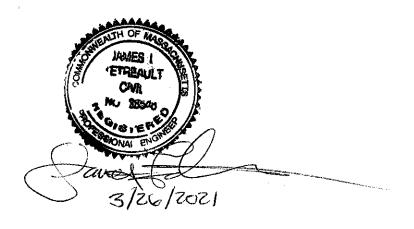
DRAINAGE REPORT

for

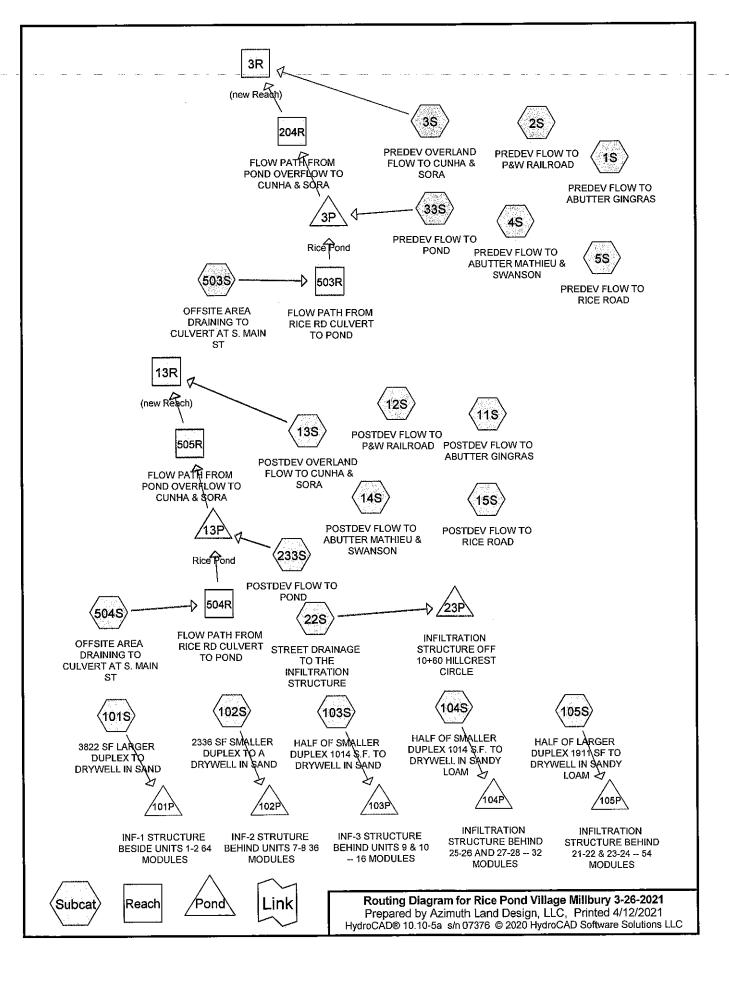
RICE POND VILLAGE A PROPOSED RESIDENTIAL DEVELOPMENT AT 17 RICE ROAD, MILLBURY

MARCH 26, 2021



AZIMUTH LAND DESIGN, LLC

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INTRODUCTION

The proposed Rice Pond Village development is a condominium development of 26 duplexes, 52 total units, 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 and also abutters to the south of this property, having frontage on Rice Road, and also 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 and roofs, the rate of stormwater runoff from the site would increase if no measures were taken to prevent it.

Except for the first 62 feet of the new private road, Hillcrest Circle, all of the runoff from the new road will be collected by the site's drainage system and directed through a CDS model 2025 stormwater filtration unit and then into an infiltration structure off the side of station 10+50 of Hillcrest Circle.

This infiltration structure will be located in an area where the observed soil texture was a sand and where there was greater than 9 foot depth to possible seasonal high groundwater. The structure will cover an area measuring 85 feet by 52 feet, and will be a total of 8.5 feet deep. Within double washed, crushed stone, we will install 864 Storm Tank 25 series modules measuring 3 feet long, 1.5 feet wide and 6 feet deep.

This structure will accept all the runoff collected from even the 100 year storm event without piped outflow.

In addition to this structure, 18 of the 26 proposed duplexes will send all or part of their roof runoff to individual infiltration structures the dimensions of which are shown on detail sheet D3 of the Site Plans.

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 3.1, 4.6, 5.3 and 6.6 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 2	5 yr storm	100 yr storm		
Abutter Gingras property line	e					
Subcat #1 pre	0.00 pre	0.00 pre	0.01 pre	0.05 pre		
Subcat #11 post	0.00	0.00	0.01	0.07		
Providence & Worcester rail	road property 1	ine				
Subcat #2 pre	0.00 pre	0.01	0.05 pre	0.30 pre		
Subcat #12 post	0.00	0.01	0.03	0.22		
Abutter Cunha & Sora prope	rty line					
Reach #3 pre	19.03 pre	54.68 pre	73.65 pre	111.31 pre		
Reach #13 post	19.21	54.28	72.87	109.67		
Abutter Mathieu & Swanson	property line					
Subcat #4 pre	0.00 pre	0.00 pre	0.00 pre	0.01 pre		
Subcat #14 post	0.00	0.00	0.01	0.08		
Rice Road right of way line						
Subcat #5 pre	0.00 pre	0.04 pre	0.16 pre	0.55 pre		
Subcat #15 post	0.00	0.04	0.11	0.36		
rate rate						

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Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

[45] Hint: Runoff=Zero

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=3.10"

_	A	rea (sf)	CN	<u>Description</u>	/oods, Good, HSG A						
		6,858	30	Woods, Go	Voods, Good, HSG A						
		10,008	39	>75% Gras	75% Grass cover, Good, HSG A						
		16,866	35	Weighted Average							
		16,866		100.00% Pe	ervious Are	ea					
	Tc (min)	Length (feet)	Slope (ft/ft)		Capacity (cfs)	Description					
-	4.4	50	0.1000		(013)	Sheet Flow,					
	7.7	50	0.1000	0.13		Grass: Dense n= 0.240 P2= 3.10"					
	0.9	100	0.1400	1.87		Shallow Concentrated Flow,					
	0.0	100	0.1100	1.01		Woodland Kv= 5.0 fps					
	5.3	150	Total			.					

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

[45] Hint: Runoff=Zero

Runoff

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

_	Aı	rea (sf)	CN E	escription						
	1	79,428	30 V	Woods, Good, HSG A						
		35,859	39 >	75% Gras	s cover, Go	ood, HSG A				
		3,896	98 F	aved park	ing, HSG A	· •				
	2	19,183	33 V	Veighted A	verage					
		15,287			vious Area					
		3,896	1	.78% Impe	ervious Area	a				
		•		•						
	Tc	Length	Slope	Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	4.8	50	0.0800	0.17		Sheet Flow,				
						Grass: Dense n= 0.240 P2= 3.10"				
	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				
	6.4	338	Total							

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

[73] Warning: Peak may fall outside time span

Runoff

0.00 cfs @ 20.00 hrs, Volume=

0.001 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=3.10"

A	rea (sf)	CN D	escription)		
1	48,793	30 V	Voods, Go	od, HSG A	
	30,807	98 V	Vater Surfa	ace, HSG A	l
1	79,600	42 V	Veighted A	verage	·
1	48,793	8	2.85% Per	vious Area	
	30,807	1	7.15% lmp	pervious Ar	еа
_		-			5
Tc	Length	Slope	Velocity	Capacity	Description
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)	
25.2	50	0.0140	0.03		Sheet Flow,
					Woods: Dense underbrush n= 0.800 P2= 3.10"
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
29.3	636	Total			

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

[45] Hint: Runoff=Zero

Runoff

0.00 cfs @ 5.00 hrs, Volume=

0.000 af, Depth= 0.00"

	A	rea (sf)	CN D	Description		
		21,387	30 V	Voods, Go	od, HSG A	
21,387 100.00% Pervious Area						a
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
-	10.7	50	0.1200	0.08	•	Sheet Flow,
_	0.4	57	0.1800	2.12		Woods: Dense underbrush n= 0.800 P2= 3.10" Shallow Concentrated Flow, Woodland Kv= 5.0 fps
-	11.1	107	Total			

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Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

[73] Warning: Peak may fall outside time span

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=3.10"

_	A	rea (sf)	CN	Description							
		22,350	30	Woods, Go	Voods, Good, HSG A						
		30,632	39	>75% Gras	s cover, Go	ood, HSG A					
*		5,307	98	Existing roof and driveway							
		58,289	41	Weighted A	verage						
		52,982		90.90% Per	vious Area						
		5,307		9.10% Impe	ervious Are	a					
	_										
	Tc	Length	Slope	•	Capacity	Description					
	_(min)	(feet)	(ft/ft	(ft/sec)	(cfs)						
	5.4	50	0.0600	0.16		Sheet Flow,					
						Grass: Dense n= 0.240 P2= 3.10"					
	3.7	212	0.0370	0.96		Shallow Concentrated Flow,					
						Woodland Kv= 5.0 fps					
	9.1	262	Total	•							

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

[45] Hint: Runoff=Zero

Runoff

0.00 cfs @ 5.00 hrs, Volume=

0.000 af, Depth= 0.00"

_	A	rea (sf)	CN	Description	1					
		12,009	39	>75% Grass cover, Good, HSG A						
_		3,537	30	Woods, Go	od, HSG A					
		15,546	37	Weighted A	verage					
		15,546		100.00% Pe	ervious Are	a				
	Тс	Length	Slope	•	Capacity	Description				
_	<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	7.5	50	0.0100	0.11		Sheet Flow,				
						Grass: Short n= 0.150 P2= 3.10"				
	0.6	140	0.0700	3.97		Shallow Concentrated Flow,				
		_				Grassed Waterway Kv= 15.0 fps				
	8 1	190	Total							

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

[45] Hint: Runoff=Zero

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=3.10"

	Α	rea (sf)	CN [Description					
		17,500	30 ١	Woods, Good, HSG A					
		1,160	30 \	Noods, Go	od, HSG A				
		46,614	39 >	•					
		65,274	36 \	Veighted A	verage				
		65,274	1	100.00% Pe	ervious Are	a			
	Тс	Length	Slope		Capacity	Description			
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
	14.1	50	0.0600	0.06		Sheet Flow,			
	-					Woods: Dense underbrush n= 0.800 P2= 3.10"			
	0.9	109	0.1500	1.94		Shallow Concentrated Flow,			
						Woodland Kv= 5.0 fps			
_	15.0	159	Total	-					

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

[73] Warning: Peak may fall outside time span

Runoff

0.01 cfs @ 20.00 hrs, Volume=

0.002 af, Depth> 0.01"

	Area (sf)	CN	Description
*	1,014	98	Back of units 7 & 8
	30,807	98	Water Surface, HSG A
	7,684	39	>75% Grass cover, Good, HSG A
	137,688	30	Woods, Good, HSG A
	177,193 43 Weighted Average 145,372 82.04% Pervious Area		82.04% Pervious Area
	31,821		17.96% Impervious Area

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	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
-	25.2	50	0.0140	0.03		Sheet Flow,
						Woods: Dense underbrush n= 0.800 P2= 3.10"
	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
	29.3	636	Total			

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

[45] Hint: Runoff=Zero

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=3.10"

_	Α	rea (sf)	CN E	Description					
		10,400	400 30 Woods, Good, HSG A						
		15,186	39 >	75% Gras	s cover, Go	ood, HSG A			
		25,586	35 V	Veighted A	verage				
		25,586	1	00.00% Pe	ervious Are	а			
	Тс	Length	Slope	Velocity	Capacity	Description			
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
	3.0	50	0.1000	0.28		Sheet Flow,			
						Grass: Short n= 0.150 P2= 3.10"			
	0.5	58	0.0200	2.12		Shallow Concentrated Flow,			
						Grassed Waterway Kv= 15.0 fps			
	0.4	44	0.1500	1.94		Shallow Concentrated Flow,			
			_			Woodland Kv= 5.0 fps			
	3.9	152	Total						

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

[73] Warning: Peak may fall outside time span

Runoff

0.00 cfs @ 20.00 hrs, Volume=

0.000 af, Depth> 0.00"

Type III 24-hr 2 YR STORM Rainfall=3.10"

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			TO THE POST OF THE	_ <u> </u>

_	Α	rea (sf)	CN I	Description						
		2,256	98 F	98 Paved parking, HSG A						
		5,534	30 \	Voods, Go	od, HSG A					
		25,100	39 >	>75% Gras	s cover, Go	ood, HSG A				
	32,890 42 Weighted Average									
		30,634			rvious Area					
		2,256	6	8.86% Impe	ervious Are	a				
				•						
	Τc	Length	Slope	Velocity	Capacity	Description				
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	·				
	8.3	50	0.0200	0.10		Sheet Flow,				
						Grass: Dense n= 0.240 P2= 3.10"				
	1.9	119	0.0050	1.06		Shallow Concentrated Flow,				
						Grassed Waterway Kv= 15.0 fps				
_	10.2	169	Total	· · · · · · · · · · · · · · · · · · ·						

Summary for Subcatchment 22S: STREET DRAINAGE TO THE INFILTRATION STRUCTURE

Runoff = 4

4.02 cfs @ 12.17 hrs, Volume=

0.326 af, Depth> 1.04"

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=3.10"

	A	rea (sf)	CN [Description					
		57,069	39 >	75% Grass cover, Good, HSG A					
*	1	06,172	98 [Prive, drive	ways & roc	ofs HSG A			
_		324				ood, HSG A			
	163,565 77 Weighted Average								
		57,393		_	vious Area	l			
106,172 64.91% Impervious Area					ervious Ar	ea			
				•					
	Tc	Length	Slope	Velocity	Capacity	Description			
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
	11.0	50	0.0100	0.08		Sheet Flow,			
						Grass: Dense n= 0.240 P2= 3.10"			
	0.6	53	0.0100	1.50		Shallow Concentrated Flow,			
_						Grassed Waterway Kv= 15.0 fps			
	11.6	103	Total						

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff =

1.34 cfs @ 12.35 hrs, Volume=

0.191 af, Depth> 0.32"

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	Α	rea (sf)	CN E	escription			
_		30,502	98 V	Vater Surfa	ace, HSG A		
* 13,200 98 Roofs & Driveways, HSG A						SG A	
		36,725	39 >	·75% Gras	s cover, Go	ood, HSG A	
		84,427	30 V	Voods, Go	od, HSG A		
	14,588 30 Woods, Good, HSG A						
*		10,940			iveways, H		
		26,999				ood, HSG B	
		20,859		,	od, HSG B		
*		8,700			iveways, H		
		42,423				ood, HSG D	
_		<u>24,134 </u>			od, HSG D		
		13,497		Veighted A	•		
		50,155			rvious Area		
		63,342	2	:0.20% Imp	pervious Ar	ea	
		141-	01	\	0	Description	
	Tc	Length	Slope	Velocity	Capacity	Description	
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	OL 45	
	10.7	50	0.1200	0.08		Sheet Flow,	
	0.0	0.40	0.0400	4.04		Woods: Dense underbrush n= 0.800 P2= 3.10"	
	3.9	242	0.0430	1.04		Shallow Concentrated Flow,	
_	446					Woodland Kv= 5.0 fps	
	14.6	292	Total				

Summary for Subcatchment 101S: 3822 SF LARGER DUPLEX TO DRYWELL IN SAND

Runoff

0.27 cfs @ 12.07 hrs, Volume=

0.020 af, Depth> 2.68"

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 2 YR STORM Rainfall=3.10"

A	rea (sf)	CN [Description						
	3,822	98 l	Unconnected roofs, HSG A						
	3,822 3,822			npervious Anconnected					
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
5.0					Direct Entry,				

Summary for Subcatchment 102S: 2336 SF SMALLER DUPLEX TO A DRYWELL IN SAND

Runoff

0.17 cfs @ 12.07 hrs, Volume=

0.012 af, Depth> 2.68"

Type III 24-hr 2 YR STORM Rainfall=3.10"

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Are	ea <u>(sf)</u>	CN E	escription						
	2,336	98 F	Roofs, HSG A						
	2,336	1	100.00% Impervious Area						
	Length	Slope	•		Description				
(min) 5.0	(feet)	(ft/ft)	(ft/sec)	(cfs)	Direct Entry				

Summary for Subcatchment 103S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SAND

Runoff

0.07 cfs @ 12.07 hrs, Volume=

0.005 af, Depth> 2.68"

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 2 YR STORM Rainfall=3.10"

_	Α	rea (sf)	CN I	Description							
		1,014	98 l	Unconnected roofs, HSG A							
	•	1,014	1	00.00% Impervious Area							
		1,014	1	00.00% Uı	nconnected	d					
	Тс	Length	Slope	Velocity	Capacity	Description					
	(min)	(feet)	(ft/ft)) (ft/sec) (cfs)							
	5.0			Direct Entry							

ummary for Subcatchment 104S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SANDY LOA

Runoff

0.07 cfs @ 12.07 hrs, Volume=

0.005 af, Depth> 2.68"

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 2 YR STORM Rainfall=3.10"

