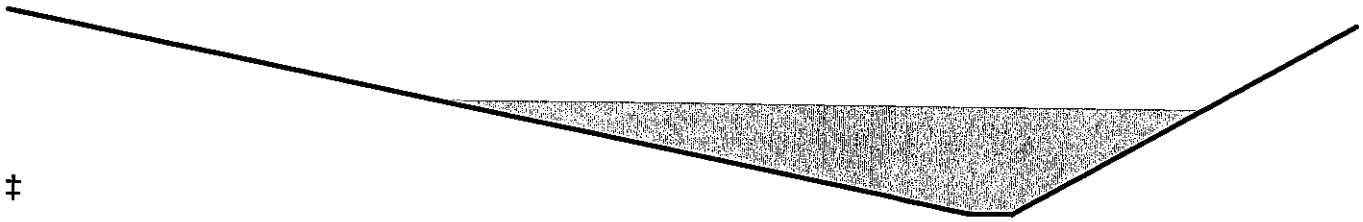
Summary for Reach 503R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 4.52" for 100YR STORM event
Inflow = 164.56 cfs @ 12.55 hrs, Volume= 22.055 af
Outflow = 164.16 cfs @ 12.61 hrs, Volume= 22.004 af, Atten= 0%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 5.46 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 2.77 fps, Avg. Travel Time= 3.7 min

Peak Storage= 18,293 cf @ 12.58 hrs
Average Depth at Peak Storage= 1.68' , Surface Width= 33.87'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'



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Summary for Pond 3P: Rice Pond

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 4.40" for 100YR STORM event
Inflow = 174.23 cfs @ 12.59 hrs, Volume= 24.120 af
Outflow = 169.33 cfs @ 12.68 hrs, Volume= 23.757 af, Atten= 3%, Lag= 5.2 min
Primary = 169.33 cfs @ 12.68 hrs, Volume= 23.757 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.72' @ 12.68 hrs Surf.Area= 64,322 sf Storage= 82,393 cf

Plug-Flow detention time= 16.0 min calculated for 23.757 af (98% of inflow)
Center-of-Mass det. time= 10.5 min (827.8 - 817.3)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=169.22 cfs @ 12.68 hrs HW=391.71' (Free Discharge)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 169.22 cfs @ 3.37 fps)

POSTDEVELOPMENT

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

Runoff = 0.06 cfs @ 12.26 hrs, Volume= 0.009 af, Depth> 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (sf)	CN	Description
2,556	39	>75% Grass cover, Good, HSG A
4,142	30	Woods, Good, HSG A
6,698	33	Weighted Average
6,698		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.1400	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	17	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.1	67	Total			

Summary for Subcatchment 12S: POSTDEV FLOW TO P&W RAILROAD

Runoff = 0.75 cfs @ 12.37 hrs, Volume= 0.110 af, Depth> 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (sf)	CN	Description
26,710	30	Woods, Good, HSG A
41,448	39	>75% Grass cover, Good, HSG A
68,158	35	Weighted Average
68,158		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.15"
0.9	109	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.8	159	Total			

Summary for Subcatchment 13S: POSTDEV OVERLAND FLOW TO CUNHA & SORA

Runoff = 5.08 cfs @ 12.21 hrs, Volume= 0.501 af, Depth> 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (sf)	CN	Description
30,807	98	Water Surface, HSG A
6,132	39	>75% Grass cover, Good, HSG A
138,178	30	Woods, Good, HSG A
175,117	42	Weighted Average
144,310		82.41% Pervious Area
30,807		17.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.4	50	0.0540	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
2.3	186	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	400	0.0090	3.75	59.94	**Channel Flow,** Area= 16.0 sf Perim= 14.6' r= 1.10' n= 0.040 Earth, cobble bottom, clean sides
12.5	636	Total			

Summary for Subcatchment 14S: POSTDEV FLOW TO ABUTTER MATHIEU & SWANSON

Runoff = 0.28 cfs @ 12.30 hrs, Volume= 0.036 af, Depth> 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (sf)	CN	Description
3,100	30	Woods, Good, HSG A
15,305	39	>75% Grass cover, Good, HSG A
18,405	37	Weighted Average
18,405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	50	0.0050	0.06		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.3	81	0.1200	5.20		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	32	0.0750	1.37		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	163	Total			

