STORM DRAINAGE ANALYSIS

THE ROOKERY
Master Conceptual

Drainage Calculations

CLAY COUNTY

Glen R Wieger

Digitally signed by Glen R Wieger
Date: 2023.04.06 13:43:26 -04'00'

April 2023

Prepared By:

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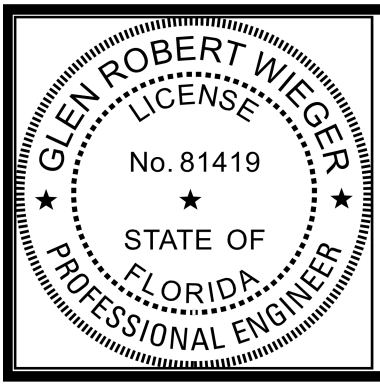

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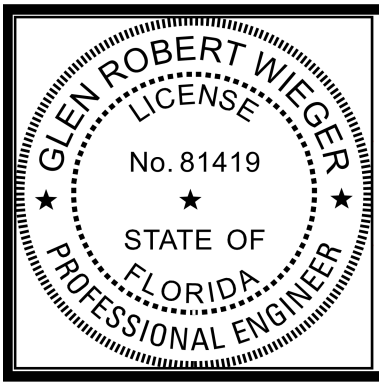

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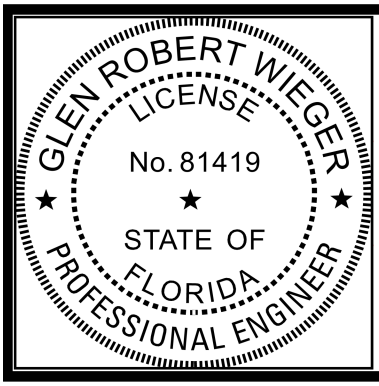

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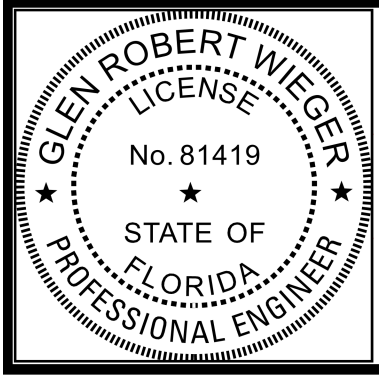

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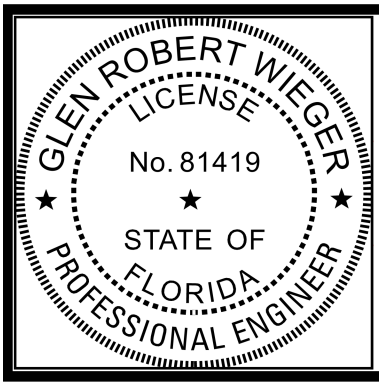

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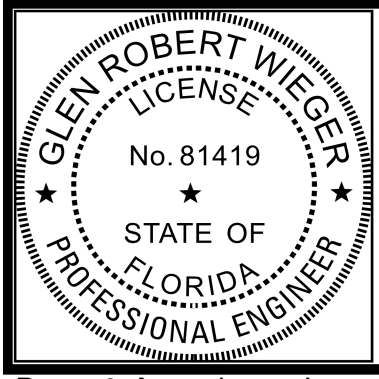

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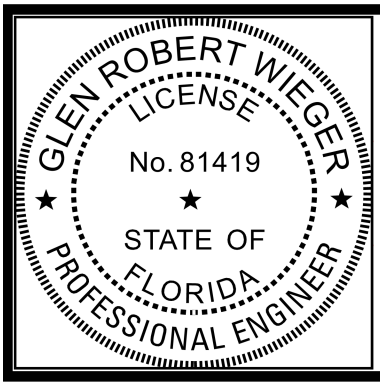

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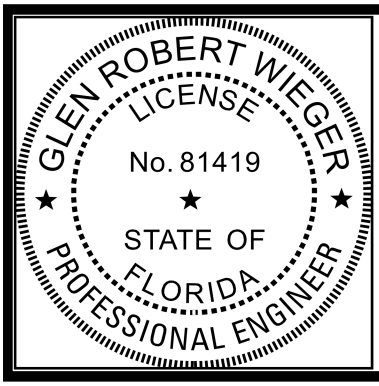

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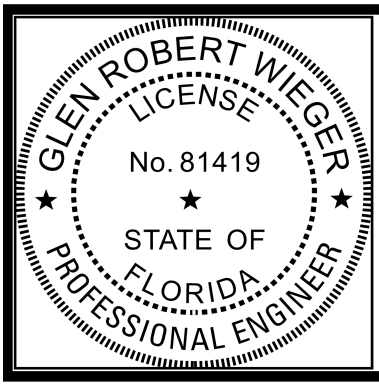

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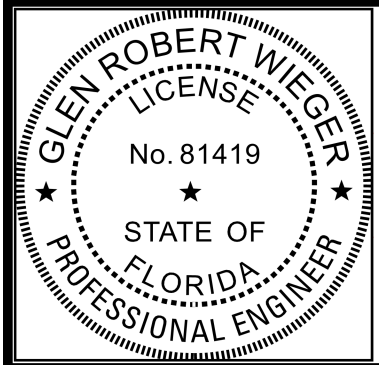

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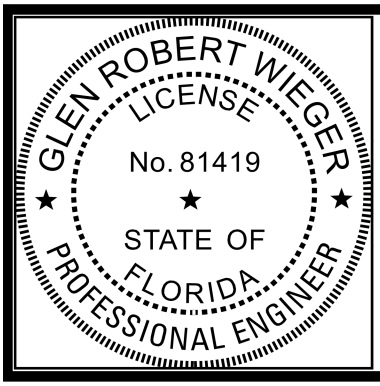

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NARRATIVE

Rookery, fka Ayrshire, is a proposed multi phase single family development located in Clay County, primarily located northeast of the CR15/Jersey Avenue intersection.

PERMITTING HISTORY

The site has a recent SJRWMD permit, 142441-2, that identifies many of the site basins. The permit was for the building of Jersey Avenue and the building of an aggregate facility. Phase 1 has been submitted for ERP permit approval as well concurrently with the master conceptual submittal.

EXISTING CONDITIONS FULL BUILD OUT

With the desire for several phases of development, a master conceptual buildout is proposed with several added boundary nodes. The development extends all the way south to Jersey Avenue. The identified boundary nodes are: Wetland for the existing wetland that cuts through the site and crosses Jersey Avenue; Jersey West for the crossing pipes immediately to the west of the large on site pond; Jersey East for the crossing pipes immediately to the west of the large on site pond; Jersey South for all area being developed south of Jersey Avenue; Northeast for the area across the CSX railroad flowing to the northeast section of the site and then three separate CSX points. CSX 1-3 are three identified areas of discharge into the CSX ROW to ensure that the existing CSX swale system is not overloaded upstream at any point with the proposed development. Per CSX requirements a 100 year analysis is performed. The existing pond from field visits and surveys has an existing control structure that is included in the calculations. The existing pond NWL was set at the surveyed control structure.

PROPOSED CONDITIONS FULL BUILD OUT

The phase 1 SWMF are interconnected with additional build out with SWMF 1-14 interconnected with the NWL set by the outfall ditch at Jersey West node and the system has weir outfalls at several points discharging to the large existing pond. The existing pond is modified to have a controlled NWL and with weirs for attenuation. The existing pond has a proposed series of new control structures with discharges to Jersey West and Jersey East. No additional treatment is offered by the big pond as the proposed weirs in the existing pond are for strictly attenuation.

SWMF 15-23 are interconnected with NWL controlled by the CSX ROW at boundary nodes 1 and 2. SWMF 24 is standalone handling the entrance road from the east with discharge to the Northeast boundary node. SWMF 25-29 are interconnected with discharge into CSX boundary node 3. SWMF 30 discharges into the Jersey East boundary node directly into the existing Jersey Avenue crossing there. SWMF 31-33 are on the west portion of the site with all discharging into the wetland boundary which flows south to the Jersey Avenue crossing. SWMF 31 is standalone and SWMF 32-33 are interconnected. SWMF J1 is the only developed proposed south of Jersey Avenue, it is a pond with a discharge into an existing ditch system that continues flow southeast, it discharges to Jersey South boundary node.

There are no changes proposed to existing Jersey Avenue drainage infrastructure. From the calculations the Post discharge is reduced from what is currently discharging to the existing infrastructure.

CSX

The site has discharge into CSX ROW. The CSX portion is broken up into three separate portions of discharge for analysis, each outfall point is identified as a boundary node in Pre/Post calculations. All 100 year calculations are included per CSX requirements to show no SWMF overtopping into system and Pre/Post met.

IMPAIRMENT

The site has been identified as impaired with a stated TMDL report. A report detailing the nutrient loading improvements is included separately.

DDA

The CSX bridge crossing has some areas of the bridge work that cannot be captured or treated due to the grading required. This area is accounted for in overtreatment calculations for the full build out treatment calculations. Those calculations are included in the attached report and accounted for in SWMF calculations.

TAILWATER

The tailwater values for the boundary nodes reflect the existing conditions for where the post conditions discharges will tie in. These values come from survey and field observations.

SOILS

The site has a combination of A, A/D and B/D soils. For drainage basins that have not already been permitted from previous calculations, the CN is calculated with A/D and B/D soils being treated as D soils and identified A soils treated as A soils.

MODELING

Standard 25- and 3-year analysis is performed and per CSX requirements, a 100 year rainfall event was modelled to verify there is no added discharge to the CSX ROW and its conveyance systems. Interconnected Channel & Pond Routing 3 (Icpr3) software was used for modeling.

SUMMARY OF RESULTS

Full Build Out Discharges

	100 Year (cfs)	25 Year (cfs)	3 Year (cfs)
Pre Wetland	40.38	22.12	5.49
Post Wetland	13.20	5.29	0.76
Pre Jersey East	70.22	46.17	21.28
Post Jersey East	36.02	22.89	5.65
Pre Jersey West	133.94	102.44	46.76
Post Jersey West	57.36	42.62	17.74
Pre Jersey South	53.56	30.01	8.55
Post Jersey South	2.43	1.55	0.71
Pre Northeast	30.59	15.71	2.95
Post Northeast	17.08	13.45	2.53
Pre CSX 1	117.74	80.21	37.63
Post CSX 1	67.22	46.51	18.33
Pre CSX 2	85.21	58.00	27.31
Post CSX 2	28.39	18.88	7.85
Pre CSX 3	84.77	53.85	23.03
Post CSX 3	43.00	26.32	9.99

Full Build Out Stages

	100 Year	25 Year	3 Year
SWMF #1	32.76	32.08	30.86
SWMF #2	32.91	32.07	30.86
SWMF #3	32.74	32.07	30.86
SWMF #4	32.77	32.06	30.86
SWMF #5	32.77	32.07	30.86
SWMF #6	32.77	32.06	30.86
SWMF #7	32.75	32.06	30.85
SWMF #8	32.72	32.07	30.86
SWMF #9	32.73	32.07	30.86
SWMF #10	32.64	32.06	30.86
SWMF #11	32.75	32.04	30.85
SWMF #12	32.75	31.98	30.80
SWMF #13	32.68	31.87	30.74
SWMF #14	32.61	31.74	30.64
SWMF #15	28.84	27.34	25.60
SWMF #16	28.19	26.96	25.48
SWMF #17	27.63	26.64	25.41
SWMF #18	27.52	26.49	25.27
SWMF #19	27.49	26.57	25.40
SWMF #20	26.94	26.32	25.36
SWMF #21	26.46	25.79	25.06
SWMF #22	27.51	26.58	25.41
SWMF #23	27.18	26.42	25.38
SWMF #24	24.74	23.63	22.63
SWMF #25	27.74	26.84	25.66
SWMF #26	27.72	26.83	25.66
SWMF #27	27.89	26.90	25.67
SWMF #28	27.96	26.93	25.67
SWMF #29	27.96	26.93	25.67
SWMF #30	31.25	30.70	29.89
SWMF #31	35.09	34.45	33.69
SWMF #32	35.13	34.46	33.80
SWMF #33	35.12	34.46	33.80
SWMF #J1	29.90	29.67	29.39
Existing Pond	32.38	31.98	31.71

PRE DEVELOPED DRAINAGE DATA

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Developed Basin 1

Total Drainage Area	131.00	ac.
Impervious Pavement	16.35	ac.
Pasture "A"	22.21	ac.
Pasture "D"	92.44	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	16.35	98	0.95	1602.30	15.53	12.5%
Pasture "A"	22.21	39	0.25	866.19	5.55	17.0%
Pasture "D"	92.44	80	0.25	7395.20	23.11	70.6%
Pond	0.00	100	1.00	0.00	0.00	0.0%
Total Area (ac.):	131.00					
Weighted CN:	75.30					
Weighted C:	0.34					
Weighted K:	256					

Time of Concentration Calculation (Tc)

SHEET FLOW		Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60							
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	n	P	Tt(min)	
AB	Woods	250	36.0	35	0.0040	0.4	5.04	67.8	
SHALLOW CONCENTRATED FLOW							Tt=L / V*60		
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	Velocity(fps)			
BC	Woods	2250	35	28.0	0.0031	0.9	Tc=	41.7	Min
							USE	110.0	Min

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Developed Basin 2

Total Drainage Area	33.02	ac.
Impervious Pavement	0.00	ac.
Pasture "A"	0.00	ac.
Pasture "D"	33.02	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Pasture "A"	0.00	39	0.25	0.00	0.00	0.0%
Pasture "D"	33.02	80	0.25	2641.60	8.26	100.0%
Pond	0.00	100	1.00	0.00	0.00	0.0%
Total Area (ac.):	33.02					
Weighted CN:	80.00					
Weighted C:	0.25					
Weighted K:	256					

Time of Concentration Calculation (Tc)

SHEET FLOW		Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60							
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	n	P	Tt(min)	
AB	Woods	70	33.0	30	0.0429	0.4	5.04	9.5	
SHALLOW CONCENTRATED FLOW							Tt=L / V*60		
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	Velocity(fps)			
BC	Woods	1745	30	24.9	0.0029	0.9	Tc=	33.2	Min
							USE	43.0	Min

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Developed Basin 3

Total Drainage Area	47.05	ac.
Impervious Pavement	0.00	ac.
Pasture "A"	0.00	ac.
Pasture "D"	47.05	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Pasture "A"	0.00	39	0.25	0.00	0.00	0.0%
Pasture "D"	47.05	80	0.25	3764.00	11.76	100.0%
Pond	0.00	100	1.00	0.00	0.00	0.0%
Total Area (ac.):	47.05					
Weighted CN:	80.00					
Weighted C:	0.25					
Weighted K:	256					

Time of Concentration Calculation (Tc)

SHEET FLOW				Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60					
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	n	P	Tt(min)	
AB	Woods	190	28.0	27	0.0053	0.4	5.04	48.8	
SHALLOW CONCENTRATED FLOW							Tt=L / V*60		
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	Velocity(fps)			
BC	Woods	785	27	23.0	0.0051	1.2	Tc=	11.4	Min
							USE	61.0	Min

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Developed Basin 4

Total Drainage Area	0.82	ac.
Impervious Pavement	0.00	ac.
Pasture "D"	0.82	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Pasture "D"	0.82	80	0.25	65.60	0.21	100.0%
Pond	0.00	100	1.00	0.00	0.00	0.0%

Total Area (ac.):	0.82
Weighted CN:	80.00
Weighted C:	0.25
Weighted K:	256

A conservative TC of 10 mins is used for this area

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Developed Basin 5

Total Drainage Area	20.34	ac.
Pasture "A"	14.87	ac.
Pasture "D"	5.47	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Pasture "A"	14.87	39	0.25	579.93	3.72	73.1%
Pasture "D"	5.47	80	0.25	437.60	1.37	26.9%
Pond	0.00	100	1.00	0.00	0.00	0.0%
Total Area (ac.):	20.34					
Weighted CN:	50.03					
Weighted C:	0.25					
Weighted K:	256					

Time of Concentration Calculation (Tc)

SHEET FLOW				Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60					
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	n	P	Tt(min)	
AB	Woods	100	23.0	22.5	0.0050	0.4	5.04	29.8	
SHALLOW CONCENTRATED FLOW							Tt=L / V*60		
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	Velocity(fps)			
BC	Woods	250	22.5	21.5	0.0040	1.0	Tc=	4.1	Min
							USE	34.0	Min

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Developed Basin 6

Total Drainage Area	36.73	ac.
Impervious Pavement	0.00	ac.
Pasture "D"	36.73	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Pasture "D"	36.73	80	0.25	2938.40	9.18	100.0%
Pond	0.00	100	1.00	0.00	0.00	0.0%
Total Area (ac.):	36.73					
Weighted CN:	80.00					
Weighted C:	0.25					
Weighted K:	256					

Time of Concentration Calculation (Tc)

SHEET FLOW				Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60					
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	n	P	Tt(min)	
AB	Woods	175	32.0	26	0.0343	0.4	5.04	21.6	
SHALLOW CONCENTRATED FLOW							Tt=L / V*60		
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	Velocity(fps)			
BC	Woods	1500	26	23.0	0.0020	0.7	Tc=	34.6	Min
							USE	57.0	Min

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Developed Basin 7

Total Drainage Area	34.13	ac.
Impervious Pavement	0.00	ac.
Pasture "D"	34.13	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Pasture "D"	34.13	80	0.25	2730.40	8.53	100.0%
Pond	0.00	100	1.00	0.00	0.00	0.0%
Total Area (ac.):	34.13					
Weighted CN:	80.00					
Weighted C:	0.25					
Weighted K:	256					

Time of Concentration Calculation (Tc)

SHEET FLOW				Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60					
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	n	P	Tt(min)	
AB	Woods	190	35.0	29.5	0.0289	0.4	5.04	24.7	
SHALLOW CONCENTRATED FLOW							Tt=L / V*60		
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	Velocity(fps)			
BC	Woods	1000	29.5	27.5	0.0020	0.7	Tc=	23.1	Min
							USE	48.0	Min

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Developed Basin 8

Total Drainage Area	10.86	ac.
Impervious Pavement	0.00	ac.
Pasture "D"	10.86	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Pasture "D"	10.86	80	0.25	868.80	2.72	100.0%
Pond	0.00	100	1.00	0.00	0.00	0.0%
Total Area (ac.):	10.86					
Weighted CN:	80.00					
Weighted C:	0.25					
Weighted K:	256					

Time of Concentration Calculation (Tc)

SHEET FLOW				Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60					
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	n	P	Tt(min)	
AB	Woods	150	35.0	30	0.0333	0.4	5.04	19.3	
SHALLOW CONCENTRATED FLOW							Tt=L / V*60		
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	Velocity(fps)			
BC	Woods	1420	30	29.0	0.0007	0.4	Tc=	55.3	Min
							USE	75.0	Min

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Developed Basin 9

Total Drainage Area	13.67	ac.
Impervious Pavement	0.00	ac.
Pasture "D"	13.67	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Pasture "D"	13.67	39	0.25	533.13	3.42	100.0%
Pond	0.00	100	1.00	0.00	0.00	0.0%
Total Area (ac.):	13.67					
Weighted CN:	39.00					
Weighted C:	0.25					
Weighted K:	256					

Time of Concentration Calculation (Tc)

SHEET FLOW				Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60					
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	n	P	Tt(min)	
AB	Woods	100	31.0	30	0.0100	0.4	5.04	22.6	
SHALLOW CONCENTRATED FLOW							Tt=L / V*60		
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	Velocity(fps)			
BC	Woods	650	30	29.5	0.0008	0.4	Tc=	24.2	Min
							USE	47.0	Min

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Developed Basin 10

Total Drainage Area	52.26	ac.
Pasture "A"	25.83	ac.
Pasture "D"	26.43	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Pasture "A"	25.83	39	0.25	1007.37	6.46	49.4%
Pasture "D"	26.43	80	0.25	2114.40	6.61	50.6%
Pond	0.00	100	1.00	0.00	0.00	0.0%
Total Area (ac.):	52.26					
Weighted CN:	59.74					
Weighted C:	0.25					
Weighted K:	256					

Time of Concentration Calculation (Tc)

SHEET FLOW				Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60					
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	n	P	Tt(min)	
AB	Woods	65	35.0	29	0.0923	0.4	5.04	6.6	
SHALLOW CONCENTRATED FLOW							Tt=L / V*60		
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	Velocity(fps)			
BC	Woods	3100	29	27.1	0.0006	0.4	Tc=	129.3	Min
							USE	136.0	Min

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Developed Basin 11

Total Drainage Area	19.04	ac.
Pasture "A"	0.15	ac.
Pasture "D"	18.89	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Pasture "A"	0.15	39	0.25	5.85	0.04	0.8%
Pasture "D"	18.89	80	0.25	1511.20	4.72	99.2%
Pond	0.00	100	1.00	0.00	0.00	0.0%
Total Area (ac.):	19.04					
Weighted CN:	79.68					
Weighted C:	0.25					
Weighted K:	256					

Time of Concentration Calculation (Tc)

SHEET FLOW				Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60					
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	n	P	Tt(min)	
AB	Woods	152	36.0	32	0.0263	0.4	5.04	21.4	
SHALLOW CONCENTRATED FLOW							Tt=L / V*60		
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	Velocity(fps)			
BC	Woods	1400	32	26.9	0.0036	1.0	Tc=	24.0	Min
							USE	46.0	Min

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Developed Basin 12

Total Drainage Area	9.24	ac.
Pasture "A"	6.74	ac.
Pasture "D"	2.50	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Pasture "A"	6.74	39	0.25	262.86	1.69	72.9%
Pasture "D"	2.50	80	0.25	200.00	0.63	27.1%
Pond	0.00	100	1.00	0.00	0.00	0.0%
Total Area (ac.):	9.24					
Weighted CN:	50.09					
Weighted C:	0.25					
Weighted K:	256					

Time of Concentration Calculation (Tc)

SHEET FLOW				Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60					
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	n	P	Tt(min)	
AB	Woods	150	42.5	40	0.0167	0.4	5.04	25.5	
SHALLOW CONCENTRATED FLOW							Tt=L / V*60		
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	Velocity(fps)			
BC	Woods	330	40	33.0	0.0212	2.3	Tc=	2.3	Min
							USE	28.0	Min

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Developed Basin 13

Total Drainage Area	16.14	ac.
Pasture "A"	8.64	ac.
Pasture "D"	7.50	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Pasture "A"	8.64	39	0.25	336.96	2.16	53.5%
Pasture "D"	7.50	80	0.25	600.00	1.88	46.5%
Pond	0.00	100	1.00	0.00	0.00	0.0%
Total Area (ac.):	16.14					
Weighted CN:	58.05					
Weighted C:	0.25					
Weighted K:	256					

Time of Concentration Calculation (Tc)

SHEET FLOW				Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60					
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	n	P	Tt(min)	
AB	Woods	270	50.5	47	0.0130	0.4	5.04	45.0	
SHALLOW CONCENTRATED FLOW							Tt=L / V*60		
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	Velocity(fps)			
BC	Woods	775	47	32.0	0.0194	2.2	Tc=	5.8	Min
							USE	51.0	Min

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Developed Basin J1

Total Drainage Area	25.97	ac.
Impervious Pavement	0.00	ac.
Pasture "A"	14.12	ac.
Pasture "D"	11.85	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Pasture "A"	14.12	39	0.25	550.68	3.53	54.4%
Pasture "D"	11.85	80	0.25	948.00	2.96	45.6%
Pond	0.00	100	1.00	0.00	0.00	0.0%
Total Area (ac.):	25.97					
Weighted CN:	57.71					
Weighted C:	0.25					
Weighted K:	256					

Time of Concentration Calculation (Tc)

SHEET FLOW		Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60						50	
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	n	P	Tt(min)	
AB	Woods	65	35.0	32	0.0462	0.4	5.04	8.7	
SHALLOW CONCENTRATED FLOW							Tt=L / V*60		
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	Velocity(fps)			
BC	Woods	1000	32	30.0	0.0020	0.7	Tc=	23.1	Min
							USE	32.0	Min

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 12/1/22

Pre Pond

Total Drainage Area	88.62	ac.
Impervious Building	0.00	ac.
Impervious Pavement	0.00	ac.
Pond @ NWL:	75.20	ac.
Open Space	13.42	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Open Space	13.42	80	0.25	1073.62	3.36	15.1%
Pond	75.20	100	1.00	7519.97	75.20	84.9%
Total Area (ac.):	88.62					
Weighted CN:	96.97					
Weighted C:	0.89					
Weighted K:	484					

Existing Pond

Stage ft	Area ac.	
34.5	87.12	**MIN TOB EL.**
33.0	75.20	
30.0	57.77	

POST DEVELOPED DRAINAGE DATA

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 1

Total Drainage Area	25.24	ac.	
Impervious Building	6.17	ac.	** 96 Single Family Lots*
Impervious Pavement	2.66	ac.	
Pond @ NWL:	4.78	ac.	
Open Space "A"	4.30	ac.	
Open Space "D"	7.33	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	8.83	98	0.95	865.42	8.39	35.0%	
Open Space "A"	4.30	39	0.25	167.67	1.07	17.0%	
Open Space "D"	7.33	80	0.25	586.40	1.83	29.0%	(Good Condition)
Pond	4.78	100	1.00	478.00	4.78	18.9%	
Total Area (ac.):	25.24						
Weighted CN:	83.10						
Weighted C:	0.64						
Weighted K:	484						

Pond 1
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.8	5.81	25.42	**MIN TOB EL.**
33.3	5.70	22.54	**MIN INTERCONNECTED TOB EL.**
30.0	4.99	4.89	**WEIR EL.**
29.0	4.78	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	4.78	98.28	27.37	5.73	**NWL EL.**
23.0	3.58	73.20			**SC**
22.4	3.52	70.91			**75% Anoxic Depth**
-17.0	0.08	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Underdrain Flow (From ECS Report)

1485	LF of underdrain	0.014 gpm per LF =	0.04574	cfs
560	LF of underdrain	0.013 gpm per LF =	0.01602	cfs
285	LF of underdrain	0.009 gpm per LF =	0.00564	cfs

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 12.8 gpm = 0.0282 cfs

Pool Volume

Drainage Area (DA):	25.24	ac
Runoff Coeff. (C):	0.64	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	5.53	ac-ft
Required PPV w/ GWF =	9.53	ac-ft
Provided PPV =	98.28	ac-ft
Provided PPV at = 75% Anoxic Depth	27.37	ac-ft

Project Name: The Rookery
Client: D.R. Horton, Inc. - Jacksonville

DAI Project #: 2008-499
Engineer: G. Wieger
Date: 4/5/23

Post Developed Basin 2

Total Drainage Area	17.69	ac.	
Impervious Building	4.69	ac.	** 73 Single Family Lots*
Impervious Pavement	2.07	ac.	
Pond @ NWL:	0.88	ac.	
Open Space "A"	5.43	ac.	
Open Space "D"	4.62	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	6.76	98	0.95	662.71	6.42	38.2%	
Open Space "A"	5.43	39	0.25	211.68	1.36	30.7%	
Open Space "D"	4.62	80	0.25	369.60	1.16	26.1%	(Good Condition)
Pond	0.88	100	1.00	88.00	0.88	5.0%	
Total Area (ac.):	17.69						
Weighted CN:	75.30						
Weighted C:	0.55						
Weighted K:	484						

Pond 2
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.8	1.39	5.45	**MIN TOB EL.**
33.3	1.34	4.77	**MIN INTERCONNECTED TOB EL.**
30.0	0.99	0.93	**WEIR EL.**
29.0	0.88	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	0.88	5.70	3.87	4.40	**NWL EL.**
23.0	0.34	2.04			**SC**
22.4	0.32	1.83			**75% Anoxic Depth**
11.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Underdrain Flow (From ECS Report)

725 LF of underdrain	0.014 gpm per LF =	0.02233	cfs
615 LF of underdrain	0.009 gpm per LF =	0.01218	cfs
540 LF of underdrain	0.006 gpm per LF =	0.00713	cfs

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 2.62 gpm = 0.0058 cfs

Pool Volume

Drainage Area (DA):	17.69	ac
Runoff Coeff. (C):	0.55	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	3.38	ac-ft
Required PPV w/ GWF =	5.36	ac-ft
Provided PPV =	5.70	ac-ft
Provided PPV at = 75% Anoxic Depth	3.87	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 3

Total Drainage Area	11.05	ac.	
Impervious Building	1.99	ac.	** 31 Single Family Lots*
Impervious Pavement	1.49	ac.	
Pond @ NWL:	0.77	ac.	
Open Space "D"	6.80	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	3.48	98	0.95	341.30	3.31	31.5%	
Open Space	6.80	80	0.25	543.79	1.70	61.5%	(Good Condition)
Pond	0.77	100	1.00	77.00	0.77	7.0%	
Total Area (ac.):	11.05						
Weighted CN:	87.07						
Weighted C:	0.52						
Weighted K:	484						

Pond 3
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.8	1.15	4.61	**MIN TOB EL.**
33.3	1.11	4.04	**MIN INTERCONNECTED TOB EL.**
30.0	0.85	0.81	**WEIR EL.**
29.0	0.77	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	0.77	6.49	3.69	4.79	**NWL EL.**
23.0	0.38	3.04			**SC**
22.4	0.36	2.80			**75% Anoxic Depth**
7.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 2.8 gpm = 0.0062 cfs

Pool Volume

Drainage Area (DA):	11.05	ac
Runoff Coeff. (C):	0.52	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	1.99	ac-ft
Required PPV w/ GWF =	2.25	ac-ft
Provided PPV =	6.49	ac-ft
Provided PPV at = 75% Anoxic Depth	3.69	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 4

Total Drainage Area	2.44	ac.	
Impervious Building	0.51	ac.	** 8 Single Family Lots*
Impervious Pavement	0.14	ac.	
Pond @ NWL:	0.40	ac.	
Open Space "A"	1.39	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	0.65	98	0.95	64.11	0.62	26.8%	
Open Space "A"	1.39	39	0.25	54.04	0.35	56.8%	(Good Condition)
Pond	0.40	100	1.00	40.00	0.40	16.4%	
Total Area (ac.):	2.44						
Weighted CN:	64.82						
Weighted C:	0.56						
Weighted K:	484						

Pond 4
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.7	0.74	2.68	**MIN TOB EL.**
33.3	0.71	2.39	**MIN INTERCONNECTED TOB EL.**
30.0	0.47	0.44	**WEIR EL.**
29.0	0.40	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	0.40	2.04	1.63	4.09	**NWL EL.**
23.0	0.12	0.48			**SC**
22.4	0.11	0.41			**75% Anoxic Depth**
15.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 0.08 gpm = 0.0002 cfs

Pool Volume

Drainage Area (DA):	2.44	ac
Runoff Coeff. (C):	0.56	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	0.47	ac-ft
Required PPV w/ GWF =	0.48	ac-ft
Provided PPV =	2.04	ac-ft
Provided PPV at = 75% Anoxic Depth	1.63	ac-ft

Project Name: The Rookery **DAI Project #:** 2008-499
Client: D.R. Horton, Inc. - Jacksonville **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 5

Total Drainage Area	4.64 ac.	
Impervious Building	1.35 ac.	** 21 Single Family Lots*
Impervious Pavement	0.31 ac.	
Pond @ NWL:	0.34 ac.	
Open Space "D"	2.64 ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	1.66	98	0.95	162.67	1.58	35.8%	
Open Space	2.64	80	0.25	211.21	0.66	56.9%	(Good Condition)
Pond	0.34	100	1.00	34.00	0.34	7.3%	
Total Area (ac.):	4.64						
Weighted CN:	87.90						
Weighted C:	0.56						
Weighted K:	484						

Pond 5

Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.7	0.59	2.19	**MIN TOB EL.**
33.3	0.57	1.95	**MIN INTERCONNECTED TOB EL.**
30.0	0.39	0.37	**WEIR EL.**
29.0	0.34	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	0.34	1.72	1.38	4.06	**NWL EL.**
23.0	0.10	0.40			**SC**
22.4	0.09	0.34			**75% Anoxic Depth**
15.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 0.24 gpm = 0.0005 cfs

Pool Volume

Drainage Area (DA):	4.64 ac
Runoff Coeff. (C):	0.56
R:	30.00 in
RT:	21.1 days
WS:	153 days
CF:	12 in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	0.89 ac-ft
Required PPV w/ GWF =	0.91 ac-ft
Provided PPV =	1.72 ac-ft
Provided PPV at = 75% Anoxic Depth	1.38 ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 6

Total Drainage Area	12.08	ac.	
Impervious Building	3.21	ac.	** 50 Single Family Lots*
Impervious Pavement	1.21	ac.	
Pond @ NWL:	1.41	ac.	
Open Space "A"	4.56	ac.	
Open Space "D"	1.69	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	4.42	98	0.95	433.55	4.20	36.6%	
Open Space "A"	4.56	39	0.25	177.69	1.14	37.7%	
Open Space "D"	1.69	80	0.25	135.20	0.42	14.0%	(Good Condition)
Pond	1.41	100	1.00	141.00	1.41	11.7%	
Total Area (ac.):	12.08						
Weighted CN:	73.46						
Weighted C:	0.59						
Weighted K:	484						

Pond 6
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.7	2.12	8.30	**MIN TOB EL.**
33.3	2.06	7.46	**MIN INTERCONNECTED TOB EL.**
30.0	1.56	1.49	**WEIR EL.**
29.0	1.41	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	1.41	10.01	6.62	4.70	**NWL EL.**
23.0	0.66	3.80			**SC**
22.4	0.62	3.38			**75% Anoxic Depth**
12.0	0.03	0.00			**Max Bottom**
					Mean Pond Depth >2,<8 O.K.