A	rea (sf)	CN E	Description						
	1,014	98 L	Unconnected roofs, HSG A						
	1,014 1,014		100.00% Impervious Area 100.00% Unconnected						
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	·				
5.0			Direct Entry,						

Summary for Subcatchment 105S: HALF OF LARGER DUPLEX 1911 SF TO DRYWELL IN SANDY LOAM

Runoff

0.14 cfs @ 12.07 hrs, Volume=

0.010 af, Depth> 2.68"

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A	rea (sf)	CN E	Description						
	1,911	98 L	Jnconnected pavement, HSG A						
	1,911 1,911			npervious Anconnected					
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 = 2.37 cfs @ 1

2.37 cfs @ 12.14 hrs, Volume=

0.230 af, Depth> 0.42"

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 2 YR STORM Rainfall=3.10"

	Α	rea (sf)	CN I	Description					
		30,502	98 \	Water Surface, HSG A					
*		13,200	98 I	Roofs & Dri	iveways, H	SG A			
*		0	98 I	Backs of ro	ofs at units	11-16			
		29,995	39 :	>75% Gras	s cover, Go	ood, HSG A			
		36,725	39	>75% Gras	s cover, Go	ood, HSG A			
		28,736	30 <i>\</i>	Noods, Go	od, HSG A				
		14,588	30 \	Noods, Go	od, HSG A				
*		10,940	98 I	Roofs & Dri	iveways, H	SG B			
		26,999		>75% Gras	s cover, Go	ood, HSG B			
		20,859	55 \	Noods, Go	od, HSG B				
*		8,700			iveways, H				
		42,423			•	ood, HSG D			
		24,134	77 \	Noods, Go	od, HSG D	<u></u>			
	2	87,801	63 \	Neighted A	verage				
	2	24,459	-	77.99% Pei	rvious Area				
		63,342	2	22.01% lmp	pervious Ar	ea			
	Tc	Length	Slope			Description			
(r	min)	(feet)	(ft/ft)	(ft/sec)	(cfs)_				
	3.0	50	0.1000	0.28		Sheet Flow,			
						Grass: Short n= 0.150 P2= 3.10"			
	0.5	58	0.0200	2.12		Shallow Concentrated Flow,			
						Grassed Waterway Kv= 15.0 fps			
	3.8	212	0.0340	0.92		Shallow Concentrated Flow,			
						Woodland Kv= 5.0 fps			
	7.3	320	Total						

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

Runoff = 22.92 cfs @ 12.63 hrs, Volume=

3.327 af, Depth> 0.68"

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	Area	(ac) C	N Des	Description						
	58.	560 7	70 1/2 a	acre lots, 2	.5% imp, H	SG B				
		920		5.00% Pervious Area						
	14.	640	25.0	0% Imper	/ious Area					
	Тс	Length	Slope	Velocity	Capacity	Description				
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	40.4	3,090	0.0670	1.27		Lag/CN Method,				

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

Runoff = 22.92 cfs @ 12.63 hrs, Volume=

3.327 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 2 YR STORM Rainfall=3.10"

_	Area	(ac) C	N Des	Description						
	58.	560 7	70 1/2 a	1/2 acre lots, 25% imp, HSG B						
_	43.920 75.00% Pervious Area									
	14.640 25.00% Impervious Area									
	Tc	Length	Slope	Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	Description				
_	40.4	3,090	0.0670	1.27		Lag/CN Method,				

Summary for Reach 3R: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 0.56" for 2 YR STORM event

Inflow = 19.03 cfs @ 13.12 hrs, Volume= 3.267 af

Outflow = 19.03 cfs @ 13.12 hrs, Volume= 3.267 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 13R: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 69.235 ac, 24.30% Impervious, Inflow Depth > 0.57" for 2 YR STORM event

Inflow = 19.21 cfs @ 13.11 hrs, Volume= 3.306 af

Outflow = 19.21 cfs @ 13.11 hrs, Volume= 3.306 af, Atten= 0%, Lag= 0.0 min

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

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

[79] Warning: Submerged Pond 3P Primary device # 1 by 0.39'

Inflow Area = 65,757 ac. 24.48% Impervious, Inflow Depth > 0.60" for 2 YR STORM event

Inflow = 19.41 cfs @ 12.95 hrs, Volume= 3.300 af

Outflow = 19.03 cfs @ 13.12 hrs, Volume= 3.266 af, Atten= 2%, Lag= 9.9 min

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

Max. Velocity= 1.73 fps, Min. Travel Time= 5.3 min Avg. Velocity = 1.17 fps, Avg. Travel Time= 7.8 min

Peak Storage= 6,018 cf @ 13.03 hrs Average Depth at Peak Storage= 0.79', Surface Width= 25.77' Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

 $2.00' \times 3.00'$ 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'



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

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 0.68" for 2 YR STORM event

Inflow = 22.92 cfs @ 12.63 hrs, Volume= 3.327 af

Outflow = 22.73 cfs @ 12.72 hrs, Volume= 3.309 af, Atten= 1%, Lag= 5.6 min

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

Max. Velocity= 3.32 fps, Min. Travel Time= 3.1 min Avg. Velocity = 2.01 fps, Avg. Travel Time= 5.0 min

Peak Storage= 4,165 cf @ 12.67 hrs

Average Depth at Peak Storage= 0.75', Surface Width= 16.26' 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'

Type III 24-hr 2 YR STORM Rainfall=3.10"

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

Inflow Area =

58.560 ac, 25.00% Impervious, Inflow Depth > 0.68" for 2 YR STORM event

Inflow =

22.92 cfs @ 12.63 hrs, Volume=

3.327 af

Outflow =

22.73 cfs @ 12.72 hrs, Volume=

3.309 af, Atten= 1%, Lag= 5.6 min

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

Max. Velocity= 3.32 fps, Min. Travel Time= 3.1 min Avg. Velocity = 2.01 fps, Avg. Travel Time= 5.0 min

Peak Storage= 4,165 cf @ 12.67 hrs

Average Depth at Peak Storage= 0.75', Surface Width= 16.26'

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'



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

[79] Warning: Submerged Pond 13P Primary device # 1 by 0.39'

Inflow Area =

65.167 ac, 24.70% Impervious, Inflow Depth > 0.61" for 2 YR STORM event

Inflow =

19.57 cfs @ 12.95 hrs, Volume=

3.338 af

Outflow

19.21 cfs @ 13.11 hrs, Volume=

3.304 af, Atten= 2%, Lag= 9.9 min

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

Max. Velocity= 1.73 fps, Min. Travel Time= 5.3 min Avg. Velocity = 1.17 fps, Avg. Travel Time= 7.8 min

Peak Storage= 6,059 cf @ 13.02 hrs

Average Depth at Peak Storage= 0.80', Surface Width= 25.85'

Bank-Full Depth= 3.00' Flow Area= 141.0 sf. Capacity= 571.84 cfs

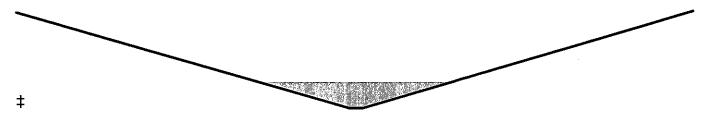
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 $2.00' \times 3.00'$ deep channel, n= 0.040 Earth, cobble bottom, clean sides Side Slope Z-value= 15.0 '/' Top Width= 92.00' Length= 547.0' Slope= 0.0068 '/' Inlet Invert= 389.50', Outlet Invert= 385.80'



Summary for Pond 3P: Rice Pond

[62] Hint: Exceeded Reach 503R OUTLET depth by 0.01' @ 13.28 hrs

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 0.64" for 2 YR STORM event

Inflow = 23.43 cfs @ 12.72 hrs, Volume= 3.500 af

Outflow = 19.41 cfs @ 12.95 hrs, Volume= 3.300 af, Atten= 17%, Lag= 14.1 min

Primary = 19.41 cfs @ 12.95 hrs, Volume= 3.300 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 390.63' @ 12.95 hrs Surf.Area= 39,860 sf Storage= 25,633 cf

Plug-Flow detention time= 39.5 min calculated for 3.293 af (94% of inflow)

Center-of-Mass det. time= 21.8 min (883.1 - 861.3)

Volume	Inve	ert Avail.Sto	rage Storage L	Description	
#1	389.8	0' 285,0	60 cf Custom S	Stage Data (Pri	smatic) Listed below (Recalc)
Elevatio		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
389.8	30	25,072	0	0	
390.0	00	25,815	5,089	5,089	
392.0	00	70,715	96,530	101,619	
394.0	00	112,726	183,441	285,060	
Device	Routing	Invert	Outlet Devices		
#1	Primary	389.90'	171.9 deg x 2.0	O' long Sharp-C	Crested Vee/Trap Weir

Primary OutFlow Max=19.38 cfs @ 12.95 hrs HW=390.63' (Free Discharge)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 19.38 cfs @ 2.18 fps)

Cv= 2.46 (C= 3.08)

Summary for Pond 13P: Rice Pond

[62] Hint: Exceeded Reach 504R OUTLET depth by 0.01' @ 13.28 hrs

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Inflow Area = 65.167 ac, 24.70% Impervious, Inflow Depth > 0.65" for 2 YR STORM event

Inflow = 23.36 cfs @ 12.72 hrs, Volume= 3.539 af

Outflow = 19.57 cfs @ 12.95 hrs, Volume= 3.338 af, Atten= 16%, Lag= 13.5 min

Primary = 19.57 cfs @ 12.95 hrs, Volume= 3.338 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 390.63' @ 12.95 hrs Surf.Area= 39,921 sf Storage= 25,740 cf

Plug-Flow detention time= 39.4 min calculated for 3.331 af (94% of inflow)

Center-of-Mass det. time= 21.8 min (882.1 - 860.3)

Volume	Inve	ert Avail.Sto	<u>rage Storage</u>	e Description	
#1	389.8	0' 274,9	15 cf Custor	n Stage Data (Pr	ismatic) Listed below (Recalc)
Elevatior (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)	102,581	173,296	274,915	
Device	Routing	Invert	Outlet Devic	es	
#1	Primary	389.90'	171.9 deg x Cv= 2.46 (C		Crested Vee/Trap Weir

Primary OutFlow Max=19.54 cfs @ 12.95 hrs HW=390.63' (Free Discharge) 1=Sharp-Crested Vee/Trap Weir (Weir Controls 19.54 cfs @ 2.18 fps)

Summary for Pond 23P: INFILTRATION STRUCTURE OFF 10+60 HILLCREST CIRCLE

Inflow Area = 3.755 ac, 64.91% Impervious, Inflow Depth > 1.04" for 2 YR STORM event

Inflow = 4.02 cfs @ 12.17 hrs, Volume= 0.326 af

Outflow = 0.85 cfs @ 11.93 hrs, Volume= 0.326 af, Atten= 79%, Lag= 0.0 min

Discarded = 0.85 cfs @ 11.93 hrs, Volume= 0.326 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 375.87' @ 12.74 hrs Surf.Area= 4,420 sf Storage= 4,233 cf

Plug-Flow detention time= 38.1 min calculated for 0.325 af (100% of inflow)

Center-of-Mass det. time= 37.5 min (854.1 - 816.6)

Volume	Invert	Avail.Storage	Storage Description
#1	374.50'	5,697 cf	85'X52' OUTSIDE OF STONE (Prismatic) Listed below (Recalc)
		·	37,570 cf Overall - 23,328 cf Embedded = 14,242 cf x 40.0% Voids
#2	375.00'	21,951 cf	StormTank 25 Series 72" x 864 Inside #1
		·	Inside= 18.0"W x 72.0"H => 8.73 sf x 3.00'L = 26.2 cf
			Outside= 18.0"W x 72.0"H => 9.00 sf x 3.00'L = 27.0 cf
			864 Chambers in 32 Rows
			23,328 cf Overall x 97.0% Voids
			T 1 1 A 11 1 1 O1

27,648 cf Total Available Storage

Type III 24-hr 2 YR STORM Rainfall=3.10"

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Elevation	Surf.Area	Inc.Store	Cum.Store
(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)
374.50	4,420	0	0
383.00	4,420	37,570	37,570

Device Routing Invert Outlet Devices

#1 Discarded 374.50' 8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.85 cfs @ 11.93 hrs HW=374.59' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.85 cfs)

Summary for Pond 101P: INF-1 STRUCTURE BESIDE UNITS 1-2 64 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.088 ac,100.00% Impervious, Inflow Depth > 2.68" for 2 YR STORM event

Inflow = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af

Outflow = 0.07 cfs @ 11.78 hrs, Volume= 0.020 af, Atten= 74%, Lag= 0.0 min

Discarded = 0.07 cfs @ 11.78 hrs, Volume= 0.020 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 395.82' @ 12.42 hrs Surf.Area= 364 sf Storage= 167 cf

Plug-Flow detention time= 12.0 min calculated for 0.020 af (100% of inflow)

Center-of-Mass det. time= 11.8 min (749.9 - 738.1)

Volume	Invert	Avail.Storage	Storage Description
#1	395.001	337 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			1,274 cf Overail - 432 cf Embedded = 842 cf x 40.0% Voids
#2	395.50'	395 cf	StormTank 25 Series 18" x 64 Inside #1
			Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf
			Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf
			64 Chambers in 8 Rows
			432 cf Overall x 96.0% Voids

732 cf Total Available Storage

Elevation	Surf.Area	Inc.Store	Cum.Store
(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)
395.00	364	0	0
398.50	364	1,274	1,274

Device	Routing	Invert	Outlet Devices
#1	Discarded	395.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.07 cfs @ 11.78 hrs HW=395.04' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.07 cfs)

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Summary for Pond 102P: INF-2 STRUTURE BEHIND UNITS 7-8 36 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area =

0.054 ac,100.00% Impervious, Inflow Depth > 2.68" for 2 YR STORM event

Inflow =

0.17 cfs @ 12.07 hrs, Volume=

0.012 af 0.012 af. Atten= 75%, Lag= 0.0 min

Outflow = Discarded =

0.04 cfs @ 11.78 hrs, Volume= 0.04 cfs @ 11.78 hrs, Volume=

0.012 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 396.84' @ 12.42 hrs Surf.Area= 220 sf Storage= 103 cf

Plug-Flow detention time= 12.3 min calculated for 0.012 af (100% of inflow)

Center-of-Mass det. time= 12.1 min (750.2 - 738.1)

Volume	Invert	Avail.Storage	Storage Description
#1	396.00'	211 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			770 cf Overall - 243 cf Embedded = 527 cf x 40.0% Voids
#2	396.50'	222 cf	StormTank 25 Series 18" x 36 Inside #1
			Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf
			Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf
			36 Chambers in 6 Rows
			243 cf Overall x 96.0% Voids

433 cf Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
396.00	220	0	0
399.50	220	770	770

Device Routing Invert Outlet Devices

#1 Discarded 3

396.00' **8.270** in/hr

8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.04 cfs @ 11.78 hrs HW=396.04' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.04 cfs)

Summary for Pond 103P: INF-3 STRUCTURE BEHIND UNITS 9 & 10 -- 16 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 2.68" for 2 YR STORM event

Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.005 af

Outflow = 0.02 cfs @ 11.81 hrs, Volume= 0.005 af, Atten= 70%, Lag= 0.0 min

Discarded = 0.02 cfs @ 11.81 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 374.84' @ 12.37 hrs Surf.Area= 112 sf Storage= 38 cf

Plug-Flow detention time= 8.6 min calculated for 0.005 af (100% of inflow)

Center-of-Mass det. time= 8.4 min (746.5 - 738.1)

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Volume	Invert	Avail.Storage	Storage Description
#1	374.00'	114 cf	Custom Stage Data (Prismatic) Listed below 392 cf Overall - 108 cf Embedded = 284 cf x 40.0% Voids
#2	375.00'	99 cf	StormTank 25 Series 18" x 16 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 16 Chambers in 4 Rows 108 cf Overall x 96.0% Voids
	· · · · · ·	212 cf	Total Available Storage

212 cf Total Available Storage

Elevation	Surf.Area	Inc.Store	Cum.Store
(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)
374.00	112	0	0
377.50	112	392	392

Device	Routing	Invert	Outlet Devices
#1	Discarded	374.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.02 cfs @ 11.81 hrs HW=374.04' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Summary for Pond 104P: INFILTRATION STRUCTURE BEHIND 25-26 AND 27-28 -- 32 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 2.68" for 2 YR STORM event

Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.005 af

Outflow = 0.00 cfs @ 11.15 hrs, Volume= 0.005 af, Atten= 93%, Lag= 0.0 min

Discarded = 0.00 cfs @ 11.15 hrs, Volume = 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 379.08' @ 13.29 hrs Surf.Area= 208 sf Storage= 96 cf

Plug-Flow detention time= 152.9 min calculated for 0.005 af (88% of inflow)

Center-of-Mass det. time= 113.9 min (852.0 - 738.1)