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

Runoff = 0.37 cfs @ 12.15 hrs, Volume= 0.036 af, Depth> 1.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (sf)	CN	Description
200	98	Paved parking, HSG A
1,420	30	Woods, Good, HSG A
14,011	39	>75% Grass cover, Good, HSG A
15,631	39	Weighted Average
15,431		98.72% Pervious Area
200		1.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.2	26	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.5	76	Total			

Summary for Subcatchment 22S: BLDG 3 AND PARKING DRAINAGE TO INFILTRATION #1

Runoff = 29.17 cfs @ 12.08 hrs, Volume= 2.076 af, Depth> 6.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

	Area (sf)	CN	Description
	23,213	39	>75% Grass cover, Good, HSG A
*	136,909	98	Drive, driveways & roofs HSG A
	160,122	89	Weighted Average
	23,213		14.50% Pervious Area
	136,909		85.50% 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= 3.15"
0.4	78	0.0220	3.01		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
5.7	128	Total			

Summary for Subcatchment 107S: BUILDING 1 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 4.16 cfs @ 12.07 hrs, Volume= 0.307 af, Depth> 7.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 108S: BUILDING 2 ROOF TO INFILTRATION BY RICE ROAD

Runoff = 4.16 cfs @ 12.07 hrs, Volume= 0.307 af, Depth> 7.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (sf)	CN	Description
21,120	98	Roofs, HSG A
21,120		100.00% Impervious Area

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

Summary for Subcatchment 109S: AREA DRAINING TO CB'S AT ENTRANCE

Runoff = 1.19 cfs @ 12.07 hrs, Volume= 0.080 af, Depth> 6.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (sf)	CN	Description
1,699	39	>75% Grass cover, Good, HSG A
5,151	98	Paved parking, HSG A
6,850	83	Weighted Average
1,699		24.80% Pervious Area
5,151		75.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	45	0.0800	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.5	85	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.9	130	Total			

Summary for Subcatchment 110S: CLUBHOUSE ROOF

Runoff = 0.94 cfs @ 12.07 hrs, Volume= 0.070 af, Depth> 7.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (sf)	CN	Description
4,800	98	Roofs, HSG A
4,800		100.00% Impervious Area

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

Summary for Subcatchment 233S: POSTDEV FLOW TO POND

Runoff = 32.78 cfs @ 12.08 hrs, Volume= 2.089 af, Depth> 3.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
	85,544	39	>75% Grass cover, Good, HSG A
	45,408	30	Woods, Good, HSG A
*	12,710	98	Roofs & Driveways HSG A
*	10,940	98	Roofs & Driveways, HSG B
	26,999	61	>75% Grass cover, Good, HSG B
	20,859	55	Woods, Good, HSG B
*	8,700	98	Roofs & Driveways, HSG D
	42,423	80	>75% Grass cover, Good, HSG D
	24,134	77	Woods, Good, HSG D
	308,219	61	Weighted Average
	245,367		79.61% Pervious Area
	62,852		20.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.15"
1.1	188	0.0350	2.81		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.1	92	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.7	330	Total			

Summary for Subcatchment 504S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 164.56 cfs @ 12.55 hrs, Volume= 22.055 af, Depth> 4.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Type III 24-hr 100YR STORM Rainfall=8.50"

Area (ac)	CN	Description
58.560	70	1/2 acre lots, 25% imp, HSG B
43.920		75.00% Pervious Area
14.640		25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	3,090	0.0670	1.27		**Lag/CN Method,**

Summary for Reach 13R: (new Reach)

Inflow Area = 69.656 ac, 24.10% Impervious, Inflow Depth > 4.16" for 100YR STORM event
Inflow = 164.97 cfs @ 12.78 hrs, Volume= 24.137 af
Outflow = 164.97 cfs @ 12.78 hrs, Volume= 24.137 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