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 1.13 gpm = 0.0025 cfs

Pool Volume

Drainage Area (DA):	12.08	ac
Runoff Coeff. (C):	0.59	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	2.47	ac-ft
Required PPV w/ GWF =	2.57	ac-ft
Provided PPV =	10.01	ac-ft
Provided PPV at = 75% Anoxic Depth	6.62	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 7

Total Drainage Area	5.60	ac.	
Impervious Building	1.93	ac.	** 30 Single Family Lots*
Impervious Pavement	0.35	ac.	
Pond @ NWL:	0.50	ac.	
Open Space "A"	1.97	ac.	
Open Space "D"	0.85	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	2.28	98	0.95	223.28	2.16	40.7%	
Open Space "A"	1.97	39	0.25	76.89	0.49	35.2%	
Open Space "D"	0.85	80	0.25	68.00	0.21	15.2%	(Good Condition)
Pond	0.50	100	1.00	50.00	0.50	8.9%	

Total Area (ac.):	5.60
Weighted CN:	74.67
Weighted C:	0.60
Weighted K:	484

Pond 7
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.7	0.85	3.17	**MIN TOB EL.**
33.3	0.82	2.84	**MIN INTERCONNECTED TOB EL.**
30.0	0.57	0.54	**WEIR EL.**
29.0	0.50	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	0.50	2.78	2.08	4.16	**NWL EL.**
23.0	0.16	0.80			**SC**
22.4	0.15	0.70			**75% Anoxic Depth**
13.0	0.00	0.00			**Max Bottom**

Mean Pond Depth
>2,<8 O.K.

No Groundwater Inflow (From ECS Report)

Pool Volume

Drainage Area (DA):	5.60	ac
Runoff Coeff. (C):	0.60	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	1.16	ac-ft
Provided PPV =	2.78	ac-ft
Provided PPV at = 75% Anoxic Depth	2.08	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 8

Total Drainage Area	8.36	ac.	
Impervious Building	2.19	ac.	** 34 Single Family Lots*
Impervious Pavement	0.71	ac.	
Pond @ NWL:	0.76	ac.	
Open Space "D"	4.70	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	2.90	98	0.95	283.76	2.75	34.6%	
Open Space	4.70	80	0.25	376.36	1.18	56.3%	(Good Condition)
Pond	0.76	100	1.00	76.00	0.76	9.1%	
Total Area (ac.):	8.36						
Weighted CN:	88.05						
Weighted C:	0.56						
Weighted K:	484						

Pond 8
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.7	1.13	4.44	**MIN TOB EL.**
33.3	1.10	4.00	**MIN INTERCONNECTED TOB EL.**
30.0	0.84	0.80	**WEIR EL.**
29.0	0.76	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	0.76	5.88	3.59	4.72	**NWL EL.**
23.0	0.36	2.52			**SC**
22.4	0.34	2.29			**75% Anoxic Depth**
9.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 0.13 gpm = 0.0003 cfs

Req'd Pool Volume

Drainage Area (DA):	8.36	ac
Runoff Coeff. (C):	0.56	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	1.61	ac-ft
Required PPV w/ GWF =	1.63	ac-ft
Provided PPV =	5.88	ac-ft
Provided PPV at = 75% Anoxic Depth	3.59	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 9

Total Drainage Area	3.93	ac.	
Impervious Building	0.71	ac.	** 11 Single Family Lots*
Impervious Pavement	0.12	ac.	
Pond @ NWL:	1.36	ac.	
Open Space "D"	1.74	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	0.83	98	0.95	81.05	0.79	21.0%	
Open Space	1.74	80	0.25	139.43	0.44	44.3%	(Good Condition)
Pond	1.36	100	1.00	136.00	1.36	34.6%	
Total Area (ac.):	3.93						
Weighted CN:	90.71						
Weighted C:	0.66						
Weighted K:	484						

Pond 9
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.7	1.93	7.73	**MIN TOB EL.**
33.3	1.88	6.97	**MIN INTERCONNECTED TOB EL.**
30.0	1.48	1.42	**WEIR EL.**
29.0	1.36	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	1.36	12.48	6.62	4.87	**NWL EL.**
23.0	0.70	6.30			**SC**
22.4	0.67	5.86			**75% Anoxic Depth**
5.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

No Groundwater Inflow (From ECS Report)

Pool Volume

Drainage Area (DA):	3.93	ac
Runoff Coeff. (C):	0.66	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	0.89	ac-ft
Provided PPV =	12.48	ac-ft
Provided PPV at = 75% Anoxic Depth	6.62	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 10

Total Drainage Area	7.74	ac.	
Impervious Building	2.12	ac.	** 33 Single Family Lots*
Impervious Pavement	0.54	ac.	
Pond @ NWL:	0.59	ac.	
Open Space "D"	4.49	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	2.66	98	0.95	260.80	2.53	34.4%	
Open Space	4.49	80	0.25	359.10	1.12	58.0%	(Good Condition)
Pond	0.59	100	1.00	59.00	0.59	7.6%	
Total Area (ac.):	7.74						
Weighted CN:	87.71						
Weighted C:	0.55						
Weighted K:	484						

Pond 10

Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.3	0.89	3.18	**MIN TOB EL.**
30.0	0.66	0.62	**WEIR EL.**
29.0	0.59	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	0.59	4.05	2.64	4.48	**NWL EL.**
23.0	0.24	1.56			**SC**
22.4	0.23	1.41			**75% Anoxic Depth**
10.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 1.1 gpm = 0.0024 cfs

Pool Volume

Drainage Area (DA):	7.74	ac
Runoff Coeff. (C):	0.55	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	1.46	ac-ft
Required PPV w/ GWF =	1.56	ac-ft
Provided PPV =	4.05	ac-ft
Provided PPV at = 75% Anoxic Depth	2.64	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 11

Total Drainage Area	18.85	ac.	
Impervious Building	5.46	ac.	** 85 Single Family Lots*
Impervious Pavement	1.90	ac.	
Pond @ NWL:	1.20	ac.	
Open Space "A"	8.44	ac.	
Open Space "D"	1.85	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	7.36	98	0.95	721.65	7.00	39.1%	
Open Space "A"	8.44	39	0.25	329.01	2.11	44.8%	
Open Space "D"	1.85	80	0.25	148.00	0.46	9.8%	(Good Condition)
Pond	1.20	100	1.00	120.00	1.20	6.4%	
Total Area (ac.):	18.85						
Weighted CN:	69.96						
Weighted C:	0.57						
Weighted K:	484						

Pond 11
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.6	1.75	6.79	**MIN TOB EL.**
33.3	1.71	6.27	**MIN INTERCONNECTED TOB EL.**
30.0	1.32	1.26	**WEIR EL.**
29.0	1.20	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	1.20	8.79	5.67	4.72	**NWL EL.**
23.0	0.57	3.48			**SC**
22.4	0.54	3.12			**75% Anoxic Depth**
11.0	0.01	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 0.4 gpm = 0.0009 cfs

Pool Volume

Drainage Area (DA):	18.85	ac
Runoff Coeff. (C):	0.57	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	3.71	ac-ft
Required PPV w/ GWF =	3.74	ac-ft
Provided PPV =	8.79	ac-ft
Provided PPV at = 75% Anoxic Depth	5.67	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 12

Total Drainage Area	20.46	ac.	
Impervious Building	5.98	ac.	** 93 Single Family Lots*
Impervious Pavement	1.70	ac.	
Pond @ NWL:	2.28	ac.	
Open Space "A"	10.34	ac.	
Open Space "D"	0.16	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	7.68	98	0.95	752.44	7.29	37.5%	
Open Space "A"	10.34	39	0.25	403.34	2.59	50.5%	
Open Space "D"	0.16	80	0.25	12.80	0.04	0.8%	(Good Condition)
Pond	2.28	100	1.00	228.00	2.28	11.1%	
Total Area (ac.):	20.46						
Weighted CN:	68.26						
Weighted C:	0.60						
Weighted K:	484						

Pond 12
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.7	3.01	12.43	**MIN TOB EL.**
33.3	2.95	11.24	**MIN INTERCONNECTED TOB EL.**
30.0	2.44	2.36	**WEIR EL.**
29.0	2.28	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	2.28	24.84	12.07	5.29	**NWL EL.**
23.0	1.44	13.68			**SC**
22.4	1.39	12.77			**75% Anoxic Depth**
4.0	0.00	0.00			**Max Bottom**
					Mean Pond Depth >2,<8 O.K.

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 0.2 gpm = 0.0004 cfs

Pool Volume

Drainage Area (DA):	20.46	ac
Runoff Coeff. (C):	0.60	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	4.20	ac-ft
Required PPV w/ GWF =	4.22	ac-ft
Provided PPV =	24.84	ac-ft
Provided PPV at = 75% Anoxic Depth	12.07	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 13

Total Drainage Area	17.21	ac.	
Impervious Building	5.46	ac.	** 85 Single Family Lots*
Impervious Pavement	1.55	ac.	
Pond @ NWL:	0.77	ac.	
Open Space "A"	0.66	ac.	
Open Space "D"	8.77	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	7.01	98	0.95	687.35	6.66	40.8%	
Open Space "A"	0.66	39	0.25	25.59	0.16	3.8%	
Open Space "D"	8.77	80	0.25	701.60	2.19	51.0%	(Good Condition)
Pond	0.77	100	1.00	77.00	0.77	4.5%	
Total Area (ac.):	17.21						
Weighted CN:	86.67						
Weighted C:	0.57						
Weighted K:	484						

Pond 13
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.6	1.19	4.51	**MIN TOB EL.**
33.3	1.16	4.16	**MIN INTERCONNECTED TOB EL.**
30.0	0.86	0.82	**WEIR EL.**
29.0	0.77	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	0.77	4.23	3.36	4.36	**NWL EL.**
23.0	0.29	1.05			**SC**
22.4	0.26	0.87			**75% Anoxic Depth**
16.0	0.01	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)
From ECS Report Groundwater 0.05 gpm = 0.0001 cfs

Pool Volume

Drainage Area (DA):	17.21	ac
Runoff Coeff. (C):	0.57	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	3.36	ac-ft
Required PPV w/ GWF =	3.36	ac-ft
Provided PPV =	4.23	ac-ft
Provided PPV at = 75% Anoxic Depth	3.36	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 14

Total Drainage Area	13.46	ac.	
Impervious Building	3.79	ac.	** 59 Single Family Lots*
Impervious Pavement	1.22	ac.	
Pond @ NWL:	1.04	ac.	
Open Space "A"	3.48	ac.	
Open Space "D"	3.93	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	5.01	98	0.95	491.22	4.76	37.2%	
Open Space "A"	3.48	39	0.25	135.62	0.87	25.8%	
Open Space "D"	3.93	80	0.25	314.40	0.98	29.2%	(Good Condition)
Pond	1.04	100	1.00	104.00	1.04	7.7%	
Total Area (ac.):	13.46						
Weighted CN:	77.66						
Weighted C:	0.57						
Weighted K:	484						

Pond 14
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.5	1.46	5.63	**MIN TOB EL.**
33.3	1.44	5.33	**MIN INTERCONNECTED TOB EL.**
30.0	1.13	1.09	**WEIR EL.**
29.0	1.04	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	1.04	10.12	5.15	4.96	**NWL EL.**
23.0	0.56	5.32			**SC**
22.4	0.54	4.97			**75% Anoxic Depth**
4.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)
SWMF system with bleeddown outfall
From ECS Report Groundwater 0.49 gpm = 0.0011 cfs

Pool Volume

Drainage Area (DA):	13.46	ac
Runoff Coeff. (C):	0.57	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	2.64	ac-ft
Required PPV w/ GWF =	2.68	ac-ft
Provided PPV =	10.12	ac-ft
Provided PPV at = 75% Anoxic Depth	5.15	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basins 1-14 Combined

Total Drainage Area	168.75	ac.
Impervious Building	53.61	ac.
Impervious Pavement	15.97	ac.
Pond @ NWL:	17.08	ac.
Open Space	90.13	ac.

Coverage	Area (ac.)	C	C*A	%
Impervious	69.58	0.95	66.10	41.2%
Open Space	90.13	0.25	22.53	53.4%
Pond	17.08	1.00	17.08	10.1%
Total Area (ac.):	176.78			
Weighted C:	0.63			
Weighted K:	484			

Ponds 1-14 Combined Data

Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
33.3	23.45	90.04	**MIN TOB EL.**
30.0	18.56	18.34	**WEIR EL.**
29.0	17.08	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	17.08	204.23	89.93	5.27	**NWL EL.**
23.0	9.50	120.59			**SC**
22.4	9.17	114.30			**75% Anoxic Depth**

Mean Pond Depth
>2,<8 O.K.

Stormwater Management: Post Developed Basins 1-14 Combined
Req'd Treatment Volume for Pond (RTV) for SWMF's 1-14

Treatment Volume (1): 1.01 " of rainfall over the entire basin area
14.15 ac-ft

Treatment Volume (2): 2.53 " of rainfall over the impervious area
14.61 ac-ft

Use Weir Elevation
30.0

Req'd TV: 14.61 ac-ft
Provided TV: 18.34 ac-ft

Underdrain Flow (From ECS Report)

2210	LF of underdrain	0.014 gpm per LF =	0.06807	cfs
560	LF of underdrain	0.013 gpm per LF =	0.01602	cfs
900	LF of underdrain	0.009 gpm per LF =	0.01782	cfs
540	LF of underdrain	0.006 gpm per LF =	0.00713	cfs

Groundwater Baseflow (From ECS Report)

SWMF 1-14 24.55 gpm 0.05401 cfs

Req'd Pool Volume

Drainage Area (DA): 168.75 ac

Runoff Coeff. (C): 0.63
R: 30.00 in
RT: 21.1 days
WS: 153 days
CF: 12 in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Drawdown Weir for Pond
Sized to Drawdown 1/2 of the RTV in 24-30 Hours

GWF	0.163 cfs	Ground Water Flow
TV Flow	3.52 cfs	Treatment Volume Flow
Notch Flow	3.68 cfs	GWF + TV Flow
t:	25.1 hrs	Recovery Time
CF:	3600 sec/hr	Conversion Factor
h:	0.75 ft	Head for Orifice
C:	0.6	Weir Coefficient
A:	0.88 sf	Weir Length
D:	1.06 ft	Weir Length

Required PPV = 36.39 ac-ft
Required PPV W/ GWF = 43.21 ac-ft
Provided PPV = 204.23 ac-ft
Provided PPV at = 75% Anoxic Depth 89.93 ac-ft

Orif Diameter = 12.7 in

Anoxic Depth Calculation for SWMF 1 - 14

Land Use = **168.75** **Ac Single Family Residential and Roadway**

Impervious/DCIA Areas

Residential area will be 41.2% **impervious,** 61.5% **of which will be DCIA**

Impervious Area = 41.2% of site = 69.58 acres

DCIA Area = 69.58 X 61% 42.77 acres

DCIA Percentage = 42.77 ÷ 168.75 = 25.3% of developed area

Calculate composite non-DCIA curve number

From Drainage Calc's		CN		
HSG from Calcs	100.00%	80	=	80.00
	0.00%	61	=	0.00
		HSG AVG =		80.0

Round to 80.0

Curve Number for lawns in good condition = 80.0

Area of lawns = 168.75 - 69.58 = 99.17 acres pervious area

Impervious area which is not DCIA = 69.58 - 42.77 = 26.81 acres

Assume a curve number of 98 for impervious areas

Non-DCIA curve number = $\frac{(99.17 \times 80) + (26.81 \times 98)}{99.17 + 26.81}$ = 84

Calculate the annual runoff for the project area

Drainage Area = 168.75 acres

project site with 26% DCIA and non DCIA CN= 84

For Clay County County the annual rainfall is 49 in/yr ARV

From Chart Annual C value = 0.32 C (taken from chart for 26% and 84, See Appendix)

Annual Generated runoff volume = AC*ARV*1/12*C = 221.38 ac-ft/YR

Estimate Required Pond Volume

Annual Generated runoff volume = 221.38 ac-ft

For a 21 day residence time, the required pond volume will be:

$221.38 \text{ ac-ft} \times \frac{1 \text{ year}}{365 \text{ days}} * 21 \text{ days} = 12.74 \text{ ac-ft}$

For a single family residential use, the EMC for TP =		0.327	mg/l
For Highway use, the EMC for TP =		0.2	mg/l
Single Family Area =	152.78 AC	0.327	mg/l
Roadway Area =	15.97 AC	0.2	mg/l
Weighted Average, the EMC for TP =		0.31	mg/l

Calculate TP loading to wet detention pond

TP load to pond =

$221.38 \text{ ac-ft/yr} \times \frac{43{,}560 \text{ ft}^2}{\text{ac}} \times \frac{7.48 \text{ gal}}{\text{ft}^3} \times \frac{3.785 \text{ liter}}{\text{gal}} \times \frac{0.31 \text{ mg}}{\text{liter}} \times \frac{1 \text{ Kg}}{10^6} = 84.64 \text{ kg TP/yr}$

Calculate TP concentration in pond

At the proposed 21 day residence time, the TP removal was previously estimated as 65%
Annual mass of TP remaining in water column =
84.64 kg TP/yr X (1- 65%)= 29.62 kg TP/yr

This phosphorus mass will be distributed within the pond permanent pool 12.74 ac-ft and the pond outflow.
Assuming that inflow and outflow are approximately equal, the outflow will be 221.38 ac-ft.

Mean pond concentration =

$$29.62 \frac{\text{kg TP/yr}}{12.74 + 221.38 \text{ ac-ft}} \times \frac{1 \text{ yr}}{} \times \frac{1 \text{ ac}}{43{,}560 \text{ ft}^2} \times \frac{1 \text{ ft}^3}{7.48 \text{ gal}} \times \frac{1 \text{ gal}}{3.785 \text{ liter}} \times \frac{10^6 \text{ mg}}{\text{kg}} = 0.10 \text{ mg TP/Liter} = 103 \text{ ug TP/liter}$$

Calculate mean chlorophyll-a concentration in pond

ln(chyl-a) = 1.058 ln (TP) -.934

ln(chyl-a) = 3.97

chyl-a = 53.0 mg/m^3

Calculate mean Secchi disk depth

$$SD = \frac{24.2386 + [0.3041)(\text{chyl-a})]}{(6.0632+\text{chyl-a})}$$

SD = 0.68 meters = 2.23 ft

Calculate depth of anoxic condition in pond

Depth of DO<1 = 3.035 x Secchi + .02164 x (chyl-a) - .004979 x Total P

Depth of DO<1= Anoxic depth (m)

Secchi = Secchi disk depth (m)

chyl-a = chlorophyll-a concentration (mg/m^3)

Depth of Do < 1 = 2.70 meters = 8.86 ft
75 % of Anoxic Depth = 6.64 ft

Evaluate permanent pool volumes above Anoxic Depth

Permanent Pool Volume Required = 36.39 ac-ft

Permanent Pool Volume Provided at 75 % Anoxic Depth = 89.93 ac-ft

Permanent Pool provided above 75 % Anoxic Depth far exceeds required volume.

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 15

Total Drainage Area	23.91	ac.	
Impervious Building	8.03	ac.	** 125 Single Family Lots*
Impervious Pavement	2.43	ac.	
Pond @ NWL:	0.85	ac.	
Open Space "D"	12.60	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	10.46	98	0.95	1025.56	9.94	43.8%	
Open Space	12.60	80	0.25	1007.61	3.15	52.7%	(Good Condition)
Pond	0.85	100	1.00	85.00	0.85	3.6%	
Total Area (ac.):	23.91						
Weighted CN:	88.59						
Weighted C:	0.58						
Weighted K:	484						

Pond 15
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
28.8	1.23	4.99	**MIN TOB EL.**
27.0	1.09	2.91	**MIN INTERCONNECTED TOB EL.**
24.6	0.90	0.52	**WEIR EL.**
24.0	0.85	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	0.85	6.83	4.18	4.92	**NWL EL.**
18.0	0.45	2.93			**SC**
17.4	0.43	2.64			**75% Anoxic Depth**
5.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)
From ECS Report Groundwater 3 gpm = 0.0066 cfs

Pool Volume

Drainage Area (DA):	23.91	ac
Runoff Coeff. (C):	0.58	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	4.80	ac-ft
Required PPV w/ GWF =	5.08	ac-ft
Provided PPV =	6.83	ac-ft
Provided PPV at = 75% Anoxic Depth	4.18	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 16

Total Drainage Area	10.30	ac.	
Impervious Building	2.64	ac.	** 41 Single Family Lots*
Impervious Pavement	0.79	ac.	
Pond @ NWL:	1.48	ac.	
Open Space "D"	5.39	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	3.43	98	0.95	335.69	3.25	33.3%	
Open Space	5.39	80	0.25	431.56	1.35	52.4%	(Good Condition)
Pond	1.48	100	1.00	148.00	1.48	14.4%	
Total Area (ac.):	10.30						
Weighted CN:	88.86						
Weighted C:	0.59						
Weighted K:	484						

Pond 16
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
28.7	2.01	8.20	**MIN TOB EL.**
27.0	1.82	4.95	**MIN INTERCONNECTED TOB EL.**
24.6	1.55	0.91	**WEIR EL.**
24.0	1.48	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	1.48	18.68	7.68	5.19	**NWL EL.**
18.0	0.89	11.57			**SC**
17.4	0.87	11.00			**75% Anoxic Depth**
-8.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 2.6 gpm = 0.0057 cfs

Pool Volume

Drainage Area (DA):	10.30	ac
Runoff Coeff. (C):	0.59	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	2.09	ac-ft
Required PPV w/ GWF =	2.33	ac-ft
Provided PPV =	18.68	ac-ft
Provided PPV at = 75% Anoxic Depth	7.68	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 17

Total Drainage Area	9.44	ac.	
Impervious Building	3.03	ac.	** 40 Single Family Lots and 22 TH Lots*
Impervious Pavement	0.66	ac.	
Pond @ NWL:	1.47	ac.	
Open Space "D"	4.28	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	3.69	98	0.95	361.20	3.50	39.0%	
Open Space	4.28	80	0.25	342.74	1.07	45.4%	(Good Condition)
Pond	1.47	100	1.00	147.00	1.47	15.6%	
Total Area (ac.):	9.44						
Weighted CN:	90.14						
Weighted C:	0.64						
Weighted K:	484						

Pond 17
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
28.1	1.89	6.89	**MIN TOB EL.**
27.0	1.78	4.87	**MIN INTERCONNECTED TOB EL.**
24.6	1.53	0.90	**WEIR EL.**
24.0	1.47	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	1.47	18.36	7.79	5.30	**NWL EL.**
18.0	0.93	11.16			**SC**
17.4	0.91	10.57			**75% Anoxic Depth**
-6.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 2.3 gpm = 0.0051 cfs

Pool Volume

Drainage Area (DA):	9.44	ac
Runoff Coeff. (C):	0.64	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	2.08	ac-ft
Required PPV w/ GWF =	2.29	ac-ft
Provided PPV =	18.36	ac-ft
Provided PPV at = 75% Anoxic Depth	7.79	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 18

Total Drainage Area	21.44	ac.	
Impervious Building	1.95	ac.	** 20 Single Family Lots and 32 TH Lots*
Impervious Pavement	3.13	ac.	
Pond @ NWL:	2.33	ac.	
Open Space "A"	3.93	ac.	
Open Space "D"	10.10	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	5.08	98	0.95	497.52	4.82	23.7%	
Open Space "A"	3.93	39	0.25	153.40	0.98	18.3%	
Open Space "D"	10.10	80	0.25	808.00	2.53	47.1%	(Good Condition)
Pond	2.33	100	1.00	233.00	2.33	10.9%	
Total Area (ac.):	21.44						
Weighted CN:	78.91						
Weighted C:	0.50						
Weighted K:	484						

Pond 18
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
28.5	3.12	12.26	**MIN TOB EL.**
27.0	2.86	7.78	**MIN INTERCONNECTED TOB EL.**
24.6	2.44	1.43	**WEIR EL.**
24.0	2.33	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	2.33	24.41	11.86	5.09	**NWL EL.**
18.0	1.34	13.40			**SC**
17.4	1.30	12.55			**75% Anoxic Depth**
-2.0	0.00	0.00			**Max Bottom**
					Mean Pond Depth >2,<8 O.K.

Groundwater Inflow (From ECS Report)
From ECS Report Groundwater 4.1 gpm = 0.0090 cfs

Pool Volume

Drainage Area (DA):	21.44	ac
Runoff Coeff. (C):	0.50	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	3.67	ac-ft
Required PPV w/ GWF =	4.05	ac-ft
Provided PPV =	24.41	ac-ft
Provided PPV at = 75% Anoxic Depth	11.86	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 19

Total Drainage Area	11.41 ac.	
Impervious Building	2.57 ac.	** 14 Single Family Lots and 81 TH Lots*
Impervious Pavement	1.91 ac.	
Pond @ NWL:	0.94 ac.	
Open Space "A"	2.88 ac.	
Open Space "D"	3.11 ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	4.48	98	0.95	439.38	4.26	39.3%	
Open Space "A"	2.88	39	0.25	112.18	0.72	25.2%	
Open Space "D"	3.11	80	0.25	248.80	0.78	27.3%	(Good Condition)
Pond	0.94	100	1.00	94.00	0.94	8.2%	
Total Area (ac.):	11.41						
Weighted CN:	78.38						
Weighted C:	0.59						
Weighted K:	484						

Pond 19
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
27.8	1.28	4.22	**MIN TOB EL.**
27.0	1.21	3.22	**MIN INTERCONNECTED TOB EL.**
24.6	0.99	0.58	**WEIR EL.**
24.0	0.94	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	0.94	7.65	4.49	4.78	**NWL EL.**
18.0	0.46	3.45			**SC**
17.4	0.44	3.16			**75% Anoxic Depth**
3.0	0.00	0.00			**Max Bottom**
					Mean Pond Depth >2,<8 O.K.

Groundwater Inflow (From ECS Report)
From ECS Report Groundwater 1.2 gpm = 0.0026 cfs

Pool Volume

Drainage Area (DA):	11.41 ac
Runoff Coeff. (C):	0.59
R:	30.00 in
RT:	21.1 days
WS:	153 days
CF:	12 in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	2.31 ac-ft
Required PPV w/ GWF =	2.42 ac-ft
Provided PPV =	7.65 ac-ft
Provided PPV at = 75% Anoxic Depth	4.49 ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 20

Total Drainage Area	3.34	ac.	
Impervious Building	1.14	ac.	** 12 Single Family Lots and 81 TH Lots*
Impervious Pavement	0.27	ac.	
Pond @ NWL:	0.39	ac.	
Open Space "A"	1.06	ac.	
Open Space "D"	0.48	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	1.41	98	0.95	138.50	1.34	42.3%	
Open Space "A"	1.06	39	0.25	41.21	0.26	31.6%	
Open Space "D"	0.48	80	0.25	38.40	0.12	14.4%	(Good Condition)
Pond	0.39	100	1.00	39.00	0.39	11.7%	
Total Area (ac.):	3.34						
Weighted CN:	76.98						
Weighted C:	0.63						
Weighted K:	484						

Pond 20
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
27.4	0.58	1.65	**MIN TOB EL.**
27.0	0.56	1.42	**MIN INTERCONNECTED TOB EL.**
24.6	0.42	0.24	**WEIR EL.**
24.0	0.39	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	0.39	2.08	1.64	4.21	**NWL EL.**
18.0	0.13	0.52			**SC**
17.4	0.12	0.44			**75% Anoxic Depth**
10.0	0.00	0.00			**Max Bottom**
					Mean Pond Depth >2,<8 O.K.

Groundwater Inflow (From ECS Report)
From ECS Report Groundwater 0.4 gpm = 0.0009 cfs

Pool Volume

Drainage Area (DA):	3.34	ac
Runoff Coeff. (C):	0.63	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	0.73	ac-ft
Required PPV w/ GWF =	0.77	ac-ft
Provided PPV =	2.08	ac-ft
Provided PPV at = 75% Anoxic Depth	1.64	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 21

Total Drainage Area	40.37 ac.	
Impervious Building	8.87 ac.	* 139 TH Lots and 6 acres of Amenity Center
Impervious Pavement	4.28 ac.	
Pond @ NWL:	12.42 ac.	
Open Space "A"	3.41 ac.	
Open Space "D"	11.39 ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	13.15	98	0.95	1288.89	12.49	32.6%	
Open Space "A"	3.41	39	0.25	132.92	0.85	8.4%	
Open Space "D"	11.39	80	0.25	911.20	2.85	28.2%	(Good Condition)
Pond	12.42	100	1.00	1242.00	12.42	30.8%	
Total Area (ac.):	40.37						
Weighted CN:	88.56						
Weighted C:	0.71						
Weighted K:	484						

Pond 21 Data
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
28.0	13.29	51.42	**MIN TOB EL.**
27.0	13.07	38.24	**MIN INTERCONNECTED TOB EL.**
24.6	12.55	7.49	**WEIR EL.**
24.0	12.42	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	12.42	315.23	76.39	6.15	**NWL EL.**
18.0	10.75	245.72			**Partial SC**
17.4	10.61	238.84			**75% Anoxic Depth**
5.0	7.93	124.30			**Shelf**
-15.0	4.50	0.00			**Bottom**

Mean Pond Depth
>2,<8 O.K.