Volume	Invert	Avail.Storage	Storage Description
#1	378.00'	205 cf	Custom Stage Data (Prismatic) Listed below 728 cf Overall - 216 cf Embedded = 512 cf x 40.0% Voids
#2	379.00'	198 cf	StormTank 25 Series 18" x 32 Inside #1
			Inside= 18.0 "W x 18.0 "H => 2.15 sf x 3.00 'L = 6.4 cf
			Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf
			32 Chambers in 4 Rows
			216 cf Overall x 96.0% Voids

403 cf Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
378.00	208	0	0
381.50	208	728	728

Type III 24-hr 2 YR STORM Rainfall=3.10"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	378.00'	1.020 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 11.15 hrs HW=378.04' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.00 cfs)

Summary for Pond 105P: INFILTRATION STRUCTURE BEHIND 21-22 & 23-24 -- 54 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth > 2.68" for 2 YR STORM event

Inflow = 0.14 cfs @ 12.07 hrs, Volume= 0.010 af

Outflow = 0.01 cfs @ 10.64 hrs, Volume= 0.007 af, Atten= 94%, Lag= 0.0 min

Discarded = 0.01 cfs @ 10.64 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 380.03' @ 13.82 hrs Surf.Area= 319 sf Storage= 198 cf

Plug-Flow detention time= 162.2 min calculated for 0.007 af (75% of inflow)

Center-of-Mass det. time= 100.6 min (838.7 - 738.1)

Volume	Invert	Avail.Storage	Storage Description
#1	379.00'	301 cf	Custom Stage Data (Prismatic) Listed below 1,117 cf Overall - 365 cf Embedded = 752 cf x 40.0% Voids
#2	379.50'	334 cf	StormTank 25 Series 18" x 54 Inside #1 Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf 54 Chambers in 6 Rows 365 cf Overall x 96.0% Voids
		3- 1-00	Tatal Assayable Officers

634 cf Total Available Storage

Elevation	Surf.Area	Inc.Store	Cum.Store
(feet)	(sq-ft)	(cubic-feet) _	(cubic-feet)
379.00	319	0	0
382.50	319	1,117	1,117

Device	Routing	Invert	Outlet Devices
#1	Discarded	379.00'	1.020 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 10.64 hrs HW=379.04' (Free Discharge)

1=Exfiltration (Exfiltration Controls 0.01 cfs)

10 YEAR STORM

Type III 24-hr 10 YR STORM Rainfall=4.60"

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Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

Runoff

0.00 cfs @ 16.80 hrs, Volume=

0.001 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=4.60"

_	A	rea (sf)	<u>_CN</u>	<u>Description</u>					
		6,858	30	Woods, Go	od, HSG A				
_		10,008	39	>75% Gras	s cover, Go	ood, HSG A			
		16,866 16,866	35	Weighted Average 100.00% Pervious Area					
	Tc (min)	Length (feet)	Slope (ft/ft	-	Capacity (cfs)	Description			
	4.4	50	0.1000	0.19	- - -	Sheet Flow,			
_	0.9	100	0.1400	1.87		Grass: Dense n= 0.240 P2= 3.10" Shallow Concentrated Flow, Woodland Kv= 5.0 fps			
	5.3	150	Total			<u> </u>			

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

[73] Warning: Peak may fall outside time span

Runoff

0.01 cfs @ 20.00 hrs, Volume=

0.002 af, Depth> 0.01"

	Area (sf)	CN	Description	<u> </u>	
	179,428	30	Woods, Go	od, HSG A	
	35,859				ood, HSG A
	3,896		Paved park		
	219,183	33	Weighted A	verage	
	215,287		98.22% Pe		ı
	3,896		1.78% Impe	ervious Are	a
_					
To		•	•	Capacity	Description
(min)) (feet)	(ft/ft) (ft/sec)	(cfs)	
4.8	50	0.0800	0.17		Sheet Flow,
					Grass: Dense n= 0.240 P2= 3.10"
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
6.4	338	Total			

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

Runoff

=

0.15 cfs @ 12.87 hrs, Volume=

0.058 af, Depth> 0.17"

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=4.60"

	A	rea (sf)	CN E	escription		
	1	48,793	30 V	Voods, Go	od, HSG A	
		30,807	98 V	Vater Surfa	ace, HSG A	<u> </u>
	1	79,600	42 V	Veighted A	verage	
148,793 30,807			8	2.85% Per	vious Area	
			1	7.15% lmp	ervious Ar	ea
	Тс	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	25.2	50	0.0140	0.03		Sheet Flow,
						Woods: Dense underbrush n= 0.800 P2= 3.10"
	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
	29.3	636	Total			

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

[45] Hint: Runoff=Zero

Runoff

0.00 cfs @ 5.00 hrs, Volume=

0.000 af, Depth= 0.00"

	A	rea (sf)	CN E	<u>Description</u>		
		21,387	30 V	Voods, Go	od, HSG A	
	21,387 100.00% Pervious Area					a
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
•	10.7	50	0.1200	0.08		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.10"
	0.4	57	0.1800	2.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
•	11.1	107	Total		**	

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Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

Runoff

0.04 cfs @ 12.53 hrs, Volume=

0.016 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=4.60"

	A	rea (sf)	CN [Description		
		22,350	30 V	Voods, Go	od, HSG A	·· ·
		30,632	39 >	75% Gras	s cover, Go	ood, HSG A
*		5,307	98 E	Existing roo	of and drive	way
		58,289	41 V	Veighted A	verage	
		52,982		•	vious Area	
		5,307	9).10% Impe	ervious Area	a
				-		
	Тс	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	5.4	50	0.0600	0.16		Sheet Flow,
						Grass: Dense n= 0.240 P2= 3.10"
	3.7	212	0.0370	0.96		Shallow Concentrated Flow,
						Woodland Kv= 5.0 fps
	9.1	262	Total			

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

Runoff

0.00 cfs @ 15.15 hrs, Volume=

0.002 af, Depth> 0.05"

_	Α	rea (sf)	CN	Description				
		12,009			,	ood, HSG A		
_	*	3,537	30	Woods, Good, HSG A				
		15,546	37	Weighted A				
		15,546		100.00% Pervious Area				
	Tc	Length	Slope	 Velocity 	Capacity	Description		
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	<u> </u>		
Ī	7.5	50	0.0100	0.11		Sheet Flow,		
						Grass: Short n= 0.150 P2= 3.10"		
	0.6	140	0.0700	3.97		Shallow Concentrated Flow,		
						Grassed Waterway Kv= 15.0 fps		
-	8.1	190	Total					

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

Runoff

=

0.01 cfs @ 15.59 hrs, Volume=

0.005 af, Depth> 0.04"

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=4.60"

_	Α	rea (sf)	CN I	Description						
		17,500	30 V	Woods, Good, HSG A						
	1,160 30 Woods, Good, HSG A									
_		46,614	39 >	·75% Gras	s cover, Go	ood, HSG A				
	65,274 36 Weighted Average									
		65,274	1	00.00% Pe	ervious Are	a				
	Тс	Length	Slope	Velocity	Capacity	Description				
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	14.1	50	0.0600	0.06		Sheet Flow,				
						Woods: Dense underbrush n= 0.800 P2= 3.10"				
	0.9	109	0.1500	1.94		Shallow Concentrated Flow,				
						Woodland Kv= 5.0 fps				
_	15.0	159	Total							

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

Runoff

=

0.21 cfs @ 12.79 hrs, Volume=

0.067 af, Depth> 0.20"

	A	rea (sf)	CN E	escription						
*		1,014	98 E							
		30,807	98 V	Water Surface, HSG A						
		7,684	4 39 >75% Grass cover, Good, HSG A							
137,688 30 Woods, Good, HSG A										
		77,193		Veighted A						
		45,372			vious Area					
		31,821	1	7.96% lmp	ervious Ar	ea				
	т.	ما المحمد الم	Clana	\/alaaib.	Conneitu	Description				
,	Tc min\	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
_	min)				(015)	Observe Etrem				
	25.2	50	0.0140	0.03		Sheet Flow,				
	2.3	186	0.0710	1.33		Woods: Dense underbrush n= 0.800 P2= 3.10"				
	۷,5	100	0.07 10	1.55		Shallow Concentrated Flow, Woodland Kv= 5.0 fps				
	1.8	400	0.0090	3.75	59.94	Channel Flow,				
	1.0	700	0.0000	0.10	00.04	Area= 16.0 sf Perim= 14.6' r= 1.10'				
						n= 0.040 Earth, cobble bottom, clean sides				
	29.3	636	Total			, , , , , , , , , , , , , , , , , , , ,				

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

Runoff = 0.00 cfs @ 16.79 hrs, Volume=

0.001 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=4.60"

_	Α	rea (sf)	CN [Description							
		10,400	30 V	Voods, Good, HSG A							
_		15,186	39 >	75% Gras	s cover, Go	ood, HSG A					
		25,586	35 V	35 Weighted Average							
		25,586	1	00.00% Pe	ervious Are	a					
	_										
	Tc	Length	Slope	Velocity	Capacity	Description					
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	3.0	50	0.1000	0.28		Sheet Flow,					
						Grass: Short n= 0.150 P2= 3.10"					
	0.5	58	0.0200	2.12		Shallow Concentrated Flow,					
						Grassed Waterway Kv= 15.0 fps					
	0.4	44	0.1500	1.94		Shallow Concentrated Flow,					
						Woodland Kv= 5.0 fps					
	3.9	152	Total				_				

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

Runoff =

0.04 cfs @ 12.51 hrs, Volume=

0.011 af, Depth> 0.17"

_	A	rea (sf)	CN [Description							
-		2,256	98 F	98 Paved parking, HSG A							
		5,534	30 V	30 Woods, Good, HSG A							
		25,100	39 >	, , , , , , , , , , , , , , , , , , ,							
_		32,890	42 V	Veighted A	verage						
		30,634	9	3.14% Per	vious Area						
		2,256	6	8.86% Impe	ervious Are	a					
	Тс	Length	Slope	Velocity	Capacity	Description					
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	8.3	50	0.0200	0.10		Sheet Flow,					
						Grass: Dense n= 0.240 P2= 3.10"					
	1.9	119	0.0050	1.06		Shallow Concentrated Flow,					
						Grassed Waterway Kv= 15.0 fps					
_	10.2	169	Total		•						

Type III 24-hr 10 YR STORM Rainfall=4.60"

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Summary for Subcatchment 22S: STREET DRAINAGE TO THE INFILTRATION STRUCTURE

Runoff

=

8.34 cfs @ 12.16 hrs, Volume=

0.664 af, Depth> 2.12"

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=4.60"

_	A	rea (sf)	CN E	<u>Description</u>						
		57,069		>75% Grass cover, Good, HSG A						
*	1	06,172	98 C	Drive, driveways & roofs HSG A						
		324	39 >	75% Gras	s cover, Go	ood, HSG A				
	163,565 77 Weighted Average									
		57,393			vious Area					
106,172 64.91% Impervious Area										
	Tc	Length	Slope	Velocity	Capacity	Description				
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	·				
	11.0	50	0.0100	0.08	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Sheet Flow,				
						Grass: Dense n= 0.240 P2= 3.10"				
	0.6	53	0.0100	1.50		Shallow Concentrated Flow,				
						Grassed Waterway Kv= 15.0 fps				

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff

= 5.90 (

5.90 cfs @ 12.23 hrs, Volume=

0.576 af, Depth> 0.96"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	36,725	39	>75% Grass cover, Good, HSG A
	84,427	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	60	Weighted Average
	250,155		79.80% Pervious Area
	63,342		20.20% Impervious Area

Type III 24-hr 10 YR STORM Rainfall=4.60"

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	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
-	10.7	50	0.1200	0.08		Sheet Flow,
	3.9	242	0.0430	1.04		Woods: Dense underbrush n= 0.800 P2= 3.10" Shallow Concentrated Flow,
_						Woodland Kv= 5.0 fps
	14 6	292	Total			

Summary for Subcatchment 101S: 3822 SF LARGER DUPLEX TO DRYWELL IN SAND

Runoff

=

0.41 cfs @ 12.07 hrs, Volume=

0.030 af, Depth> 4.05"

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=4.60"

_	Α	rea (sf)	a (sf) CN Description								
		3,822	98 l	Unconnected roofs, HSG A							
		3,822	1	100.00% Impervious Area							
		3,822	1	100.00% Unconnected							
	Тс	Length	Slope	-	Capacity	<u>.</u>					
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	5.0					Direct Entry,					

Summary for Subcatchment 102S: 2336 SF SMALLER DUPLEX TO A DRYWELL IN SAND

Runoff

=

0.25 cfs @ 12.07 hrs, Volume=

0.018 af, Depth> 4.05"

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=4.60"

_	Α	rea (sf)	CN [Description						
		2,336								
•		2,336	1	100.00% Impervious Area						
	Тс	Length	•	•		Description				
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	5.0			Direct Entry.						

Summary for Subcatchment 103S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SAND

Runoff

=

0.11 cfs @ 12.07 hrs, Volume=

0.008 af, Depth> 4.05"

Type III 24-hr 10 YR STORM Rainfall=4.60"

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A	rea (sf)	CN	Description						
	1,014	98	Unconnected roofs, HSG A						
	1,014 1,014			npervious A nconnected					
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
5.0					Direct Entry,				

ummary for Subcatchment 104S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SANDY LOA

Runoff

0.11 cfs @ 12.07 hrs, Volume=

0.008 af, Depth> 4.05"

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=4.60"

A	rea (sf)	CN [Description							
	1,014	98 l	Jnconnected roofs, HSG A							
	1,014	1	100.00% Im	00.00% Impervious Area						
	1,014	1	100.00% Unconnected							
Tr.	1	Clana	Valasitus	0	Description					
Тс	Length	Slope	-	Capacity	Description					
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
5.0					Direct Entry,					

Summary for Subcatchment 105S: HALF OF LARGER DUPLEX 1911 SF TO DRYWELL IN SANDY LOAM

Runoff

0.20 cfs @ 12.07 hrs, Volume=

0.015 af, Depth> 4.05"

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=4.60"

_	A	rea (sf)	CN E	Description							
_		1,911	98 l	Unconnected pavement, HSG A							
		1,911	1	00.00% Impervious Area							
		1,911	1	100.00% Unconnected							
	To	Longth	Clana	Volocity	Consoity	Description					
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description					
-		(leet)	(IUIL)	(10360)	(015)	B. (E.)					
	5.0			Direct Entry,							

Summary for Subcatchment 233S: POSTDEV FLOW TO POND

Runoff

8.45 cfs @ 12.12 hrs, Volume=

0.628 af, Depth> 1.14"

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	Α	rea (sf)	CN I	Description					
		30,502	98 \	Water Surface, HSG A					
*		13,200	98 F	Roofs & Driveways, HSG A					
*	0 98 Backs of roofs at units								
	29,995 39 >			>75% Grass cover, Good, HSG A					
		36,725	39	>75% Grass cover, Good, HSG A					
		28,736	30 \	Woods, Good, HSG A					
		14,588	30 \						
*	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								
	287,801 63 Weighted Average								
	224,459 77.99% Pervious Area								
	63,342 22.01% Impervious Area				pervious Ar	ea			
	Tc	Length	Slope	_		Description			
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
	3.0	50	0.1000	0.28		Sheet Flow,			
						Grass: Short n= 0.150 P2= 3.10"			
	0.5 58 0.		0.0200	2.12		Shallow Concentrated Flow,			
						Grassed Waterway Kv= 15.0 fps			
	3.8	212	0.0340	0.92		Shallow Concentrated Flow,			
						Woodland Kv= 5.0 fps			
	7.3	320	Total						

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

Runoff = 56.85 cfs @ 12.59 hrs, Volume=

7.702 af, Depth> 1.58"

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=4.60"

_	Area	(ac) C	N Desc						
	58.	560 7	70 1/2 a	1/2 acre lots, 25% imp, HSG B					
43.920 75.00% Pervious Area									
14.640 25.00% Impervious A					/ious 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 Subcatchment 504S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 56.85 cfs @ 12.59 hrs, Volume=

7.702 af, Depth> 1.58"

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Are	a (ac)	ÇN	l Desc	Description					
5	58.560 70 1/2 acre lots, 25% imp, HSG B								
4	43.920 75.00% Pervious Area								
14.640 25.00% Impervious Area									
T (min	_		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
40.	4 3,0	90	0.0670	1.27		Lag/CN Method,			

Summary for Reach 3R: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 69.880 ac. 24.04% Impervious, Inflow Depth > 1.37" for 10 YR STORM event

Inflow = 54.68 cfs @ 12.90 hrs, Volume= 7.999 af

Outflow = 54.68 cfs @ 12.90 hrs, Volume= 7.999 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 13R: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 69.235 ac, 24.30% Impervious, Inflow Depth > 1.40" for 10 YR STORM event

Inflow = 54.28 cfs @ 12.91 hrs, Volume= 8.061 af

Outflow = 54.28 cfs @ 12.91 hrs, Volume= 8.061 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