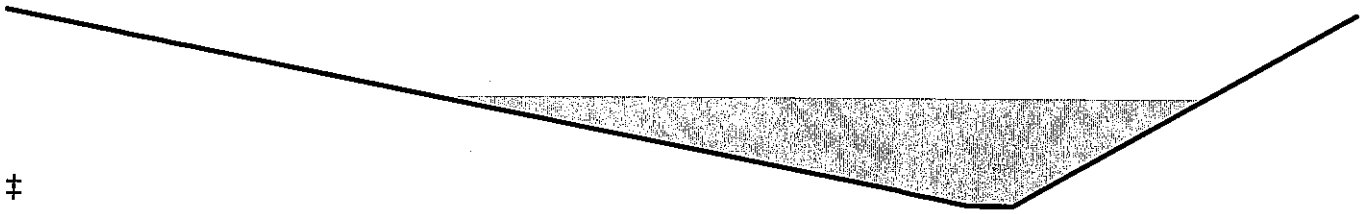
Summary for Reach 504R: FLOW PATH FROM RICE RD CULVERT TO POND

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 4.52" for 100YR STORM event
Inflow = 164.56 cfs @ 12.55 hrs, Volume= 22.055 af
Outflow = 164.16 cfs @ 12.61 hrs, Volume= 22.004 af, Atten= 0%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 5.46 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 2.77 fps, Avg. Travel Time= 3.7 min

Peak Storage= 18,293 cf @ 12.58 hrs
Average Depth at Peak Storage= 1.68' , Surface Width= 33.87'
Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 14.0 5.0 '/' Top Width= 59.00'
Length= 608.0' Slope= 0.0255 '/'
Inlet Invert= 405.50', Outlet Invert= 390.00'



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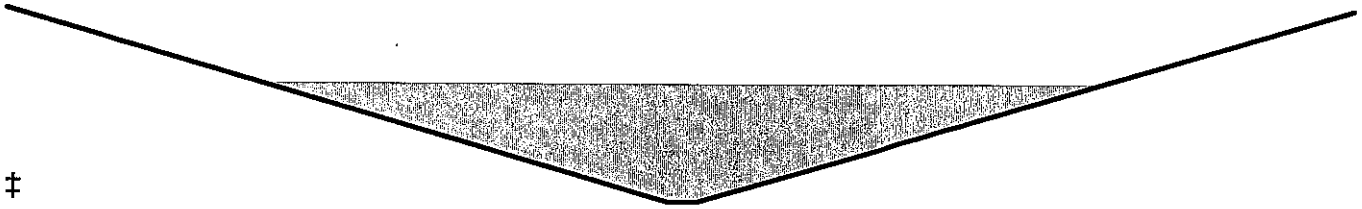
Summary for Reach 505R: FLOW PATH FROM POND OVERFLOW TO CUNHA & SORA

Inflow Area = 65.636 ac, 24.50% Impervious, Inflow Depth > 4.34" for 100YR STORM event
Inflow = 164.64 cfs @ 12.69 hrs, Volume= 23.731 af
Outflow = 163.54 cfs @ 12.78 hrs, Volume= 23.636 af, Atten= 1%, Lag= 5.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.97 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 1.63 fps, Avg. Travel Time= 5.6 min

Peak Storage= 30,182 cf @ 12.73 hrs
Average Depth at Peak Storage= 1.85' , Surface Width= 57.57'
Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

2.00' x 3.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 15.0 '/' Top Width= 92.00'
Length= 547.0' Slope= 0.0068 '/'
Inlet Invert= 389.50', Outlet Invert= 385.80'



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Summary for Pond 13P: Rice Pond

Inflow Area = 65.636 ac, 24.50% Impervious, Inflow Depth > 4.40" for 100YR STORM event
Inflow = 169.04 cfs @ 12.60 hrs, Volume= 24.093 af
Outflow = 164.64 cfs @ 12.69 hrs, Volume= 23.731 af, Atten= 3%, Lag= 5.2 min
Primary = 164.64 cfs @ 12.69 hrs, Volume= 23.731 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 391.69' @ 12.69 hrs Surf.Area= 63,853 sf Storage= 81,054 cf

Plug-Flow detention time= 16.1 min calculated for 23.731 af (98% of inflow)
Center-of-Mass det. time= 10.6 min (827.1 - 816.6)

Volume	Invert	Avail.Storage	Storage Description
#1	389.80'	285,060 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
389.80	25,072	0	0
390.00	25,815	5,089	5,089
392.00	70,715	96,530	101,619
394.00	112,726	183,441	285,060

Device	Routing	Invert	Outlet Devices
#1	Primary	389.90'	**171.9 deg x 2.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)