Groundwater Inflow (From ECS Report)
SWMF system with bleeddown outfall
From ECS Report Groundwater 0.8 gpm = 0.0018 cfs

Pool Volume

Drainage Area (DA):	40.37 ac
Runoff Coeff. (C):	0.71
R:	30.00 in
RT:	21.1 days
WS:	153 days
CF:	12 in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	9.85 ac-ft
Required PPV w/ GWF =	9.92 ac-ft
Provided PPV =	315.23 ac-ft
Provided PPV at = 75% Anoxic Depth	76.39 ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 22

Total Drainage Area	12.61	ac.	
Impervious Building	3.28	ac.	** 51 Single Family Lots*
Impervious Pavement	1.16	ac.	
Pond @ NWL:	0.91	ac.	
Open Space "D"	7.26	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	4.44	98	0.95	434.95	4.22	35.2%	
Open Space	7.26	80	0.25	580.94	1.82	57.6%	(Good Condition)
Pond	0.91	100	1.00	91.00	0.91	7.2%	
Total Area (ac.):	12.61						
Weighted CN:	87.78						
Weighted C:	0.55						
Weighted K:	484						

Pond 22
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
27.8	1.29	4.18	**MIN TOB EL.**
27.0	1.21	3.18	**MIN INTERCONNECTED TOB EL.**
24.6	0.97	0.56	**WEIR EL.**
24.0	0.91	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	0.91	6.15	4.11	4.51	**NWL EL.**
18.0	0.38	2.28			**SC**
17.4	0.36	2.04			**75% Anoxic Depth**
6.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)
From ECS Report Groundwater 0.9 gpm = 0.0020 cfs

Pool Volume

Drainage Area (DA):	12.61	ac
Runoff Coeff. (C):	0.55	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	2.39	ac-ft
Required PPV w/ GWF =	2.47	ac-ft
Provided PPV =	6.15	ac-ft
Provided PPV at = 75% Anoxic Depth	4.11	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 23

Total Drainage Area	7.02	ac.	
Impervious Building	2.12	ac.	** 15 Single Family Lots and 56 TH Lots*
Impervious Pavement	0.76	ac.	
Pond @ NWL:	0.78	ac.	
Open Space "D"	3.36	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	2.88	98	0.95	282.36	2.74	41.0%	
Open Space	3.36	80	0.25	268.70	0.84	47.8%	(Good Condition)
Pond	0.78	100	1.00	78.00	0.78	11.1%	
Total Area (ac.):	7.02						
Weighted CN:	89.61						
Weighted C:	0.62						
Weighted K:	484						

Pond 23
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
27.4	1.06	3.13	**MIN TOB EL.**
27.0	1.03	2.71	**MIN INTERCONNECTED TOB EL.**
24.6	0.83	0.48	**WEIR EL.**
24.0	0.78	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	0.78	6.02	3.61	4.63	**NWL EL.**
18.0	0.35	2.63			**SC**
17.4	0.33	2.40			**75% Anoxic Depth**
3.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 0.5 gpm = 0.0011 cfs

Pool Volume

Drainage Area (DA):	7.02	ac
Runoff Coeff. (C):	0.62	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	1.50	ac-ft
Required PPV w/ GWF =	1.55	ac-ft
Provided PPV =	6.02	ac-ft
Provided PPV at = 75% Anoxic Depth	3.61	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basins 15-23

Total Drainage Area	139.84	ac.
Impervious Building	33.63	ac.
Impervious Pavement	15.39	ac.
Pond @ NWL:	21.57	ac.
Open Space	69.25	ac.

Coverage	Area (ac.)	C	C*A	%
Impervious	49.02	0.95	46.57	35.1%
Open Space	69.25	0.25	17.31	49.5%
Pond	21.57	1.00	21.57	15.4%
Total Area (ac.):	139.84			
Weighted C:	0.61			
Weighted K:	484			

Ponds 15-23 Combined Data

Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
27.0	25.15	87.12	**MIN TOB EL.**
24.6	22.18	13.12	**WEIR EL.**
24.0	21.57	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	21.57	405.40	121.75	5.64	**NWL EL.**
18.0	15.68	293.65			**SC**
17.4	15.36	283.65			**75% Anoxic Depth**

Mean Pond Depth
>2,<8 O.K.

Stormwater Management: Post Developed Basins 15-23 Combined
Req'd Treatment Volume for Pond (RTV) for SWMF's 15-23

Treatment Volume (1): 1.01 " of rainfall over the entire basin area
11.72 ac-ft

Treatment Volume (2): 2.53 " of rainfall over the impervious area
10.29 ac-ft

Use Weir Elevation
24.6

Req'd TV: 11.72 ac-ft
Provided TV: 13.12 ac-ft

Groundwater Baseflow (From ECS Report)
SWMF 15-23 12.80 gpm 0.02816 cfs

Req'd Pool Volume

Drainage Area (DA): 139.84 ac

Runoff Coeff. (C): 0.61
R: 30.00 in
RT: 21.1 days
WS: 153 days
CF: 12 in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV = 29.42 ac-ft
Required PPV W/ GWF = 30.60 ac-ft
Provided PPV = 405.40 ac-ft
Provided PPV at = 75% Anoxic Depth 121.75 ac-ft

Drawdown Weir for Pond
Sized to Drawdown 1/2 of the RTV in 24-30 Hours

GWF	0.028	cfs	Ground Water Flow
TV Flow	2.96	cfs	Treatment Volume Flow
Notch Flow	2.98	cfs	GWF + TV Flow
t:	24	hrs	Recovery Time
CF:	3600	sec/hr	Conversion Factor
h:	0.45	ft	Head for Orifice
C:	0.6		Weir Coefficient
A:	0.92	sf	Weir Length
D:	1.08	ft	Weir Length

Orif Diameter = 13.0 in

Anoxic Depth Calculation for SWMF 15 thru 23

Land Use = 139.84 **Ac Single Family Residential and Roadway**

Impervious/DCIA Areas

Residential area will be 35.1% **impervious,** 65.7% **of which will be DCIA**

Impervious Area = 35.1% of site = 49.02 acres

DCIA Area = 49.02 X 66% 32.21 acres

DCIA Percentage = 32.21 ÷ 139.84 = 23.0% of developed area

Calculate composite non-DCIA curve number

From Drainage Calc's CN

HSG from Calcs 100.00% 80 = 80.00

0.00% 61 = 0.00

HSG AVG = 80.0 Round to 80.0

Curve Number for lawns in good condition = 80.0

Area of lawns = 139.84 - 49.02 = 90.82 acres pervious area

Impervious area which is not DCIA = 49.02 - 32.21 = 16.81 acres

Assume a curve number of 98 for impervious areas

Non-DCIA curve number = 83

$$\frac{(\ 90.82 \times 80\ ) + (\ 16.81 \times 98\ )}{90.82 + 16.81}$$

Calculate the annual runoff for the project area

Drainage Area = 139.84 acres

project site with 24% DCIA and non DCIA CN= 83

For Clay County County the annual rainfall is 49 in/yr ARV

From Chart Annual C value = 0.30 C (taken from chart for 23% and 83, See Appendix)

Annual Generated runoff volume = AC*ARV*1/12*C = 172.22 ac-ft/YR

Estimate Required Pond Volume

Annual Generated runoff volume = 172.22 ac-ft

For a 21 day residence time, the required pond volume will be:

$$172.22 \text{ ac-ft} \times \frac{1 \text{ year}}{365 \text{ days}} * 21 \text{ days} = 9.91 \text{ ac-ft}$$

For a single family residential use, the EMC for TP = 0.327 mg/l

For Highway use, the EMC for TP = 0.2 mg/l

Single Family Area = 124.45 AC 0.327 mg/l

Roadway Area = 15.39 AC 0.2 mg/l

Weighted Average, the EMC for TP = 0.31 mg/l

Calculate TP loading to wet detention pond

TP load to pond =

$$172.22 \text{ ac-ft/yr} \times \frac{43{,}560 \text{ ft}^2}{\text{ac}} \times \frac{7.48 \text{ gal}}{\text{ft}^3} \times \frac{3.785 \text{ liter}}{\text{gal}} \times \frac{0.31 \text{ mg}}{\text{liter}} \times \frac{1 \text{ Kg}}{10^6} = 65.84 \text{ kg TP/yr}$$

Calculate TP concentration in pond

At the proposed 21 day residence time, the TP removal was previously estimated as 65%
Annual mass of TP remaining in water column =
65.84 kg TP/yr X (1- 65%)= 23.04 kg TP/yr

This phosphorus mass will be distributed within the pond permanent pool 9.91 ac-ft and the pond outflow.
Assuming that inflow and outflow are approximately equal, the outflow will be 172.22 ac-ft.

Mean pond concentration =

$$23.04 \frac{\text{kg TP/yr}}{9.91 + 172.22 \text{ ac-ft}} \times \frac{1 \text{ yr}}{} \times \frac{1 \text{ ac}}{43{,}560 \text{ ft}^2} \times \frac{1 \text{ ft}^3}{7.48 \text{ gal}} \times \frac{1 \text{ gal}}{3.785 \text{ liter}} \times \frac{10^6 \text{ mg}}{\text{kg}} = 0.10 \text{ mg TP/Liter} = 103 \text{ ug TP/liter}$$

Calculate mean chlorophyll-a concentration in pond

ln(chyl-a) = 1.058 ln (TP) -.934

ln(chyl-a) = 3.97

chyl-a = 53.0 mg/m^3

Calculate mean Secchi disk depth

$$SD = \frac{24.2386 + [0.3041)(\text{chyl-a})]}{(6.0632+\text{chyl-a})}$$

SD = 0.68 meters = 2.23 ft

Calculate depth of anoxic condition in pond

Depth of DO<1 = 3.035 x Secchi + .02164 x (chyl-a) - .004979 x Total P

Depth of DO<1= Anoxic depth (m)

Secchi = Secchi disk depth (m)

chyl-a = chlorophyll-a concentration (mg/m^3)

Depth of Do < 1 = 2.70 meters = 8.86 ft
75 % of Anoxic Depth = 6.64 ft

Evaluate permanent pool volumes above Anoxic Depth

Permanent Pool Volume Required = 29.42 ac-ft

Permanent Pool Volume Provided at 75 % Anoxic Depth = 121.75 ac-ft

Permanent Pool provided above 75 % Anoxic Depth far exceeds required volume.

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 24

Total Drainage Area	20.72	ac.
Impervious Building	0.00	ac.
Impervious Pavement	12.97	ac.
Pond @ NWL:	2.25	ac.
Open Space "A"	4.02	ac.
Open Space "D"	1.48	ac.

** 10 acres of impervious for future development*

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	12.97	98	0.95	1271.06	12.32	62.6%	
Open Space "A"	4.02	39	0.25	156.78	1.01	19.4%	
Open Space "D"	1.48	80	0.25	118.40	0.37	7.1%	(Good Condition)
Pond	2.25	100	1.00	225.00	2.25	10.9%	
Total Area (ac.):	20.72						
Weighted CN:	85.48						
Weighted C:	0.77						
Weighted K:	484						

Pond 24 Data

Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
27.0	3.00	15.75	**MIN TOB EL.**
22.2	2.40	2.79	**WEIR EL.**
21.0	2.25	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
21.0	2.25	76.77	13.05	5.80	**NWL EL.**
15.0	1.59	65.25			**Partial SC**
14.0	1.51	63.72			**75% Anoxic Depth**
5.0	0.82	53.20			**Shelf**
-15.0	4.50	0.00			**Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Stormwater Management: Post Developed Basin 24

Req'd Treatment Volume for Pond (RTV) for SWMF 24

Treatment Volume (1): 1.01 " of rainfall over the entire basin area
1.74 ac-ft

Treatment Volume (2): 2.53 " of rainfall over the impervious area
2.72 ac-ft

Use Weir Elevation
22.2

Req'd TV: 2.72 ac-ft
Provided TV: 2.79 ac-ft

Groundwater Baseflow (From ECS Report)
4.30 gpm 0.00946 cfs

Req'd Pool Volume

Drainage Area (DA): 20.72 ac

Runoff Coeff. (C): 0.77
R: 30.00 in
RT: 21.1 days
WS: 153 days
CF: 12 in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Drawdown Weir for Pond
Sized to Drawdown 1/2 of the RTV in 24-30 Hours

GWF	0.009	cfs	Ground Water Flow
TV Flow	0.67	cfs	Treatment Volume Flow
Notch Flow	0.68	cfs	GWF + TV Flow
t:	24.5	hrs	Recovery Time
CF:	3600	sec/hr	Conversion Factor
h:	0.9	ft	Head for Orifice
C:	0.6		Weir Coefficient
A:	0.15	sf	Weir Length
D:	0.44	ft	Weir Length

Required PPV = 5.49 ac-ft
Required PPV W/ GWF = 5.89 ac-ft
Provided PPV = 76.77 ac-ft
Provided PPV at = 75% Anoxic Depth 13.05 ac-ft

Orif Diameter = 5.2 in

Anoxic Depth Calculation for SWMF 24

Land Use = **20.72** **Ac Single Family Residential and Roadway**

Impervious/DCIA Areas

Residential area will be 62.6% **impervious,** 100.0% **of which will be DCIA**

Impervious Area = 62.6% of site = 12.97 acres

DCIA Area = 12.97 X 100% 12.97 acres

DCIA Percentage = 12.97 ÷ 20.72 = 62.6% of developed area

Calculate composite non-DCIA curve number

From Drainage Calc's		CN		
HSG from Calcs	100.00%	80	=	80.00
	0.00%	61	=	0.00
		HSG AVG =		80.0

Round to 80.0

Curve Number for lawns in good condition = 80.0

Area of lawns = 20.72 - 12.97 = 7.75 acres pervious area

Impervious area which is not DCIA = 12.97 - 12.97 **=** - acres

Assume a curve number of 98 for impervious areas

Non-DCIA curve number = 80 =

$$\frac{(\ 7.75\ X\ 80\ )+(\ -\ X\ 98\ )}{7.75\ +\ -}$$

Calculate the annual runoff for the project area

Drainage Area = 20.72 acres

project site with 63% DCIA and non DCIA CN= 80

For Clay County County the annual rainfall is 49 in/yr ARV

From Chart Annual C value = 0.32 C (taken from chart for 30% and 80, See Appendix)

Annual Generated runoff volume = AC*ARV*1/12*C **=** 27.07 ac-ft/YR

Estimate Required Pond Volume

Annual Generated runoff volume = 27.07 ac-ft

For a 21 day residence time, the required pond volume will be:

$$27.07\ \text{ac-ft}\ X\ \frac{1\ \text{year}}{365\ \text{days}}\ *\ 21\ \text{days} = 1.56\ \text{ac-ft}$$

For a single family residential use, the EMC for TP =		0.327	mg/l
For Highway use, the EMC for TP =		0.2	mg/l
Single Family Area =	7.75 AC	0.327	mg/l
Roadway Area =	12.97 AC	0.2	mg/l
Weighted Average, the EMC for TP =		0.25	mg/l

Calculate TP loading to wet detention pond

TP load to pond =

$$27.07\ \text{ac-ft/yr}\ X\ \frac{43{,}560\ \text{ft}^2}{\text{ac}}\ X\ \frac{7.48\ \text{gal}}{\text{ft}^3}\ X\ \frac{3.785\ \text{liter}}{\text{gal}}\ X\ \frac{0.25}{\text{liter}}\ \text{mg}\ X\ \frac{1\ \text{Kg}}{10^6} = 8.35\ \text{kg TP/yr}$$

Calculate TP concentration in pond

At the proposed 21 day residence time, the TP removal was previously estimated as 65%
Annual mass of TP remaining in water column =
8.35 kg TP/yr X (1- 65%)= 2.92 kg TP/yr

This phosphorus mass will be distributed within the pond permanent pool 1.56 ac-ft and the pond outflow.
Assuming that inflow and outflow are approximately equal, the outflow will be 27.07 ac-ft.

Mean pond concentration =

$$2.92 \frac{\text{kg TP/yr}}{1.56 + 27.07} \times \frac{1\text{ yr}}{\text{ac-ft}} \times \frac{1\text{ ac}}{43{,}560\text{ ft}^2} \times \frac{1\text{ ft}^3}{7.48\text{ gal}} \times \frac{1\text{ gal}}{3.785\text{ liter}} \times \frac{10^6\text{ mg}}{\text{kg}} = 0.08\text{ mg TP/Liter} = 83\text{ ug TP/liter}$$

Calculate mean chlorophyll-a concentration in pond

ln(chyl-a) = 1.058 ln (TP) -.934

ln(chyl-a) = 3.74

chyl-a = 42.1 mg/m^3

Calculate mean Secchi disk depth

$$SD = \frac{24.2386 + [0.3041)(\text{chyl-a})]}{(6.0632+\text{chyl-a})}$$

SD = 0.77 meters = 2.53 ft

Calculate depth of anoxic condition in pond

Depth of DO<1 = 3.035 x Secchi + .02164 x (chyl-a) - .004979 x Total P

Depth of DO<1= Anoxic depth (m)

Secchi = Secchi disk depth (m)

chyl-a = chlorophyll-a concentration (mg/m^3)

Depth of Do < 1 = 2.84 meters = 9.32 ft
75 % of Anoxic Depth = 6.99 ft

Evaluate permanent pool volumes above Anoxic Depth

Permanent Pool Volume Required = 5.49 ac-ft

Permanent Pool Volume Provided at 75 % Anoxic Depth = 13.05 ac-ft

Permanent Pool provided above 75 % Anoxic Depth far exceeds required volume.

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 25

Total Drainage Area	5.64	ac.	
Impervious Building	1.24	ac.	** 60 TH Lots*
Impervious Pavement	0.33	ac.	
Pond @ NWL:	0.40	ac.	
Open Space "D"	3.67	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	1.57	98	0.95	153.83	1.49	27.8%	
Open Space	3.67	80	0.25	293.63	0.92	65.1%	(Good Condition)
Pond	0.40	100	1.00	40.00	0.40	7.1%	
Total Area (ac.):	5.64						
Weighted CN:	86.43						
Weighted C:	0.50						
Weighted K:	484						

Pond 25
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
28.9	0.71	2.72	**MIN TOB EL.**
28.1	0.66	2.17	**MIN INTERCONNECTED TOB EL.**
25.0	0.46	0.43	**WEIR EL.**
24.0	0.40	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	0.40	2.10	1.63	4.08	**NWL EL.**
18.0	0.12	0.54			**SC**
17.4	0.11	0.47			**75% Anoxic Depth**
9.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 0.4 gpm = 0.0009 cfs

Pool Volume

Drainage Area (DA):	5.64	ac
Runoff Coeff. (C):	0.50	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	0.97	ac-ft
Required PPV w/ GWF =	1.00	ac-ft
Provided PPV =	2.10	ac-ft
Provided PPV at = 75% Anoxic Depth	1.63	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/6/23

Post Developed Basin 26

Total Drainage Area	14.69	ac.	
Impervious Building	3.12	ac.	** 151 TH Lots*
Impervious Pavement	1.96	ac.	
Pond @ NWL:	1.59	ac.	
Open Space "D"	8.02	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	5.08	98	0.95	497.82	4.83	34.6%	
Open Space	8.02	80	0.25	641.61	2.01	54.6%	(Good Condition)
Pond	1.59	100	1.00	159.00	1.59	10.8%	
Total Area (ac.):	14.69						
Weighted CN:	88.39						
Weighted C:	0.57						
Weighted K:	484						

Pond 26
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
28.1	2.09	7.54	**MIN TOB EL.**
25.0	1.71	1.65	**WEIR EL.**
24.0	1.59	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	1.59	14.24	8.16	5.13	**NWL EL.**
18.0	0.94	6.65			**SC**
17.4	0.90	6.08			**75% Anoxic Depth**
4.0	0.01	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)
SWMF system with bleeddown outfall
From ECS Report Groundwater 1.5 gpm = 0.0033 cfs

Pool Volume

Drainage Area (DA):	14.69	ac
Runoff Coeff. (C):	0.57	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	2.90	ac-ft
Required PPV w/ GWF =	3.04	ac-ft
Provided PPV =	14.24	ac-ft
Provided PPV at = 75% Anoxic Depth	8.16	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 27

Total Drainage Area	13.48	ac.	
Impervious Building	4.21	ac.	** 44 Single Family Lots and 67 TH Lots*
Impervious Pavement	1.07	ac.	
Pond @ NWL:	1.97	ac.	
Open Space "D"	6.23	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	5.28	98	0.95	517.69	5.02	39.2%	
Open Space	6.23	80	0.25	498.19	1.56	46.2%	(Good Condition)
Pond	1.97	100	1.00	197.00	1.97	14.6%	
Total Area (ac.):	13.48						
Weighted CN:	89.98						
Weighted C:	0.63						
Weighted K:	484						

Pond 27
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
28.5	2.72	10.55	**MIN TOB EL.**
28.1	2.65	9.48	**MIN INTERCONNECTED TOB EL.**
25.0	2.14	2.05	**WEIR EL.**
24.0	1.97	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	1.97	19.95	9.66	4.91	**NWL EL.**
18.0	1.04	10.92			**SC**
17.4	1.01	10.29			**75% Anoxic Depth**
-3.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 1.2 gpm = 0.0026 cfs

Pool Volume

Drainage Area (DA):	13.48	ac
Runoff Coeff. (C):	0.63	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	2.94	ac-ft
Required PPV w/ GWF =	3.05	ac-ft
Provided PPV =	19.95	ac-ft
Provided PPV at = 75% Anoxic Depth	9.66	ac-ft

Project Name: The Rookery **DAI Project #:** 2008-499
Client: D.R. Horton, Inc. - Jacksonville **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 28

Total Drainage Area	23.30	ac.	
Impervious Building	3.73	ac.	** 58 Single Family Lots*
Impervious Pavement	1.09	ac.	
Pond @ NWL:	2.04	ac.	
Open Space "D"	16.44	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	4.82	98	0.95	472.18	4.58	20.7%	
Open Space	16.44	80	0.25	1315.34	4.11	70.6%	(Good Condition)
Pond	2.04	100	1.00	204.00	2.04	8.8%	
Total Area (ac.):	23.30						
Weighted CN:	85.47						
Weighted C:	0.46						
Weighted K:	484						

Pond 28

Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
28.6	2.59	10.65	**MIN TOB EL.**
28.1	2.53	9.37	**MIN INTERCONNECTED TOB EL.**
25.0	2.16	2.10	**WEIR EL.**
24.0	2.04	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	2.04	29.87	11.14	5.46	**NWL EL.**
18.0	1.39	19.58			**SC**
17.4	1.36	18.72			**75% Anoxic Depth**
-9.0	0.06	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 3.3 gpm = 0.0073 cfs

Pool Volume

Drainage Area (DA):	23.30	ac
Runoff Coeff. (C):	0.46	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	3.69	ac-ft
Required PPV w/ GWF =	4.00	ac-ft
Provided PPV =	29.87	ac-ft
Provided PPV at = 75% Anoxic Depth	11.14	ac-ft

Project Name: The Rookery **DAI Project #:** 2008-499
Client: D.R. Horton, Inc. - Jacksonville **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 29

Total Drainage Area	3.34 ac.	
Impervious Building	0.64 ac.	** 10 Single Family Lots*
Impervious Pavement	0.12 ac.	
Pond @ NWL:	0.52 ac.	
Open Space "D"	2.06 ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	0.76	98	0.95	74.75	0.72	22.8%	
Open Space	2.06	80	0.25	164.58	0.51	61.6%	(Good Condition)
Pond	0.52	100	1.00	52.00	0.52	15.6%	
Total Area (ac.):	3.34						
Weighted CN:	87.22						
Weighted C:	0.53						
Weighted K:	484						

Pond 29
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
28.9	0.94	3.58	**MIN TOB EL.**
28.1	0.87	2.85	**MIN INTERCONNECTED TOB EL.**
25.0	0.61	0.56	**WEIR EL.**
24.0	0.52	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	0.52	1.92	1.88	3.61	**NWL EL.**
18.0	0.09	0.09			**INTERCONNECTED SC**
17.4	0.06	0.04			**75% Anoxic Depth**
16.0	0.00	0.00			**Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 1.6 gpm = 0.0035 cfs

Pool Volume

Drainage Area (DA):	3.34 ac
Runoff Coeff. (C):	0.53
R:	30.00 in
RT:	21.1 days
WS:	153 days
CF:	12 in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	0.61 ac-ft
Required PPV w/ GWF =	0.75 ac-ft
Provided PPV =	1.92 ac-ft
Provided PPV at = 75% Anoxic Depth	1.88 ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basins 25-29 Combined

Total Drainage Area	60.45	ac.
Impervious Building	12.94	ac.
Impervious Pavement	4.57	ac.
Pond @ NWL:	6.52	ac.
Open Space	36.42	ac.

Coverage	Area (ac.)	C	C*A	%
Impervious	17.51	0.95	16.64	29.0%
Open Space	36.42	0.25	9.10	60.2%
Pond	6.52	1.00	6.52	10.8%
Total Area (ac.):	60.45			
Weighted C:	0.53			
Weighted K:	484			

Ponds 25-29 Combined Data

Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
28.1	8.80	28.56	**MIN TOB EL.**
25.0	7.08	6.24	**WEIR EL.**
24.0	6.52	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
24.0	6.52	68.08	32.47	4.98	**NWL EL.**
18.0	3.58	37.78			**SC**
17.4	3.44	35.60			**75% Anoxic Depth**

Mean Pond Depth
>2,<8 O.K.

Stormwater Management: Post Developed Basins 25-29 Combined
Req'd Treatment Volume for Pond (RTV) for SWMF's 25-29

Treatment Volume (1): 1.01 " of rainfall over the entire basin area
5.07 ac-ft

Treatment Volume (2): 2.53 " of rainfall over the impervious area
3.68 ac-ft

Use Weir Elevation
25.0

Req'd TV: 5.07 ac-ft
Provided TV: 6.24 ac-ft

Groundwater Baseflow (From ECS Report)
SWMF 25-29 8.60 gpm 0.01892 cfs

Req'd Pool Volume
Drainage Area (DA): 60.45 ac

Runoff Coeff. (C): 0.53
R: 30.00 in
RT: 21.1 days
WS: 153 days
CF: 12 in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Drawdown Weir for Pond
Sized to Drawdown 1/2 of the RTV in 24-30 Hours

GWF	0.019	cfs	Ground Water Flow
TV Flow	1.28	cfs	Treatment Volume Flow
Notch Flow	1.30	cfs	GWF + TV Flow
t:	24	hrs	Recovery Time
CF:	3600	sec/hr	Conversion Factor
h:	0.75	ft	Head for Orifice
C:	0.6		Weir Coefficient
A:	0.31	sf	Weir Length
D:	0.63	ft	Weir Length

Required PPV = 11.11 ac-ft
Required PPV W/ GWF = 11.90 ac-ft
Provided PPV = 68.08 ac-ft
Provided PPV at = 75% Anoxic Depth 32.47 ac-ft

Orif Diameter = 7.5 in

Anoxic Depth Calculation for SWMF 25 thru 29

Land Use = **60.45** **Ac Single Family Residential and Roadway**

Impervious/DCIA Areas

Residential area will be 29.0% **impervious,** 63.0% **of which will be DCIA**

Impervious Area = 29.0% of site = 17.51 acres

DCIA Area = 17.51 X 63% 11.04 acres

DCIA Percentage = 11.04 ÷ 60.45 = 18.3% of developed area

Calculate composite non-DCIA curve number

From Drainage Calc's		CN		
HSG from Calcs	100.00%	80	=	80.00
	0.00%	61	=	0.00
		HSG AVG =		80.0

Round to 80.0

Curve Number for lawns in good condition = 80.0

Area of lawns = 60.45 - 17.51 = 42.94 acres pervious area

Impervious area which is not DCIA = 17.51 - 11.04 **=** 6.47 acres

Assume a curve number of 98 for impervious areas

Non-DCIA curve number = 82 =

$$\frac{(\ 42.94 \times 80\ ) + (\ 6.47 \times 98\ )}{42.94 + 6.47}$$

Calculate the annual runoff for the project area

Drainage Area = 60.45 acres

project site with 19% DCIA and non DCIA CN= 82

For Clay County County the annual rainfall is 49 in/yr ARV

From Chart Annual C value = 0.28 C (taken from chart for 20% and 82, See Appendix)

Annual Generated runoff volume = AC*ARV*1/12*C **=** 70.30 ac-ft/YR

Estimate Required Pond Volume

Annual Generated runoff volume = 70.30 ac-ft

For a 21 day residence time, the required pond volume will be:

$$70.30 \text{ ac-ft} \times \frac{1 \text{ year}}{365 \text{ days}} * 21 \text{ days} = 4.04 \text{ ac-ft}$$

For a single family residential use, the EMC for TP =			0.327	mg/l
For Highway use, the EMC for TP =			0.2	mg/l
Single Family Area =	55.88	AC	0.327	mg/l
Roadway Area =	4.57	AC	0.2	mg/l
Weighted Average, the EMC for TP =			0.32	mg/l

Calculate TP loading to wet detention pond

TP load to pond =

$$70.30 \text{ ac-ft/yr} \times \frac{43{,}560 \text{ ft}^2}{\text{ac}} \times \frac{7.48 \text{ gal}}{\text{ft}^3} \times \frac{3.785 \text{ liter}}{\text{gal}} \times \frac{0.32 \text{ mg}}{\text{liter}} \times \frac{1 \text{ Kg}}{10^6} = 27.74 \text{ kg TP/yr}$$

Calculate TP concentration in pond

At the proposed 21 day residence time, the TP removal was previously estimated as 65%
Annual mass of TP remaining in water column =
27.74 kg TP/yr X (1- 65%)= 9.71 kg TP/yr

This phosphorus mass will be distributed within the pond permanent pool 4.04 ac-ft and the pond outflow.
Assuming that inflow and outflow are approximately equal, the outflow will be 70.30 ac-ft.

Mean pond concentration =

$$9.71 \frac{\text{kg TP/yr}}{4.04 + 70.30 \text{ ac-ft}} \times \frac{1 \text{ yr}}{43{,}560 \text{ ft}^2} \times \frac{1 \text{ ac}}{7.48 \text{ gal}} \times \frac{1 \text{ ft}^3}{3.785 \text{ liter}} \times \frac{1 \text{ gal}}{\text{kg}} \times \frac{10^6 \text{ mg}}{\text{kg}} = 106 \text{ ug TP/liter}$$

0.11 mg TP/Liter

Calculate mean chlorophyll-a concentration in pond

ln(chyl-a) = 1.058 ln (TP) -.934

ln(chyl-a) = 4.00

chyl-a = 54.6 mg/m^3

Calculate mean Secchi disk depth

$$SD = \frac{24.2386 + [0.3041)(\text{chyl-a})]}{(6.0632+\text{chyl-a})}$$

SD = 0.67 meters = 2.20 ft

Calculate depth of anoxic condition in pond

Depth of DO<1 = 3.035 x Secchi + .02164 x (chyl-a) - .004979 x Total P

Depth of DO<1= Anoxic depth (m)

Secchi = Secchi disk depth (m)

chyl-a = chlorophyll-a concentration (mg/m^3)

Depth of Do < 1 = 2.69 meters = 8.83 ft
75 % of Anoxic Depth = 6.62 ft

Evaluate permanent pool volumes above Anoxic Depth

Permanent Pool Volume Required = 11.11 ac-ft

Permanent Pool Volume Provided at 75 % Anoxic Depth = 32.47 ac-ft

Permanent Pool provided above 75 % Anoxic Depth far exceeds required volume.

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basins 30

Total Drainage Area	7.24	ac.	
Impervious Building	1.22	ac.	** 33 Single Family Lots*
Impervious Pavement	0.74	ac.	
Pond @ NWL:	0.50	ac.	
Open Space "D"	4.78	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	1.96	98	0.95	192.08	1.86	27.1%	
Open Space	4.78	80	0.25	382.40	1.20	66.0%	(Good Condition)
Pond	0.50	100	1.00	50.00	0.50	6.9%	
Total Area (ac.):	7.24						
Weighted CN:	86.25						
Weighted C:	0.49						
Weighted K:	484						

Pond 30 Data
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
32.9	0.83	3.26	**MIN TOB EL.**
29.5	0.60	0.83	**WEIR EL.**
28.0	0.50	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
28.0	0.50	3.02	2.19	4.38	**NWL EL.**
22.0	0.19	0.95			**SC**
21.4	0.18	0.83			**75% Anoxic Depth**
12.0	0.00	0.00			**Bot**

Mean Pond Depth
>2,<8 O.K.