[79] Warning: Submerged Pond 3P Primary device # 1 by 0.81'

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 1.46" for 10 YR STORM event

Inflow = 55.19 cfs @ 12.78 hrs, Volume= 7.994 af

Outflow = 54.53 cfs @ 12.90 hrs, Volume= 7.941 af, Atten= 1%, Lag= 7.3 min

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

Max. Velocity= 2.25 fps, Min. Travel Time= 4.0 min Avg. Velocity = 1.36 fps, Avg. Travel Time= 6.7 min

Peak Storage= 13,248 cf @ 12.83 hrs

Average Depth at Peak Storage= 1.21', Surface Width= 38.17' 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 > 1.58" for 10 YR STORM event

Inflow = 56.85 cfs @ 12.59 hrs, Volume= 7.702 af

Outflow = 56.60 cfs @ 12.66 hrs, Volume= 7.674 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= 4.18 fps, Min. Travel Time= 2.4 min Avg. Velocity = 2.31 fps, Avg. Travel Time= 4.4 min

Peak Storage= 8,242 cf @ 12.62 hrs Average Depth at Peak Storage= 1.09', Surface Width= 22.78' 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'



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

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 1.58" for 10 YR STORM event

Inflow = 56.85 cfs @ 12.59 hrs, Volume= 7.702 af

Outflow = 56.60 cfs @ 12.66 hrs, Volume= 7.674 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= 4.18 fps, Min. Travel Time= 2.4 min Avg. Velocity = 2.31 fps, Avg. Travel Time= 4.4 min

Peak Storage= 8,242 cf @ 12.62 hrs Average Depth at Peak Storage= 1.09', Surface Width= 22.78' Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

 $2.00' \times 3.00'$ 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'

Type III 24-hr 10 YR STORM Rainfall=4.60"

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

[79] Warning: Submerged Pond 13P Primary device # 1 by 0.80'

Inflow Area = 65.167 ac, 24.70% Impervious, Inflow Depth > 1.48" for 10 YR STORM event

Inflow = 54.72 cfs @ 12.78 hrs, Volume= 8.046 af

Outflow = 54.08 cfs @ 12.91 hrs, Volume= 7.994 af, Atten= 1%, Lag= 7.3 min

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

Max. Velocity= 2.25 fps, Min. Travel Time= 4.1 min Avg. Velocity = 1.37 fps, Avg. Travel Time= 6.7 min

Peak Storage= 13,167 cf @ 12.84 hrs

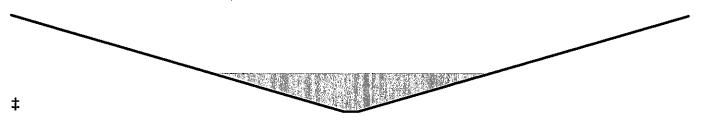
Average Depth at Peak Storage= 1.20', Surface Width= 38.06' Bank-Full Depth= 3.00' Flow Area= 141.0 sf, Capacity= 571.84 cfs

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'



Summary for Pond 3P: Rice Pond

[62] Hint: Exceeded Reach 503R OUTLET depth by 0.06' @ 13.13 hrs

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 1.51" for 10 YR STORM event

Inflow = 58.99 cfs @ 12.65 hrs, Volume= 8.250 af

Outflow = 55.19 cfs @ 12.78 hrs, Volume= 7.994 af, Atten= 6%, Lag= 8.0 min

Primary = 55.19 cfs @ 12.78 hrs, Volume= 7.994 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 391.04' @ 12.78 hrs Surf.Area= 49,058 sf Storage= 43.847 cf

Plug-Flow detention time= 25.4 min calculated for 7.994 af (97% of inflow)

Center-of-Mass det. time= 14.9 min (856.4 - 841.5)

Type III 24-hr 10 YR STORM Rainfall=4.60"

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Volume	Inve	rt Avail.Sto	rage Storage	Description	
#1	389.8	0' 285,06	60 cf Custom	Stage Data (Pr	ismatic) 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 R	Routing	Invert	Outlet Devices	S	
#1 P	rimary	389.90'	171.9 deg x 2. Cv= 2.46 (C=		Crested Vee/Trap Weir

Primary OutFlow Max=55.11 cfs @ 12.78 hrs HW=391.03' (Free Discharge) 1=Sharp-Crested Vee/Trap Weir (Weir Controls 55.11 cfs @ 2.69 fps)

Summary for Pond 13P: Rice Pond

[62] Hint: Exceeded Reach 504R OUTLET depth by 0.05' @ 13.13 hrs

Inflow Area = 65.167 ac, 24.70% Impervious, Inflow Depth > 1.53" for 10 YR STORM event

Inflow = 58.27 cfs @ 12.66 hrs, Volume= 8.302 af

Outflow = 54.72 cfs @ 12.78 hrs, Volume= 8.046 af, Atten= 6%, Lag= 7.6 min

Primary = 54.72 cfs @ 12.78 hrs, Volume= 8.046 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 391.03' @ 12.78 hrs Surf.Area= 48,968 sf Storage= 43,650 cf

Plug-Flow detention time= 25.3 min calculated for 8.030 af (97% of inflow)

Center-of-Mass det. time= 14.9 min (855.4 - 840.5)

Volume	_ Invert	Avail.Sto	rage Storage I	Description	
#1	389.80'	274,91	5 cf Custom	Stage Data (Pri	ismatic) Listed below (Recalc)
Elevation (feet)	Su	f.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
389.80 390.00 392.00 394.00	-	25,072 25,815 70,715 02,581	0 5,089 96,530 173,296	0 5,089 101,619 274,915	
	outing rimary	Invert 389.90'	Outlet Devices		Crested Vee/Trap Weir
W 1 1 1	iiiiai y	330.00	Cv= 2.46 (C= 3		7100100 ¥00/110P ¥¥0/I

Primary OutFlow Max=54.64 cfs @ 12.78 hrs HW=391.03' (Free Discharge) 1=Sharp-Crested Vee/Trap Weir (Weir Controls 54.64 cfs @ 2.69 fps)

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Summary for Pond 23P: INFILTRATION STRUCTURE OFF 10+60 HILLCREST CIRCLE

Inflow Area =

3.755 ac. 64.91% Impervious. Inflow Depth > 2.12" for 10 YR STORM event

Inflow

8.34 cfs @ 12.16 hrs, Volume=

0.664 af

Outflow

0.85 cfs @ 11.72 hrs, Volume=

0.630 af, Atten= 90%, Lag= 0.0 min

Discarded =

0.85 cfs @ 11.72 hrs, Volume=

0.630 af

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

Peak Elev= 377.98' @ 13.51 hrs Surf.Area= 4,420 sf Storage= 12,414 cf

Plug-Flow detention time= 146.3 min calculated for 0.629 af (95% of inflow) Center-of-Mass det. time= 127.9 min (928.7 - 800.8)

Volume	Invert	Avail.Storage	Storage Description
#1	374.50'	5,697 cf	85'X52' OUTSIDE OF STONE (Prismatic) Listed below (Recalc)
			$37,570 \text{ cf Overall} - 23,328 \text{ cf Embedded} = 14,242 \text{ cf } \times 40.0\% \text{ Voids}$
#2	375.00'	21,951 cf	StormTank 25 Series 72" x 864 Inside #1
			Inside= 18.0"W x 72.0"H => 8.73 sf x 3.00'L = 26.2 cf
			Outside= 18.0"W x 72.0"H => 9.00 sf x 3.00'L = 27.0 cf
			864 Chambers in 32 Rows
			23,328 cf Overall x 97.0% Voids

27,648 cf Total Available Storage

Elevation	Surf.Area	Inc.Store	Cum.Store
(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)
374.50	4,420	0	0
383.00	4,420	37,570	37,570

	evice	Routing
		TX COULDING
_	~ , , , , ,	1 10 0 11 19

Invert Outlet Devices

#1 Discarded 374.50'

8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.85 cfs @ 11.72 hrs HW=374.60' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.85 cfs)

Summary for Pond 101P: INF-1 STRUCTURE BESIDE UNITS 1-2 64 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area =

0.088 ac,100.00% Impervious, Inflow Depth > 4.05" for 10 YR STORM event

Inflow

0.41 cfs @ 12.07 hrs, Volume=

0.030 af

Outflow

0.07 cfs @ 11.66 hrs, Volume=

0.030 af, Atten= 83%, Lag= 0.0 min

Discarded =

0.07 cfs @ 11.66 hrs, Volume=

0.030 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 396.42' @ 12.52 hrs Surf.Area= 364 sf Storage= 344 cf

Plug-Flow detention time= 27.8 min calculated for 0.030 af (100% of inflow)

Center-of-Mass det. time= 27.6 min (762.4 - 734.9)

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Volume	Invert	Avoil Sto	roac	Storogo Do	corintian	
	Invert	Avail.Sto		Storage De		
#1	395.00'	33	37 cf	Custom St	age Data (Pr	ismatic) Listed below (Recalc)
				1.274 cf O	verall - 432 ct	FEmbedded = 842 cf x 40.0% Voids
#2	395.50'	39	95 cf			18" x 64 Inside #1
<i>"</i> –		•				1 => 2.15 sf x 3.00'L = 6.4 cf
						"H => 2.25 sf x 3.00'L = 6.8 cf
					ers in 8 Rows	
				432 cf Ove	<u>rall_x 96.0%</u>	Voids
		73	32 cf	Total Availa	able Storage	
					•	
Elevation	n Sur	f.Area	Inc.	Store	Cum.Store	
(fee		(sq-ft)	•	:-feet)	(cubic-feet)	
			Todore			
395.0	-	364		0	0	
398.5	0	364		1,274	1,274	
Device	Routing	Invert	Outle	et Devices		
#1	Discarded	395.00'	8.270) in/hr Exfil	tration over	Surface area

Discarded OutFlow Max=0.07 cfs @ 11.66 hrs HW=395.04' (Free Discharge) -1=Exfiltration (Exfiltration Controls 0.07 cfs)

Summary for Pond 102P: INF-2 STRUTURE BEHIND UNITS 7-8 36 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.054 ac,100.00% Impervious, Inflow Depth > 4.05" for 10 YR STORM event

Inflow 0.25 cfs @ 12.07 hrs, Volume= 0.018 af

Outflow 0.04 cfs @ 11.66 hrs, Volume= 0.018 af, Atten= 83%, Lag= 0.0 min

0.04 cfs @ 11.66 hrs, Volume= Discarded = 0.018 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 397.48' @ 12.52 hrs Surf.Area= 220 sf Storage= 212 cf

Plug-Flow detention time= 28.5 min calculated for 0.018 af (100% of inflow)

Center-of-Mass det. time= 28.2 min (763.1 - 734.9)

<u>Volume</u>	Invert	Avail.Storage	Storage Description
#1	396.00'	211 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			770 cf Overall - 243 cf Embedded = 527 cf x 40.0% Voids
#2	396.50'	222 cf	StormTank 25 Series 18" x 36 Inside #1
		•	Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf
			Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf
		•	36 Chambers in 6 Rows
			243 cf Overall x 96.0% Voids
		422 of	Total Available Storage

433 cf Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
396.00	220	0	0
399.50	220	770	770

Rice Pond Village Millbury 3-26-2021 Type III 24-hr 10 YR STORM Rainfall=4.60"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	396.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.04 cfs @ 11.66 hrs HW=396.04' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Summary for Pond 103P: INF-3 STRUCTURE BEHIND UNITS 9 & 10 -- 16 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 4.05" for 10 YR STORM event

Inflow = 0.11 cfs @ 12.07 hrs, Volume= 0.008 af

Outflow = 0.02 cfs @ 11.72 hrs, Volume= 0.008 af, Atten= 80%, Lag= 0.0 min

Discarded = 0.02 cfs @ 11.72 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 375.46' @ 12.49 hrs Surf.Area= 112 sf Storage= 82 cf

Plug-Flow detention time= 20.6 min calculated for 0.008 af (100% of inflow)

Center-of-Mass det. time= 20.3 min (755.2 - 734.9)

<u>Volume</u>	Invert	Avail.Storage	Storage Description
#1	374.00'	114 cf	Custom Stage Data (Prismatic) Listed below
			392 cf Overall - 108 cf Embedded = 284 cf x 40.0% Voids
#2	375.00'	99 cf	StormTank 25 Series 18" x 16 Inside #1
			Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf
			Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf
			16 Chambers in 4 Rows
	_		108 cf Overall x 96.0% Voids

212 cf Total Available Storage

Elevation	Surf.Area	Inc.Store	Cum.Store
(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)
374.00	112	0	0
377.50	112	392	392

Device	Routing	Invert	Outlet Devices
#1	Discarded	374.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.02 cfs @ 11.72 hrs HW=374.04' (Free Discharge)

1=Exfiltration (Exfiltration Controls 0.02 cfs)

Summary for Pond 104P: INFILTRATION STRUCTURE BEHIND 25-26 AND 27-28 -- 32 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 4.05" for 10 YR STORM event

Inflow = 0.11 cfs @ 12.07 hrs, Volume= 0.008 af

Outflow = 0.00 cfs @ 10.13 hrs, Volume= 0.005 af, Atten= 95%, Lag= 0.0 min

Discarded = 0.00 cfs @ 10.13 hrs, Volume= 0.005 af

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Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 379.56' @ 14.37 hrs Surf.Area= 208 sf Storage= 172 cf

Plug-Flow detention time= 161.3 min calculated for 0.005 af (64% of inflow) Center-of-Mass det. time= 85.7 min (820.6 - 734.9)

Volume	Invert	Avail.Stor	age	Storage De	escription			
#1	378.00'	20	5 cf	Custom St	age Data (Pr	rismatic) Listed below		
				728 cf Ove	rall - 216 cf E	Embedded = $512 \text{ cf } \times 40.0\% \text{ Voids}$		
#2	379.00'	19		StormTank 25 Series 18" x 32 Inside #1				
						H => 2.15 sf x 3.00'L = 6.4 cf		
				Outside= 1	8.0"W x 18.0	"H => 2.25 sf x 3.00'L = 6.8 cf		
				32 Chambe	ers in 4 Rows	S		
				216 cf Ove	rall x 96.0%	Voids		
		40	3 cf	Total Avail	able Storage			
Elevatio	n Sun	f.Area	Inc.	Store	Cum.Store			
(fee	t)	(sq-ft)	(cubic-	-feet)	(cubic-feet)			
378.0	0	208		0	0			
381.5	0	208		728	728			
Device	Routing	Invert	Outle	t Devices				
#1	Discarded	378.00'	1.020	in/hr Exfil	tration over	Surface area		

Discarded OutFlow Max=0.00 cfs @ 10.13 hrs HW=378.04' (Free Discharge)

1=Exfiltration (Exfiltration Controls 0.00 cfs)

Summary for Pond 105P: INFILTRATION STRUCTURE BEHIND 21-22 & 23-24 -- 54 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth > 4.05" for 10 YR STORM event Inflow = 0.20 cfs @ 12.07 hrs, Volume= 0.015 af

Outflow = 0.01 cfs @ 9.41 hrs, Volume= 0.008 af, Atten= 96%, Lag= 0.0 min

Discarded = 0.01 cfs @ 9.41 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 380.65' @ 15.11 hrs Surf.Area= 319 sf Storage= 354 cf

Plug-Flow detention time= 160.9 min calculated for 0.008 af (54% of inflow)

Center-of-Mass det. time= 72.6 min (807.5 - 734.9)

Volume	Invert	Avail.Storage	Storage Description
#1	379.00'	301 cf	Custom Stage Data (Prismatic) Listed below
			1,117 cf Overall - 365 cf Embedded = 752 cf x 40.0% Voids
#2	379.50'	334 cf	StormTank 25 Series 18" x 54 Inside #1
			Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf
			Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf
			54 Chambers in 6 Rows
			365 cf Overall x 96.0% Voids
		624 of	Total Available Storage

Type III 24-hr 10 YR STORM Rainfall=4.60"

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Elevation	Surf.Area	Inc.Store	Cum.Store (cubic-feet)
(feet)	(sq-ft)	(cubic-feet)	
379.00	319	0	0
382.50	319	1,117	1,117

Device	Routing	Invert	Outlet Devices	
#1	Discarded	379.00'	1.020 in/hr Exfiltration over Surface area	

Discarded OutFlow Max=0.01 cfs @ 9.41 hrs HW=379.04' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

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Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

Runoff

=

0.01 cfs @ 14.75 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 25 YR STORM Rainfall=5.30"

	Α	rea (sf)	CN [Description							
		6,858	30 ١	Noods, Go	oods, Good, HSG A						
		10,008	39 >	>75% Gras	75% Grass cover, Good, HSG A						
		16,866	35 \	Neighted A	verage						
		16,866	•	100.00% P€	ervious Are	а					
	Tc	Length	Slope	•	Capacity	Description					
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	4.4	50	0.1000	0.19		Sheet Flow,					
						Grass: Dense n= 0.240 P2= 3.10"					
	0.9	100	0.1400	1.87		Shallow Concentrated Flow,					
						Woodland Kv= 5.0 fps					
_	5.3	150	Total		·						