Primary OutFlow Max=164.50 cfs @ 12.69 hrs HW=391.69' (Free Discharge)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 164.50 cfs @ 3.35 fps)

Summary for Pond 23P: INFILTRATION STRUCTURE 1 NEAR RAILROAD

Inflow Area = 3.676 ac, 85.50% Impervious, Inflow Depth > 6.78" for 100YR STORM event
Inflow = 29.17 cfs @ 12.08 hrs, Volume= 2.076 af
Outflow = 1.53 cfs @ 10.61 hrs, Volume= 1.448 af, Atten= 95%, Lag= 0.0 min
Discarded = 1.53 cfs @ 10.61 hrs, Volume= 1.448 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 382.92' @ 14.06 hrs Surf.Area= 7,984 sf Storage= 43,848 cf

Plug-Flow detention time= 165.4 min calculated for 1.445 af (70% of inflow)
Center-of-Mass det. time= 98.8 min (849.2 - 750.5)

Volume	Invert	Avail.Storage	Storage Description
#1	373.50'	14,382 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 75,848 cf Overall - 39,893 cf Embedded = 35,955 cf x 40.0% Voids
#2	374.00'	29,734 cf	**retain_it retain_it 5.0'** x 110 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 2,306.6 cf perimeter wall
		44,116 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
373.50	7,984	0	0
383.00	7,984	75,848	75,848

Device	Routing	Invert	Outlet Devices
#1	Discarded	373.50'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=1.53 cfs @ 10.61 hrs HW=373.60' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 1.53 cfs)

Summary for Pond 108P: INFILTRATION AREA 3 TO EAST OF THE ENTRANCE

Inflow Area = 0.485 ac,100.00% Impervious, Inflow Depth > 7.60" for 100YR STORM event
Inflow = 4.16 cfs @ 12.07 hrs, Volume= 0.307 af
Outflow = 0.29 cfs @ 11.03 hrs, Volume= 0.279 af, Atten= 93%, Lag= 0.0 min
Discarded = 0.29 cfs @ 11.03 hrs, Volume= 0.279 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 398.86' @ 13.20 hrs Surf.Area= 1,520 sf Storage= 5,404 cf

Plug-Flow detention time= 141.6 min calculated for 0.279 af (91% of inflow)
Center-of-Mass det. time= 109.4 min (841.6 - 732.2)

Volume	Invert	Avail.Storage	Storage Description
#1	393.00'	1,498 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 9,120 cf Overall - 5,376 cf Embedded = 3,744 cf x 40.0% Voids
#2	393.50'	3,991 cf	**retain_it retain_it 4.0'** x 18 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 2 Rows adjusted for 166.1 cf perimeter wall
		5,488 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
393.00	1,520	0	0
399.00	1,520	9,120	9,120

Device	Routing	Invert	Outlet Devices
#1	Discarded	393.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.29 cfs @ 11.03 hrs HW=393.06' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.29 cfs)

Summary for Pond 109P: INFILTRATION AREA 2 TO WEST OF THE ENTRANCE

Inflow Area = 0.752 ac, 94.82% Impervious, Inflow Depth > 7.28" for 100YR STORM event
Inflow = 6.29 cfs @ 12.07 hrs, Volume= 0.457 af
Outflow = 0.44 cfs @ 11.12 hrs, Volume= 0.416 af, Atten= 93%, Lag= 0.0 min
Discarded = 0.44 cfs @ 11.12 hrs, Volume= 0.416 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 397.64' @ 13.21 hrs Surf.Area= 2,320 sf Storage= 8,113 cf

Plug-Flow detention time= 143.0 min calculated for 0.416 af (91% of inflow)
Center-of-Mass det. time= 111.9 min (849.3 - 737.4)

Volume	Invert	Avail.Storage	Storage Description
#1	392.00'	2,912 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 16,240 cf Overall - 8,960 cf Embedded = 7,280 cf x 40.0% Voids
#2	392.50'	6,460 cf	**retain_it retain_it 4.0'** x 30 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 1 Rows adjusted for 468.1 cf perimeter wall
		9,372 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
392.00	2,320	0	0
399.00	2,320	16,240	16,240

Device	Routing	Invert	Outlet Devices
#1	Discarded	392.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.44 cfs @ 11.12 hrs HW=392.07' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.44 cfs)