Stormwater Management: Post Developed Basin 30
Req'd Treatment Volume for Pond (RTV) for SWMF 30

Treatment Volume (1):	1.01	" of rainfall over the entire basin area		
	0.61	ac-ft		
Treatment Volume (2):	2.53	" of rainfall over the impervious area	**Use Weir Elevation**	
	0.41	ac-ft	29.5	

Req'd TV: 0.61 ac-ft
Provided TV: 0.83 ac-ft

No Groundwater Inflow (From ECS Report)

Req'd Pool Volume

Drainage Area (DA): 7.24 ac

Runoff Coeff. (C):	0.49	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Drawdown Weir for Pond
Sized to Drawdown 1/2 of the RTV in 24-30 Hours

GWF	0.000	cfs	Ground Water Flow
TV Flow	0.15	cfs	Treatment Volume Flow
Notch Flow	0.15	cfs	GWF + TV Flow
t:	24	hrs	Recovery Time
CF:	3600	sec/hr	Conversion Factor
h:	1.125	ft	Head for Orifice
C:	0.6		Weir Coefficient
A:	0.03	sf	Weir Length
D:	0.20	ft	Weir Length

Required PPV =	1.22	ac-ft	**Orif Diameter =**	2.8 in
Provided PPV =	3.02	ac-ft		
Provided PPV at = 75% Anoxic Depth	2.19	ac-ft		

Anoxic Depth Calculation for SWMF 30

Land Use = **7.24** **Ac Single Family Residential and Roadway**

Impervious/DCIA Areas

Residential area will be 27.1% **impervious,** 68.9% **of which will be DCIA**

Impervious Area = 27.1% of site = 1.96 acres

DCIA Area = 1.96 X 69% 1.35 acres

DCIA Percentage = 1.35 ÷ 7.24 = 18.6% of developed area

Calculate composite non-DCIA curve number

From Drainage Calc's		CN				
HSG from Calcs	100.00%	80	=	80.00		
	0.00%	61	=	0.00		
		HSG AVG =		80.0	Round to	80.0
Curve Number for lawns in good condition					=	80.0

Area of lawns = 7.24 - 1.96 = 5.28 acres pervious area

Impervious area which is not DCIA = 1.96 - 1.35 **=** 0.61 acres

Assume a curve number of 98 for impervious areas

Non-DCIA curve number = 82 =

$$\frac{(\ 5.28\ X\ 80\ )+(\ 0.61\ X\ 98\ )}{5.28\ +\ 0.61}$$

Calculate the annual runoff for the project area

Drainage Area = 7.24 acres

project site with 19% DCIA and non DCIA CN= 82

For Clay County County the annual rainfall is 49 in/yr ARV

From Chart Annual C value = 0.26 C (taken from chart for 17% and 81, See Appendix)

Annual Generated runoff volume = AC*ARV*1/12*C **=** 7.58 ac-ft/YR

Estimate Required Pond Volume

Annual Generated runoff volume = 7.58 ac-ft

For a 21 day residence time, the required pond volume will be:

$$7.58\ \text{ac-ft}\ X\ \frac{1\ \text{year}}{365\ \text{days}}\ *\ 21\ \text{days} = 0.44\ \text{ac-ft}$$

For a single family residential use, the EMC for TP =			0.327	mg/l
For Highway use, the EMC for TP =			0.2	mg/l
Single Family Area =	6.50	AC	0.327	mg/l
Roadway Area =	0.74	AC	0.2	mg/l
Weighted Average, the EMC for TP =			0.31	mg/l

Calculate TP loading to wet detention pond

TP load to pond =

$$7.58\ \text{ac-ft/yr}\ X\ \frac{43{,}560\ \text{ft}^2}{\text{ac}}\ X\ \frac{7.48\ \text{gal}}{\text{ft}^3}\ X\ \frac{3.785\ \text{liter}}{\text{gal}}\ X\ \frac{0.31}{\text{liter}}\ \text{mg}\ X\ \frac{1\ \text{Kg}}{10^6} = 2.9\ \text{kg TP/yr}$$

Calculate TP concentration in pond

At the proposed 21 day residence time, the TP removal was previously estimated as 65%
Annual mass of TP remaining in water column =
2.9 kg TP/yr X (1- 65%)= 1.02 kg TP/yr

This phosphorus mass will be distributed within the pond permanent pool 0.44 ac-ft and the pond outflow.
Assuming that inflow and outflow are approximately equal, the outflow will be 7.58 ac-ft.

Mean pond concentration =

$$1.02\ \frac{\text{kg TP/yr}}{0.44 + 7.58\ \text{ac-ft}} \times \frac{1\ \text{yr}}{} \times \frac{1\ \text{ac}}{43{,}560\ \text{ft}^2} \times \frac{1\ \text{ft}^3}{7.48\ \text{gal}} \times \frac{1\ \text{gal}}{3.785\ \text{liter}} \times \frac{10^6\ \text{mg}}{\text{kg}} = 0.10\ \text{mg TP/Liter} = 103\ \text{ug TP/liter}$$

Calculate mean chlorophyll-a concentration in pond

ln(chyl-a) = 1.058 ln (TP) -.934

ln(chyl-a) = 3.97

chyl-a = 53.0 mg/m^3

Calculate mean Secchi disk depth

$$SD = \frac{24.2386 + [0.3041)(\text{chyl-a})]}{(6.0632+\text{chyl-a})}$$

SD = 0.68 meters = 2.23 ft

Calculate depth of anoxic condition in pond

Depth of DO<1 = 3.035 x Secchi + .02164 x (chyl-a) - .004979 x Total P

Depth of DO<1= Anoxic depth (m)

Secchi = Secchi disk depth (m)

chyl-a = chlorophyll-a concentration (mg/m^3)

Depth of Do < 1 = 2.70 meters = 8.86 ft
75 % of Anoxic Depth = 6.64 ft

Evaluate permanent pool volumes above Anoxic Depth

Permanent Pool Volume Required = 1.22 ac-ft

Permanent Pool Volume Provided at 75 % Anoxic Depth = 2.19 ac-ft

Permanent Pool provided above 75 % Anoxic Depth far exceeds required volume.

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basins 31

Total Drainage Area	9.14	ac.	
Impervious Building	1.22	ac.	** 40 Single Family Lots*
Impervious Pavement	0.81	ac.	
Pond @ NWL:	0.92	ac.	
Open Space "A"	6.19	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	2.03	98	0.95	198.94	1.93	22.2%	
Open Space	6.19	39	0.25	241.41	1.55	67.7%	(Good Condition)
Pond	0.92	100	1.00	92.00	0.92	10.1%	
Total Area (ac.):	9.14						
Weighted CN:	58.24						
Weighted C:	0.48						
Weighted K:	484						

Pond 31 Data
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
36.6	1.21	3.83	**MIN TOB EL.**
34.0	1.00	0.96	**WEIR EL.**
33.0	0.92	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
33.0	0.92	9.39	4.63	5.03	**NWL EL.**
27.0	0.51	5.10			**SC**
26.3	0.49	4.76			**75% Anoxic Depth**
7.0	0.00	0.00			**Bot**
				Mean Pond Depth	
				>2,<8 O.K.	

Stormwater Management: Post Developed Basin 31

Req'd Treatment Volume for Pond (RTV) for SWMF 31

Treatment Volume (1): 1.01 " of rainfall over the entire basin area
0.77 ac-ft

Treatment Volume (2): 2.53 " of rainfall over the impervious area
0.43 ac-ft

Use Weir Elevation
34.0

Req'd TV: 0.77 ac-ft
Provided TV: 0.96 ac-ft

Groundwater Baseflow (From ECS Report)
0.80 gpm 0.00176 cfs

Req'd Pool Volume

Drainage Area (DA): 9.14 ac

Runoff Coeff. (C): 0.48
R: 30.00 in
RT: 21.1 days
WS: 153 days
CF: 12 in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Drawdown Weir for Pond
Sized to Drawdown 1/2 of the RTV in 24-30 Hours

GWF	0.002	cfs	Ground Water Flow
TV Flow	0.19	cfs	Treatment Volume Flow
Notch Flow	0.19	cfs	GWF + TV Flow
t:	24	hrs	Recovery Time
CF:	3600	sec/hr	Conversion Factor
h:	0.75	ft	Head for Orifice
C:	0.6		Weir Coefficient
A:	0.05	sf	Weir Length
D:	0.24	ft	Weir Length

Required PPV = 1.51 ac-ft
Required PPV W/ GWF = 1.59 ac-ft
Provided PPV = 9.39 ac-ft
Provided PPV at = 75% Anoxic Depth 4.63 ac-ft

Orif Diameter = 2.9 in

Anoxic Depth Calculation for SWMF 31

Land Use = **9.14** **Ac Single Family Residential and Roadway**

Impervious/DCIA Areas

Residential area will be 22.2% **impervious,** 70.0% **of which will be DCIA**

Impervious Area = 22.2% of site = 2.03 acres

DCIA Area = 2.03 X 70% 1.42 acres

DCIA Percentage = 1.42 ÷ 9.14 = 15.5% of developed area

Calculate composite non-DCIA curve number

From Drainage Calc's		CN		
HSG from Calcs	100.00%	80	=	80.00
	0.00%	61	=	0.00
		HSG AVG =		80.0

Round to 80.0

Curve Number for lawns in good condition = 80.0

Area of lawns = 9.14 - 2.03 = 7.11 acres pervious area

Impervious area which is not DCIA = 2.03 - 1.42 **=** 0.61 acres

Assume a curve number of 98 for impervious areas

Non-DCIA curve number = 81 =

$$\frac{(\ 7.11\ X\ 80\ )+(\ 0.61\ X\ 98\ )}{7.11\ +\ 0.61}$$

Calculate the annual runoff for the project area

Drainage Area = 9.14 acres

project site with 16% DCIA and non DCIA CN= 81

For Duval County the annual rainfall is = 49 in/yr ARV

From Chart Annual C value = 0.25 C (taken from chart for 16% and 81, See Appendix)

Annual Generated runoff volume = AC*ARV*1/12*C **=** 9.31 ac-ft/YR

Estimate Required Pond Volume

Annual Generated runoff volume = 9.31 ac-ft

For a 21 day residence time, the required pond volume will be:

$$9.31\ \text{ac-ft}\ X\ \frac{1\ \text{year}}{365\ \text{days}}\ *\ 21\ \text{days} = 0.54\ \text{ac-ft}$$

For a single family residential use, the EMC for TP =			0.327	mg/l
For Highway use, the EMC for TP =			0.2	mg/l
Single Family Area =	8.33	AC	0.327	mg/l
Roadway Area =	0.81	AC	0.2	mg/l
Weighted Average, the EMC for TP =			0.32	mg/l

Calculate TP loading to wet detention pond

TP load to pond =

$$9.31\ \text{ac-ft/yr}\ X\ \frac{43{,}560\ \text{ft}^2}{\text{ac}}\ X\ \frac{7.48\ \text{gal}}{\text{ft}^3}\ X\ \frac{3.785\ \text{liter}}{\text{gal}}\ X\ \frac{0.32}{\text{liter}}\ \text{mg}\ X\ \frac{1\ \text{Kg}}{10^6} = 3.67\ \text{kg TP/yr}$$

Calculate TP concentration in pond

At the proposed 21 day residence time, the TP removal was previously estimated as 65%
Annual mass of TP remaining in water column =
3.67 kg TP/yr X (1- 65%)= 1.28 kg TP/yr

This phosphorus mass will be distributed within the pond permanent pool 0.54 ac-ft and the pond outflow.
Assuming that inflow and outflow are approximately equal, the outflow will be 9.31 ac-ft.

Mean pond concentration =

$$1.28\ \frac{\text{kg TP/yr}}{0.54 + 9.31\ \text{ac-ft}} \times \frac{1\ \text{yr}}{} \times \frac{1\ \text{ac}}{43{,}560\ \text{ft}^2} \times \frac{1\ \text{ft}^3}{7.48\ \text{gal}} \times \frac{1\ \text{gal}}{3.785\ \text{liter}} \times \frac{10^6\ \text{mg}}{\text{kg}} = 105\ \text{ug TP/liter}$$

0.11 mg TP/Liter

Calculate mean chlorophyll-a concentration in pond

ln(chyl-a) = 1.058 ln (TP) -.934

ln(chyl-a) = 3.99

chyl-a = 54.0 mg/m^3

Calculate mean Secchi disk depth

$$SD = \frac{24.2386 + [0.3041)(\text{chyl-a})]}{(6.0632+\text{chyl-a})}$$

SD = 0.68 meters = 2.23 ft

Calculate depth of anoxic condition in pond

Depth of DO<1 = 3.035 x Secchi + .02164 x (chyl-a) - .004979 x Total P

Depth of DO<1= Anoxic depth (m)

Secchi = Secchi disk depth (m)

chyl-a = chlorophyll-a concentration (mg/m^3)

Depth of Do < 1 = 2.71 meters = 8.89 ft
75 % of Anoxic Depth = 6.67 ft

Evaluate permanent pool volumes above Anoxic Depth

Permanent Pool Volume Required = 1.51 ac-ft

Permanent Pool Volume Provided at 75 % Anoxic Depth = 4.63 ac-ft

Permanent Pool provided above 75 % Anoxic Depth far exceeds required volume.

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 32

Total Drainage Area	4.68	ac.	
Impervious Building	0.96	ac.	** 15 Single Family Lots*
Impervious Pavement	0.31	ac.	
Pond @ NWL:	1.25	ac.	
Open Space "A"	2.16	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	1.27	98	0.95	124.87	1.21	27.2%	
Open Space	2.16	39	0.25	84.08	0.54	46.1%	(Good Condition)
Pond	1.25	100	1.00	125.00	1.25	26.7%	
Total Area (ac.):	4.68						
Weighted CN:	71.36						
Weighted C:	0.64						
Weighted K:	484						

Pond 32
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
37.7	1.76	7.07	**MIN TOB EL.**
37.6	1.75	6.90	**MIN INTERCONNECTED TOB EL.**
33.7	1.33	0.90	**WEIR EL.**
33.0	1.25	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
33.0	1.25	11.12	6.17	4.93	**NWL EL.**
27.0	0.67	5.36			**SC**
26.4	0.64	4.95			**75% Anoxic Depth**
11.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

Groundwater Inflow (From ECS Report)

From ECS Report Groundwater 0.4 gpm = 0.0009 cfs

Pool Volume

Drainage Area (DA):	4.68	ac
Runoff Coeff. (C):	0.64	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	1.03	ac-ft
Required PPV w/ GWF =	1.07	ac-ft
Provided PPV =	11.12	ac-ft
Provided PPV at = 75% Anoxic Depth	6.17	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin 33

Total Drainage Area	11.46	ac.	
Impervious Building	3.41	ac.	** 53 Single Family Lots*
Impervious Pavement	1.04	ac.	
Pond @ NWL:	1.10	ac.	
Open Space "A"	5.91	ac.	

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	4.45	98	0.95	435.79	4.22	38.8%	
Open Space	5.91	39	0.25	230.61	1.48	51.6%	(Good Condition)
Pond	1.10	100	1.00	110.00	1.10	9.6%	
Total Area (ac.):	11.46						
Weighted CN:	67.75						
Weighted C:	0.59						
Weighted K:	484						

Pond 33
Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
37.6	1.50	5.98	**MIN TOB EL.**
33.7	1.16	0.79	**WEIR EL.**
33.0	1.10	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
33.0	1.10	13.05	5.65	5.13	**NWL EL.**
27.0	0.65	7.80			**SC**
26.4	0.63	7.40			**75% Anoxic Depth**
3.0	0.00	0.00			**Max Bottom**
				Mean Pond Depth	
				>2,<8 O.K.	

No Groundwater Inflow (From ECS Report)
SWMF system with bleeddown outfall

Pool Volume

Drainage Area (DA):	11.46	ac
Runoff Coeff. (C):	0.59	
R:	30.00	in
RT:	21.1	days
WS:	153	days
CF:	12	in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Required PPV =	2.34	ac-ft
Provided PPV =	13.05	ac-ft
Provided PPV at = 75% Anoxic Depth	5.65	ac-ft

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basins 32-33 Combined

Total Drainage Area	16.14	ac.
Impervious Building	4.37	ac.
Impervious Pavement	1.35	ac.
Pond @ NWL:	2.35	ac.
Open Space	8.07	ac.

Coverage	Area (ac.)	C	C*A	%
Impervious	5.72	0.95	5.43	35.4%
Open Space	8.07	0.25	2.02	50.0%
Pond	2.35	1.00	2.35	14.6%
Total Area (ac.):	16.14			
Weighted C:	0.61			
Weighted K:	484			

Ponds 32-33 Combined Data

Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
37.6	3.25	12.88	**MIN TOB EL.**
33.7	2.49	1.69	**WEIR EL.**
33.0	2.35	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
33.0	2.35	24.17	11.81	5.03	**NWL EL.**
27.0	1.32	13.16			**SC**
26.4	1.28	12.36			**75% Anoxic Depth**

Mean Pond Depth
>2,<8 O.K.

Stormwater Management: Post Developed Basins 32-33 Combined
Req'd Treatment Volume for Pond (RTV) for SWMF's 32-33

Treatment Volume (1): 1.01 " of rainfall over the entire basin area
1.35 ac-ft

Treatment Volume (2): 2.53 " of rainfall over the impervious area
1.20 ac-ft

Use Weir Elevation
33.7

Req'd TV: 1.35 ac-ft
Provided TV: 1.69 ac-ft

Groundwater Baseflow (From ECS Report)
SWMF 32-33 0.20 gpm 0.00044 cfs

Req'd Pool Volume
Drainage Area (DA): 16.14 ac

Runoff Coeff. (C): 0.61
R: 30.00 in
RT: 21.1 days
WS: 153 days
CF: 12 in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Drawdown Weir for Pond
Sized to Drawdown 1/2 of the RTV in 24-30 Hours

GWF	0.0004	cfs	Ground Water Flow
TV Flow	0.34	cfs	Treatment Volume Flow
Notch Flow	0.34	cfs	GWF + TV Flow
t:	24	hrs	Recovery Time
CF:	3600	sec/hr	Conversion Factor
h:	0.525	ft	Head for Orifice
C:	0.6		Weir Coefficient
A:	0.10	sf	Weir Length
D:	0.35	ft	Weir Length

Required PPV = 3.37 ac-ft
Required PPV W/ GWF = 3.39 ac-ft
Provided PPV = 24.17 ac-ft
Provided PPV at = 75% Anoxic Depth 11.81 ac-ft

Orif Diameter = 4.2 in

Anoxic Depth Calculation for SWMF 32 thru 33

Land Use = **16.14** **Ac Single Family Residential and Roadway**

Impervious/DCIA Areas

Residential area will be 35.4% **impervious,** 61.8% **of which will be DCIA**

Impervious Area = 35.4% of site = 5.72 acres

DCIA Area = 5.72 X 62% 3.54 acres

DCIA Percentage = 3.54 ÷ 16.14 = 21.9% of developed area

Calculate composite non-DCIA curve number

From Drainage Calc's		CN		
HSG from Calcs	100.00%	80	=	80.00
	0.00%	61	=	0.00
		HSG AVG =		80.0

Round to 80.0

Curve Number for lawns in good condition = 80.0

Area of lawns = 16.14 - 5.72 = 10.42 acres pervious area

Impervious area which is not DCIA = 5.72 - 3.54 = 2.18 acres

Assume a curve number of 98 for impervious areas

Non-DCIA curve number = 83

$$\frac{(\ 10.42 \times 80\ ) + (\ 2.18 \times 98\ )}{10.42 + 2.18}$$

Calculate the annual runoff for the project area

Drainage Area = 16.14 acres

project site with 22% DCIA and non DCIA CN= 83

For Clay County County the annual rainfall is 49 in/yr ARV

From Chart Annual C value = 0.30 C (taken from chart for 22% and 83, See Appendix)

Annual Generated runoff volume = AC*ARV*1/12*C = 19.69 ac-ft/YR

Estimate Required Pond Volume

Annual Generated runoff volume = 19.69 ac-ft

For a 21 day residence time, the required pond volume will be:

$$19.69 \text{ ac-ft} \times \frac{1 \text{ year}}{365 \text{ days}} * 21 \text{ days} = 1.13 \text{ ac-ft}$$

For a single family residential use, the EMC for TP =		0.327	mg/l
For Highway use, the EMC for TP =		0.2	mg/l
Single Family Area =	14.79 AC	0.327	mg/l
Roadway Area =	1.35 AC	0.2	mg/l
Weighted Average, the EMC for TP =		0.32	mg/l

Calculate TP loading to wet detention pond

TP load to pond =

$$19.69 \text{ ac-ft/yr} \times \frac{43{,}560 \text{ ft}^2}{\text{ac}} \times \frac{7.48 \text{ gal}}{\text{ft}^3} \times \frac{3.785 \text{ liter}}{\text{gal}} \times \frac{0.32}{\text{liter}} \text{ mg} \times \frac{1 \text{ Kg}}{10^6} = 7.77 \text{ kg TP/yr}$$

Calculate TP concentration in pond

At the proposed 21 day residence time, the TP removal was previously estimated as 65%
Annual mass of TP remaining in water column =
7.77 kg TP/yr X (1- 65%)= 2.72 kg TP/yr

This phosphorus mass will be distributed within the pond permanent pool 1.13 ac-ft and the pond outflow.
Assuming that inflow and outflow are approximately equal, the outflow will be 19.69 ac-ft.

Mean pond concentration =

$$2.72 \frac{\text{kg TP/yr}}{1.13 + 19.69 \text{ ac-ft}} \times \frac{1 \text{ yr}}{43{,}560 \text{ ft}^2} \times \frac{1 \text{ ac}}{7.48 \text{ gal}} \times \frac{1 \text{ ft}^3}{3.785 \text{ liter}} \times \frac{1 \text{ gal}}{\text{kg}} \times \frac{10^6 \text{ mg}}{\text{kg}} = 106 \text{ ug TP/liter}$$

0.11 mg TP/Liter

Calculate mean chlorophyll-a concentration in pond

ln(chyl-a) = 1.058 ln (TP) -.934

ln(chyl-a) = 4.00

chyl-a = 54.6 mg/m^3

Calculate mean Secchi disk depth

$$SD = \frac{24.2386 + [0.3041)(\text{chyl-a})]}{(6.0632+\text{chyl-a})}$$

SD = 0.67 meters = 2.20 ft

Calculate depth of anoxic condition in pond

Depth of DO<1 = 3.035 x Secchi + .02164 x (chyl-a) - .004979 x Total P

Depth of DO<1= Anoxic depth (m)

Secchi = Secchi disk depth (m)

chyl-a = chlorophyll-a concentration (mg/m^3)

Depth of Do < 1 = 2.69 meters = 8.83 ft
75 % of Anoxic Depth = 6.62 ft

Evaluate permanent pool volumes above Anoxic Depth

Permanent Pool Volume Required = 3.37 ac-ft

Permanent Pool Volume Provided at 75 % Anoxic Depth = 11.81 ac-ft

Permanent Pool provided above 75 % Anoxic Depth far exceeds required volume.

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin J1

Total Drainage Area	25.97	ac.
Impervious Building	0.00	ac.
Impervious Pavement	0.00	ac.
Pond @ NWL:	22.81	ac.
Open Space "D"	3.16	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	0.00	98	0.95	0.00	0.00	0.0%	
Open Space	3.16	80	0.25	252.80	0.79	12.2%	(Good Condition)
Pond	22.81	100	1.00	2281.00	22.81	87.8%	
Total Area (ac.):	25.97						
Weighted CN:	97.57						
Weighted C:	0.91						
Weighted K:	484						

Pond J1 Data

Storage Volume

Stage ft	Area ac.	Total Storage Volume (af)	
31.2	23.62	51.07	**MIN TOB EL.**
29.2	22.88	4.57	**WEIR EL.**
29.0	22.81	0.00	**NWL EL.**

Provided Pool Volume

Stage ft	Area ac.	Storage Vol (acft)	Anoxic Vol (af)	Mean Depth	
29.0	22.81	768.41	142.66	6.25	**NWL EL.**
23.0	20.66	638.00			**SC**
22.4	20.52	625.75			**75% Anoxic Depth**
-17.0	11.24	0.00			**Bot**
				Mean Pond Depth	
				>2,<8 O.K.	

Stormwater Management: Post Developed Basin J1

Req'd Treatment Volume for Pond (RTV) for SWMF J1

Treatment Volume (1): 1.01 " of rainfall over the entire basin area
2.18 ac-ft

Treatment Volume (2): 2.53 " of rainfall over the impervious area
0.00 ac-ft

Use Weir Elevation
29.2

Req'd TV: 2.18 ac-ft
Provided TV: 4.57 ac-ft

Groundwater Baseflow (From ECS Report)
10.60 gpm 0.02332 cfs

Req'd Pool Volume

Drainage Area (DA): 25.97 ac

Runoff Coeff. (C): 0.91
R: 30.00 in
RT: 21.1 days
WS: 153 days
CF: 12 in/ft

$$PPV = \frac{DA \times C \times R \times RT}{WS \times CF}$$

Drawdown Weir for Pond
Sized to Drawdown 1/2 of the RTV in 24-30 Hours

GWF	0.023	cfs	Ground Water Flow
TV Flow	0.52	cfs	Treatment Volume Flow
Notch Flow	0.55	cfs	GWF + TV Flow
t:	25.1	hrs	Recovery Time
CF:	3600	sec/hr	Conversion Factor
h:	0.15	ft	Head for Orifice
C:	0.6		Weir Coefficient
A:	0.29	sf	Weir Length
D:	0.61	ft	Weir Length

Required PPV = 8.13 ac-ft
Required PPV W/ GWF = 9.10 ac-ft
Provided PPV = 768.41 ac-ft
Provided PPV at = 75% Anoxic Depth 142.66 ac-ft

Orif Diameter = 7.3 in

Anoxic Depth Calculation for SWMF J1

Land Use = 25.97 **Ac Single Family Residential and Roadway**

Impervious/DCIA Areas

Residential area will be 0.0% **impervious,** #DIV/0! **of which will be DCIA**

Impervious Area = 0.0% of site = 0.00 acres

DCIA Area = 0.00 X 0% - acres

DCIA Percentage = - ÷ 25.97 = 0.0% of developed area

Calculate composite non-DCIA curve number

From Drainage Calc's		CN				
HSG from Calcs	100.00%	80	=	80.00		
	0.00%	61	=	0.00		
		HSG AVG =		80.0	Round to	80.0
Curve Number for lawns in good condition					=	80.0

Area of lawns = 25.97 - 0.00 = 25.97 acres pervious area

Impervious area which is not DCIA = 0.00 - - = - acres

Assume a curve number of 98 for impervious areas

Non-DCIA curve number = 80 =

$$\frac{(\ 25.97 \times 80\ ) + (\ - \times 98\ )}{25.97 + -}$$

Calculate the annual runoff for the project area

Drainage Area = 25.97 acres

project site with 0% DCIA and non DCIA CN= 80

For Clay County County the annual rainfall is 49 in/yr ARV

From Chart Annual C value = 0.23 C (taken from chart for 15% and 80, See Appendix)

Annual Generated runoff volume = AC*ARV*1/12*C = 24.81 ac-ft/YR

Estimate Required Pond Volume

Annual Generated runoff volume = 24.81 ac-ft

For a 21 day residence time, the required pond volume will be:

$$24.81 \text{ ac-ft} \times \frac{1 \text{ year}}{365 \text{ days}} * 21 \text{ days} = 1.43 \text{ ac-ft}$$

For a single family residential use, the EMC for TP =		0.327	mg/l
For Highway use, the EMC for TP =		0.2	mg/l
Single Family Area =	25.97 AC	0.327	mg/l
Roadway Area =	0.00 AC	0.2	mg/l
Weighted Average, the EMC for TP =		0.33	mg/l

Calculate TP loading to wet detention pond

TP load to pond =

$$24.81 \text{ ac-ft/yr} \times \frac{43{,}560 \text{ ft}^2}{\text{ac}} \times \frac{7.48 \text{ gal}}{\text{ft}^3} \times \frac{3.785 \text{ liter}}{\text{gal}} \times \frac{0.33 \text{ mg}}{\text{liter}} \times \frac{1 \text{ Kg}}{10^6} = 10.1 \text{ kg TP/yr}$$

Calculate TP concentration in pond

At the proposed 21 day residence time, the TP removal was previously estimated as 65%
Annual mass of TP remaining in water column =
10.1 kg TP/yr X (1- 65%)= 3.54 kg TP/yr

This phosphorus mass will be distributed within the pond permanent pool 1.43 ac-ft and the pond outflow.
Assuming that inflow and outflow are approximately equal, the outflow will be 24.81 ac-ft.

Mean pond concentration =

$$3.54 \frac{\text{kg TP/yr}}{1.43 + 24.81 \text{ ac-ft}} \times \frac{1 \text{ yr}}{} \times \frac{1 \text{ ac}}{43{,}560 \text{ ft}^2} \times \frac{1 \text{ ft}^3}{7.48 \text{ gal}} \times \frac{1 \text{ gal}}{3.785 \text{ liter}} \times \frac{10^6 \text{ mg}}{\text{kg}} = 0.11 \text{ mg TP/Liter} = 109 \text{ ug TP/liter}$$

Calculate mean chlorophyll-a concentration in pond

ln(chyl-a) = 1.058 ln (TP) -.934

ln(chyl-a) = 4.03

chyl-a = 56.2 mg/m^3

Calculate mean Secchi disk depth

$$SD = \frac{24.2386 + [0.3041)(\text{chyl-a})]}{(6.0632+\text{chyl-a})}$$

SD = 0.66 meters = 2.17 ft

Calculate depth of anoxic condition in pond

Depth of DO<1 = 3.035 x Secchi + .02164 x (chyl-a) - .004979 x Total P

Depth of DO<1= Anoxic depth (m)

Secchi = Secchi disk depth (m)

chyl-a = chlorophyll-a concentration (mg/m^3)

Depth of Do < 1 = 2.68 meters = 8.79 ft
75 % of Anoxic Depth = 6.59 ft

Evaluate permanent pool volumes above Anoxic Depth

Permanent Pool Volume Required = 8.13 ac-ft

Permanent Pool Volume Provided at 75 % Anoxic Depth = 142.66 ac-ft

Permanent Pool provided above 75 % Anoxic Depth far exceeds required volume.

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Pond

Total Drainage Area	88.62	ac.
Impervious Building	0.00	ac.
Impervious Pavement	0.00	ac.
Pond @ NWL:	63.62	ac.
Open Space	25.00	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%
Impervious	0.00	98	0.95	0.00	0.00	0.0%
Open Space	25.00	80	0.25	2000.37	6.25	28.2%
Pond	63.62	100	1.00	6361.53	63.62	71.8%
Total Area (ac.):	88.62					
Weighted CN:	94.36					
Weighted C:	0.79					
Weighted K:	484					

Existing Pond

Stage ft	Area ac.	
34.5	87.12	**MIN TOB EL.**
33.0	75.20	
31.4	63.62	
30.0	57.77	

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin DDA 1

Total Drainage Area	0.30	ac.
Impervious Building	0.00	ac.
Impervious Pavement	0.00	ac.
Pond @ NWL:	0.00	ac.
Open Space "A"	0.30	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	0.00	98	0.95	0.00	0.00	0.0%	
Open Space	0.30	39	0.25	11.70	0.08	100.0%	(Good Condition)
Pond	0.00	100	1.00	0.00	0.00	0.0%	
Total Area (ac.):	0.30						
Weighted CN:	39.00						
Weighted C:	0.25						
Weighted K:	484						

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin DDA 2

Total Drainage Area	0.21	ac.
Impervious Building	0.00	ac.
Impervious Pavement	0.00	ac.
Pond @ NWL:	0.00	ac.
Open Space "A"	0.21	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	0.00	98	0.95	0.00	0.00	0.0%	
Open Space	0.21	39	0.25	8.19	0.05	100.0%	(Good Condition)
Pond	0.00	100	1.00	0.00	0.00	0.0%	
Total Area (ac.):	0.21						
Weighted CN:	39.00						
Weighted C:	0.25						
Weighted K:	484						

Project Name: **The Rookery** **DAI Project #:** 2008-499
Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** G. Wieger
Date: 4/5/23

Post Developed Basin DDA 3

Total Drainage Area	1.66	ac.
Impervious Building	0.00	ac.
Impervious Pavement	0.00	ac.
Pond @ NWL:	0.00	ac.
Open Space "A"	0.70	ac.
Open Space "D"	0.96	ac.