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

Runoff

0.05 cfs @ 15.38 hrs, Volume=

0.020 af, Depth> 0.05"

	Aı	rea (sf)	CN [Description				
	179,428 30 Woods, Good, HSG A							
		35,859			•	ood, HSG A		
		3,896	98 F	Paved park	ing, HSG A	\		
	2	19,183		Neighted A				
	2	15,287			rvious Area			
		3,896	•	1.78% Impe	ervious Area	a		
	T -	مالم ماما	Class	Malaaihi	Canacity	Description		
	Tc	Length	Slope	•	Capacity (cfs)	Description		
-	(min)	(feet)	(ft/ft)		(015)	011.51		
	4.8	50	0.0800	0.17		Sheet Flow,		
				4 70		Grass: Dense n= 0.240 P2= 3.10"		
	0.9	91	0.1200	1.73		Shallow Concentrated Flow,		
	0.77	407	0.4000	4.00	44.00	Woodland Kv= 5.0 fps		
	0.7	197	0.1060	4.99	14.98	•		
						Area= 3.0 sf Perim= 4.0' r= 0.75'		
_						n= 0.080 Earth, long dense weeds		
	6.4	338	Total					

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

Runoff

0.47 cfs @ 12.69 hrs, Volume=

0.111 af, Depth> 0.32"

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=5.30"

	rea (sf)	CN [Description		
148,793 30 Woods, Good, HSG A					
	30,807	98 V	Vater Surfa	ace, HSG A	
	179,600	42 V	Veighted A	verage	•
•	148,793	8	32.85% Per	vious Area	
	30,807	1	7.15% lmp	ervious Are	ea
Тс	•	Slope	Velocity	Capacity	Description
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)	
25.2	50	0.0140	0.03		Sheet Flow,
					Woods: Dense underbrush n= 0.800 P2= 3.10"
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
29.3	636	Total			

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

[73] Warning: Peak may fall outside time span

Runoff

0.00 cfs @ 20.00 hrs, Volume=

0.000 af, Depth> 0.01"

Α	rea (sf)	CN D	escription)		
21,387 30 Woods, Good, H					
21,387		100.00% Pervious Area			a
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	50	0.1200	0.08		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.10"
0.4	57	0.1800	2.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
11.1	107	Total		<u> </u>	

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Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

Runoff

0.16 cfs @ 12.42 hrs, Volume=

0.032 af, Depth> 0.29"

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=5.30"

	Α	rea (sf)	CN I	Description						
		22,350	30 V	Voods, Good, HSG A						
		30,632	39 >	75% Gras	s cover, Go	ood, HSG A				
*		5,307	98 E	Existing roof and driveway						
		58.289	41 \	Veighted A	verage					
		52,982	Ş	0.90% Per	vious Area					
		5,307	ξ	3.10% Impe	ervious Area	a				
				•						
	Tc	Length	Slope	Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	5.4	50	0.0600	0.16		Sheet Flow,				
						Grass: Dense n= 0.240 P2= 3.10"				
	3.7	212	0.0370	0.96		Shallow Concentrated Flow,				
						Woodland Kv= 5.0 fps				
_	9.1	262	Total							

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

Runoff

0.01 cfs @ 13.64 hrs, Volume=

0.004 af, Depth> 0.15"

	Α	rea (sf)	CN	Description	Pescription Pescription						
_		12,009	39	>75% Gras	s cover, Go	ood, HSG A					
_		3,537	30	Woods, Go	od, HSG A						
Ī		15,546	37	Weighted A	verage						
		15,546		100.00% P	ervious Are	a					
	Tc (min)	Length (feet)	Slope (f <u>t/ft</u>	•	Capacity (cfs)	Description					
	7.5	50	0.0100	0.11		Sheet Flow,					
	0.6	140	0.0700	3.97		Grass: Short n= 0.150 P2= 3.10" Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps					
-	8.1	190	Total								

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

Runoff = 0.

0.03 cfs @ 13.93 hrs, Volume=

0.015 af, Depth> 0.12"

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=5.30"

	Α	rea (sf)	CN I	Description							
_		17,500	30 \	Noods, Go	oods, Good, HSG A						
		1,160	30 \	Noods, Go	Voods, Good, HSG A						
		46,614	39 :	>75% Gras	75% Grass cover, Good, HSG A						
	65,274 36 Weighted Average										
		65,274	•	100.00% Pe	ervious Are	a					
	Tc	Length	Slope	Velocity	Capacity	Description					
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	14.1	50	0.0600	0.06		Sheet Flow,					
						Woods: Dense underbrush n= 0.800 P2= 3.10"					
	0.9	109	0.1500	1.94		Shallow Concentrated Flow,					
						Woodland Kv= 5.0 fps					
_	15.0	159	Total								

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

Runoff

0.57 cfs @ 12.66 hrs, Volume=

0.124 af, Depth> 0.37"

	Aı	rea (sf)	CN E	escription		
*		1,014	98 E	Back of unit	s 7 & 8	
		\				
7,684 39 >75% Grass cover, Good, HSG A						ood, HSG A
_	1	37,688	30 V	<u>Voods, Go</u>		
177,193 43 Weighted Average					verage	
	1	45,372	8	2.04% Per	vious Area	
		31,821	1	7.96% Imp	ervious Ar	ea
					_	
	Tc	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	25.2	50	0.0140	0.03		Sheet Flow,
						Woods: Dense underbrush n= 0.800 P2= 3.10"
	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
	29.3	636	Total			

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

Runoff = 0.01 cfs @ 14.74 hrs, Volume= 0.005 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 25 YR STORM Rainfall=5.30"

	Α	rea (sf)	CN I	Description							
Ī		10,400			loods, Good, HSG A						
	15,186 39 >75% Grass cover, Good, HSG A										
Ī	25,586 35 Weighted Average										
	25,586 100.00% Pervious Area					a					
	Tc	Length	Slope		Capacity	Description					
_	(min)	(feet)	(ft/ft)	(ft/sec)	<u>(cfs)</u>						
	3.0	50	0.1000	0.28		Sheet Flow,					
						Grass: Short n= 0.150 P2= 3.10"					
	0.5	58	0.0200	2.12		Shallow Concentrated Flow,					
						Grassed Waterway Kv= 15.0 fps					
	0.4	44	0.1500	1.94		Shallow Concentrated Flow,					
						Woodland Kv= 5.0 fps					
-	3.9	152	Total								

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

Runoff = 0.11 cfs @ 12.41 hrs, Volume= 0.021 af, Depth> 0.33"

	Aı	rea (sf)	CN E	escription						
		2,256	98 F	1 0						
		5,534	30 V	Woods, Good, HSG A						
		25,100	39 >	>75% Grass cover, Good, HSG A						
_	32,890 42 Weighted Average									
		30,634	9	3.14% Per	vious Area					
		2,256	6	.86% Impe	ervious Area	a				
				•						
	т.	Longth	Class	Velocity	Capacity	Description				
	Тс	Length	Slope	velocity	Capacity	2000				
	(min)	(feet)	Slope (ft/ft)	(ft/sec)	(cfs)					
_		_		•		Sheet Flow,				
_	(min)	(feet)	(ft/ft)	(ft/sec)						
_	(min)	(feet)	(ft/ft)	(ft/sec)		Sheet Flow,				
_	(min) 8.3	(feet) 50	(ft/ft) 0.0200	(ft/sec) 0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.10"				

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Summary for Subcatchment 22S: STREET DRAINAGE TO THE INFILTRATION STRUCTURE

Runoff = 10.49 cfs @ 12.16 hrs, Volume= 0.837 af, Depth> 2.67"

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=5.30"

	A	rea (sf)	CN D	escription						
		57,069								
*	1	06,172	98 D	rive, drive	ways & roo	ofs HSG A				
		324	39 >	>75% Grass cover, Good, HSG A						
163,565 77 Weighted Average										
		57,393	3	5.09% Per	vious Area					
106,172 64.91% Impervious Are					ervious Ar	ea				
				•						
	Тс	Length	Slope	Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	11.0	50	0.0100	0.08		Sheet Flow,				
						Grass: Dense n= 0.240 P2= 3.10"				
	0.6	53	0.0100	1.50		Shallow Concentrated Flow,				
						Grassed Waterway Kv= 15.0 fps				
_	11.6	103	Total							

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff = 8.62 cfs @ 12.22 hrs, Volume= 0.800 af, Depth> 1.33"

_	Area (sf)	CN	Description
_	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	36,725	39	>75% Grass cover, Good, HSG A
	84,427	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	60	Weighted Average
	250,155		79.80% Pervious Area
	63,342		20.20% Impervious Area

Type III 24-hr 25 YR STORM Rainfall=5.30" Printed 4/12/2021

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	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	10.7	50	0.1200	0.08		Sheet Flow,
						Woods: Dense underbrush n= 0.800 P2= 3.10"
	3.9	242	0.0430	1.04		Shallow Concentrated Flow,
						Woodland Kv= 5.0 fps
_	14 6	292	Total			

Summary for Subcatchment 101S: 3822 SF LARGER DUPLEX TO DRYWELL IN SAND

Runoff

0.47 cfs @ 12.07 hrs, Volume=

0.034 af, Depth> 4.69"

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=5.30"

_	Α	rea (sf)	CN E	Description						
		3,822	98 L	Unconnected roofs, HSG A						
-		3,822 3,822	•							
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
_	5.0					Direct Entry,				

Summary for Subcatchment 102S: 2336 SF SMALLER DUPLEX TO A DRYWELL IN SAND

Runoff

0.29 cfs @ 12.07 hrs. Volume=

0.021 af, Depth> 4.69"

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=5.30"

A	rea (sf)	36 98 Roofs, HSG A					
	2,336	98 F	Roofs, HSG	A	-		
2,336 100.00% Impervious Area							
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
5.0	(.500)	(1010)	(.5000)	(0.07	Direct Entry,		

Summary for Subcatchment 103S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SAND

Runoff 0.12 cfs @ 12.07 hrs, Volume= 0.009 af, Depth> 4.69"

Type III 24-hr 25 YR STORM Rainfall=5.30"

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_	Α	rea (sf)	CN [Description							
		1,014	98 l	Unconnected roofs, HSG A							
_		1,014	1	100.00% Impervious Area							
		1,014	1	00.00% Uı	nconnected	d					
	Tc	Length	Slope	•	Capacity	•					
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	5.0					Direct Entry,					

ummary for Subcatchment 104S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SANDY LOA

Runoff

0.12 cfs @ 12.07 hrs, Volume=

0.009 af, Depth> 4.69"

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=5.30"

	Α	rea (sf)	CN [Description						
_		1,014	98 L	Unconnected roofs, HSG A 100.00% Impervious Area						
_		1,014	1							
		1,014	1	1U %00.00	nconnected	d				
	Tc	Length	Slope	Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
-	5.0					Direct Entry,				

3ummary for Subcatchment 105S: HALF OF LARGER DUPLEX 1911 SF TO DRYWELL IN SANDY LOAM

Runoff

0.23 cfs @ 12.07 hrs, Volume=

0.017 af, Depth> 4.69"

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=5.30"

	Α	rea (sf)	CN [Description						
_		1,911	98 l	Unconnected pavement, HSG A						
		1,911 1,911			npervious Anconnected					
	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

11.85 cfs @ 12.11 hrs, Volume=

0.854 af, Depth> 1.55"

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	A	rea (sf)	CN [escription					
		30,502	98 V	Water Surface, HSG A					
*		13,200		Roofs & Driveways, HSG A					
*		0			ofs at units				
		29,995		75% Gras	s cover, Go	ood, HSG A			
		36,725			•	ood, HSG A			
		28,736			od, HSĠ A	·			
		14,588		•	od, HSG A				
*		10,940		•	veways, H				
		26,999				ood, HSG B			
		20,859			od, HSG B	·			
*		8,700			veways, H				
		42,423			•	ood, HSG D			
		24,134	77 V	Voods, Go	od, HSG D	·			
		87,801	63 V	Veighted A	verage				
		24,459			vious Area				
		63,342		22.01% Impervious Area					
		,	_						
	Tc	Length	Slope	Velocity	Capacity	Description			
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	•			
	3.0	50	0.1000	0.28		Sheet Flow,			
	0.0		0.1000	0.20		Grass: Short n= 0.150 P2= 3.10"			
	0.5	58	0.0200	2.12		Shallow Concentrated Flow,			
	0.0		4.020			Grassed Waterway Kv= 15.0 fps			
	3.8	212	0.0340	0.92		Shallow Concentrated Flow,			
	0.0	_ · · _	3.00 10	5.52		Woodland Kv= 5.0 fps			
_	7.3	320	Total						

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

Runoff = 74.73 cfs @ 12.58 hrs, Volume= 10.040 af, Depth> 2.06"

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=5.30"

	Area (ac) C	N Des	cription				_
	58.	560 7	70 1/2 a	2 acre lots, 25% imp, HSG B				
43.920 75.00% Pervious Area								
	14.6	340	25.0	00% Imper	/ious Area			
(1	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 Subcatchment 504S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 74.73 cfs @ 12.58 hrs, Volume= 10.040 af, Depth> 2.06"

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	Area	(ac) C	N Des	escription				
	58.	560 7	70 <u>1/2</u> a	/2 acre lots, 25% imp, HSG B				
_	43.920 75.00% Pervious Area							
	14.	640	25.0	0% Imperv	ious 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)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 1.82" for 25 YR STORM event

Inflow = 73.65 cfs @ 12.86 hrs, Volume= 10.580 af

Outflow = 73.65 cfs @ 12.86 hrs, Volume= 10.580 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 13R: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 69.235 ac, 24.30% Impervious, Inflow Depth > 1.85" for 25 YR STORM event

Inflow = 72.87 cfs @ 12.87 hrs, Volume= 10.646 af

Outflow = 72.87 cfs @ 12.87 hrs, Volume= 10.646 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

[79] Warning: Submerged Pond 3P Primary device # 1 by 0.95'

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 1.92" for 25 YR STORM event

Inflow = 73.95 cfs @ 12.75 hrs, Volume= 10.529 af

Outflow = 73.23 cfs @ 12.86 hrs, Volume= 10.469 af, Atten= 1%, Lag= 6.8 min

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

Max. Velocity= 2.43 fps, Min. Travel Time= 3.8 min Avg. Velocity = 1.42 fps, Avg. Travel Time= 6.4 min

Peak Storage= 16,521 cf @ 12.80 hrs

Average Depth at Peak Storage= 1.35', Surface Width= 42.62' 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 > 2.06" for 25 YR STORM event

Inflow = 74.73 cfs @ 12.58 hrs, Volume= 10.040 af

Outflow = 74.46 cfs @ 12.65 hrs, Volume= 10.007 af, Atten= 0%, Lag= 4.0 min

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

Max. Velocity= 4.48 fps, Min. Travel Time= 2.3 min

Avg. Velocity = 2.42 fps, Avg. Travel Time= 4.2 min

Peak Storage= 10,121 cf @ 12.61 hrs

Average Depth at Peak Storage= 1.22', Surface Width= 25.23' 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'



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

Inflow Area = 58.560 ac, 25.00% Impervious, Inflow Depth > 2.06" for 25 YR STORM event

Inflow = 74.73 cfs @ 12.58 hrs, Volume= 10.040 af

Outflow = 74.46 cfs @ 12.65 hrs, Volume= 10.007 af, Atten= 0%, Lag= 4.0 min

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

Max. Velocity = 4.48 fps, Min. Travel Time = 2.3 min Avg. Velocity = 2.42 fps, Avg. Travel Time = 4.2 min

Peak Storage= 10,121 cf @ 12.61 hrs

Average Depth at Peak Storage= 1.22', Surface Width= 25.23'
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

[79] Warning: Submerged Pond 13P Primary device # 1 by 0.95'

Inflow Area = 65.167 ac, 24.70% Impervious, Inflow Depth > 1.95" for 25 YR STORM event

Inflow = 73.07 cfs @ 12.75 hrs, Volume= 10.582 af

Outflow = 72.38 cfs @ 12.87 hrs, Volume= 10.522 af, Atten= 1%, Lag= 6.7 min

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

Max. Velocity= 2.42 fps, Min. Travel Time= 3.8 min Avg. Velocity = 1.43 fps, Avg. Travel Time= 6.4 min

Peak Storage= 16,377 cf @ 12.80 hrs

Average Depth at Peak Storage= 1.35', Surface Width= 42.43' 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'



Summary for Pond 3P: Rice Pond

[62] Hint: Exceeded Reach 503R OUTLET depth by 0.07' @ 13.10 hrs

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 1.97" for 25 YR STORM event

Inflow = 77.87 cfs @ 12.63 hrs, Volume= 10.808 af

Outflow = 73.95 cfs @ 12.75 hrs, Volume= 10.529 af, Atten= 5%, Lag= 7.1 min

Primary = 73.95 cfs @ 12.75 hrs, Volume= 10.529 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 391.18' @ 12.75 hrs Surf.Area= 52,410 sf Storage= 51,423 cf

Plug-Flow detention time= 22.4 min calculated for 10.508 af (97% of inflow)

Center-of-Mass det. time= 13.6 min (849.0 - 835.5)

Type III 24-hr 25 YR STORM Rainfall=5.30"

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Volume	Inve	ert Avail.Sto	rage S	orage D	escription	
#1	389.8	285,0	60 cf C	ustom S	tage Data (Pr	ismatic) Listed below (Recalc)
Elevation (feet)		Surf.Area (sq-ft)	Inc.St (cubic-fe		Cum.Store (cubic-feet)	
389.80		25,072		0	0	
390.00		25,815	5,0)89	5,089	
392.00		70,715		6,530	101,619	
394.00		112,726	183,4	141	285,060	
Device F	Routing	Invert	Outlet [Devices		
#1 F	Primary	389.90'		eg x 2.0 ' l6 (C= 3.		Crested Vee/Trap Weir

Primary OutFlow Max=73.89 cfs @ 12.75 hrs HW=391.18' (Free Discharge) 1=Sharp-Crested Vee/Trap Weir (Weir Controls 73.89 cfs @ 2.86 fps)

Summary for Pond 13P: Rice Pond

[62] Hint: Exceeded Reach 504R OUTLET depth by 0.07' @ 13.10 hrs

Inflow Area = 65.167 ac, 24.70% Impervious, Inflow Depth > 2.00" for 25 YR STORM event Inflow = 76.72 cfs @ 12.64 hrs, Volume= 10.861 af

Outflow = 73.07 cfs @ 12.75 hrs, Volume= 10.582 af, Atten= 5%, Lag= 6.8 min

Primary = 73.07 cfs @ 12.75 hrs. Volume= 10.582 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 391.18' @ 12.75 hrs Surf.Area= 52,264 sf Storage= 51,082 cf

Plug-Flow detention time= 22.4 min calculated for 10.582 af (97% of inflow)

Center-of-Mass det. time= 13.6 min (848.1 - 834.5)

<u>Vol</u> ume	Inver	t Avail.Sto	rage Storage	Description	
#1	389.80)' 274,9	15 cf Custom	Stage Data (Pri	smatic) Listed below (Recalc)
Elevation	5	Surf.Area	Inc.Store	Cum.Store	
(feet)		(sq-ft)	(cubic-feet)	(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		102,581	173,296	274,915	
Device R	outing	Invert	Outlet Devices	5	•
#1 P	rimary	389.90'	171.9 deg x 2. Cv= 2.46 (C=		Crested Vee/Trap Weir

Primary OutFlow Max=72.99 cfs @ 12.75 hrs HW=391.18' (Free Discharge)
1=Sharp-Crested Vee/Trap Weir (Weir Controls 72.99 cfs @ 2.85 fps)

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Summary for Pond 23P: INFILTRATION STRUCTURE OFF 10+60 HILLCREST CIRCLE

Inflow Area =

3.755 ac, 64.91% Impervious, Inflow Depth > 2.67" for 25 YR STORM event

Inflow =

10.49 cfs @ 12.16 hrs, Volume=

0.837 af

Outflow =

0.85 cfs @ 11.57 hrs, Volume=

0.655 af, Atten= 92%, Lag= 0.0 min

Discarded =

0.85 cfs @ 11.57 hrs, Volume=

0.655 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 379.21' @ 14.02 hrs Surf.Area= 4,420 sf Storage= 17,185 cf

Plug-Flow detention time= 177.4 min calculated for 0.653 af (78% of inflow)

Center-of-Mass det. time= 122.0 min (917.7 - 795.6)

Volume	Invert	Avail.Storage	Storage Description
#1	374.50'	5,697 cf	85'X52' OUTSIDE OF STONE (Prismatic) Listed below (Recalc)
		·	37,570 cf Overall - 23,328 cf Embedded = 14,242 cf x 40.0% Voids
#2	375.00'	21,951 cf	StormTank 25 Series 72" x 864 Inside #1
			Inside= 18.0"W x 72.0"H => 8.73 sf x 3.00'L = 26.2 cf
			Outside= 18.0"W x 72.0"H => 9.00 sf x 3.00'L = 27.0 cf
			864 Chambers in 32 Rows
			23,328 cf Overall x 97.0% Voids

27,648 cf Total Available Storage

Elevation	Surf.Area	Inc.Store	Cum.Store
(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)
374.50	4,420	0	0
383.00	4,420	37,570	37,570

Device Routing	
----------------	--

Invert Outlet Devices

#1 Discarded

374.50'

8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.85 cfs @ 11.57 hrs HW=374.59' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.85 cfs)

Summary for Pond 101P: INF-1 STRUCTURE BESIDE UNITS 1-2 64 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area =

0.088 ac,100.00% Impervious, Inflow Depth > 4.69" for 25 YR STORM event

Inflow =

0.47 cfs @ 12.07 hrs, Volume=

0.034 af

Outflow =

0.07 cfs @ 11.63 hrs, Volume=

0.034 af, Atten= 85%, Lag= 0.0 min

Discarded =

0.07 cfs @ 11.63 hrs, Volume=

0.034 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 396.72' @ 12.55 hrs Surf.Area= 364 sf Storage= 432 cf

Plug-Flow detention time= 36.9 min calculated for 0.034 af (100% of inflow)

Center-of-Mass det. time= 36.5 min (770.6 - 734.0)

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Volume	Invert	Avail.Storag	re Storage D	Description	
#1	395.00'	337		Stage Data (Prismatic) Listed below (Recalc)	
π ι	333.00	337		Overall - 432 cf Embedded = 842 cf x 40.0% Voids	
#2	395.50'	395	•	nk 25 Series 18" x 64 Inside #1	
			Inside= 18	8.0"W x 18.0 "H => 2.15 sf x 3.00 'L = 6.4 cf	
			Outside= 1	18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf	
			64 Chamb	bers in 8 Rows	
			432 cf Ove	verall x 96.0% Voids	
		732	cf Total Avai	ailable Storage	
		_			
Elevatio		.Area	Inc.Store	Cum.Store	
(feet	t) (sq-ft) (c	ubic-feet)	(cubic-feet)	
395.0	0	364	0	0	
398.5	0	364	1,274	1,274	
_					
Device	Routing	Invert C	Outlet Devices	3	
#1	Discarded	395.00' 8	.270 in/hr Exfi	filtration over Surface area	

Discarded OutFlow Max=0.07 cfs @ 11.63 hrs HW=395.04' (Free Discharge) -1=Exfiltration (Exfiltration Controls 0.07 cfs)

Summary for Pond 102P: INF-2 STRUTURE BEHIND UNITS 7-8 36 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.054 ac,100.00% Impervious, Inflow Depth > 4.69" for 25 YR STORM event

Inflow 0.29 cfs @ 12.07 hrs, Volume= 0.021 af

0.021 af, Atten= 85%, Lag= 0.0 min 0.04 cfs @ 11.63 hrs, Volume= Outflow

0.04 cfs @ 11.63 hrs, Volume= 0.021 af Discarded =

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 397.79' @ 12.55 hrs Surf.Area= 220 sf Storage= 265 cf

Plug-Flow detention time= 37.7 min calculated for 0.021 af (100% of inflow)

Center-of-Mass det. time= 37.4 min (771.4 - 734.0)

Volume	Invert	Avail.Storage	Storage Description
#1	396.00'	211 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			770 cf Overall - 243 cf Embedded = 527 cf x 40.0% Voids
#2	396.50'	222 cf	StormTank 25 Series 18" x 36 Inside #1
			Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf
			Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf
			36 Chambers in 6 Rows
			243 cf Overall x 96.0% Voids
		/33 cf	Total Available Storage

433 cf | Lotal Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
396.00	220	0	0
399.50	220	770	770

Type III 24-hr 25 YR STORM Rainfall=5.30"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	396.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.04 cfs @ 11.63 hrs HW=396.04' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Summary for Pond 103P: INF-3 STRUCTURE BEHIND UNITS 9 & 10 -- 16 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 4.69" for 25 YR STORM event

Inflow = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af

Outflow = 0.02 cfs @ 11.66 hrs, Volume= 0.009 af, Atten= 83%, Lag= 0.0 min

Discarded = 0.02 cfs @ 11.66 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 375.74' @ 12.52 hrs Surf.Area= 112 sf Storage= 105 cf

Plug-Flow detention time= 27.5 min calculated for 0.009 af (100% of inflow)

Center-of-Mass det. time= 27.2 min (761.2 - 734.0)

<u>Volume</u>	Invert	Avail.Storage	Storage Description
#1	374.00'	114 cf	Custom Stage Data (Prismatic) Listed below
			392 cf Overall - 108 cf Embedded = 284 cf x 40.0% Voids
#2	375.00'	99 cf	StormTank 25 Series 18" x 16 Inside #1
			Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf
			Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf
			16 Chambers in 4 Rows
			108 cf Overall x 96.0% Voids

212 cf Total Available Storage

Elevation (feet)	Surf.Area (sɑ-ft)	Inc.Store (cubic-feet)	Cum.Store
(leet)	(SY-II)	(Cubic-leet)	(cubic-feet)
374.00	112	0	0
377.50	112	392	392

<u>Device</u>	Routing	Invert	Outlet Devices
#1	Discarded	374.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.02 cfs @ 11.66 hrs HW=374.04' (Free Discharge)

T-1=Exfiltration (Exfiltration Controls 0.02 cfs)

Summary for Pond 104P: INFILTRATION STRUCTURE BEHIND 25-26 AND 27-28 -- 32 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 4.69" for 25 YR STORM event

Inflow = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af

Outflow = 0.00 cfs @ 9.59 hrs, Volume= 0.005 af, Atten= 96%, Lag= 0.0 min

Discarded = 0.00 cfs @ 9.59 hrs. Volume = 0.005 af

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Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 379.81' @ 14.90 hrs Surf.Area= 208 sf Storage= 211 cf

Plug-Flow detention time= 160.8 min calculated for 0.005 af (57% of inflow)

Center-of-Mass det. time= 75.9 min (809.9 - 734.0)

Volume	Invert	Avail.Stor	age S	Storage Description					
#1	378.00'	20	5 cf C	Custom Stage Data (Prismatic) Listed below					
			72	28 cf Overall - 216 cf Embedded = 512 cf \times 40.0% Voids					
#2	379.00'	19		StormTank 25 Series 18" x 32 Inside #1					
				nside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf					
			_	Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf					
			32	2 Chambers in 4 Rows					
			2	16 cf Overall x 96.0% Voids					
	403 cf Total Available Storage								
Elevatio	n Sur	f.Area	Inc.St	tore Cum.Store					
(fee	t)	(sq-ft)	(cubic-fe	feet) <u>(cubic-feet)</u>					
378.0	0	208		0 0					
381.5	0	208		728 728					
Device	Routing	Invert	Outlet I	Devices					
#1	Discarded	378.00'	1.020 i	in/hr Exfiltration over Surface area	•				

Discarded OutFlow Max=0.00 cfs @ 9.59 hrs HW=378.04' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.00 cfs)

Summary for Pond 105P: INFILTRATION STRUCTURE BEHIND 21-22 & 23-24 -- 54 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth > 4.69" for 25 YR STORM event

Inflow = 0.23 cfs @ 12.07 hrs, Volume= 0.017 af

Outflow = 0.01 cfs @ 8.96 hrs, Volume= 0.008 af, Atten= 97%, Lag= 0.0 min

Discarded = 0.01 cfs @ 8.96 hrs, Volume = 0.008 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 380.97' @ 15.54 hrs Surf.Area= 319 sf Storage= 435 cf

Plug-Flow detention time= 162.6 min calculated for 0.008 af (48% of inflow)

Center-of-Mass det. time= 63.3 min (797.3 - 734.0)

Volume	Inve <u>rt</u>	Avail.Storage	Storage Description
#1	379.00'	301 cf	Custom Stage Data (Prismatic) Listed below
			1,117 cf Overall - 365 cf Embedded = 752 cf x 40.0% Voids
#2	379.50'	334 cf	StormTank 25 Series 18" x 54 Inside #1
			Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf
			Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf
			54 Chambers in 6 Rows
			365 cf Overall x 96.0% Voids
		CO4 -f	Total Assilable Clauses

634 cf Total Available Storage

Type III 24-hr 25 YR STORM Rainfall=5.30"

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Elevation	Surf.Area	Inc.Store	Cum.Store
(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)
379.00	319	0	0
382.50	319	1 ,117	1,117

Device	Routing	Invert	Outlet Devices	
#1	Discarded	379.00	1.020 in/hr Exfiltration over Surface area	

Discarded OutFlow Max=0.01 cfs @ 8.96 hrs HW=379.04' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

100 YEAR STORM

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Summary for Subcatchment 1S: PREDEV FLOW TO ABUTTER GINGRAS

Runoff

=

0.05 cfs @ 12.38 hrs, Volume=

0.010 af, Depth> 0.32"

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=6.60"

_	<u> </u>	rea (sf)	CN	Description			
_		6,858	30	Woods, Go	od, HSG A		
_		10,008	39	>75% Gras	s cover, Go	ood, HSG A	
		16,866	35				
		16,866		100.00% Pe	ervious Are	a	
	Tc (min)	Length (feet)	Slope (ft/ft	-	Capacity (cfs)	Description	
	4.4	50	0.1000	0.19		Sheet Flow,	
	0.9	100	0.1400	0 1.87		Grass: Dense n= 0.240 P2= 3.10" Shallow Concentrated Flow, Woodland Kv= 5.0 fps	
_	5.3	150	Total	·			

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

Runoff

=

0.30 cfs @ 12.47 hrs, Volume=

0.094 af, Depth> 0.22"

_	Aı	rea (sf)	CN D	escription		
	1	79,428	30 V	Voods, Go		
		35,859			,	ood, HSG A
		3,896	<u>98</u> P	aved park	ing, HSG A	
	2	19,183		Veighted A		
	2	15,287	-		vious Area	
		3,896	1	.78% Impe	ervious Area	a
	.	1 41-	Olama.	\	O	Description
	Tc	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	4.8	50	0.0800	0.17		Sheet Flow,
						Grass: Dense n= 0.240 P2= 3.10"
	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
_	6.4	338	Total			

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

Runoff

1.48 cfs @ 12.57 hrs, Volume=

0.245 af, Depth> 0.71"

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=6.60"

Aı	ea (sf)	CN E	Description		
1.	48,793	30 V	Voods, Go	od, HSG A	
	30,807	98 V	Vater Surfa	ace, HSG A	
1	79,600		Veighted A		·
1	48,793	8	2.85% Per	vious Area	
	30,807	1	7.15% lmp	pervious Are	ea
т.	1	Clana	Volonity	Congoity	Description
Tc	Length	Slope	Velocity (ft/sec)	Capacity (cfs)	Description
<u>(min)</u>	(feet)	(ft/ft)		(015)	
25.2	50	0.0140	0.03		Sheet Flow,
					Woods: Dense underbrush n= 0.800 P2= 3.10"
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
29.3	636	Total			

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

Runoff

0.01 cfs @ 14.89 hrs, Volume=

0.004 af, Depth> 0.11"

Α	rea (sf)	CN D	escription		
	21,387	30_V	Voods, Go	od, HSG A	·
21,387		100.00% Pervious Area			а
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	50	0.1200	0.08		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.10"
0.4	57	0.1800	2.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
11.1	107	Total			

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Summary for Subcatchment 5S: PREDEV FLOW TO RICE ROAD

Runoff

0.55 cfs @ 12.21 hrs, Volume=

0.074 af, Depth> 0.66"

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=6.60"

	Α	rea (sf)	CN [Description							
		22,350	30 V	Woods, Good, HSG A							
		30,632	39 >	75% Gras	s cover, Go	ood, HSG A					
*		5,307	98 E	Existing roc	f and drive	way					
		58,289	41 \	Veighted A	verage						
	52,982 90.90% Pervious Area										
		5,307	Ş	0.10% Impe	ervious Are	a					
				-							
	Tc	Length	Slope	Velocity	Capacity	Description					
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	5.4	50	0.0600	0.16		Sheet Flow,					
						Grass: Dense n= 0.240 P2= 3.10"					
	3.7	212	0.0370	0.96		Shallow Concentrated Flow,					
						Woodland Kv= 5.0 fps					
	9.1	262	Total								

Summary for Subcatchment 11S: POSTDEV FLOW TO ABUTTER GINGRAS

Runoff

0.07 cfs @ 12.37 hrs, Volume=

0.013 af, Depth> 0.42"

_	Α	rea (sf)	CN	Description				
12,009 39 >75% Grass cover, Good, HSG A								
		3,537	30	Woods, Good, HSG A Weighted Average				
		15,546	37					
		15,546		100.00% Pe	ervious Are	ea		
	Tc (min)	Length (feet)	Slope (ft/ft	•	Capacity (cfs)	Description		
-	7.5	50	0.0100	0.11		Sheet Flow,		
	0.6	140	0.0700	3.97		Grass: Short n= 0.150 P2= 3.10" Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps		
-	8.1	190	Total					