Weighted Curve Numbers

Coverage	Area (ac.)	CN	C	CN*A	C*A	%	
Impervious	0.00	98	0.95	0.00	0.00	0.0%	
Open Space "A"	0.70	39	0.25	27.30	0.18	42.2%	
Open Space "D"	0.96	80	0.25	76.80	0.24	57.8%	(Good Condition)
Pond	0.00	100	1.00	0.00	0.00	0.0%	
Total Area (ac.):	0.96						
Weighted CN:	62.71						
Weighted C:	0.25						
Weighted K:	484						

Time of Concentration Calculation (Tc)

SHEET FLOW		Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60						50	
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	n	P	Tt(min)	
AB	Woods	300	27.0	26.5	0.0017	0.4	5.04	111.3	
SHALLOW CONCENTRATED FLOW							Tt=L / V*60		
Tt Path	urf. Des	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft	Velocity(fps)			
BC	Woods	650	26.5	22.8	0.0057	1.2	Tc=	8.9	Min
							USE	121.0	Min

Project Name: **The Rookery** **DAI Project #:** **2008-499**

Client: **D.R. Horton, Inc. - Jacksonville** **Engineer:** **G. Wieger**

Date: **4/5/23**

FULL BUILD OUT OVERTREATMENT CALULATIONS

Pond Treated Area:	448.25	ac.	
Total DDA Areas	2.17	ac.	DDA 1-3
Untreated DDA Area:	2.17	ac.	
Max Overtreatment Area @ 10%:	44.83	ac.	

Calculation for Required Treatment Efficiency =

$$\frac{\text{(Treated Area + Untreated Area) x 80\%}}{\text{Treated Area}} = \textbf{80.4\%}$$

Calculation for 40% or Less Impervious

80% Treatment over the Drainage area Requires	1	"
95% Treatment over the Drainage area Requires	1.2	"
80.4% Over Treatment over the Drainage area Requires	**1.01**	"

Calculation for More Than 40% Impervious

80% Treatment over the Drainage area Requires	2.5	"
95% Treatment over the Drainage area Requires	3.75	"
80.4% Over Treatment over the Drainage area Requires	**2.53**	"

Calculation for Residence Time

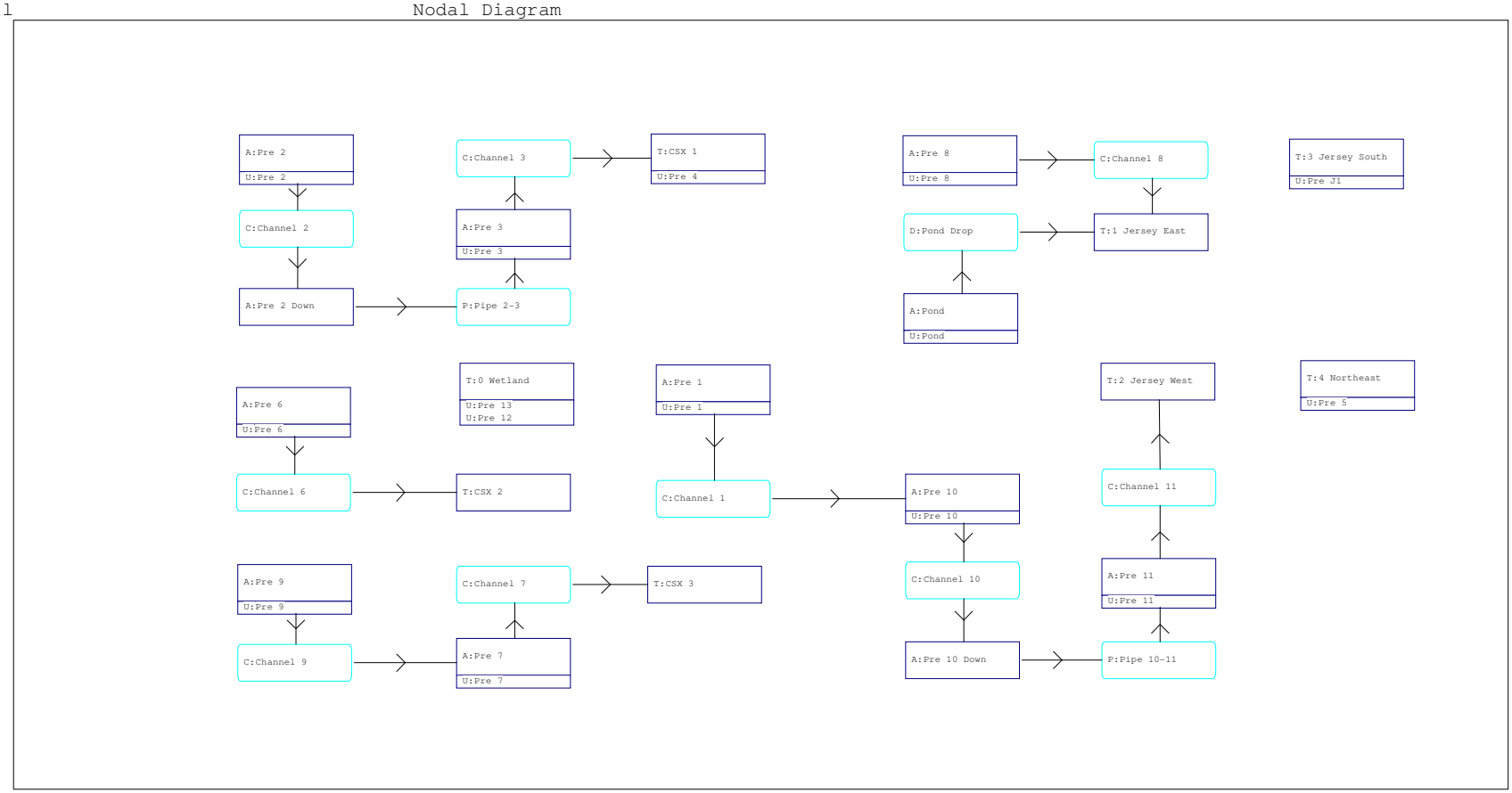
80% Treatment Requires	21	days
95% Treatment Requires	31.5	days
80.4% Over Treatment Requires	**21.07**	days

PRE DRAINAGE CALCULATIONS (ICPR)

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



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12/1/2022 10:33:03 AM

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==== Basins ==========
==========

Name: Pond Node: Pond Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 88.620 Time Shift(hrs): 0.00
Curve Number: 96.97 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pre 1 Node: Pre 1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 110.00
Area(ac): 131.000 Time Shift(hrs): 0.00
Curve Number: 75.30 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pre 10 Node: Pre 10 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 136.00
Area(ac): 52.260 Time Shift(hrs): 0.00
Curve Number: 59.74 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pre 11 Node: Pre 11 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 46.00
Area(ac): 19.040 Time Shift(hrs): 0.00
Curve Number: 79.68 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pre 12 Node: 0 Wetland Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 28.00
Area(ac): 9.240 Time Shift(hrs): 0.00
Curve Number: 50.09 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pre 13 Node: 0 Wetland Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 0.00

Rainfall Amount(in): 0.000 Time of Conc(min): 51.00
Area(ac): 16.140 Time Shift(hrs): 0.00
Curve Number: 58.05 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pre 2 Node: Pre 2 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 43.00
Area(ac): 33.020 Time Shift(hrs): 0.00
Curve Number: 80.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pre 3 Node: Pre 3 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 61.00
Area(ac): 47.050 Time Shift(hrs): 0.00
Curve Number: 80.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pre 4 Node: CSX 1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 0.820 Time Shift(hrs): 0.00
Curve Number: 80.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pre 5 Node: 4 Northeast Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 34.00
Area(ac): 20.340 Time Shift(hrs): 0.00
Curve Number: 50.03 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pre 6 Node: Pre 6 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 57.00
Area(ac): 36.730 Time Shift(hrs): 0.00
Curve Number: 80.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pre 7 Node: Pre 7 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 48.00
Area(ac): 34.130 Time Shift(hrs): 0.00
Curve Number: 80.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pre 8 Node: Pre 8 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 75.00
Area(ac): 10.860 Time Shift(hrs): 0.00
Curve Number: 80.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pre 9 Node: Pre 9 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 47.00
Area(ac): 13.670 Time Shift(hrs): 0.00
Curve Number: 39.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pre J1 Node: 3 Jersey South Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 32.00
Area(ac): 25.970 Time Shift(hrs): 0.00
Curve Number: 57.71 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

==========
==== Nodes ==========
==========

Name: 0 Wetland Base Flow(cfs): 0.000 Init Stage(ft): 31.000
Group: BASE Warn Stage(ft): 36.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	31.000
12.00	33.000
24.00	31.000

Name: 1 Jersey East Base Flow(cfs): 0.000 Init Stage(ft): 27.000
Group: BASE Warn Stage(ft): 29.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	27.000

12.00	28.000
24.00	27.000

Name: 2 Jersey West Base Flow(cfs): 0.000 Init Stage(ft): 27.000
Group: BASE Warn Stage(ft): 29.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	27.000
12.00	28.000
24.00	27.000

Name: 3 Jersey South Base Flow(cfs): 0.000 Init Stage(ft): 27.000
Group: BASE Warn Stage(ft): 29.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	27.000
12.00	28.000
24.00	27.000

Name: 4 Northeast Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 26.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	23.000
12.00	24.000
24.00	23.000

Name: CSX 1 Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 26.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	23.000
12.00	25.000
24.00	23.000

Name: CSX 2 Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 26.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	23.000
12.00	25.000
24.00	23.000

Name: CSX 3 Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 26.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	23.000
12.00	25.000
24.00	23.000

Name: Pond Base Flow(cfs): 0.000 Init Stage(ft): 33.000
Group: BASE Warn Stage(ft): 34.500
Type: Stage/Area

Stage(ft)	Area(ac)
30.000	57.7700
31.700	64.8700
34.500	87.1200

Name: Pre 1 Base Flow(cfs): 0.000 Init Stage(ft): 32.000
Group: BASE Warn Stage(ft): 35.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: Pre 10 Base Flow(cfs): 0.000 Init Stage(ft): 29.800
Group: BASE Warn Stage(ft): 35.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: Pre 10 Down Base Flow(cfs): 0.000 Init Stage(ft): 27.150
Group: BASE Warn Stage(ft): 30.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: Pre 11 Base Flow(cfs): 0.000 Init Stage(ft): 26.150
Group: BASE Warn Stage(ft): 33.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: Pre 2 Base Flow(cfs): 0.000 Init Stage(ft): 24.300
Group: BASE Warn Stage(ft): 30.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: Pre 2 Down Base Flow(cfs): 0.000 Init Stage(ft): 24.950
Group: BASE Warn Stage(ft): 30.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: Pre 3 Base Flow(cfs): 0.000 Init Stage(ft): 24.760
Group: BASE Warn Stage(ft): 27.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: Pre 6 Base Flow(cfs): 0.000 Init Stage(ft): 23.800
Group: BASE Warn Stage(ft): 29.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: Pre 7 Base Flow(cfs): 0.000 Init Stage(ft): 25.800
Group: BASE Warn Stage(ft): 30.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: Pre 8 Base Flow(cfs): 0.000 Init Stage(ft): 27.540
Group: BASE Warn Stage(ft): 30.000
Type: Stage/Area

Stage(ft)	Area(ac)

Name: Pre 9 Base Flow(cfs): 0.000 Init Stage(ft): 27.000
Group: BASE Warn Stage(ft): 30.000
Type: Stage/Area

Stage(ft)	Area(ac)

Pipes

Name: Pipe 10-11 From Node: Pre 10 Down Length(ft): 50.00
Group: BASE To Node: Pre 11 Count: 1
Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.00
Exit Loss Coef: 1.00
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	42.00	42.00
Rise(in):	42.00	42.00
Invert(ft):	27.150	26.150
Manning's N:	0.020000	0.020000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: Pipe 2-3 From Node: Pre 2 Down Length(ft): 60.00
Group: BASE To Node: Pre 3 Count: 1
Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.00
Exit Loss Coef: 1.00
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	24.950	24.760
Manning's N:	0.020000	0.020000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

==========
==== Channels ==========
==========

Name: Channel 1 From Node: Pre 1 Length(ft): 300.00
Group: BASE To Node: Pre 10 Count: 1
Friction Equation: Automatic
Solution Algorithm: Automatic
Flow: Both
Contraction Coef: 0.100
Expansion Coef: 0.300
Entrance Loss Coef: 0.000
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Trapezoidal	Trapezoidal
Invert(ft):	32.000	29.800
TClpInitZ(ft):	9999.000	9999.000
Manning's N:	0.090000	0.090000
Top Clip(ft):	0.000	0.000
Bot Clip(ft):	0.000	0.000
Main XSec:		
AuxElev1(ft):		
Aux XSec1:		
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):	10.000	10.000
LtSdSlp(h/v):	3.00	3.00
RtSdSlp(h/v):	3.00	3.00

Name: Channel 10 From Node: Pre 10 Length(ft): 4965.00
Group: BASE To Node: Pre 10 Down Count: 1
Friction Equation: Automatic
Solution Algorithm: Automatic
Flow: Both
Contraction Coef: 0.100
Expansion Coef: 0.300
Entrance Loss Coef: 0.000
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Trapezoidal	Trapezoidal
Invert(ft):	29.800	27.150
TClpInitZ(ft):	9999.000	9999.000
Manning's N:	0.090000	0.090000
Top Clip(ft):	0.000	0.000
Bot Clip(ft):	0.000	0.000
Main XSec:		
AuxElev1(ft):		
Aux XSec1:		
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):	10.000	10.000
LtSdSlp(h/v):	3.00	3.00

RtSdSlp(h/v): 3.00 3.00

Name: Channel 11 From Node: Pre 11 Length(ft): 896.00
Group: BASE To Node: 2 Jersey West Count: 1

	UPSTREAM	DOWNSTREAM		
Geometry:	Trapezoidal	Trapezoidal	Friction Equation:	Automatic
Invert(ft):	26.150	27.050	Solution Algorithm:	Automatic
TClpInitZ(ft):	9999.000	9999.000	Flow:	Both
Manning's N:	0.090000	0.090000	Contraction Coef:	0.100
Top Clip(ft):	0.000	0.000	Expansion Coef:	0.300
Bot Clip(ft):	0.000	0.000	Entrance Loss Coef:	0.000
Main XSec:			Exit Loss Coef:	0.000
AuxElev1(ft):			Outlet Ctrl Spec:	Use dc or tw
Aux XSec1:			Inlet Ctrl Spec:	Use dc
AuxElev2(ft):			Stabilizer Option:	None
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):	10.000	10.000		
LtSdSlp(h/v):	3.00	3.00		
RtSdSlp(h/v):	3.00	3.00		

Name: Channel 2 From Node: Pre 2 Length(ft): 3250.00
Group: BASE To Node: Pre 2 Down Count: 1

	UPSTREAM	DOWNSTREAM		
Geometry:	Trapezoidal	Trapezoidal	Friction Equation:	Automatic
Invert(ft):	26.350	24.950	Solution Algorithm:	Automatic
TClpInitZ(ft):	9999.000	9999.000	Flow:	Both
Manning's N:	0.090000	0.090000	Contraction Coef:	0.100
Top Clip(ft):	0.000	0.000	Expansion Coef:	0.300
Bot Clip(ft):	0.000	0.000	Entrance Loss Coef:	0.000
Main XSec:			Exit Loss Coef:	0.000
AuxElev1(ft):			Outlet Ctrl Spec:	Use dc or tw
Aux XSec1:			Inlet Ctrl Spec:	Use dc
AuxElev2(ft):			Stabilizer Option:	None
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):	10.000	10.000		
LtSdSlp(h/v):	3.00	3.00		
RtSdSlp(h/v):	3.00	3.00		

Name: Channel 3 From Node: Pre 3 Length(ft): 1140.00
Group: BASE To Node: CSX 1 Count: 1

	UPSTREAM	DOWNSTREAM		
Geometry:	Trapezoidal	Trapezoidal	Friction Equation:	Automatic
Invert(ft):	24.760	22.500	Solution Algorithm:	Automatic
TClpInitZ(ft):	9999.000	9999.000	Flow:	Both
Manning's N:	0.090000	0.090000	Contraction Coef:	0.100
Top Clip(ft):	0.000	0.000	Expansion Coef:	0.300
Bot Clip(ft):	0.000	0.000	Entrance Loss Coef:	0.000
Main XSec:			Exit Loss Coef:	0.000
AuxElev1(ft):			Outlet Ctrl Spec:	Use dc or tw
Aux XSec1:			Inlet Ctrl Spec:	Use dc
AuxElev2(ft):			Stabilizer Option:	None
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):	10.000	10.000		
LtSdSlp(h/v):	3.00	3.00		
RtSdSlp(h/v):	3.00	3.00		

Name: Channel 6 From Node: Pre 6 Length(ft): 770.00
Group: BASE To Node: CSX 2 Count: 1

	UPSTREAM	DOWNSTREAM		
Geometry:	Trapezoidal	Trapezoidal	Friction Equation:	Automatic
Invert(ft):	23.800	22.700	Solution Algorithm:	Automatic
TClpInitZ(ft):	9999.000	9999.000	Flow:	Both
Manning's N:	0.090000	0.090000	Contraction Coef:	0.100
Top Clip(ft):	0.000	0.000	Expansion Coef:	0.300
Bot Clip(ft):	0.000	0.000	Entrance Loss Coef:	0.000
Main XSec:			Exit Loss Coef:	0.000
AuxElev1(ft):			Outlet Ctrl Spec:	Use dc or tw
Aux XSec1:			Inlet Ctrl Spec:	Use dc
AuxElev2(ft):			Stabilizer Option:	None
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):	5.000	5.000		
LtSdSlp(h/v):	3.00	3.00		
RtSdSlp(h/v):	3.00	3.00		

Name: Channel 7 From Node: Pre 7 Length(ft): 675.00
Group: BASE To Node: CSX 3 Count: 1

	UPSTREAM	DOWNSTREAM		
Geometry:	Trapezoidal	Trapezoidal	Friction Equation:	Automatic
Invert(ft):	25.800	24.900	Solution Algorithm:	Automatic
TClpInitZ(ft):	9999.000	9999.000	Flow:	Both
Manning's N:	0.090000	0.090000	Contraction Coef:	0.100
Top Clip(ft):	0.000	0.000	Expansion Coef:	0.300
Bot Clip(ft):	0.000	0.000	Entrance Loss Coef:	0.000
Main XSec:			Exit Loss Coef:	0.000
AuxElev1(ft):			Outlet Ctrl Spec:	Use dc or tw
Aux XSec1:			Inlet Ctrl Spec:	Use dc
AuxElev2(ft):			Stabilizer Option:	None
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):	10.000	10.000		
LtSdSlp(h/v):	4.00	4.00		
RtSdSlp(h/v):	4.00	4.00		

Name: Channel 8 From Node: Pre 8 Length(ft): 275.00
Group: BASE To Node: 1 Jersey East Count: 1

	UPSTREAM	DOWNSTREAM		
Geometry:	Trapezoidal	Trapezoidal	Friction Equation:	Automatic
Invert(ft):	27.540	27.050	Solution Algorithm:	Automatic
TClpInitZ(ft):	9999.000	9999.000	Flow:	Both
Manning's N:	0.090000	0.090000	Contraction Coef:	0.100
Top Clip(ft):	0.000	0.000	Expansion Coef:	0.300
Bot Clip(ft):	0.000	0.000	Entrance Loss Coef:	0.000
Main XSec:			Exit Loss Coef:	0.000
AuxElev1(ft):			Outlet Ctrl Spec:	Use dc or tw
Aux XSec1:			Inlet Ctrl Spec:	Use dc
AuxElev2(ft):			Stabilizer Option:	None
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):	10.000	10.000		
LtSdSlp(h/v):	6.00	6.00		
RtSdSlp(h/v):	6.00	6.00		

Name: Channel 9 From Node: Pre 9 Length(ft): 1700.00

Group: BASE To Node: Pre 7 Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Trapezoidal	Trapezoidal
Invert(ft):	27.000	25.800
TClpInitZ(ft):	9999.000	9999.000
Manning's N:	0.090000	0.090000
Top Clip(ft):	0.000	0.000
Bot Clip(ft):	0.000	0.000
Main XSec:		
AuxElev1(ft):		
Aux XSec1:		
AuxElev2(ft):		
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):	10.000	10.000
LtSdSlp(h/v):	4.00	4.00
RtSdSlp(h/v):	4.00	4.00

Friction Equation:	Automatic
Solution Algorithm:	Automatic
Flow:	Both
Contraction Coef:	0.100
Expansion Coef:	0.300
Entrance Loss Coef:	0.000
Exit Loss Coef:	0.000
Outlet Ctrl Spec:	Use dc or tw
Inlet Ctrl Spec:	Use dc
Stabilizer Option:	None

==========
==== Drop Structures ==========
==========

Name: Pond Drop From Node: Pond Length(ft): 50.00
Group: BASE To Node: 1 Jersey East Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	36.00	36.00
Rise(in):	36.00	36.00
Invert(ft):	27.890	27.570
Manning's N:	0.012000	0.012000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation:	Automatic
Solution Algorithm:	Most Restrictive
Flow:	Both
Entrance Loss Coef:	0.000
Exit Loss Coef:	1.000
Outlet Ctrl Spec:	Use dc or tw
Inlet Ctrl Spec:	Use dc
Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 1 for Drop Structure Pond Drop ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	99.00	Invert(ft):	33.000
Rise(in):	76.00	Control Elev(ft):	33.000

==========
==== Hydrology Simulations ==========
==========

Name: 100 Year
Filename: P:\2008-499 AYRSHIRE\ENGINEERING\DRAINAGE\ICPR\OVERALL\PRE\100 Year.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 10.90

Time(hrs)	Print Inc(min)
30.000	15.00

Name: 25 Year

Filename: P:\2008-499 AYRSHIRE\ENGINEERING\DRAINAGE\ICPR\OVERALL\PRE\25 Year.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 8.06

Time(hrs)	Print Inc(min)
30.000	15.00

Name: 3 Year
Filename: P:\2008-499 AYRSHIRE\ENGINEERING\DRAINAGE\ICPR\OVERALL\PRE\3 Year.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 4.78

Time(hrs)	Print Inc(min)
30.000	15.00

==========
==== Routing Simulations ==========
==========

Name: 100 Year Hydrology Sim: 100 Year
Filename: P:\2008-499 AYRSHIRE\ENGINEERING\DRAINAGE\ICPR\OVERALL\PRE\100 Year.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 24.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
24.000	15.000

Group	Run
BASE	Yes

Name: 25 Year Hydrology Sim: 25 Year
Filename: P:\2008-499 AYRSHIRE\ENGINEERING\DRAINAGE\ICPR\OVERALL\PRE\25 Year.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 24.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
24.000	15.000

Group	Run
BASE	Yes

```
--------------------------------------------------------------------------------------------------
         Name: 3 Year              Hydrology Sim: 3 Year
     Filename: P:\2008-499 AYRSHIRE\ENGINEERING\DRAINAGE\ICPR\OVERALL\PRE\3 Year.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No

       Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
       Start Time(hrs): 0.000                    End Time(hrs): 24.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
       Boundary Stages:                        Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
24.000          60.000

Group           Run
--------------- -----
BASE            Yes
```

Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
100 Year	Pond	BASE	12.00	705.02	10.520	3384100
100 Year	Pre 1	BASE	13.25	182.02	7.755	3687718
100 Year	Pre 10	BASE	13.67	43.39	5.598	1061983
100 Year	Pre 11	BASE	12.50	51.24	8.343	576620
100 Year	Pre 12	BASE	12.32	15.98	4.199	140848
100 Year	Pre 13	BASE	12.58	25.85	5.352	313538
100 Year	Pre 2	BASE	12.42	93.11	8.373	1003662
100 Year	Pre 3	BASE	12.67	106.51	8.376	1430533
100 Year	Pre 4	BASE	12.04	4.73	8.382	24949
100 Year	Pre 5	BASE	12.39	31.48	4.190	309374
100 Year	Pre 6	BASE	12.58	87.02	8.380	1117249
100 Year	Pre 7	BASE	12.50	90.06	8.379	1038144
100 Year	Pre 8	BASE	12.83	21.43	8.382	330423
100 Year	Pre 9	BASE	12.58	9.30	2.580	128040
100 Year	Pre J1	BASE	12.30	54.51	5.305	500110
25 Year	Pond	BASE	12.00	520.14	7.687	2472679
25 Year	Pre 1	BASE	13.25	119.74	5.128	2438484
25 Year	Pre 10	BASE	13.75	25.03	3.348	635082
25 Year	Pre 11	BASE	12.50	34.95	5.644	390088
25 Year	Pre 12	BASE	12.32	8.10	2.293	76917
25 Year	Pre 13	BASE	12.58	14.68	3.157	184956
25 Year	Pre 2	BASE	12.42	63.57	5.674	680074
25 Year	Pre 3	BASE	12.67	72.62	5.675	969318
25 Year	Pre 4	BASE	12.04	3.25	5.679	16905
25 Year	Pre 5	BASE	12.39	15.91	2.287	168831
25 Year	Pre 6	BASE	12.58	59.31	5.678	757040
25 Year	Pre 7	BASE	12.50	61.50	5.678	703439
25 Year	Pre 8	BASE	12.83	14.59	5.679	223892
25 Year	Pre 9	BASE	12.75	3.47	1.182	58678
25 Year	Pre J1	BASE	12.37	31.01	3.120	294156
3 Year	Pond	BASE	12.02	305.93	4.419	1421404
3 Year	Pre 1	BASE	13.33	51.88	2.296	1091654
3 Year	Pre 10	BASE	13.92	7.61	1.158	219598
3 Year	Pre 11	BASE	12.50	16.49	2.674	184780
3 Year	Pre 12	BASE	12.44	1.52	0.608	20399
3 Year	Pre 13	BASE	12.67	4.13	1.052	61606
3 Year	Pre 2	BASE	12.42	30.04	2.698	323421
3 Year	Pre 3	BASE	12.67	34.25	2.699	460976
3 Year	Pre 4	BASE	12.04	1.56	2.701	8040
3 Year	Pre 5	BASE	12.54	2.98	0.605	44678
3 Year	Pre 6	BASE	12.67	27.98	2.700	360023
3 Year	Pre 7	BASE	12.50	29.08	2.700	334533
3 Year	Pre 8	BASE	12.83	6.86	2.701	106476
3 Year	Pre 9	BASE	15.75	0.22	0.158	7831
3 Year	Pre J1	BASE	12.44	8.66	1.031	97190

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
0 Wetland	BASE	100 Year	12.00	33.00	36.00	0.0028	0	12.50	40.38	0.00	0.00
1 Jersey East	BASE	100 Year	12.00	28.00	29.00	0.0014	2926	13.00	70.22	0.00	0.00
2 Jersey West	BASE	100 Year	12.00	28.00	29.00	0.0014	8349	15.06	133.94	0.00	0.00
3 Jersey South	BASE	100 Year	12.00	28.00	29.00	0.0014	0	12.25	53.56	0.00	0.00
4 Northeast	BASE	100 Year	12.00	24.00	26.00	0.0014	0	12.50	30.59	0.00	0.00
CSX 1	BASE	100 Year	12.00	25.00	26.00	0.0028	14063	12.83	117.74	0.00	0.00
CSX 2	BASE	100 Year	12.00	25.00	26.00	0.0028	7546	12.63	85.21	0.00	0.00
CSX 3	BASE	100 Year	12.00	25.00	26.00	0.0028	5816	12.83	84.77	0.00	0.00
Pond	BASE	100 Year	13.61	33.66	34.50	0.0015	3503457	12.00	704.99	13.61	49.81
Pre 1	BASE	100 Year	13.97	36.87	35.00	0.0045	6431	13.25	182.01	13.26	179.77
Pre 10	BASE	100 Year	15.58	36.70	35.00	0.0050	142015	13.26	220.52	13.94	195.11
Pre 10 Down	BASE	100 Year	16.14	36.00	30.00	-0.0050	149418	13.94	195.11	16.14	123.37
Pre 11	BASE	100 Year	15.06	31.05	33.00	0.0050	15500	14.98	133.96	15.06	133.94
Pre 2	BASE	100 Year	14.59	31.38	30.00	-2.0500	68586	12.50	92.10	12.75	66.92
Pre 2 Down	BASE	100 Year	14.71	31.29	30.00	0.0044	74974	12.75	66.92	15.42	27.82
Pre 3	BASE	100 Year	12.84	28.78	27.00	0.0039	18153	12.75	118.14	12.84	116.71
Pre 6	BASE	100 Year	12.62	27.82	29.00	0.0050	10271	12.50	85.90	12.63	85.21
Pre 7	BASE	100 Year	12.83	29.02	30.00	0.0033	39200	12.54	88.98	12.83	84.77
Pre 8	BASE	100 Year	12.80	29.02	30.00	0.0016	3678	12.75	21.38	12.80	21.29
Pre 9	BASE	100 Year	12.96	29.10	30.00	0.0034	24774	12.75	9.09	13.30	9.90
0 Wetland	BASE	25 Year	12.00	33.00	36.00	0.0028	0	12.50	22.12	0.00	0.00
1 Jersey East	BASE	25 Year	12.00	28.00	29.00	0.0014	2861	13.01	46.17	0.00	0.00
2 Jersey West	BASE	25 Year	12.00	28.00	29.00	0.0014	7959	15.31	102.44	0.00	0.00
3 Jersey South	BASE	25 Year	12.00	28.00	29.00	0.0014	0	12.25	30.01	0.00	0.00
4 Northeast	BASE	25 Year	12.00	24.00	26.00	0.0014	0	12.50	15.71	0.00	0.00
CSX 1	BASE	25 Year	12.00	25.00	26.00	0.0028	13596	12.94	80.21	0.00	0.00
CSX 2	BASE	25 Year	12.00	25.00	26.00	0.0028	7247	12.69	58.00	0.00	0.00
CSX 3	BASE	25 Year	12.00	25.00	26.00	0.0028	5303	12.89	53.85	0.00	0.00
Pond	BASE	25 Year	13.74	33.50	34.50	0.0014	3447122	12.00	519.36	13.74	32.52
Pre 1	BASE	25 Year	13.99	35.71	35.00	0.0040	5363	13.25	119.73	13.26	118.31
Pre 10	BASE	25 Year	14.15	35.36	35.00	0.0050	111910	13.28	141.44	14.20	124.37
Pre 10 Down	BASE	25 Year	15.74	33.33	30.00	-0.0049	112990	14.20	124.37	15.74	94.85
Pre 11	BASE	25 Year	15.31	30.58	33.00	0.0050	14445	15.21	102.46	15.31	102.44
Pre 2	BASE	25 Year	14.14	30.12	30.00	-2.0500	56032	12.50	63.05	12.86	45.85
Pre 2 Down	BASE	25 Year	14.42	29.92	30.00	-0.0050	61860	12.86	45.85	15.03	23.12
Pre 3	BASE	25 Year	12.96	28.15	27.00	0.0041	16522	12.75	80.46	12.96	79.63
Pre 6	BASE	25 Year	12.67	27.28	29.00	0.0050	9332	12.50	58.38	12.69	58.00
Pre 7	BASE	25 Year	12.89	28.45	30.00	0.0040	33924	12.72	57.21	12.89	53.85
Pre 8	BASE	25 Year	12.82	28.79	30.00	0.0015	3398	12.75	14.53	12.82	14.45
Pre 9	BASE	25 Year	13.03	28.49	30.00	0.0033	20658	12.75	3.47	13.54	4.56
0 Wetland	BASE	3 Year	12.00	33.00	36.00	0.0028	0	12.75	5.49	0.00	0.00
1 Jersey East	BASE	3 Year	12.00	28.00	29.00	0.0014	2783	13.04	21.28	0.00	0.00
2 Jersey West	BASE	3 Year	12.00	28.00	29.00	0.0014	7701	15.55	46.76	0.00	0.00
3 Jersey South	BASE	3 Year	12.00	28.00	29.00	0.0014	0	12.50	8.55	0.00	0.00
4 Northeast	BASE	3 Year	12.00	24.00	26.00	0.0014	0	12.50	2.95	0.00	0.00
CSX 1	BASE	3 Year	12.00	25.00	26.00	0.0028	12994	13.23	37.63	0.00	0.00
CSX 2	BASE	3 Year	12.00	25.00	26.00	0.0028	6869	12.77	27.31	0.00	0.00
CSX 3	BASE	3 Year	12.00	25.00	26.00	0.0028	4497	13.03	23.03	0.00	0.00
Pond	BASE	3 Year	14.60	33.30	34.50	0.0012	3378978	12.00	305.26	14.60	15.20
Pre 1	BASE	3 Year	14.04	34.05	35.00	0.0049	3798	13.25	51.69	13.28	51.30
Pre 10	BASE	3 Year	14.53	33.44	35.00	0.0041	80280	13.50	58.25	14.61	47.58

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
Pre 10 Down	BASE	3 Year	15.72	30.20	30.00	0.0032	71865	14.61	47.58	15.70	43.07
Pre 11	BASE	3 Year	15.55	29.44	33.00	0.0050	11854	15.43	46.79	15.55	46.76
Pre 2	BASE	3 Year	13.12	28.84	30.00	-2.0500	40267	12.50	30.01	13.17	20.97
Pre 2 Down	BASE	3 Year	14.21	27.84	30.00	0.0042	42882	13.17	20.97	14.62	15.06
Pre 3	BASE	3 Year	13.33	27.01	27.00	0.0043	13530	13.02	38.01	13.24	37.42
Pre 6	BASE	3 Year	12.77	26.37	29.00	0.0049	7750	12.75	27.52	12.77	27.31
Pre 7	BASE	3 Year	13.03	27.61	30.00	0.0047	26286	12.50	25.13	13.03	23.03
Pre 8	BASE	3 Year	12.92	28.40	30.00	0.0025	2915	12.75	6.79	12.91	6.77
Pre 9	BASE	3 Year	13.07	27.61	30.00	0.0020	14817	15.75	0.22	13.97	0.79

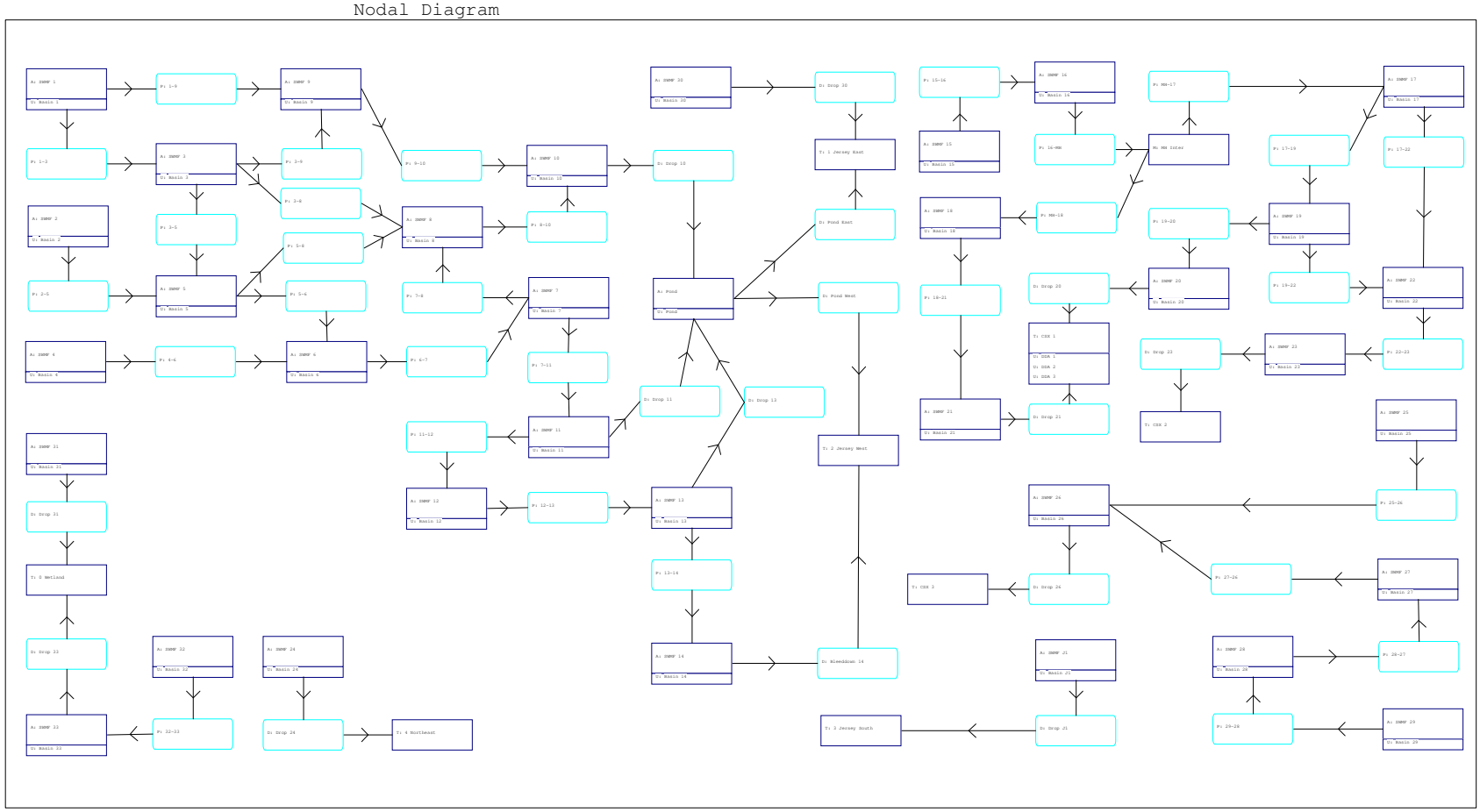
Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
Channel 1	BASE	100 Year	13.26	179.77	-0.191	13.97	36.87	15.58	36.70
Channel 10	BASE	100 Year	13.94	195.11	-0.169	15.58	36.70	16.14	36.00
Channel 11	BASE	100 Year	15.06	133.94	0.143	15.06	31.05	15.06	28.56
Channel 2	BASE	100 Year	12.75	66.92	0.104	14.59	31.38	14.71	31.29
Channel 3	BASE	100 Year	12.84	116.71	0.173	12.84	28.78	12.00	25.00
Channel 6	BASE	100 Year	12.63	85.21	0.138	12.62	27.82	12.00	25.00
Channel 7	BASE	100 Year	12.83	84.77	0.123	12.83	29.02	12.83	26.02
Channel 8	BASE	100 Year	12.80	21.29	0.026	12.80	29.02	12.00	28.00
Channel 9	BASE	100 Year	13.30	9.90	0.165	12.96	29.10	12.83	29.02
Pipe 10-11	BASE	100 Year	16.14	123.37	8.835	16.14	36.00	13.80	30.85
Pipe 2-3	BASE	100 Year	15.42	27.82	0.490	14.71	31.29	12.84	28.78
Pond Drop	BASE	100 Year	13.61	49.81	0.115	13.61	33.66	12.00	28.00
Channel 1	BASE	25 Year	13.26	118.31	-0.157	13.99	35.71	14.15	35.36
Channel 10	BASE	25 Year	14.20	124.37	-0.198	14.15	35.36	15.74	33.33
Channel 11	BASE	25 Year	15.31	102.44	-0.096	15.31	30.58	15.31	28.34
Channel 2	BASE	25 Year	12.86	45.85	0.084	14.14	30.12	14.42	29.92
Channel 3	BASE	25 Year	12.96	79.63	0.146	12.96	28.15	12.00	25.00
Channel 6	BASE	25 Year	12.69	58.00	0.122	12.67	27.28	12.00	25.00
Channel 7	BASE	25 Year	12.89	53.85	0.096	12.89	28.45	12.89	25.76
Channel 8	BASE	25 Year	12.82	14.45	0.023	12.82	28.79	12.00	28.00
Channel 9	BASE	25 Year	13.54	4.56	0.102	13.03	28.49	12.89	28.45
Pipe 10-11	BASE	25 Year	15.74	94.85	5.666	15.74	33.33	14.28	30.45
Pipe 2-3	BASE	25 Year	15.03	23.12	0.354	14.42	29.92	12.96	28.15
Pond Drop	BASE	25 Year	13.74	32.52	0.093	13.74	33.50	12.00	28.00
Channel 1	BASE	3 Year	13.28	51.30	0.089	14.04	34.05	14.53	33.44
Channel 10	BASE	3 Year	14.61	47.58	0.076	14.53	33.44	15.72	30.20
Channel 11	BASE	3 Year	15.55	46.76	0.173	15.55	29.44	12.00	28.00
Channel 2	BASE	3 Year	13.17	20.97	0.046	13.12	28.84	14.21	27.84
Channel 3	BASE	3 Year	13.24	37.42	0.080	13.33	27.01	12.00	25.00
Channel 6	BASE	3 Year	12.77	27.31	0.081	12.77	26.37	12.00	25.00
Channel 7	BASE	3 Year	13.03	23.03	0.069	13.03	27.61	13.03	25.41
Channel 8	BASE	3 Year	12.91	6.77	-0.051	12.92	28.40	12.00	28.00
Channel 9	BASE	3 Year	13.97	0.79	0.056	13.07	27.61	13.03	27.61
Pipe 10-11	BASE	3 Year	15.70	43.07	7.197	15.72	30.20	13.33	28.69
Pipe 2-3	BASE	3 Year	14.62	15.06	0.588	14.21	27.84	13.33	27.01
Pond Drop	BASE	3 Year	14.60	15.20	0.062	14.60	33.30	12.00	28.00

POST DRAINAGE CALCULATIONS (ICPR)

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



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================================================================================
==== Basins ====================================================================
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         Name: Basin 1                 Node: SWMF 1                Status: Onsite
        Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh484                  Peaking Factor: 484.0
          Rainfall File: Flmod               Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                 Time of Conc(min): 10.00
              Area(ac): 25.240                   Time Shift(hrs): 0.00
          Curve Number: 83.10               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------
         Name: Basin 10                Node: SWMF 10               Status: Onsite
        Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh484                  Peaking Factor: 484.0
          Rainfall File: Flmod               Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                 Time of Conc(min): 10.00
              Area(ac): 7.740                    Time Shift(hrs): 0.00
          Curve Number: 87.71               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------
         Name: Basin 11                Node: SWMF 11               Status: Onsite
        Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh484                  Peaking Factor: 484.0
          Rainfall File: Flmod               Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                 Time of Conc(min): 10.00
              Area(ac): 18.850                   Time Shift(hrs): 0.00
          Curve Number: 69.96               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------
         Name: Basin 12                Node: SWMF 12               Status: Onsite
        Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh484                  Peaking Factor: 484.0
          Rainfall File: Flmod               Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                 Time of Conc(min): 10.00
              Area(ac): 20.460                   Time Shift(hrs): 0.00
          Curve Number: 68.26               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------
         Name: Basin 13                Node: SWMF 13               Status: Onsite
        Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh484                  Peaking Factor: 484.0
          Rainfall File: Flmod               Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                 Time of Conc(min): 10.00
              Area(ac): 17.210                   Time Shift(hrs): 0.00
          Curve Number: 86.67               Max Allowable Q(cfs): 999999.000
               DCIA(%): 0.00


--------------------------------------------------------------------------------
         Name: Basin 14                Node: SWMF 14               Status: Onsite
        Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh484                  Peaking Factor: 484.0
          Rainfall File: Flmod               Storm Duration(hrs): 0.00
```

Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 13.460 Time Shift(hrs): 0.00
Curve Number: 77.66 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 15 Node: SWMF 15 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 23.910 Time Shift(hrs): 0.00
Curve Number: 88.59 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 16 Node: SWMF 16 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 10.300 Time Shift(hrs): 0.00
Curve Number: 88.86 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 17 Node: SWMF 17 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 9.440 Time Shift(hrs): 0.00
Curve Number: 90.14 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 18 Node: SWMF 18 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 21.440 Time Shift(hrs): 0.00
Curve Number: 78.91 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 19 Node: SWMF 19 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 11.410 Time Shift(hrs): 0.00
Curve Number: 78.38 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 2 Node: SWMF 2 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 17.690 Time Shift(hrs): 0.00
Curve Number: 75.30 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 20 Node: SWMF 20 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 3.340 Time Shift(hrs): 0.00
Curve Number: 76.98 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 21 Node: SWMF 21 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 40.370 Time Shift(hrs): 0.00
Curve Number: 88.56 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 22 Node: SWMF 22 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 12.610 Time Shift(hrs): 0.00
Curve Number: 87.78 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 23 Node: SWMF 23 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 7.020 Time Shift(hrs): 0.00
Curve Number: 89.61 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 24 Node: SWMF 24 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 20.720 Time Shift(hrs): 0.00
Curve Number: 85.48 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 25 Node: SWMF 25 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 5.640 Time Shift(hrs): 0.00
Curve Number: 86.43 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 26 Node: SWMF 26 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 14.690 Time Shift(hrs): 0.00
Curve Number: 88.39 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 27 Node: SWMF 27 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 13.480 Time Shift(hrs): 0.00
Curve Number: 89.98 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 28 Node: SWMF 28 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 23.300 Time Shift(hrs): 0.00
Curve Number: 85.47 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 29 Node: SWMF 29 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 3.340 Time Shift(hrs): 0.00
Curve Number: 87.22 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 3 Node: SWMF 3 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 11.050 Time Shift(hrs): 0.00
Curve Number: 87.07 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 30 Node: SWMF 30 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 7.240 Time Shift(hrs): 0.00
Curve Number: 86.25 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 31 Node: SWMF 31 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 9.140 Time Shift(hrs): 0.00
Curve Number: 58.24 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 32 Node: SWMF 32 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 4.680 Time Shift(hrs): 0.00
Curve Number: 71.36 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 33 Node: SWMF 33 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 11.460 Time Shift(hrs): 0.00
Curve Number: 67.75 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 4 Node: SWMF 4 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 2.440 Time Shift(hrs): 0.00
Curve Number: 64.82 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 5 Node: SWMF 5 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00

Area(ac): 4.640 Time Shift(hrs): 0.00
Curve Number: 87.90 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 6 Node: SWMF 6 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 12.080 Time Shift(hrs): 0.00
Curve Number: 73.46 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 7 Node: SWMF 7 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 5.600 Time Shift(hrs): 0.00
Curve Number: 74.67 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 8 Node: SWMF 8 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 8.360 Time Shift(hrs): 0.00
Curve Number: 88.05 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 9 Node: SWMF 9 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 3.930 Time Shift(hrs): 0.00
Curve Number: 90.71 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin J1 Node: SWMF J1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 25.970 Time Shift(hrs): 0.00
Curve Number: 97.57 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: DDA 1 Node: CSX 1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 0.300 Time Shift(hrs): 0.00
Curve Number: 39.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: DDA 2 Node: CSX 1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 0.210 Time Shift(hrs): 0.00
Curve Number: 39.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: DDA 3 Node: CSX 1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 121.00
Area(ac): 1.660 Time Shift(hrs): 0.00
Curve Number: 62.71 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Pond Node: Pond Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 88.620 Time Shift(hrs): 0.00
Curve Number: 94.36 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

==========
==== Nodes ==========
==========

Name: 0 Wetland Base Flow(cfs): 0.000 Init Stage(ft): 31.000
Group: BASE Warn Stage(ft): 36.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	31.000
12.00	33.000
24.00	31.000

Name: 1 Jersey East Base Flow(cfs): 0.000 Init Stage(ft): 27.000
Group: BASE Warn Stage(ft): 29.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	27.000
12.00	28.000

24.00	27.000	

Name: 2 Jersey West Base Flow(cfs): 0.000 Init Stage(ft): 27.000
Group: BASE Warn Stage(ft): 29.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	27.000
12.00	28.000
24.00	27.000

Name: 3 Jersey South Base Flow(cfs): 0.000 Init Stage(ft): 27.000
Group: BASE Warn Stage(ft): 29.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	27.000
12.00	28.000
24.00	27.000

Name: 4 Northeast Base Flow(cfs): 0.000 Init Stage(ft): 19.000
Group: BASE Warn Stage(ft): 22.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	19.000
12.00	20.000
24.00	19.000

Name: CSX 1 Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 26.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	23.000
12.00	24.000
24.00	23.000

Name: CSX 2 Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 26.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	23.000
12.00	25.000
24.00	23.000

Name: CSX 3 Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 26.000
Type: Time/Stage

Time(hrs) Stage(ft)

0.00	23.000
12.00	25.000
24.00	23.000

Name: MH Inter Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Plunge Factor: 1.00 Warn Stage(ft): 29.000
Type: Manhole, Flat Floor

Stage(ft)	Area(ac)

Name: Pond Base Flow(cfs): 0.000 Init Stage(ft): 31.400
Group: BASE Warn Stage(ft): 34.500
Type: Stage/Area

Stage(ft)	Area(ac)
30.000	57.7700
31.700	64.8700
34.500	87.1200

Name: SWMF 1 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 33.800
Type: Stage/Area

Stage(ft)	Area(ac)
29.000	4.7800
30.000	4.9900
33.800	5.8100

Name: SWMF 10 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 33.300
Type: Stage/Area

Stage(ft)	Area(ac)
29.000	0.5900
33.300	0.8900

Name: SWMF 11 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 33.600
Type: Stage/Area

Stage(ft)	Area(ac)
29.000	1.2000
33.600	1.7500

Name: SWMF 12 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 33.700
Type: Stage/Area

Stage(ft)	Area(ac)
29.000	2.2800

33.700	3.0100

Name: SWMF 13 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 33.600
Type: Stage/Area

Stage(ft)	Area(ac)
29.000	0.7700
33.600	1.1900

Name: SWMF 14 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 33.500
Type: Stage/Area

Stage(ft)	Area(ac)
29.000	1.0400
33.500	1.4600

Name: SWMF 15 Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Warn Stage(ft): 28.800
Type: Stage/Area

Stage(ft)	Area(ac)
24.000	0.8500
28.800	1.2300

Name: SWMF 16 Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Warn Stage(ft): 28.700
Type: Stage/Area

Stage(ft)	Area(ac)
24.000	1.4800
28.700	2.0100

Name: SWMF 17 Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Warn Stage(ft): 28.100
Type: Stage/Area

Stage(ft)	Area(ac)
24.000	1.4700
28.100	1.8900

Name: SWMF 18 Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Warn Stage(ft): 28.500
Type: Stage/Area

Stage(ft)	Area(ac)
24.000	2.3300
28.500	3.1200

Name: SWMF 19 Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Warn Stage(ft): 27.800
Type: Stage/Area

Stage(ft)	Area(ac)
24.000	0.9400
27.800	1.2800

Name: SWMF 2 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 33.800
Type: Stage/Area

Stage(ft)	Area(ac)
29.000	0.8800
30.000	0.9900
33.800	1.3900

Name: SWMF 20 Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Warn Stage(ft): 27.400
Type: Stage/Area

Stage(ft)	Area(ac)
24.000	0.3900
27.400	0.5800

Name: SWMF 21 Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Warn Stage(ft): 28.000
Type: Stage/Area

Stage(ft)	Area(ac)
24.000	12.4200
28.000	13.2900

Name: SWMF 22 Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Warn Stage(ft): 27.800
Type: Stage/Area

Stage(ft)	Area(ac)
24.000	0.9100
27.800	1.2900

Name: SWMF 23 Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Warn Stage(ft): 27.400
Type: Stage/Area

Stage(ft)	Area(ac)
24.000	0.7800
27.400	1.0600

Name: SWMF 24 Base Flow(cfs): 0.000 Init Stage(ft): 21.000
Group: BASE Warn Stage(ft): 27.000

Type: Stage/Area

Stage(ft)	Area(ac)
21.000	2.2500
27.000	3.0000

Name: SWMF 25 Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Warn Stage(ft): 28.900
Type: Stage/Area

Stage(ft)	Area(ac)
24.000	0.4000
28.900	0.7100

Name: SWMF 26 Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Warn Stage(ft): 28.100
Type: Stage/Area

Stage(ft)	Area(ac)
24.000	1.5900
28.100	2.0900

Name: SWMF 27 Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Warn Stage(ft): 28.500
Type: Stage/Area

Stage(ft)	Area(ac)
24.000	1.9700
28.500	2.7200

Name: SWMF 28 Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Warn Stage(ft): 28.600
Type: Stage/Area

Stage(ft)	Area(ac)
24.000	2.0400
28.600	2.5900

Name: SWMF 29 Base Flow(cfs): 0.000 Init Stage(ft): 24.000
Group: BASE Warn Stage(ft): 28.900
Type: Stage/Area

Stage(ft)	Area(ac)
24.000	0.5200
28.900	0.9400

Name: SWMF 3 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 33.800
Type: Stage/Area

Stage(ft)	Area(ac)
29.000	0.7700
33.800	1.1500

Name: SWMF 30 Base Flow(cfs): 0.000 Init Stage(ft): 28.000
Group: BASE Warn Stage(ft): 32.900
Type: Stage/Area

Stage(ft)	Area(ac)
28.000	0.5000
32.900	0.8300

Name: SWMF 31 Base Flow(cfs): 0.000 Init Stage(ft): 33.000
Group: BASE Warn Stage(ft): 36.600
Type: Stage/Area

Stage(ft)	Area(ac)
33.000	0.9200
36.600	1.2100

Name: SWMF 32 Base Flow(cfs): 0.000 Init Stage(ft): 33.000
Group: BASE Warn Stage(ft): 37.700
Type: Stage/Area

Stage(ft)	Area(ac)
33.000	1.2500
37.700	1.7600

Name: SWMF 33 Base Flow(cfs): 0.000 Init Stage(ft): 33.000
Group: BASE Warn Stage(ft): 37.600
Type: Stage/Area

Stage(ft)	Area(ac)
33.000	1.1000
37.600	1.5000

Name: SWMF 4 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 33.700
Type: Stage/Area

Stage(ft)	Area(ac)
29.000	0.4000
33.700	0.7400

Name: SWMF 5 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 33.700
Type: Stage/Area

Stage(ft)	Area(ac)

29.000	0.3400
33.700	0.5900

Name: SWMF 6 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 33.700
Type: Stage/Area

Stage(ft)	Area(ac)
29.000	1.4100
33.700	2.1200

Name: SWMF 7 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 33.700
Type: Stage/Area

Stage(ft)	Area(ac)
29.000	0.5000
33.700	0.8500

Name: SWMF 8 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 33.700
Type: Stage/Area

Stage(ft)	Area(ac)
29.000	0.7600
33.700	1.1300

Name: SWMF 9 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 33.700
Type: Stage/Area

Stage(ft)	Area(ac)
29.000	1.3600
33.700	1.9300

Name: SWMF J1 Base Flow(cfs): 0.000 Init Stage(ft): 29.000
Group: BASE Warn Stage(ft): 31.200
Type: Stage/Area

Stage(ft)	Area(ac)
29.000	22.8100
31.200	23.6200

Pipes

Name: 1-3 From Node: SWMF 1 Length(ft): 300.00
Group: BASE To Node: SWMF 3 Count: 1
Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM	
Geometry:	Circular	Circular	Solution Algorithm: Most Restrictive
Span(in):	36.00	36.00	Flow: Both
Rise(in):	36.00	36.00	Entrance Loss Coef: 0.00
Invert(ft):	25.000	25.000	Exit Loss Coef: 1.00
			Bend Loss Coef: 0.00

Manning's N:	0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	1-9	From Node: SWMF 1	Length(ft): 300.00
Group:	BASE	To Node: SWMF 9	Count: 1
			Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	36.00	36.00	Entrance Loss Coef: 0.00
Rise(in):	36.00	36.00	Exit Loss Coef: 1.00
Invert(ft):	25.000	25.000	Bend Loss Coef: 0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	11-12	From Node: SWMF 11	Length(ft): 300.00
Group:	BASE	To Node: SWMF 12	Count: 1
			Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	36.00	36.00	Entrance Loss Coef: 0.00
Rise(in):	36.00	36.00	Exit Loss Coef: 1.00
Invert(ft):	25.000	25.000	Bend Loss Coef: 0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	12-13	From Node: SWMF 12	Length(ft): 300.00
Group:	BASE	To Node: SWMF 13	Count: 1
			Friction Equation: Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	36.00	36.00	Entrance Loss Coef: 0.00
Rise(in):	36.00	36.00	Exit Loss Coef: 1.00
Invert(ft):	25.000	25.000	Bend Loss Coef: 0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 13-14 From Node: SWMF 13 Length(ft): 300.00
Group: BASE To Node: SWMF 14 Count: 1
Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Solution Algorithm:	Most Restrictive
Span(in):	36.00	36.00	Flow:	Both
Rise(in):	36.00	36.00	Entrance Loss Coef:	0.00
Invert(ft):	25.000	25.000	Exit Loss Coef:	1.00
Manning's N:	0.012000	0.012000	Bend Loss Coef:	0.00
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 15-16 From Node: SWMF 15 Length(ft): 300.00
Group: BASE To Node: SWMF 16 Count: 1
Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Solution Algorithm:	Most Restrictive
Span(in):	48.00	48.00	Flow:	Both
Rise(in):	48.00	48.00	Entrance Loss Coef:	0.00
Invert(ft):	20.000	20.000	Exit Loss Coef:	1.00
Manning's N:	0.012000	0.012000	Bend Loss Coef:	0.00
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 16-MH From Node: SWMF 16 Length(ft): 100.00
Group: BASE To Node: MH Inter Count: 1
Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Solution Algorithm:	Most Restrictive
Span(in):	48.00	48.00	Flow:	Both
Rise(in):	48.00	48.00	Entrance Loss Coef:	0.00
Invert(ft):	20.000	20.000	Exit Loss Coef:	1.00
Manning's N:	0.012000	0.012000	Bend Loss Coef:	0.00
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 17-19	From Node: SWMF 17	Length(ft): 150.00	
Group: BASE	To Node: SWMF 19	Count: 1	
		Friction Equation: Automatic	
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	36.00	36.00	Entrance Loss Coef: 0.00
Rise(in):	36.00	36.00	Exit Loss Coef: 1.00
Invert(ft):	20.000	20.000	Bend Loss Coef: 0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 17-22	From Node: SWMF 17	Length(ft): 250.00	
Group: BASE	To Node: SWMF 22	Count: 1	
		Friction Equation: Automatic	
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	36.00	36.00	Entrance Loss Coef: 0.00
Rise(in):	36.00	36.00	Exit Loss Coef: 1.00
Invert(ft):	20.000	20.000	Bend Loss Coef: 0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 18-21	From Node: SWMF 18	Length(ft): 300.00	
Group: BASE	To Node: SWMF 21	Count: 1	
		Friction Equation: Automatic	
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	36.00	36.00	Entrance Loss Coef: 0.00
Rise(in):	36.00	36.00	Exit Loss Coef: 1.00
Invert(ft):	20.000	20.000	Bend Loss Coef: 0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 19-20	From Node: SWMF 19	Length(ft): 120.00	
Group: BASE	To Node: SWMF 20	Count: 1	
		Friction Equation: Automatic	

	UPSTREAM	DOWNSTREAM		
			Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	36.00	36.00	Entrance Loss Coef:	0.00
Rise(in):	36.00	36.00	Exit Loss Coef:	1.00
Invert(ft):	20.000	20.000	Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	19-22	From Node: SWMF 19	Length(ft): 120.00
Group:	BASE	To Node: SWMF 22	Count: 1
			Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM		
			Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	36.00	36.00	Entrance Loss Coef:	0.00
Rise(in):	36.00	36.00	Exit Loss Coef:	1.00
Invert(ft):	20.000	20.000	Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	2-5	From Node: SWMF 2	Length(ft): 300.00
Group:	BASE	To Node: SWMF 5	Count: 1
			Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM		
			Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	48.00	48.00	Entrance Loss Coef:	0.00
Rise(in):	48.00	48.00	Exit Loss Coef:	1.00
Invert(ft):	25.000	25.000	Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	22-23	From Node: SWMF 22	Length(ft): 300.00
Group:	BASE	To Node: SWMF 23	Count: 1
			Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM		
			Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	36.00	36.00	Entrance Loss Coef:	0.00
Rise(in):	36.00	36.00	Exit Loss Coef:	1.00
Invert(ft):	20.000	20.000	Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:	Use dc or tw

Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	25-26	From Node:	SWMF 25	Length(ft):	300.00
Group:	BASE	To Node:	SWMF 26	Count:	1
				Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular		Flow:	Both
Span(in):	36.00	36.00		Entrance Loss Coef:	0.00
Rise(in):	36.00	36.00		Exit Loss Coef:	1.00
Invert(ft):	20.000	20.000		Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000		Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	27-26	From Node:	SWMF 27	Length(ft):	300.00
Group:	BASE	To Node:	SWMF 26	Count:	1
				Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular		Flow:	Both
Span(in):	48.00	48.00		Entrance Loss Coef:	0.00
Rise(in):	48.00	48.00		Exit Loss Coef:	1.00
Invert(ft):	20.000	20.000		Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000		Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	28-27	From Node:	SWMF 28	Length(ft):	300.00
Group:	BASE	To Node:	SWMF 27	Count:	1
				Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM		Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular		Flow:	Both
Span(in):	48.00	48.00		Entrance Loss Coef:	0.00
Rise(in):	48.00	48.00		Exit Loss Coef:	1.00
Invert(ft):	20.000	20.000		Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000		Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000		Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000		Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:

Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 29-28		From Node: SWMF 29		Length(ft):	300.00
Group: BASE		To Node: SWMF 28		Count:	1
			Friction Equation:		Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:		Most Restrictive
Geometry:	Circular	Circular		Flow:	Both
Span(in):	48.00	48.00	Entrance Loss Coef:		0.00
Rise(in):	48.00	48.00	Exit Loss Coef:		1.00
Invert(ft):	20.000	20.000	Bend Loss Coef:		0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:		Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:		Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:		None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 3-5		From Node: SWMF 3		Length(ft):	300.00
Group: BASE		To Node: SWMF 5		Count:	1
			Friction Equation:		Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:		Most Restrictive
Geometry:	Circular	Circular		Flow:	Both
Span(in):	36.00	36.00	Entrance Loss Coef:		0.00
Rise(in):	36.00	36.00	Exit Loss Coef:		1.00
Invert(ft):	25.000	25.000	Bend Loss Coef:		0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:		Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:		Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:		None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 3-8		From Node: SWMF 3		Length(ft):	300.00
Group: BASE		To Node: SWMF 8		Count:	1
			Friction Equation:		Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:		Most Restrictive
Geometry:	Circular	Circular		Flow:	Both
Span(in):	36.00	36.00	Entrance Loss Coef:		0.00
Rise(in):	36.00	36.00	Exit Loss Coef:		1.00
Invert(ft):	25.000	25.000	Bend Loss Coef:		0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:		Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:		Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:		None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 3-9	From Node: SWMF 3	Length(ft): 200.00	
Group: BASE	To Node: SWMF 9	Count: 1	
		Friction Equation: Automatic	
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	36.00	36.00	Entrance Loss Coef: 0.00
Rise(in):	36.00	36.00	Exit Loss Coef: 1.00
Invert(ft):	25.000	25.000	Bend Loss Coef: 0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 32-33	From Node: SWMF 32	Length(ft): 300.00	
Group: BASE	To Node: SWMF 33	Count: 1	
		Friction Equation: Automatic	
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	30.00	30.00	Entrance Loss Coef: 0.00
Rise(in):	30.00	30.00	Exit Loss Coef: 1.00
Invert(ft):	28.000	28.000	Bend Loss Coef: 0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 4-6	From Node: SWMF 4	Length(ft): 300.00	
Group: BASE	To Node: SWMF 6	Count: 1	
		Friction Equation: Automatic	
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry:	Circular	Circular	Flow: Both
Span(in):	36.00	36.00	Entrance Loss Coef: 0.00
Rise(in):	36.00	36.00	Exit Loss Coef: 1.00
Invert(ft):	25.000	25.000	Bend Loss Coef: 0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 5-6	From Node: SWMF 5	Length(ft): 300.00	
Group: BASE	To Node: SWMF 6	Count: 1	
		Friction Equation: Automatic	
	UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive

Geometry:	Circular	Circular	Flow:	Both
Span(in):	36.00	36.00	Entrance Loss Coef:	0.00
Rise(in):	36.00	36.00	Exit Loss Coef:	1.00
Invert(ft):	25.000	25.000	Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	5-8	From Node: SWMF 5	Length(ft):	200.00
Group:	BASE	To Node: SWMF 8	Count:	1
			Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	30.00	30.00	Entrance Loss Coef:	0.00
Rise(in):	30.00	30.00	Exit Loss Coef:	1.00
Invert(ft):	25.000	25.000	Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	6-7	From Node: SWMF 6	Length(ft):	300.00
Group:	BASE	To Node: SWMF 7	Count:	1
			Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	48.00	48.00	Entrance Loss Coef:	0.00
Rise(in):	48.00	48.00	Exit Loss Coef:	1.00
Invert(ft):	25.000	25.000	Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name:	7-11	From Node: SWMF 7	Length(ft):	200.00
Group:	BASE	To Node: SWMF 11	Count:	1
			Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	48.00	48.00	Entrance Loss Coef:	0.00
Rise(in):	48.00	48.00	Exit Loss Coef:	1.00
Invert(ft):	25.000	25.000	Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc

Bot Clip(in): 0.000 0.000 Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 7-8 From Node: SWMF 7 Length(ft): 300.00
Group: BASE To Node: SWMF 8 Count: 1
Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Solution Algorithm:	Most Restrictive
Span(in):	36.00	36.00	Flow:	Both
Rise(in):	36.00	36.00	Entrance Loss Coef:	0.00
Invert(ft):	25.000	25.000	Exit Loss Coef:	1.00
Manning's N:	0.012000	0.012000	Bend Loss Coef:	0.00
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 8-10 From Node: SWMF 8 Length(ft): 300.00
Group: BASE To Node: SWMF 10 Count: 1
Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Solution Algorithm:	Most Restrictive
Span(in):	36.00	36.00	Flow:	Both
Rise(in):	36.00	36.00	Entrance Loss Coef:	0.00
Invert(ft):	25.000	25.000	Exit Loss Coef:	1.00
Manning's N:	0.012000	0.012000	Bend Loss Coef:	0.00
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 9-10 From Node: SWMF 9 Length(ft): 300.00
Group: BASE To Node: SWMF 10 Count: 1
Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Solution Algorithm:	Most Restrictive
Span(in):	36.00	36.00	Flow:	Both
Rise(in):	36.00	36.00	Entrance Loss Coef:	0.00
Invert(ft):	25.000	25.000	Exit Loss Coef:	1.00
Manning's N:	0.012000	0.012000	Bend Loss Coef:	0.00
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: MH-17		From Node: MH Inter	Length(ft):	100.00
Group: BASE		To Node: SWMF 17	Count:	1
			Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	36.00	36.00	Entrance Loss Coef:	0.00
Rise(in):	36.00	36.00	Exit Loss Coef:	1.00
Invert(ft):	20.000	20.000	Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: MH-18		From Node: MH Inter	Length(ft):	40.00
Group: BASE		To Node: SWMF 18	Count:	1
			Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	36.00	36.00	Entrance Loss Coef:	0.00
Rise(in):	36.00	36.00	Exit Loss Coef:	1.00
Invert(ft):	20.000	20.000	Bend Loss Coef:	0.00
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Stabilizer Option:	None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

==========
==== Drop Structures ====
==========

Name: Bleeddown 14		From Node: SWMF 14	Length(ft):	300.00
Group: BASE		To Node: 2 Jersey West	Count:	1
			Friction Equation:	Automatic
	UPSTREAM	DOWNSTREAM	Solution Algorithm:	Most Restrictive
Geometry:	Circular	Circular	Flow:	Both
Span(in):	36.00	36.00	Entrance Loss Coef:	0.000
Rise(in):	36.00	36.00	Exit Loss Coef:	1.000
Invert(ft):	28.900	26.800	Outlet Ctrl Spec:	Use dc or tw
Manning's N:	0.012000	0.012000	Inlet Ctrl Spec:	Use dc
Top Clip(in):	0.000	0.000	Solution Incs:	10
Bot Clip(in):	0.000	0.000		

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 2 for Drop Structure Bleeddown 14 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Circular	Orifice Disc Coef:	0.600
Span(in):	12.70	Invert(ft):	28.500
Rise(in):	12.70	Control Elev(ft):	29.000

*** Weir 2 of 2 for Drop Structure Bleeddown 14 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	84.00	Invert(ft):	30.000
Rise(in):	999.00	Control Elev(ft):	30.000

Name:	Drop 10	From Node:	SWMF 10	Length(ft):	300.00
Group:	BASE	To Node:	Pond	Count:	1

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Friction Equation:	Automatic
Span(in):	48.00	48.00	Solution Algorithm:	Most Restrictive
Rise(in):	48.00	48.00	Flow:	Both
Invert(ft):	29.000	28.000	Entrance Loss Coef:	0.000
Manning's N:	0.013000	0.013000	Exit Loss Coef:	1.000
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 2 for Drop Structure Drop 10 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	120.00	Invert(ft):	31.500
Rise(in):	12.00	Control Elev(ft):	31.500

*** Weir 2 of 2 for Drop Structure Drop 10 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	79.00	Invert(ft):	32.500
Rise(in):	36.00	Control Elev(ft):	32.500

Name:	Drop 11	From Node:	SWMF 11	Length(ft):	300.00
Group:	BASE	To Node:	Pond	Count:	1

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Friction Equation:	Automatic
Span(in):	36.00	36.00	Solution Algorithm:	Most Restrictive
Rise(in):	36.00	36.00	Flow:	Both
Invert(ft):	29.000	28.000	Entrance Loss Coef:	0.000
Manning's N:	0.013000	0.013000	Exit Loss Coef:	1.000
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
			Inlet Ctrl Spec:	Use dc

Bot Clip(in): 0.000 0.000 Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 2 for Drop Structure Drop 11 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	108.00	Invert(ft):	31.500
Rise(in):	12.00	Control Elev(ft):	31.500

*** Weir 2 of 2 for Drop Structure Drop 11 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	54.00	Invert(ft):	32.500
Rise(in):	36.00	Control Elev(ft):	32.500

Name:	Drop 13	From Node: SWMF 13	Length(ft): 300.00
Group:	BASE	To Node: Pond	Count: 1

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Friction Equation:	Automatic
Span(in):	48.00	48.00	Solution Algorithm:	Most Restrictive
Rise(in):	48.00	48.00	Flow:	Both
Invert(ft):	29.000	28.000	Entrance Loss Coef:	0.000
Manning's N:	0.012000	0.012000	Exit Loss Coef:	1.000
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 2 for Drop Structure Drop 13 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	120.00	Invert(ft):	31.500
Rise(in):	12.00	Control Elev(ft):	31.500

*** Weir 2 of 2 for Drop Structure Drop 13 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	79.00	Invert(ft):	32.500
Rise(in):	36.00	Control Elev(ft):	32.500

Name:	Drop 20	From Node: SWMF 20	Length(ft): 40.00

Group: BASE To Node: CSX 1 Count: 1

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Friction Equation:	Automatic
Span(in):	48.00	48.00	Solution Algorithm:	Most Restrictive
Rise(in):	48.00	48.00	Flow:	Both
Invert(ft):	23.900	23.800	Entrance Loss Coef:	0.000
Manning's N:	0.013000	0.013000	Exit Loss Coef:	1.000
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 1 for Drop Structure Drop 20 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	120.00	Invert(ft):	24.600
Rise(in):	999.00	Control Elev(ft):	24.600

Name: Drop 21 From Node: SWMF 21 Length(ft): 31.00
Group: BASE To Node: CSX 1 Count: 1

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Friction Equation:	Automatic
Span(in):	30.00	30.00	Solution Algorithm:	Most Restrictive
Rise(in):	30.00	30.00	Flow:	Both
Invert(ft):	22.800	22.500	Entrance Loss Coef:	0.000
Manning's N:	0.012000	0.012000	Exit Loss Coef:	1.000
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 2 for Drop Structure Drop 21 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Circular	Orifice Disc Coef:	0.600
Span(in):	13.00	Invert(ft):	23.500
Rise(in):	13.00	Control Elev(ft):	24.000

*** Weir 2 of 2 for Drop Structure Drop 21 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	96.00	Invert(ft):	24.600
Rise(in):	999.00	Control Elev(ft):	24.600

Name: Drop 23 From Node: SWMF 23 Length(ft): 120.00
Group: BASE To Node: CSX 2 Count: 1

	UPSTREAM	DOWNSTREAM		
			Friction Equation:	Automatic
Geometry:	Circular	Circular	Solution Algorithm:	Most Restrictive
Span(in):	36.00	36.00	Flow:	Both
Rise(in):	36.00	36.00	Entrance Loss Coef:	0.000
Invert(ft):	23.900	23.800	Exit Loss Coef:	1.000
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 1 for Drop Structure Drop 23 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	86.00	Invert(ft):	24.600
Rise(in):	999.00	Control Elev(ft):	24.600

Name:	Drop 24	From Node:	SWMF 24
Group:	BASE	To Node:	4 Northeast
Length(ft):	1300.00		
Count:	1		

	UPSTREAM	DOWNSTREAM		
			Friction Equation:	Automatic
Geometry:	Circular	Circular	Solution Algorithm:	Most Restrictive
Span(in):	30.00	30.00	Flow:	Both
Rise(in):	30.00	30.00	Entrance Loss Coef:	0.000
Invert(ft):	19.900	19.400	Exit Loss Coef:	1.000
Manning's N:	0.012000	0.012000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 3 for Drop Structure Drop 24 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Circular	Orifice Disc Coef:	0.600
Span(in):	5.10	Invert(ft):	20.500
Rise(in):	5.10	Control Elev(ft):	21.000

*** Weir 2 of 3 for Drop Structure Drop 24 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	12.00	Invert(ft):	22.200
Rise(in):	9999.00	Control Elev(ft):	22.200

*** Weir 3 of 3 for Drop Structure Drop 24 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200