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

Runoff

=

0.22 cfs @ 12.50 hrs, Volume=

0.046 af, Depth> 0.37"

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=6.60"

	A	rea (sf)	CN I	Description			
17,500 30 Woods, Good, HSG A							
		1,160	30 \				
		46,614	ood, HSG A				
		65,274	36	Veighted A	verage		
		65,274	•	100.00% Pe	ervious Are	a	
	Тс	Length	Slope	Velocity	Capacity	Description	
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)		
	14.1	50	0.0600	0.06		Sheet Flow,	
						Woods: Dense underbrush n= 0.800 P2= 3.10"	
	0.9	109	0.1500	1.94		Shallow Concentrated Flow,	
						Woodland Kv= 5.0 fps	
	15.0	159	Total				

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

Runoff

=

1.67 cfs @ 12.55 hrs, Volume=

0.264 af, Depth> 0.78"

	Aı	rea (sf)	CN D	escription		
*		1,014	98 B	ack of unit	s7&8	
		30,807	98 V	Vater Surfa	ace, HSG A	1
7,684 39 >75% Grass cover, God						
_	1	37,688	30 V	Voods, Go	od, HSG A	
	1	77,193		Veighted A		
	145,372 82.04% Pervious Area					
31,821 17.96% lmp					ervious Ar	ea
	_		01	3.7.1 24	O	Description
	Tc	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)_	
	25.2	50	0.0140	0.03		Sheet Flow,
						Woods: Dense underbrush n= 0.800 P2= 3.10"
	2.3	186	0.0710	1.33		Shallow Concentrated Flow,
						Woodland Kv= 5.0 fps
	1.8	400	0.0090	3.75	59.94	
						Area= 16.0 sf Perim= 14.6' r= 1.10'
						n= 0.040 Earth, cobble bottom, clean sides
	29.3	636	Total			

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

Runoff

=

0.08 cfs @ 12.36 hrs, Volume=

0.016 af, Depth> 0.32"

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=6.60"

 Α	rea (sf)	CN [Description					
10,400 30 Woods, Good, HSG A								
 15,186 39 >75% Grass cover, Good, HSG A								
	25,586	35 \	Neighted A	verage				
25,586 100.00% Pervious					a			
-		01	\	0:	Description			
Tc	Length	Slope		Capacity	Description			
 (min)	(feet)_	(ft/ft)	(ft/sec)	(cfs)_				
3.0	50	0.1000	0.28		Sheet Flow,			
					Grass: Short n= 0.150 P2= 3.10"			
0.5	58	0.0200	2.12		Shallow Concentrated Flow,			
					Grassed Waterway Kv= 15.0 fps			
0.4	44	0.1500	1.94		Shallow Concentrated Flow,			
					Woodland Kv= 5.0 fps			
3.9	152	Total						

Summary for Subcatchment 15S: POSTDEV FLOW TO RICE ROAD

Runoff

0.36 cfs @ 12.21 hrs, Volume=

0.045 af, Depth> 0.72"

_	Α	rea (sf)	CN I	Description						
		2,256	98							
		5,534	30 \	30 Woods, Good, HSG A 39 >75% Grass cover, Good, HSG A						
		25,100	39							
32,890 42 Weighted Average										
		30,634	9	3.14% Per	vious Area					
	2,256 6.86% Impervious Area					a				
				-						
	Тс	Length	Slope	Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
_	8.3	50	0.0200	0.10		Sheet Flow,				
						Grass: Dense n= 0.240 P2= 3.10"				
	1.9	119	0.0050	1.06		Shallow Concentrated Flow,				
						Grassed Waterway Kv= 15.0 fps				
	10.2	169	Total							

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Summary for Subcatchment 22S: STREET DRAINAGE TO THE INFILTRATION STRUCTURE

Runoff = 14.61 cfs @ 12.16 hrs, Volume=

1.172 af, Depth> 3.74"

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=6.60"

	A	rea (sf)	CN D	escription							
_		57,069	39 >	75% Gras	ood, HSG A						
*	1	06,172	98 D	B Drive, driveways & roofs HSG A							
	324 39 >75% Grass cover, Good, HSG A										
_	1	63,565	V	Weighted Average							
		57,393	3	5.09% Per	vious Area						
106,172 64.91% Impervious A						ea					
	Tc	Length	Slope	Velocity	Capacity	Description					
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	11.0	50	0.0100	0.08		Sheet Flow,					
						Grass: Dense n= 0.240 P2= 3.10"					
	0.6	53	0.0100	1.50		Shallow Concentrated Flow,					
						Grassed Waterway Kv= 15.0 fps					
_	11.6	103	Total								

Summary for Subcatchment 33S: PREDEV FLOW TO POND

Runoff = 14.31 cfs @ 12.21 hrs, Volume=

1.271 af, Depth> 2.12"

	Area (sf)	CN	Description
	30,502	98	Water Surface, HSG A
*	13,200	98	Roofs & Driveways, HSG A
	36,725	39	>75% Grass cover, Good, HSG A
	84,427	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	60	Weighted Average
	250,155		79.80% Pervious Area
	63,342		20.20% Impervious Area

Type III 24-hr 100YR STORM Rainfall=6.60"

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	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	10.7	50	0.1200	0.08		Sheet Flow,
						Woods: Dense underbrush n= 0.800 P2= 3.10"
	3.9	242	0.0430	1.04		Shallow Concentrated Flow,
						Woodland Kv= 5.0 fps
	14.6	292	Total			

Summary for Subcatchment 101S: 3822 SF LARGER DUPLEX TO DRYWELL IN SAND

Runoff

0.58 cfs @ 12.07 hrs, Volume=

0.043 af. Depth> 5.87"

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=6.60"

	Α	rea (sf)	CN I	Description		
		3,822	98 l	<u>Jnconnecte</u>	ed roofs, H	SG A
		3,822	•	100.00% Im	Area	
		3,822	•	100.00% Ui	nconnected	d
	Тс	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	5.0					Direct Entry.

Summary for Subcatchment 102S: 2336 SF SMALLER DUPLEX TO A DRYWELL IN SAND

Runoff

0.36 cfs @ 12.07 hrs, Volume=

0.026 af, Depth> 5.87"

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=6.60"

_	A	rea (sf) _	CN I	Description			
_		2,336	98 I	Roofs, HSC			
		2,336	,	100.00% Im	Area		
	Tc (min)	Length (feet)	Slope (ft/ft)	-	Capacity (cfs)	Description	
_	5.0					Direct Entry,	

Summary for Subcatchment 103S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SAND

Runoff

0.15 cfs @ 12.07 hrs, Volume=

0.011 af, Depth> 5.87"

Type III 24-hr 100YR STORM Rainfall=6.60"

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A	rea (sf)	CN I	Description							
	1,014	98 l	Jn <u>connecte</u>	ed roofs, H	ISG A					
'	1,014	•	100.00% Impervious Area							
	1,014	•	100.00% Uı	nconnected	d					
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description					
5.0	· · · · · · · · · · · · · · · · · · ·			, ,	Direct Entry.					

ummary for Subcatchment 104S: HALF OF SMALLER DUPLEX 1014 S.F. TO DRYWELL IN SANDY LOA

Runoff

0.15 cfs @ 12.07 hrs, Volume=

0.011 af, Depth> 5.87"

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=6.60"

Aı	rea (sf)	CN I	Description							
	1,014	98l	Jnconnecte	SG A						
	1,014		100.00% Impervious Area							
	1,014	1	100.00% Uı	nconnected	d					
Тс	Length	Slope	•	Capacity	·					
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
5.0					Direct Entry,					

3ummary for Subcatchment 105S: HALF OF LARGER DUPLEX 1911 SF TO DRYWELL IN SANDY LOAM

Runoff

0.29 cfs @ 12.07 hrs, Volume=

0.021 af, Depth> 5.87"

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=6.60"

A	rea (sf)	CN I	Description								
	1,911	98 (Jnconnecte	nconnected pavement, HSG A							
	1,911 1,911		100.00% Impervious Area 100.00% Unconnected								
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description						
5.0				<u> </u>	Direct Entry,						

Summary for Subcatchment 233S: POSTDEV FLOW TO POND

Runoff

18.77 cfs @ 12.11 hrs, Volume=

1.318 af, Depth> 2.39"

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	Α	rea (sf)	CN D	escription)	ı					
		30,502	98 V	Vater Surfa	ace, HSG A	4				
*		13,200	98 F	coofs & Driveways, HSG A						
*		0	. 98 E	Backs of ro	ofs at units	s 11-16				
		29,995	39 >	75% Gras	s cover, Go	ood, HSG A				
		36,725				ood, HSG A				
		28,736	30 V	Voods, Go	od, HSG A					
		14,588	30 V	Voods, Go	od, HSG A	·				
*		10,940	98 F	Roofs & Dri	iveways, H	SG B				
		26,999	61 >	75% Gras	s cover, Go	ood, HSG B				
		20,859	55 V	Voods, Go	od, HSG B					
*		8,700	98 F	Roofs & Dri	iveways, H	SG D				
		42,423	80 >	·75% Gras	s cover, Go	ood, HSG D				
		24,134	77 V	Voods, Go	od, HSG D					
	2	87,801	63 V	Veighted A	verage					
	2	24,459	7	7.99% Pei	rvious Area	1				
		63,342	2	2.01% Imp	pervious Ar	rea				
	Tc	Length	Slope	Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	3.0	50	0.1000	0.28		Sheet Flow,				
						Grass: Short n= 0.150 P2= 3.10"				
	0.5	58	0.0200	2.12		Shallow Concentrated Flow,				
						Grassed Waterway Kv= 15.0 fps				
	3.8	212	0.0340	0.92		Shallow Concentrated Flow,				
						Woodland Kv= 5.0 fps				
	7.3	320	Total							

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

Runoff = 110.03 cfs @ 12.57 hrs, Volume= 14.710 af, Depth> 3.01"

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 100YR STORM Rainfall=6.60"

	Area	(ac) C	N Desc	cription	ů.						
_	58.	560 7	'0 1/2 ε	/2 acre lots, 25% imp, HSG B							
43.920 75.00% Pervious Area											
	14.640		25.0	0% Imper	ious 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 Subcatchment 504S: OFFSITE AREA DRAINING TO CULVERT AT S. MAIN ST

Runoff = 110.03 cfs @ 12.57 hrs, Volume= 14.710 af, Depth> 3.01"

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	Area	(ac) C	N Des	cription		escription						
	58.	560 7	'0 1/2 a	/2 acre lots, 25% imp, HSG B								
_	43.	920	75.0	0% Pervio	us Area							
	14.640		25.0	0% Imperv	ious Area							
	 -		01		0 :	B : (
	Tc		Slope	Velocity	Capacity	Description						
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)							
	40.4	3,090	0.0670	1.27		Lag/CN Method,						

Summary for Reach 3R: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 69.880 ac, 24.04% Impervious, Inflow Depth > 2.71" for 100YR STORM event

Inflow = 111.31 cfs @ 12.81 hrs, Volume= 15.794 af

Outflow = 111.31 cfs @ 12.81 hrs, Volume= 15.794 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 13R: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 69.235 ac, 24.30% Impervious, Inflow Depth > 2.75" for 100YR STORM event

Inflow = 109.67 cfs @ 12.82 hrs, Volume= 15.861 af

Outflow = 109.67 cfs @ 12.82 hrs, Volume= 15.861 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

[79] Warning: Submerged Pond 3P Primary device # 1 by 1.19'

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 2.85" for 100YR STORM event

Inflow = 111.01 cfs @ 12.71 hrs, Volume= 15.624 af

Outflow = 110.14 cfs @ 12.81 hrs, Volume= 15.549 af, Atten= 1%, Lag= 6.1 min

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

Max. Velocity= 2.69 fps, Min. Travel Time= 3.4 min Avg. Velocity = 1.52 fps, Avg. Travel Time= 6.0 min

Peak Storage= 22.435 cf @ 12.75 hrs

Average Depth at Peak Storage= 1.59', Surface Width= 49.65' 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'

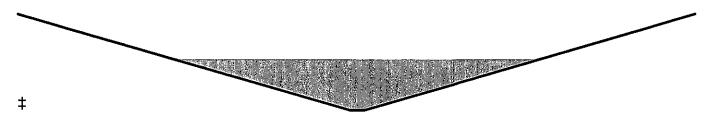
Length= 547.0' Slope= 0.0068 '/'

Inlet Invert= 389.50', Outlet Invert= 385.80'

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

58.560 ac, 25.00% Impervious, Inflow Depth > 3.01" for 100YR STORM event Inflow Area =

Inflow 110.03 cfs @ 12.57 hrs, Volume= 14.710 af

Outflow 109.71 cfs @ 12.63 hrs, Volume= 14.669 af, Atten= 0%, Lag= 3.8 min

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

Max. Velocity= 4.93 fps. Min. Travel Time= 2.1 min Avg. Velocity = 2.59 fps, Avg. Travel Time= 3.9 min

Peak Storage= 13,527 cf @ 12.60 hrs

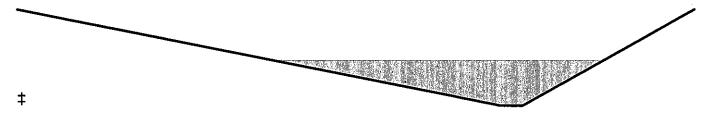
Average Depth at Peak Storage= 1.43', Surface Width= 29.14' Bank-Full Depth= 3.00' Flow Area= 91.5 sf, Capacity= 723.88 cfs

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'



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

Inflow Area = 58.560 ac. 25.00% Impervious, Inflow Depth > 3.01" for 100YR STORM event

Inflow 110.03 cfs @ 12.57 hrs, Volume= 14,710 af

109.71 cfs @ 12.63 hrs, Volume= Outflow 14.669 af, Atten= 0%, Lag= 3.8 min

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

Max. Velocity= 4.93 fps, Min. Travel Time= 2.1 min Avg. Velocity = 2.59 fps, Avg. Travel Time= 3.9 min

Peak Storage= 13,527 cf @ 12.60 hrs

Average Depth at Peak Storage= 1.43', Surface Width= 29.14' 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' Lenath= 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

[79] Warning: Submerged Pond 13P Primary device # 1 by 1.18'

Inflow Area = 65.167 ac, 24.70% Impervious, Inflow Depth > 2.89" for 100YR STORM event

Inflow = 109.25 cfs @ 12.72 hrs, Volume= 15.672 af

Outflow = 108.41 cfs @ 12.82 hrs, Volume= 15.597 af, Atten= 1%, Lag= 6.1 min

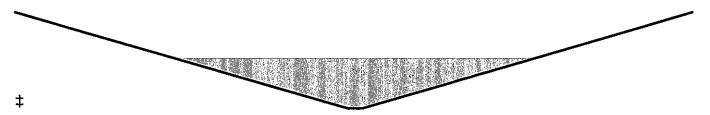
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

Max. Velocity= 2.68 fps, Min. Travel Time= 3.4 min Avg. Velocity = 1.52 fps, Avg. Travel Time= 6.0 min

Peak Storage= 22,169 cf @ 12.76 hrs Average Depth at Peak Storage= 1.58', Surface Width= 49.35' 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'



Summary for Pond 3P: Rice Pond

[62] Hint: Exceeded Reach 503R OUTLET depth by 0.10' @ 13.01 hrs

Inflow Area = 65.757 ac, 24.48% Impervious, Inflow Depth > 2.91" for 100YR STORM event

Inflow = 115.28 cfs @ 12.61 hrs, Volume= 15.940 af

Outflow = 111.01 cfs @ 12.71 hrs, Volume= 15.624 af, Atten= 4%, Lag= 6.2 min

Primary = 111.01 cfs @ 12.71 hrs, Volume= 15.624 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 391.42' @ 12.71 hrs Surf.Area= 57,757 sf Storage= 64,542 cf

Plug-Flow detention time= 19.0 min calculated for 15.624 af (98% of inflow)

Center-of-Mass det. time= 12.0 min (838.7 - 826.7)

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Volume	Invert	: Avail.Sto	rage	Storage De	escription			
#1	389.80	285,06	60 cf	f Custom Stage Data (Prismatic) Listed below (Recalc)				
Elevation (feet)	s	urf.Area (sq-ft)	Inc. (cubic	Store -feet)	Cum.Store (cubic-feet)			
389.80		25,072	•	0	0			
390.00		25,815	;	5,089	5,089			
392.00		70,715	90	6,530	101,619			
394.00		112,726	18	3,441	285,060			
Device R	outing	Invert	Outle	t Devices				
#1 P	rimary	389.90'		deg x 2.0 ° 2.46 (C= 3.		Crested Vee/Trap Weir		

Primary OutFlow Max=110.98 cfs @ 12.71 hrs HW=391.42' (Free Discharge) 1=Sharp-Crested Vee/Trap Weir (Weir Controls 110.98 cfs @ 3.10 fps)