```
              Geometry: Rectangular          Orifice Disc Coef: 0.600

              Span(in): 60.00                      Invert(ft): 22.500
              Rise(in): 9999.00               Control Elev(ft): 22.500


-------------------------------------------------------------------------------------------------
         Name: Drop 26            From Node: SWMF 26           Length(ft): 40.00
        Group: BASE                 To Node: CSX 3                Count: 1

               UPSTREAM       DOWNSTREAM               Friction Equation: Automatic
     Geometry: Circular       Circular                 Solution Algorithm: Most Restrictive
     Span(in): 36.00          36.00                                Flow: Both
     Rise(in): 36.00          36.00                    Entrance Loss Coef: 0.000
   Invert(ft): 23.900         23.800                       Exit Loss Coef: 1.000
  Manning's N: 0.013000       0.013000                   Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                       Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                         Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall



*** Weir 1 of 3 for Drop Structure Drop 26 ***
                                                                                    TABLE
                  Count: 1                     Bottom Clip(in): 0.000
                   Type: Horizontal               Top Clip(in): 0.000
                   Flow: Both                  Weir Disc Coef: 3.200
              Geometry: Circular             Orifice Disc Coef: 0.600

              Span(in): 7.50                       Invert(ft): 23.500
              Rise(in): 7.50                  Control Elev(ft): 24.000

*** Weir 2 of 3 for Drop Structure Drop 26 ***
                                                                                    TABLE
                  Count: 1                     Bottom Clip(in): 0.000
                   Type: Horizontal               Top Clip(in): 0.000
                   Flow: Both                  Weir Disc Coef: 3.200
              Geometry: Rectangular          Orifice Disc Coef: 0.600

              Span(in): 54.00                      Invert(ft): 27.000
              Rise(in): 36.00                 Control Elev(ft): 27.000

*** Weir 3 of 3 for Drop Structure Drop 26 ***
                                                                                    TABLE
                  Count: 1                     Bottom Clip(in): 0.000
                   Type: Vertical: Mavis          Top Clip(in): 0.000
                   Flow: Both                  Weir Disc Coef: 3.200
              Geometry: Rectangular          Orifice Disc Coef: 0.600

              Span(in): 96.00                      Invert(ft): 25.000
              Rise(in): 25.20                 Control Elev(ft): 25.000


-------------------------------------------------------------------------------------------------
         Name: Drop 30            From Node: SWMF 30           Length(ft): 40.00
        Group: BASE                 To Node: 1 Jersey East        Count: 1

               UPSTREAM       DOWNSTREAM               Friction Equation: Automatic
     Geometry: Circular       Circular                 Solution Algorithm: Most Restrictive
     Span(in): 30.00          30.00                                Flow: Both
     Rise(in): 30.00          30.00                    Entrance Loss Coef: 0.000
   Invert(ft): 26.800         26.700                       Exit Loss Coef: 1.000
  Manning's N: 0.013000       0.013000                   Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                       Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                         Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
```

Circular Concrete: Square edge w/ headwall

*** Weir 1 of 3 for Drop Structure Drop 30 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	60.00	Invert(ft):	29.500
Rise(in):	24.00	Control Elev(ft):	29.500

*** Weir 2 of 3 for Drop Structure Drop 30 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Circular	Orifice Disc Coef:	0.600
Span(in):	2.80	Invert(ft):	27.500
Rise(in):	2.80	Control Elev(ft):	28.000

*** Weir 3 of 3 for Drop Structure Drop 30 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	54.00	Invert(ft):	31.500
Rise(in):	36.00	Control Elev(ft):	31.500

Name:	Drop 31	From Node:	SWMF 31
Group:	BASE	To Node:	0 Wetland

Length(ft): 40.00
Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	18.00	18.00
Rise(in):	18.00	18.00
Invert(ft):	32.500	32.000
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.000
Exit Loss Coef: 1.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 2 for Drop Structure Drop 31 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Circular	Orifice Disc Coef:	0.600
Span(in):	2.90	Invert(ft):	32.500
Rise(in):	2.90	Control Elev(ft):	33.000

*** Weir 2 of 2 for Drop Structure Drop 31 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	18.00	Invert(ft):	34.000
Rise(in):	999.00	Control Elev(ft):	34.000

```
---------------------------------------------------------------------------------------------
         Name: Drop 33             From Node: SWMF 33           Length(ft): 40.00
        Group: BASE                  To Node: 0 Wetland             Count: 1

               UPSTREAM       DOWNSTREAM                Friction Equation: Automatic
     Geometry: Circular       Circular                 Solution Algorithm: Most Restrictive
     Span(in): 18.00          18.00                                Flow: Both
     Rise(in): 18.00          18.00                   Entrance Loss Coef: 0.000
   Invert(ft): 32.500         32.000                      Exit Loss Coef: 1.000
  Manning's N: 0.013000       0.013000                  Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                      Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                        Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall



*** Weir 1 of 2 for Drop Structure Drop 33 ***
                                                                                TABLE
                  Count: 1                      Bottom Clip(in): 0.000
                   Type: Horizontal                Top Clip(in): 0.000
                   Flow: Both                   Weir Disc Coef: 3.200
               Geometry: Circular              Orifice Disc Coef: 0.600

               Span(in): 4.20                        Invert(ft): 32.500
               Rise(in): 4.20                  Control Elev(ft): 33.000

*** Weir 2 of 2 for Drop Structure Drop 33 ***
                                                                                TABLE
                  Count: 1                      Bottom Clip(in): 0.000
                   Type: Vertical: Mavis           Top Clip(in): 0.000
                   Flow: Both                   Weir Disc Coef: 3.200
               Geometry: Rectangular           Orifice Disc Coef: 0.600

               Span(in): 18.00                       Invert(ft): 33.700
               Rise(in): 999.00                Control Elev(ft): 33.700


---------------------------------------------------------------------------------------------
         Name: Drop J1             From Node: SWMF J1           Length(ft): 40.00
        Group: BASE                  To Node: 3 Jersey South          Count: 1

               UPSTREAM       DOWNSTREAM                Friction Equation: Automatic
     Geometry: Circular       Circular                 Solution Algorithm: Most Restrictive
     Span(in): 24.00          24.00                                Flow: Both
     Rise(in): 24.00          24.00                   Entrance Loss Coef: 0.000
   Invert(ft): 28.900         28.800                      Exit Loss Coef: 1.000
  Manning's N: 0.012000       0.012000                  Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                      Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                        Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall



*** Weir 1 of 2 for Drop Structure Drop J1 ***
                                                                                TABLE
                  Count: 1                      Bottom Clip(in): 0.000
                   Type: Horizontal                Top Clip(in): 0.000
                   Flow: Both                   Weir Disc Coef: 3.200
               Geometry: Circular              Orifice Disc Coef: 0.600