Summary for Pond 13P: Rice Pond

[62] Hint: Exceeded Reach 504R OUTLET depth by 0.10' @ 13.04 hrs

65.167 ac, 24.70% Impervious, Inflow Depth > 2.94" for 100YR STORM event Inflow Area =

113.18 cfs @ 12.62 hrs, Volume= Inflow 15.987 af

Outflow 109.25 cfs @ 12.72 hrs, Volume= 15.672 af, Atten= 3%, Lag= 6.0 min

109.25 cfs @ 12.72 hrs, Volume= Primary 15.672 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 391.41' @ 12.72 hrs Surf.Area= 57,529 sf Storage= 63,958 cf

Plug-Flow detention time= 19.0 min calculated for 15.672 af (98% of inflow)

Center-of-Mass det. time= 12.0 min (837.8 - 825.8)

Center-or-wass det. time= 12.0 mm (037.0 - 023.0)						
Volume	Inve	ert Avail.Sto	rage	Storage D	escription	
#1	389.8	0' 274,9	15 cf	Custom S	tage Data (Pr	ismatic) Listed below (Recalc)
Elevatior (feet)		Surf.Area (sq-ft)	Inc. (cubic	Store -feet)	Cum.Store (cubic-feet)	
389.80)	25,072		0	0	
390.00)	25,815	:	5,089	5,089	
392.00)	70,715	9	6,530	101,619	
394.00)	102,581	17	3,296	274,915	
Device	Routing	Invert	Outle	t Devices		
#1	Primary	389.90'		deg x 2.0 2.46 (C= 3		Crested Vee/Trap Weir

Primary OutFlow Max=109.14 cfs @ 12.72 hrs HW=391.41' (Free Discharge)
—1=Sharp-Crested Vee/Trap Weir (Weir Controls 109.14 cfs @ 3.09 fps)

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Summary for Pond 23P: INFILTRATION STRUCTURE OFF 10+60 HILLCREST CIRCLE

Inflow Area =

3.755 ac, 64.91% Impervious, Inflow Depth > 3.74" for 100YR STORM event

Inflow

14.61 cfs @ 12.16 hrs, Volume=

1.172 af 0.701 af, Atten= 94%, Lag= 0.0 min

Outflow

0.85 cfs @ 11.24 hrs, Volume=

Discarded =

0.85 cfs @ 11.24 hrs, Volume=

0.701 af

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

Peak Elev= 382.84' @ 15.02 hrs Surf.Area= 4,420 sf Storage= 27,363 cf

Plug-Flow detention time= 183.8 min calculated for 0.699 af (60% of inflow)

Center-of-Mass det. time= 109.4 min (897.3 - 787.9)

Volume	Invert	Avail.Storage	Storage Description
#1	374.50'	5,697 cf	85'X52' OUTSIDE OF STONE (Prismatic) Listed below (Recalc)
			37,570 cf Overall - 23,328 cf Embedded = 14,242 cf x 40.0% Voids
#2	375.00'	21,951 cf	StormTank 25 Series 72" x 864 Inside #1
			Inside= 18.0"W x 72.0"H => 8.73 sf x 3.00'L = 26.2 cf
			Outside= 18.0"W x 72.0"H => 9.00 sf x 3.00'L = 27.0 cf
			864 Chambers in 32 Rows
			23,328 cf Overall x 97.0% Voids

27,648 cf Total Available Storage

Elevation	Surf.Area	Inc.Store	Cum.Store
(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)
374.50	4,420	0	0
383.00	4,420	37,570	37,570

Device	Routi	ng	Invert	<u>C</u>	otlet [Dev	ices	3
			 	_				

#1 Discarded

374.50' 8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.85 cfs @ 11.24 hrs HW=374.59' (Free Discharge) -1=Exfiltration (Exfiltration Controls 0.85 cfs)

Summary for Pond 101P: INF-1 STRUCTURE BESIDE UNITS 1-2 64 MODULES

[82] Warning: Early inflow requires earlier time span

0.088 ac,100.00% Impervious, Inflow Depth > 5.87" for 100YR STORM event Inflow Area =

0.58 cfs @ 12.07 hrs, Volume= 0.043 af Inflow

0.07 cfs @ 11.57 hrs, Volume= 0.043 af, Atten= 88%, Lag= 0.0 min Outflow =

0.07 cfs @ 11.57 hrs, Volume= 0.043 af Discarded =

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 397.58' @ 12.62 hrs Surf.Area= 364 sf Storage= 599 cf

Plug-Flow detention time= 55.7 min calculated for 0.043 af (100% of inflow)

Center-of-Mass det. time= 55.4 min (788.5 - 733.0)

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Volume	Invert	Avail.Stor	age Storage	e Description				
#1	395.00'	33		Custom Stage Data (Prismatic) Listed below (Recalc) 1,274 cf Overall - 432 cf Embedded = 842 cf x 40.0% Voids				
#2	395.50'	39	Inside= Outside 64 Char	·				
		73	2 cf Total Av	vailable Storage				
Elevatio		f.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)				
395.0	0	364	0	0				
398.5	0	364	1,274	1,274				
Device	Routing	Invert	Outlet Device	es				
#1	Discarded	395.00'	8.270 in/hr E	Exfiltration over Surface area				

Discarded OutFlow Max=0.07 cfs @ 11.57 hrs HW=395.04' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.07 cfs)

Summary for Pond 102P: INF-2 STRUTURE BEHIND UNITS 7-8 36 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.054 ac,100.00% Impervious, Inflow Depth > 5.87" for 100YR STORM event

Inflow = 0.36 cfs @ 12.07 hrs, Volume= 0.026 af

Outflow = 0.04 cfs @ 11.57 hrs, Volume= 0.026 af, Atten= 88%, Lag= 0.0 min

Discarded = 0.04 cfs @ 11.57 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 398.76' @ 12.62 hrs Surf.Area= 220 sf Storage= 368 cf

Plug-Flow detention time= 57.0 min calculated for 0.026 af (100% of inflow)

Center-of-Mass det. time= 56.6 min (789.6 - 733.0)

Volume	Invert	Avail.Storage	Storage Description
#1	396.00'	211 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
			770 cf Overall - 243 cf Embedded = 527 cf x 40.0% Voids
#2	396.50'	222 cf	StormTank 25 Series 18" x 36 Inside #1
			Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf
			Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf
			36 Chambers in 6 Rows
			243 cf Overall x 96.0% Voids
·		400 5	T + 1 A 11 11 Ct

433 cf Total Available Storage

Elevation	Surf.Area	Inc.Store	Cum.Store (cubic-feet)
(feet)	(sq-ft)	(cubic-feet)	
396.00	220	0	0
399.50	220	770	770

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Device	Routing	Invert	Outlet Devices
#1	Discarded	396.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.04 cfs @ 11.57 hrs HW=396.04' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.04 cfs)

Summary for Pond 103P: INF-3 STRUCTURE BEHIND UNITS 9 & 10 -- 16 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 5.87" for 100YR STORM event

Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.011 af

Outflow = 0.02 cfs @ 11.63 hrs, Volume= 0.011 af, Atten= 86%, Lag= 0.0 min

Discarded = 0.02 cfs @ 11.63 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 376.26' @ 12.56 hrs Surf.Area= 112 sf Storage= 148 cf

Plug-Flow detention time= 42.3 min calculated for 0.011 af (100% of inflow)

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Center-of-Mass det. time= 42.0 min (775.0 - 733.0)

Volume	Invert	Avail.Storage	Storage Description
#1	374.00'	114 cf	Custom Stage Data (Prismatic) Listed below
			392 cf Overall - 108 cf Embedded = 284 cf x 40.0% Voids
#2	375.00'	99 cf	StormTank 25 Series 18" x 16 Inside #1
			Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf
			Outside= 18.0"W x 18.0"H => 2.25 sf x 3.00'L = 6.8 cf
			16 Chambers in 4 Rows
			108 cf Overall x 96.0% Voids
		242 5	= 4 1 A 3 1 1 O

212 cf Total Available Storage

Elevation	Surf.Area	Inc.Store	Cum.Store
(feet)	(sq- <u>ft)</u>	(cubic-feet)	(cubic-feet)
374.00	112	0	0
377.50	112	392	392

Device	Routing	Invert	Outlet Devices
#1	Discarded	374.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.02 cfs @ 11.63 hrs HW=374.04' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.02 cfs)

Summary for Pond 104P: INFILTRATION STRUCTURE BEHIND 25-26 AND 27-28 -- 32 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.023 ac,100.00% Impervious, Inflow Depth > 5.87" for 100YR STORM event

Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.011 af

Outflow = 0.00 cfs @ 8.87 hrs, Volume= 0.005 af, Atten= 97%, Lag= 0.0 min

Discarded = 0.00 cfs @ 8.87 hrs, Volume= 0.005 af

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Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 380.32' @ 15.58 hrs Surf.Area= 208 sf Storage= 291 cf

Plug-Flow detention time= 161.8 min calculated for 0.005 af (48% of inflow)

Center-of-Mass det. time= 61.5 min (794.5 - 733.0)

Invert	Avail.Sto	rage _	Storage	e Description	
378.00'	20)5 cf		m Stage Data (Prismatic) Listed below Overall - 216 cf Embedded = 512 cf x 40.0% Voids	
379.00'	19	98 cf			
	40)3 cf	Total A	Available Storage	
				Cum.Store (cubic-feet)	
	208		0	0	
	208		728	728	
	378.00' 379.00' Surf	378.00' 20 379.00' 19 40 Surf.Area (sq-ft) 208	378.00' 205 cf 379.00' 198 cf 403 cf Surf.Area Inc (sq-ft) (cubic 208	378.00' 205 cf Custor 728 cf 379.00' 198 cf Storm Inside: Outside 32 Character 216 cf 403 cf Total A Surf.Area (sq-ft) (cubic-feet) 208 0	

Device Routing Invert Outlet Devices

#1 Discarded 378.00' 1.020 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 8.87 hrs HW=378.04' (Free Discharge) **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Summary for Pond 105P: INFILTRATION STRUCTURE BEHIND 21-22 & 23-24 -- 54 MODULES

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.044 ac,100.00% Impervious, Inflow Depth > 5.87" for 100YR STORM event 0.29 cfs @ 12.07 hrs, Volume= 0.021 af 0.01 cfs @ 8.33 hrs, Volume= 0.009 af, Atten= 97%, Lag= 0.0 min 0.01 cfs @ 8.33 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs Peak Elev= 382.17' @ 16.12 hrs Surf.Area= 319 sf Storage= 593 cf

Plug-Flow detention time= 166.8 min calculated for 0.009 af (40% of inflow) Center-of-Mass det. time= 49.5 min (782.5 - 733.0)

Volume	Invert	Avail.Storage	Storage Description
#1	379.00'	301 cf	Custom Stage Data (Prismatic) Listed below
			1,117 cf Overall - 365 cf Embedded = 752 cf x 40.0% Voids
#2	379.50'	334 cf	StormTank 25 Series 18" x 54 Inside #1
			Inside= 18.0"W x 18.0"H => 2.15 sf x 3.00'L = 6.4 cf
			Outside= 18.0 "W x 18.0 "H => 2.25 sf x 3.00 'L = 6.8 cf
			54 Chambers in 6 Rows
			365 cf Overall x 96.0% Voids
		634 cf	Total Available Storage

Type III 24-hr 100YR STORM Rainfall=6.60"

#1

Discarded

Printed 4/12/2021

Rice Pond Village Millbury 3-26-2021

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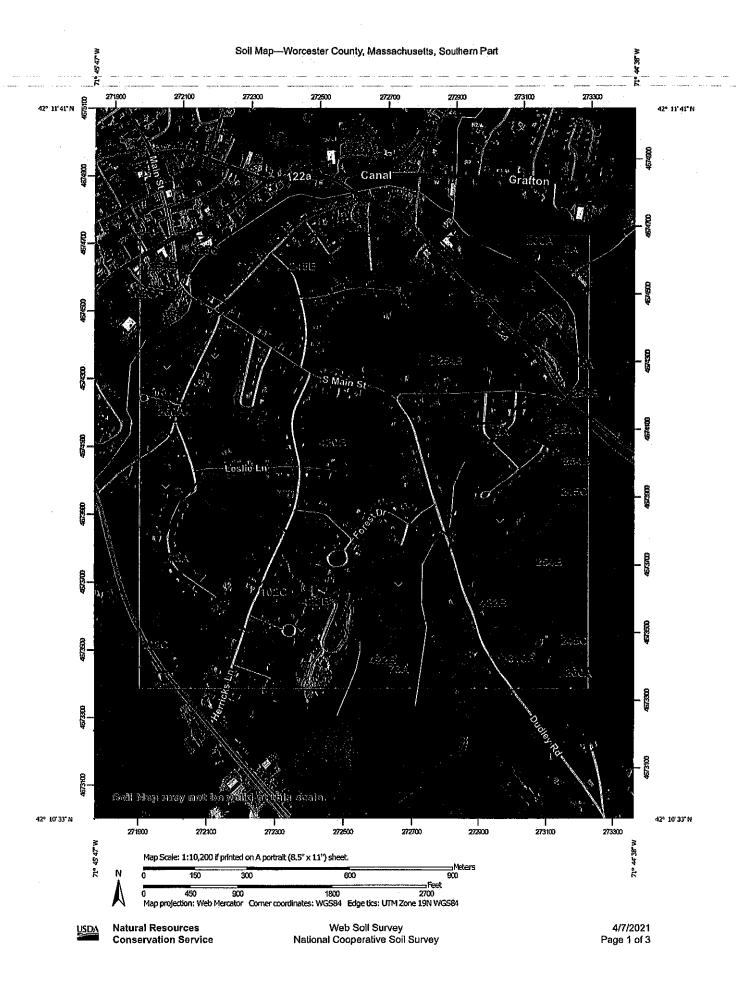
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Elevation (fee		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
379.0 382.5		319 319	0 1,117	0 1,117
Device	Routing	Invert	Outlet Devices	

1.020 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 8.33 hrs HW=379.04' (Free Discharge) 1=Exfiltration (Exfiltration Controls 0.01 cfs)

379.00'



Maps from the Web Soil Survey are based on the Web Mercator Enlargement of maps beyond the scale of mapping can cause Source of Map: Natural Resources Conservation Service The soil surveys that comprise your AOI were mapped at Please rely on the bar scale on each map sheet for map Coordinate System: Web Mercator (EPSG:3857) MAP INFORMATION Warning: Soil Map may not be valid at this scale Web Soil Survey URL: measurements. 1.25,000, SC3le. Special Line Features Streams and Canals Interstate Highways Very Stony Spot Major Roads Local Roads Storry Spot **US Routes** Spoil Area Wet Spot Officer Reals Water Features Transportation MAP LEGEND ap ‡ 9 Soil Map Unit Polygons Area of interest (AOI) Soil Map Unit Points Soil Map Unit Lines Closed Depression Special Point Features **Gravelly Spot** Borrow Pit Gravel Pit Lava Flow Area of Interest (AOI) Clay Spot Blowout Land λĘ Ż 0

contrasting soils that could have been shown at a more detailed misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of

distance and area. A projection that preserves area, such as the projection, which preserves direction and shape but distorts Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required. This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Aerial Photography

Marsh or swamp

4

Mine or Quarry

(4 0

Miscellaneous Water

Perennial Water

0

Rock Outcrop

3ackground

Soil Survey Area: Worcester County, Massachusetts, Southern

Survey Area Data: Version 13, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger, Date(s) aerial images were photographed: Jul 26, 2019—Oct 5,

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Severely Eroded Spot

Slide or Slip Sodic Spot

Q,

Sinkhole

Sandy Spot Saline Spot

Conservation Service

Natural Resources

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	14.3	3.3%
3A	Scarboro and Walpole soils, 0 to 3 percent slopes	12.2	2.8%
4A	Rippowam fine sandy loam, 0 to 3 percent slopes	14.9	3.4%
73A	Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony	26.7	6.1%
102C	Chatfield-Hollis-Rock outcrop complex, 0 to 15 percent slopes	15.8	3,6%
245B	Hinckley loamy sand, 3 to 8 percent slopes	22.9	5.2%
245C	Hinckley loamy sand, 8 to 15 percent slopes	3.3	0.7%
254A	Merrimac fine sandy loam, 0 to 3 percent slopes	19.0	4.3%
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	58,6	13.4%
260A	Sudbury fine sandy loam, 0 to 3 percent slopes	10.2	2.3%
310B	Woodbridge fine sandy loam, 3 to 8 percent slopes	5.6	1.3%
420B	Canton fine sandy loam, 3 to 8 percent slopes	141.8	32.3%
422B	Canton fine sandy loam, 0 to 8 percent slopes, extremely stony	86.3	19.7%
625C	Hinckley-Urban land complex, 0 to 15 percent slopes	2.2	0.5%
651	Udorthents, smoothed	5.0	1.1%
Totals for Area of Interest		438.4	100.0%