               Span(in): 7.30                        Invert(ft): 28.500
               Rise(in): 7.30                  Control Elev(ft): 29.000
```

*** Weir 2 of 2 for Drop Structure Drop J1 ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Vertical: Mavis	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	18.00	Invert(ft):	29.200
Rise(in):	9999.00	Control Elev(ft):	29.200

Name:	Pond East	From Node: Pond	Length(ft): 300.00
Group:	BASE	To Node: 1 Jersey East	Count: 1

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Friction Equation:	Automatic
Span(in):	48.00	48.00	Solution Algorithm:	Most Restrictive
Rise(in):	48.00	48.00	Flow:	Both
Invert(ft):	29.000	28.000	Entrance Loss Coef:	0.000
Manning's N:	0.013000	0.013000	Exit Loss Coef:	1.000
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 2 for Drop Structure Pond East ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Circular	Orifice Disc Coef:	0.600
Span(in):	10.00	Invert(ft):	30.900
Rise(in):	10.00	Control Elev(ft):	31.400

*** Weir 2 of 2 for Drop Structure Pond East ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	99.00	Invert(ft):	32.000
Rise(in):	76.00	Control Elev(ft):	32.000

Name:	Pond West	From Node: Pond	Length(ft): 300.00
Group:	BASE	To Node: 2 Jersey West	Count: 1

	UPSTREAM	DOWNSTREAM		
Geometry:	Circular	Circular	Friction Equation:	Automatic
Span(in):	24.00	24.00	Solution Algorithm:	Most Restrictive
Rise(in):	24.00	24.00	Flow:	Both
Invert(ft):	29.000	28.000	Entrance Loss Coef:	0.000
Manning's N:	0.013000	0.013000	Exit Loss Coef:	1.000
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec:	Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
			Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 1 for Drop Structure Pond West ***

TABLE

Count:	1	Bottom Clip(in):	0.000
Type:	Horizontal	Top Clip(in):	0.000
Flow:	Both	Weir Disc Coef:	3.200
Geometry:	Rectangular	Orifice Disc Coef:	0.600
Span(in):	54.00	Invert(ft):	31.400
Rise(in):	36.00	Control Elev(ft):	31.400

==========
==== Hydrology Simulations ====
==========

Name: 100 Year
Filename: P:\2008-499 Ayrshire\Engineering\Drainage\ICPR\Overall\Post\100 Year.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 10.90

Time(hrs)	Print Inc(min)
30.000	15.00

Name: 25 Year
Filename: P:\2008-499 Ayrshire\Engineering\Drainage\ICPR\Overall\Post\25 Year.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 8.06

Time(hrs)	Print Inc(min)
30.000	15.00

Name: 3 Year
Filename: P:\2008-499 Ayrshire\Engineering\Drainage\ICPR\Overall\Post\3 Year.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 4.78

Time(hrs)	Print Inc(min)
30.000	15.00

==========
==== Routing Simulations ====
==========

Name: 100 Year Hydrology Sim: 100 Year
Filename: P:\2008-499 Ayrshire\Engineering\Drainage\ICPR\Overall\Post\100 Year.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 24.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
24.000	15.000

Group Run

BASE	Yes

Name: 25 Year Hydrology Sim: 25 Year
Filename: P:\2008-499 Ayrshire\Engineering\Drainage\ICPR\Overall\Post\25 Year.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 24.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
24.000	15.000

Group	Run
BASE	Yes

Name: 3 Year Hydrology Sim: 3 Year
Filename: P:\2008-499 Ayrshire\Engineering\Drainage\ICPR\Overall\Post\3 Year.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.00500
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 24.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
24.000	60.000

Group	Run
BASE	Yes

Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
100 Year	Basin 1	BASE	12.02	185.76	8.778	804250
100 Year	Basin 10	BASE	12.02	59.12	9.369	263243
100 Year	Basin 11	BASE	12.02	117.15	7.024	480628
100 Year	Basin 12	BASE	12.02	123.46	6.790	504289
100 Year	Basin 13	BASE	12.02	130.47	9.237	577059
100 Year	Basin 14	BASE	12.02	93.46	8.064	394009
100 Year	Basin 15	BASE	12.02	183.68	9.481	822871
100 Year	Basin 16	BASE	12.02	79.26	9.515	355754
100 Year	Basin 17	BASE	12.02	73.20	9.676	331571
100 Year	Basin 18	BASE	12.02	151.09	8.230	640491
100 Year	Basin 19	BASE	12.02	79.91	8.160	337955
100 Year	Basin 2	BASE	12.02	119.17	7.749	497598
100 Year	Basin 20	BASE	12.02	23.00	7.974	96674
100 Year	Basin 21	BASE	12.02	310.07	9.477	1388793
100 Year	Basin 22	BASE	12.02	96.36	9.378	429282
100 Year	Basin 23	BASE	12.02	54.27	9.609	244874
100 Year	Basin 24	BASE	12.02	155.65	9.085	683304
100 Year	Basin 25	BASE	12.02	42.68	9.206	188485
100 Year	Basin 26	BASE	12.02	112.71	9.456	504213
100 Year	Basin 27	BASE	12.02	104.43	9.656	472489
100 Year	Basin 28	BASE	12.02	175.02	9.084	768279
100 Year	Basin 29	BASE	12.02	25.42	9.307	112841
100 Year	Basin 3	BASE	12.02	84.02	9.288	372556
100 Year	Basin 30	BASE	12.02	54.72	9.183	241351
100 Year	Basin 31	BASE	12.02	44.31	5.379	178461
100 Year	Basin 32	BASE	12.02	29.76	7.216	122584
100 Year	Basin 33	BASE	12.02	68.52	6.719	279526
100 Year	Basin 4	BASE	12.02	13.79	6.311	55901
100 Year	Basin 5	BASE	12.02	35.48	9.393	158216
100 Year	Basin 6	BASE	12.02	79.30	7.501	328924
100 Year	Basin 7	BASE	12.02	37.40	7.664	155800
100 Year	Basin 8	BASE	12.02	64.00	9.412	285638
100 Year	Basin 9	BASE	12.02	30.57	9.747	139057
100 Year	Basin J1	BASE	12.00	206.82	10.593	998573
100 Year	DDA 1	BASE	12.04	0.65	2.576	2806
100 Year	DDA 2	BASE	12.04	0.45	2.576	1964
100 Year	DDA 3	BASE	13.25	2.91	6.023	36292
100 Year	Pond	BASE	12.02	700.14	10.201	3281408
25 Year	Basin 1	BASE	12.02	130.79	6.038	553249
25 Year	Basin 10	BASE	12.02	42.49	6.584	184974
25 Year	Basin 11	BASE	12.02	76.21	4.505	308274
25 Year	Basin 12	BASE	12.02	79.31	4.310	320090
25 Year	Basin 13	BASE	12.02	93.38	6.460	403593
25 Year	Basin 14	BASE	12.02	63.92	5.399	263816
25 Year	Basin 15	BASE	12.02	132.48	6.688	580473
25 Year	Basin 16	BASE	12.02	57.23	6.720	251256
25 Year	Basin 17	BASE	12.02	53.09	6.872	235488
25 Year	Basin 18	BASE	12.02	104.07	5.546	431615
25 Year	Basin 19	BASE	12.02	54.88	5.484	227126
25 Year	Basin 2	BASE	12.02	80.35	5.124	329034
25 Year	Basin 20	BASE	12.02	15.66	5.320	64500
25 Year	Basin 21	BASE	12.02	223.61	6.684	979557
25 Year	Basin 22	BASE	12.02	69.28	6.592	301740
25 Year	Basin 23	BASE	12.02	39.29	6.809	173514
25 Year	Basin 24	BASE	12.02	110.83	6.320	475313
25 Year	Basin 25	BASE	12.02	30.52	6.432	131682
25 Year	Basin 26	BASE	12.02	81.23	6.664	355369
25 Year	Basin 27	BASE	12.02	75.70	6.853	335338
25 Year	Basin 28	BASE	12.02	124.61	6.318	534398
25 Year	Basin 29	BASE	12.02	18.24	6.526	79117
25 Year	Basin 3	BASE	12.02	60.23	6.508	261035
25 Year	Basin 30	BASE	12.02	39.09	6.411	168479
25 Year	Basin 31	BASE	12.04	26.02	3.178	105440
25 Year	Basin 32	BASE	12.02	19.55	4.667	79281
25 Year	Basin 33	BASE	12.02	43.84	4.251	176856
25 Year	Basin 4	BASE	12.02	8.61	3.917	34694
25 Year	Basin 5	BASE	12.02	25.52	6.606	111268
25 Year	Basin 6	BASE	12.02	52.85	4.910	215305
25 Year	Basin 7	BASE	12.02	25.12	5.051	102669
25 Year	Basin 8	BASE	12.02	46.06	6.624	201015
25 Year	Basin 9	BASE	12.02	22.21	6.940	99004
25 Year	Basin J1	BASE	12.00	152.71	7.758	731381
25 Year	DDA 1	BASE	12.07	0.24	1.181	1286

Basin Max Report

Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
25 Year	DDA 2	BASE	12.07	0.17	1.181	900
25 Year	DDA 3	BASE	13.33	1.75	3.683	22194
25 Year	Pond	BASE	12.02	514.11	7.375	2372381
3 Year	Basin 1	BASE	12.02	66.86	2.981	273133
3 Year	Basin 10	BASE	12.02	23.01	3.427	96277
3 Year	Basin 11	BASE	12.04	31.55	1.869	127899
3 Year	Basin 12	BASE	12.04	31.79	1.742	129343
3 Year	Basin 13	BASE	12.02	49.96	3.323	207627
3 Year	Basin 14	BASE	12.02	30.21	2.493	121821
3 Year	Basin 15	BASE	12.02	72.48	3.515	305100
3 Year	Basin 16	BASE	12.02	31.41	3.543	132456
3 Year	Basin 17	BASE	12.02	29.54	3.674	125899
3 Year	Basin 18	BASE	12.02	50.13	2.602	202494
3 Year	Basin 19	BASE	12.02	26.23	2.556	105847
3 Year	Basin 2	BASE	12.02	36.58	2.294	147301
3 Year	Basin 20	BASE	12.02	7.33	2.435	29523
3 Year	Basin 21	BASE	12.02	122.30	3.512	514690
3 Year	Basin 22	BASE	12.02	37.55	3.434	157175
3 Year	Basin 23	BASE	12.02	21.74	3.619	92230
3 Year	Basin 24	BASE	12.02	58.43	3.207	241236
3 Year	Basin 25	BASE	12.02	16.28	3.300	67560
3 Year	Basin 26	BASE	12.02	44.34	3.495	186371
3 Year	Basin 27	BASE	12.02	42.05	3.657	178969
3 Year	Basin 28	BASE	12.02	65.69	3.206	271193
3 Year	Basin 29	BASE	12.02	9.82	3.378	40954
3 Year	Basin 3	BASE	12.02	32.38	3.363	134895
3 Year	Basin 30	BASE	12.02	20.81	3.282	86262
3 Year	Basin 31	BASE	12.04	8.01	1.063	35273
3 Year	Basin 32	BASE	12.02	8.31	1.977	33586
3 Year	Basin 33	BASE	12.04	17.40	1.704	70884
3 Year	Basin 4	BASE	12.04	3.21	1.494	13236
3 Year	Basin 5	BASE	12.02	13.86	3.446	58037
3 Year	Basin 6	BASE	12.02	23.32	2.143	93990
3 Year	Basin 7	BASE	12.02	11.32	2.242	45573
3 Year	Basin 8	BASE	12.02	25.05	3.461	105023
3 Year	Basin 9	BASE	12.02	12.43	3.733	53260
3 Year	Basin J1	BASE	12.02	90.05	4.488	423051
3 Year	DDA 1	BASE	12.56	0.01	0.158	172
3 Year	DDA 2	BASE	12.56	0.00	0.158	120
3 Year	DDA 3	BASE	13.42	0.59	1.352	8146
3 Year	Pond	BASE	12.02	297.41	4.125	1327030

Node Max Report

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
0 Wetland	BASE	100 Year	12.00	33.00	36.00	0.0028	0	13.05	13.20	0.00	0.00
1 Jersey East	BASE	100 Year	12.00	28.00	29.00	0.0014	0	12.30	36.02	0.00	0.00
2 Jersey West	BASE	100 Year	12.00	28.00	29.00	0.0014	0	12.38	57.36	0.00	0.00
3 Jersey South	BASE	100 Year	12.00	28.00	29.00	0.0014	0	24.00	2.43	0.00	0.00
4 Northeast	BASE	100 Year	12.00	20.00	22.00	0.0014	0	12.89	17.08	0.00	0.00
CSX 1	BASE	100 Year	12.00	24.00	26.00	0.0014	0	13.25	67.22	0.00	0.00
CSX 2	BASE	100 Year	12.00	25.00	26.00	0.0028	0	12.62	28.39	0.00	0.00
CSX 3	BASE	100 Year	12.00	25.00	26.00	0.0028	0	12.94	43.00	0.00	0.00
MH Inter	BASE	100 Year	12.78	27.83	29.00	-0.0237	134	12.61	51.99	12.58	51.70
Pond	BASE	100 Year	17.02	32.38	34.50	0.0005	3061466	12.00	698.60	17.02	41.39
SWMF 1	BASE	100 Year	14.59	32.76	33.80	0.0021	243321	12.00	185.10	15.29	10.27
SWMF 10	BASE	100 Year	14.58	32.64	33.30	0.0021	36806	12.00	38.61	14.00	23.03
SWMF 11	BASE	100 Year	12.82	32.75	33.60	0.0022	71825	12.00	98.08	14.41	23.51
SWMF 12	BASE	100 Year	12.73	32.75	33.70	0.0027	124739	12.00	131.43	13.40	18.61
SWMF 13	BASE	100 Year	12.24	32.68	33.60	0.0026	48203	12.00	102.88	12.17	48.29
SWMF 14	BASE	100 Year	12.36	32.61	33.50	0.0022	60004	12.00	112.54	12.37	41.81
SWMF 15	BASE	100 Year	12.37	28.84	28.80	0.0035	53755	12.00	183.38	12.13	73.99
SWMF 16	BASE	100 Year	12.71	28.19	28.70	0.0031	85107	12.00	147.45	12.61	51.99
SWMF 17	BASE	100 Year	12.83	27.63	28.10	0.0024	80275	12.00	83.47	13.23	29.68
SWMF 18	BASE	100 Year	13.14	27.52	28.50	0.0022	128470	12.00	174.72	12.71	39.82
SWMF 19	BASE	100 Year	12.72	27.49	27.80	0.0022	54588	12.00	76.02	13.02	26.58
SWMF 2	BASE	100 Year	12.47	32.91	33.80	0.0026	56512	12.00	118.34	12.18	35.41
SWMF 20	BASE	100 Year	12.67	26.94	27.40	0.0016	24159	12.00	43.87	12.67	35.47
SWMF 21	BASE	100 Year	15.88	26.46	28.00	0.0012	564310	12.00	340.90	15.88	32.62
SWMF 22	BASE	100 Year	12.70	27.51	27.80	0.0021	54985	12.00	78.51	13.15	20.03
SWMF 23	BASE	100 Year	12.62	27.18	27.40	0.0018	45406	12.00	66.56	12.62	28.39
SWMF 24	BASE	100 Year	12.89	24.74	27.00	0.0022	118370	12.00	155.24	12.89	17.08
SWMF 25	BASE	100 Year	12.89	27.74	28.90	0.0020	27749	12.00	42.58	12.07	10.99
SWMF 26	BASE	100 Year	12.95	27.72	28.10	0.0021	89074	12.00	123.67	12.94	43.00
SWMF 27	BASE	100 Year	13.10	27.89	28.50	0.0023	114087	12.00	126.70	13.75	28.24
SWMF 28	BASE	100 Year	13.09	27.96	28.60	0.0022	109548	12.00	158.76	12.12	24.30
SWMF 29	BASE	100 Year	13.10	27.96	28.90	0.0024	37472	12.00	25.37	14.76	3.08
SWMF 3	BASE	100 Year	14.47	32.74	33.80	0.0020	46523	12.00	60.98	15.01	8.98
SWMF 30	BASE	100 Year	12.19	31.25	32.90	-0.0022	31326	12.00	54.59	12.19	32.59
SWMF 31	BASE	100 Year	12.88	35.09	36.60	0.0018	47418	12.00	43.52	12.88	5.71
SWMF 32	BASE	100 Year	13.67	35.13	37.70	0.0017	64516	12.00	29.49	14.89	2.72
SWMF 33	BASE	100 Year	13.60	35.12	37.60	0.0015	55948	12.00	55.92	13.60	7.63
SWMF 4	BASE	100 Year	12.88	32.77	33.70	0.0030	29338	12.00	13.61	13.08	2.01
SWMF 5	BASE	100 Year	12.84	32.77	33.70	0.0023	23634	12.00	54.14	12.13	25.27
SWMF 6	BASE	100 Year	12.86	32.77	33.70	0.0026	86310	12.00	80.29	13.35	10.71
SWMF 7	BASE	100 Year	12.84	32.75	33.70	0.0023	34015	12.00	17.74	13.03	14.79
SWMF 8	BASE	100 Year	14.15	32.72	33.70	0.0022	45928	12.00	59.53	12.56	16.23
SWMF 9	BASE	100 Year	14.56	32.73	33.70	0.0024	79018	12.00	46.45	14.34	10.27
SWMF J1	BASE	100 Year	24.00	29.90	31.20	0.0004	1007976	12.00	206.77	24.00	2.43
0 Wetland	BASE	25 Year	12.00	33.00	36.00	0.0028	0	14.66	5.29	0.00	0.00
1 Jersey East	BASE	25 Year	12.00	28.00	29.00	0.0014	0	12.22	22.89	0.00	0.00
2 Jersey West	BASE	25 Year	12.00	28.00	29.00	0.0014	0	12.48	42.62	0.00	0.00
3 Jersey South	BASE	25 Year	12.00	28.00	29.00	0.0014	0	24.00	1.55	0.00	0.00
4 Northeast	BASE	25 Year	12.00	20.00	22.00	0.0014	0	12.79	13.45	0.00	0.00
CSX 1	BASE	25 Year	12.00	24.00	26.00	0.0014	0	13.50	46.51	0.00	0.00
CSX 2	BASE	25 Year	12.00	25.00	26.00	0.0028	0	12.70	18.88	0.00	0.00

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
CSX 3	BASE	25 Year	12.00	25.00	26.00	0.0028	0	13.22	26.32	0.00	0.00
MH Inter	BASE	25 Year	12.72	26.73	29.00	-0.0312	134	12.48	42.93	12.45	42.54
Pond	BASE	25 Year	17.75	31.98	34.50	0.0004	2922806	12.00	502.06	17.75	16.74
SWMF 1	BASE	25 Year	16.79	32.08	33.80	0.0017	236941	12.00	130.06	17.93	4.53
SWMF 10	BASE	25 Year	16.71	32.06	33.30	0.0020	35058	12.00	26.78	16.55	6.83
SWMF 11	BASE	25 Year	16.62	32.04	33.60	0.0021	68149	12.00	65.32	17.20	12.74
SWMF 12	BASE	25 Year	16.16	31.98	33.70	0.0023	119510	12.00	84.54	24.00	12.11
SWMF 13	BASE	25 Year	12.43	31.87	33.60	0.0026	45005	12.00	68.73	15.57	15.16
SWMF 14	BASE	25 Year	12.47	31.74	33.50	0.0023	56476	12.00	77.62	12.47	28.42
SWMF 15	BASE	25 Year	12.35	27.34	28.80	0.0031	48566	12.00	132.10	12.11	58.84
SWMF 16	BASE	25 Year	12.63	26.96	28.70	0.0024	79029	12.00	111.76	12.48	42.93
SWMF 17	BASE	25 Year	12.79	26.64	28.10	0.0020	75845	12.00	60.04	12.89	19.32
SWMF 18	BASE	25 Year	13.05	26.49	28.50	0.0018	120545	12.00	126.43	12.67	33.38
SWMF 19	BASE	25 Year	12.75	26.57	27.80	0.0020	51002	12.00	52.26	12.91	17.86
SWMF 2	BASE	25 Year	16.67	32.07	33.80	0.0023	52667	12.00	79.52	12.15	26.16
SWMF 20	BASE	25 Year	12.76	26.32	27.40	0.0017	22642	12.01	29.87	12.76	23.70
SWMF 21	BASE	25 Year	15.75	25.79	28.00	0.0009	558034	12.00	248.89	15.74	24.59
SWMF 22	BASE	25 Year	12.74	26.58	27.80	0.0019	50932	12.00	54.33	12.91	13.59
SWMF 23	BASE	25 Year	12.71	26.42	27.40	0.0018	42682	12.00	47.05	12.70	18.88
SWMF 24	BASE	25 Year	12.79	23.63	27.00	0.0020	112329	12.00	110.35	12.79	13.45
SWMF 25	BASE	25 Year	13.24	26.84	28.90	0.0019	25273	12.00	30.40	12.04	8.28
SWMF 26	BASE	25 Year	13.48	26.83	28.10	0.0019	84370	12.00	87.30	13.22	26.32
SWMF 27	BASE	25 Year	13.51	26.90	28.50	0.0019	106939	12.00	90.76	13.79	17.49
SWMF 28	BASE	25 Year	13.51	26.93	28.60	0.0020	104187	12.00	113.46	12.10	16.48
SWMF 29	BASE	25 Year	13.51	26.93	28.90	0.0021	33626	12.00	18.17	14.76	1.81
SWMF 3	BASE	25 Year	16.72	32.07	33.80	0.0019	44224	12.00	41.74	18.01	4.10
SWMF 30	BASE	25 Year	12.22	30.70	32.90	0.0017	29694	12.00	38.94	12.22	21.09
SWMF 31	BASE	25 Year	14.67	34.45	36.60	0.0013	45156	12.00	25.33	14.67	1.69
SWMF 32	BASE	25 Year	14.69	34.46	37.70	0.0012	61366	12.00	19.29	16.78	1.24
SWMF 33	BASE	25 Year	14.65	34.46	37.60	0.0013	53453	12.00	34.59	14.65	3.60
SWMF 4	BASE	25 Year	16.69	32.06	33.70	0.0023	27102	12.00	8.45	18.78	0.41
SWMF 5	BASE	25 Year	16.69	32.07	33.70	0.0021	22018	12.00	38.79	12.09	19.82
SWMF 6	BASE	25 Year	16.69	32.06	33.70	0.0021	81657	12.00	54.39	17.77	5.49
SWMF 7	BASE	25 Year	16.67	32.06	33.70	0.0021	31771	12.00	11.03	17.76	6.38
SWMF 8	BASE	25 Year	16.69	32.07	33.70	0.0020	43707	12.00	40.64	12.35	4.28
SWMF 9	BASE	25 Year	16.73	32.07	33.70	0.0019	75540	12.00	32.66	16.79	3.29
SWMF J1	BASE	25 Year	24.00	29.67	31.20	0.0003	1004303	12.00	152.66	24.00	1.55
0 Wetland	BASE	3 Year	12.00	33.00	36.00	0.0028	0	23.73	0.76	0.00	0.00
1 Jersey East	BASE	3 Year	12.00	28.00	29.00	0.0014	0	12.57	5.65	0.00	0.00
2 Jersey West	BASE	3 Year	12.00	28.00	29.00	0.0014	0	17.61	17.74	0.00	0.00
3 Jersey South	BASE	3 Year	12.00	28.00	29.00	0.0014	0	24.00	0.71	0.00	0.00
4 Northeast	BASE	3 Year	12.00	20.00	22.00	0.0014	0	15.63	2.53	0.00	0.00
CSX 1	BASE	3 Year	12.00	24.00	26.00	0.0014	0	14.65	18.33	0.00	0.00
CSX 2	BASE	3 Year	12.00	25.00	26.00	0.0028	0	12.75	7.85	0.00	0.00
CSX 3	BASE	3 Year	12.00	25.00	26.00	0.0028	0	14.40	9.99	0.00	0.00
MH Inter	BASE	3 Year	12.68	25.41	29.00	-0.0237	134	12.32	28.69	12.30	28.86
Pond	BASE	3 Year	13.95	31.71	34.50	0.0001	2830611	12.00	294.08	13.95	9.92
SWMF 1	BASE	3 Year	24.00	30.86	33.80	0.0006	225516	12.00	66.15	6.55	2.78
SWMF 10	BASE	3 Year	24.00	30.86	33.30	0.0006	31406	12.00	13.43	0.00	0.00
SWMF 11	BASE	3 Year	23.75	30.85	33.60	0.0007	61946	12.00	30.03	24.00	6.21
SWMF 12	BASE	3 Year	23.68	30.80	33.70	0.0007	111539	12.00	33.89	24.00	8.28

Node Max Report

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
SWMF 13	BASE	3 Year	23.53	30.74	33.60	0.0008	40509	12.00	32.58	24.00	9.11
SWMF 14	BASE	3 Year	23.54	30.64	33.50	0.0008	51998	12.00	36.16	23.54	11.22
SWMF 15	BASE	3 Year	12.35	25.60	28.80	0.0009	42583	12.00	72.06	12.08	36.88
SWMF 16	BASE	3 Year	12.54	25.48	28.70	0.0008	71799	12.00	65.96	12.32	28.69
SWMF 17	BASE	3 Year	12.72	25.41	28.10	0.0007	70354	12.00	32.62	12.53	5.47
SWMF 18	BASE	3 Year	13.07	25.27	28.50	0.0006	111270	12.00	69.31	12.59	23.24
SWMF 19	BASE	3 Year	12.73	25.40	27.80	0.0007	46446	12.00	24.14	12.69	6.64
SWMF 2	BASE	3 Year	24.00	30.86	33.80	0.0006	47102	12.00	35.89	12.12	13.26
SWMF 20	BASE	3 Year	12.76	25.36	27.40	0.0007	20319	12.07	13.80	12.76	9.48
SWMF 21	BASE	3 Year	15.97	25.06	28.00	0.0004	551057	12.00	139.09	15.97	11.48
SWMF 22	BASE	3 Year	12.73	25.41	27.80	0.0007	45812	12.00	23.58	12.61	5.24
SWMF 23	BASE	3 Year	12.75	25.38	27.40	0.0006	38958	12.00	19.24	12.75	7.85
SWMF 24	BASE	3 Year	15.63	22.63	27.00	0.0007	106887	12.00	57.93	15.63	2.53
SWMF 25	BASE	3 Year	14.52	25.66	28.90	0.0007	22020	12.00	16.15	12.04	4.37
SWMF 26	BASE	3 Year	14.53	25.66	28.10	0.0007	78125	12.00	42.61	14.40	9.99
SWMF 27	BASE	3 Year	14.53	25.67	28.50	0.0007	97986	12.00	47.22	14.76	6.63
SWMF 28	BASE	3 Year	14.52	25.67	28.60	0.0007	97634	12.00	59.82	12.02	5.48
SWMF 29	BASE	3 Year	14.53	25.67	28.90	0.0007	28927	12.00	9.75	16.25	0.63
SWMF 3	BASE	3 Year	24.00	30.86	33.80	0.0005	40044	12.00	21.02	4.21	3.15
SWMF 30	BASE	3 Year	12.56	29.89	32.90	0.0010	27332	12.00	20.64	12.56	4.22
SWMF 31	BASE	3 Year	24.00	33.69	36.60	0.0003	42483	12.00	7.40	24.00	0.18
SWMF 32	BASE	3 Year	23.71	33.80	37.70	0.0003	58263	12.00	8.11	24.00	0.18
SWMF 33	BASE	3 Year	23.71	33.80	37.60	0.0003	50975	12.00	13.00	23.71	0.57
SWMF 4	BASE	3 Year	24.00	30.86	33.70	0.0007	23297	12.00	3.07	6.56	0.12
SWMF 5	BASE	3 Year	24.00	30.86	33.70	0.0006	19209	12.00	20.40	12.06	12.02
SWMF 6	BASE	3 Year	24.00	30.86	33.70	0.0007	73711	12.00	25.54	24.00	2.72
SWMF 7	BASE	3 Year	23.97	30.85	33.70	0.0007	27869	12.00	4.70	24.00	2.94
SWMF 8	BASE	3 Year	24.00	30.86	33.70	0.0006	39567	12.00	18.65	12.46	2.70
SWMF 9	BASE	3 Year	24.00	30.86	33.70	0.0006	69140	12.00	16.72	0.00	0.00
SWMF J1	BASE	3 Year	24.00	29.39	31.20	0.0001	999921	12.00	90.04	24.00	0.71

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
1-3	BASE	100 Year	15.84	4.94	-0.325	14.59	32.76	14.47	32.74
1-9	BASE	100 Year	15.02	5.39	0.444	14.59	32.76	14.56	32.73
11-12	BASE	100 Year	12.03	9.57	-0.867	12.82	32.75	12.73	32.75
12-13	BASE	100 Year	13.40	18.61	1.290	12.73	32.75	12.24	32.68
13-14	BASE	100 Year	18.24	25.34	-0.114	12.24	32.68	12.36	32.61
15-16	BASE	100 Year	12.13	73.99	-0.495	12.37	28.84	12.71	28.19
16-MH	BASE	100 Year	12.61	51.99	8.321	12.71	28.19	12.78	27.83
17-19	BASE	100 Year	13.18	16.20	0.219	12.83	27.63	12.72	27.49
17-22	BASE	100 Year	13.26	13.49	0.582	12.83	27.63	12.70	27.51
18-21	BASE	100 Year	12.71	39.82	0.147	13.14	27.52	15.88	26.46
19-20	BASE	100 Year	12.82	31.97	0.152	12.72	27.49	12.67	26.94
19-22	BASE	100 Year	0.00	0.00	0.150	12.72	27.49	12.70	27.51
2-5	BASE	100 Year	12.18	35.41	-0.262	12.47	32.91	12.84	32.77
22-23	BASE	100 Year	13.15	20.03	0.117	12.70	27.51	12.62	27.18
25-26	BASE	100 Year	12.07	10.99	-0.115	12.89	27.74	12.95	27.72
27-26	BASE	100 Year	13.75	28.24	-0.237	13.10	27.89	12.95	27.72
28-27	BASE	100 Year	12.12	24.30	-0.230	13.09	27.96	13.10	27.89
29-28	BASE	100 Year	14.76	3.08	0.287	13.10	27.96	13.09	27.96
3-5	BASE	100 Year	19.02	1.59	0.351	14.47	32.74	12.84	32.77
3-8	BASE	100 Year	14.91	5.58	0.351	14.47	32.74	14.15	32.72
3-9	BASE	100 Year	12.10	25.77	0.621	14.47	32.74	14.56	32.73
32-33	BASE	100 Year	14.89	2.72	0.326	13.67	35.13	13.60	35.12
4-6	BASE	100 Year	13.08	2.01	-0.127	12.88	32.77	12.86	32.77
5-6	BASE	100 Year	12.09	16.41	0.136	12.84	32.77	12.86	32.77
5-8	BASE	100 Year	12.32	9.67	-0.099	12.84	32.77	14.15	32.72
6-7	BASE	100 Year	13.35	10.71	0.293	12.86	32.77	12.84	32.75
7-11	BASE	100 Year	14.91	16.55	0.287	12.84	32.75	12.82	32.75
7-8	BASE	100 Year	12.69	10.42	0.270	12.84	32.75	14.15	32.72
8-10	BASE	100 Year	12.56	16.23	-0.378	14.15	32.72	14.58	32.64
9-10	BASE	100 Year	14.34	10.27	-0.567	14.56	32.73	14.58	32.64
Bleeddown 14	BASE	100 Year	12.37	41.81	0.037	12.36	32.61	12.00	28.00
Drop 10	BASE	100 Year	14.00	23.03	0.182	14.58	32.64	17.02	32.38
Drop 11	BASE	100 Year	12.72	20.56	-1.421	12.82	32.75	17.02	32.38
Drop 13	BASE	100 Year	12.22	34.13	0.258	12.24	32.68	17.02	32.38
Drop 20	BASE	100 Year	12.67	35.47	0.031	12.67	26.94	12.00	24.00
Drop 21	BASE	100 Year	15.88	32.62	0.020	15.88	26.46	12.00	24.00
Drop 23	BASE	100 Year	12.62	28.39	0.030	12.62	27.18	12.00	25.00
Drop 24	BASE	100 Year	12.89	17.08	0.032	12.89	24.74	12.00	20.00
Drop 26	BASE	100 Year	12.94	43.00	0.821	12.95	27.72	12.00	25.00
Drop 30	BASE	100 Year	12.19	32.59	-0.051	12.19	31.25	12.00	28.00
Drop 31	BASE	100 Year	12.88	5.71	0.011	12.88	35.09	12.00	33.00
Drop 33	BASE	100 Year	13.60	7.63	0.016	13.60	35.12	12.00	33.00
Drop J1	BASE	100 Year	24.00	2.43	0.002	24.00	29.90	12.00	28.00
MH-17	BASE	100 Year	12.69	20.20	-4.364	12.78	27.83	12.83	27.63
MH-18	BASE	100 Year	12.51	31.82	5.168	12.78	27.83	13.14	27.52
Pond East	BASE	100 Year	17.02	24.55	0.022	17.02	32.38	12.00	28.00
Pond West	BASE	100 Year	17.02	16.84	0.014	17.02	32.38	12.00	28.00
1-3	BASE	25 Year	2.87	2.99	0.309	16.79	32.08	16.72	32.07
1-9	BASE	25 Year	17.93	2.27	0.163	16.79	32.08	16.73	32.07
11-12	BASE	25 Year	24.00	9.79	-0.413	16.62	32.04	16.16	31.98
12-13	BASE	25 Year	24.00	12.11	0.164	16.16	31.98	12.43	31.87

Link Max Report

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
13-14	BASE	25 Year	18.41	21.47	-0.114	12.43	31.87	12.47	31.74
15-16	BASE	25 Year	12.11	58.84	0.863	12.35	27.34	12.63	26.96
16-MH	BASE	25 Year	12.48	42.93	-10.404	12.63	26.96	12.72	26.73
17-19	BASE	25 Year	12.87	10.61	-0.428	12.79	26.64	12.75	26.57
17-22	BASE	25 Year	12.90	8.71	-0.368	12.79	26.64	12.74	26.58
18-21	BASE	25 Year	12.67	33.38	-0.221	13.05	26.49	15.75	25.79
19-20	BASE	25 Year	12.73	21.65	-0.497	12.75	26.57	12.76	26.32
19-22	BASE	25 Year	2.21	0.27	0.150	12.75	26.57	12.74	26.58
2-5	BASE	25 Year	12.15	26.16	0.948	16.67	32.07	16.69	32.07
22-23	BASE	25 Year	12.91	13.59	-0.236	12.74	26.58	12.71	26.42
25-26	BASE	25 Year	12.04	8.28	0.116	13.24	26.84	13.48	26.83
27-26	BASE	25 Year	13.79	17.49	0.245	13.51	26.90	13.48	26.83
28-27	BASE	25 Year	12.10	16.48	0.228	13.51	26.93	13.51	26.90
29-28	BASE	25 Year	14.76	1.81	0.285	13.51	26.93	13.51	26.93
3-5	BASE	25 Year	23.91	1.57	-0.318	16.72	32.07	16.69	32.07
3-8	BASE	25 Year	17.85	2.57	-0.314	16.72	32.07	16.69	32.07
3-9	BASE	25 Year	12.09	19.71	-0.333	16.72	32.07	16.73	32.07
32-33	BASE	25 Year	16.78	1.24	-0.074	14.69	34.46	14.65	34.46
4-6	BASE	25 Year	18.78	0.41	0.123	16.69	32.06	16.69	32.06
5-6	BASE	25 Year	12.06	13.07	-0.459	16.69	32.07	16.69	32.06
5-8	BASE	25 Year	12.16	6.96	0.144	16.69	32.07	16.69	32.07
6-7	BASE	25 Year	17.77	5.49	0.264	16.69	32.06	16.67	32.06
7-11	BASE	25 Year	17.77	9.94	0.318	16.67	32.06	16.62	32.04
7-8	BASE	25 Year	12.78	8.52	0.314	16.67	32.06	16.69	32.07
8-10	BASE	25 Year	12.35	4.28	0.273	16.69	32.07	16.71	32.06
9-10	BASE	25 Year	16.79	3.29	-0.203	16.73	32.07	16.71	32.06
Bleeddown 14	BASE	25 Year	12.47	28.42	0.038	12.47	31.74	12.00	28.00
Drop 10	BASE	25 Year	16.55	6.83	0.009	16.71	32.06	17.75	31.98
Drop 11	BASE	25 Year	16.14	4.33	-0.007	16.62	32.04	17.75	31.98
Drop 13	BASE	25 Year	0.00	0.00	0.013	12.43	31.87	17.75	31.98
Drop 20	BASE	25 Year	12.76	23.70	0.025	12.76	26.32	12.00	24.00
Drop 21	BASE	25 Year	15.74	24.59	0.021	15.75	25.79	12.00	24.00
Drop 23	BASE	25 Year	12.70	18.88	0.019	12.71	26.42	12.00	25.00
Drop 24	BASE	25 Year	12.79	13.45	0.039	12.79	23.63	12.00	20.00
Drop 26	BASE	25 Year	13.22	26.32	0.027	13.48	26.83	12.00	25.00
Drop 30	BASE	25 Year	12.22	21.09	0.036	12.22	30.70	12.00	28.00
Drop 31	BASE	25 Year	14.67	1.69	0.002	14.67	34.45	12.00	33.00
Drop 33	BASE	25 Year	14.65	3.60	0.007	14.65	34.46	12.00	33.00
Drop J1	BASE	25 Year	24.00	1.55	0.002	24.00	29.67	12.00	28.00
MH-17	BASE	25 Year	12.51	14.10	5.495	12.72	26.73	12.79	26.64
MH-18	BASE	25 Year	12.41	28.55	6.244	12.72	26.73	13.05	26.49
Pond East	BASE	25 Year	17.75	2.00	0.002	17.75	31.98	12.00	28.00
Pond West	BASE	25 Year	17.75	14.74	0.016	17.75	31.98	12.00	28.00
1-3	BASE	3 Year	24.00	0.80	-0.327	24.00	30.86	24.00	30.86
1-9	BASE	3 Year	3.59	2.55	0.448	24.00	30.86	24.00	30.86
11-12	BASE	3 Year	24.00	7.51	-0.127	23.75	30.85	23.68	30.80
12-13	BASE	3 Year	24.00	8.28	-0.112	23.68	30.80	23.53	30.74
13-14	BASE	3 Year	23.53	10.59	0.116	23.53	30.74	23.54	30.64
15-16	BASE	3 Year	12.08	36.88	-0.495	12.35	25.60	12.54	25.48
16-MH	BASE	3 Year	12.32	28.69	8.321	12.54	25.48	12.68	25.41
17-19	BASE	3 Year	12.52	3.30	-0.140	12.72	25.41	12.73	25.40

Link Max Report

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
17-22	BASE	3 Year	17.75	2.24	0.129	12.72	25.41	12.73	25.41
18-21	BASE	3 Year	12.59	23.24	0.147	13.07	25.27	15.97	25.06
19-20	BASE	3 Year	12.46	8.78	0.152	12.73	25.40	12.76	25.36
19-22	BASE	3 Year	0.00	0.00	0.153	12.73	25.40	12.73	25.41
2-5	BASE	3 Year	12.12	13.26	-0.258	24.00	30.86	24.00	30.86
22-23	BASE	3 Year	12.61	5.24	0.120	12.73	25.41	12.75	25.38
25-26	BASE	3 Year	12.04	4.37	0.115	14.52	25.66	14.53	25.66
27-26	BASE	3 Year	14.76	6.63	0.232	14.53	25.67	14.53	25.66
28-27	BASE	3 Year	12.02	5.48	0.228	14.52	25.67	14.53	25.67
29-28	BASE	3 Year	16.25	0.63	-0.246	14.53	25.67	14.52	25.67
3-5	BASE	3 Year	24.00	1.10	0.354	24.00	30.86	24.00	30.86
3-8	BASE	3 Year	24.00	1.06	0.354	24.00	30.86	24.00	30.86
3-9	BASE	3 Year	12.06	10.97	0.627	24.00	30.86	24.00	30.86
32-33	BASE	3 Year	24.00	0.18	-0.070	23.71	33.80	23.71	33.80
4-6	BASE	3 Year	6.56	0.12	-0.118	24.00	30.86	24.00	30.86
5-6	BASE	3 Year	12.04	8.66	-0.133	24.00	30.86	24.00	30.86
5-8	BASE	3 Year	12.15	3.59	-0.097	24.00	30.86	24.00	30.86
6-7	BASE	3 Year	24.00	2.72	-0.242	24.00	30.86	23.97	30.85
7-11	BASE	3 Year	24.00	5.54	0.287	23.97	30.85	23.75	30.85
7-8	BASE	3 Year	12.75	4.85	0.176	23.97	30.85	24.00	30.86
8-10	BASE	3 Year	12.46	2.70	-0.380	24.00	30.86	24.00	30.86
9-10	BASE	3 Year	0.00	0.00	-0.572	24.00	30.86	24.00	30.86
Bleeddown 14	BASE	3 Year	23.54	11.22	0.010	23.54	30.64	12.00	28.00
Drop 10	BASE	3 Year	0.00	0.00	-0.002	24.00	30.86	13.95	31.71
Drop 11	BASE	3 Year	0.00	0.00	-0.002	23.75	30.85	13.95	31.71
Drop 13	BASE	3 Year	0.00	0.00	-0.002	23.53	30.74	13.95	31.71
Drop 20	BASE	3 Year	12.76	9.48	0.008	12.76	25.36	12.00	24.00
Drop 21	BASE	3 Year	15.97	11.48	0.003	15.97	25.06	12.00	24.00
Drop 23	BASE	3 Year	12.75	7.85	0.050	12.75	25.38	12.00	25.00
Drop 24	BASE	3 Year	15.63	2.53	0.001	15.63	22.63	12.00	20.00
Drop 26	BASE	3 Year	14.40	9.99	0.029	14.53	25.66	12.00	25.00
Drop 30	BASE	3 Year	12.56	4.22	0.008	12.56	29.89	12.00	28.00
Drop 31	BASE	3 Year	24.00	0.18	0.000	24.00	33.69	12.00	33.00
Drop 33	BASE	3 Year	23.71	0.57	0.000	23.71	33.80	12.00	33.00
Drop J1	BASE	3 Year	24.00	0.71	0.001	24.00	29.39	12.00	28.00
MH-17	BASE	3 Year	12.30	5.52	4.478	12.68	25.41	12.72	25.41
MH-18	BASE	3 Year	12.30	23.34	-6.711	12.68	25.41	13.07	25.27
Pond East	BASE	3 Year	13.95	1.47	0.001	13.95	31.71	12.00	28.00
Pond West	BASE	3 Year	13.95	8.45	0.005	13.95	31.71	12.00	28.00

EXHIBITS

NOAA Atlas 14, Volume 9, Version 2
Location name: Green Cove Springs, Florida, USA*
Latitude: 29.9671°, Longitude: -81.6854°
Elevation: 26.93 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.508 (0.409-0.633)	0.577 (0.464-0.719)	0.686 (0.550-0.856)	0.773 (0.617-0.968)	0.888 (0.685-1.13)	0.974 (0.736-1.25)	1.06 (0.773-1.38)	1.14 (0.800-1.51)	1.24 (0.840-1.67)	1.31 (0.871-1.80)
10-min	0.744 (0.600-0.927)	0.845 (0.680-1.05)	1.00 (0.806-1.25)	1.13 (0.904-1.42)	1.30 (1.00-1.65)	1.43 (1.08-1.83)	1.55 (1.13-2.01)	1.66 (1.17-2.21)	1.81 (1.23-2.45)	1.92 (1.27-2.63)
15-min	0.907 (0.731-1.13)	1.03 (0.829-1.28)	1.22 (0.983-1.53)	1.38 (1.10-1.73)	1.59 (1.22-2.01)	1.74 (1.31-2.23)	1.89 (1.38-2.46)	2.03 (1.43-2.69)	2.21 (1.50-2.98)	2.34 (1.56-3.21)
30-min	1.41 (1.13-1.75)	1.60 (1.29-2.00)	1.91 (1.54-2.39)	2.16 (1.73-2.71)	2.49 (1.92-3.15)	2.73 (2.06-3.49)	2.96 (2.16-3.85)	3.18 (2.24-4.21)	3.45 (2.34-4.66)	3.65 (2.42-5.00)
60-min	1.83 (1.47-2.28)	2.10 (1.69-2.61)	2.53 (2.03-3.16)	2.90 (2.31-3.63)	3.41 (2.63-4.35)	3.80 (2.88-4.89)	4.19 (3.08-5.49)	4.59 (3.24-6.12)	5.13 (3.49-6.96)	5.54 (3.68-7.59)
2-hr	2.25 (1.83-2.79)	2.59 (2.10-3.20)	3.15 (2.55-3.91)	3.64 (2.92-4.52)	4.32 (3.38-5.50)	4.87 (3.72-6.25)	5.43 (4.02-7.08)	6.01 (4.28-7.97)	6.80 (4.67-9.19)	7.42 (4.97-10.1)
3-hr	2.45 (2.00-3.02)	2.82 (2.30-3.48)	3.47 (2.81-4.28)	4.04 (3.26-4.99)	4.87 (3.84-6.22)	5.56 (4.28-7.14)	6.29 (4.68-8.20)	7.06 (5.06-9.37)	8.15 (5.62-11.0)	9.01 (6.05-12.2)
6-hr	2.84 (2.33-3.48)	3.26 (2.68-3.99)	4.03 (3.29-4.93)	4.74 (3.85-5.82)	5.83 (4.64-7.43)	6.75 (5.25-8.65)	7.75 (5.83-10.1)	8.85 (6.40-11.7)	10.4 (7.26-14.0)	11.7 (7.91-15.8)
12-hr	3.33 (2.75-4.04)	3.80 (3.14-4.61)	4.68 (3.85-5.68)	5.51 (4.51-6.72)	6.82 (5.49-8.67)	7.95 (6.23-10.1)	9.19 (6.97-11.9)	10.6 (7.70-13.9)	12.6 (8.81-16.8)	14.2 (9.65-19.0)
24-hr	3.87 (3.22-4.65)	4.43 (3.68-5.33)	5.49 (4.55-6.61)	6.49 (5.35-7.85)	8.06 (6.54-10.2)	9.42 (7.43-11.9)	10.9 (8.33-14.0)	12.6 (9.21-16.4)	14.9 (10.6-19.9)	16.9 (11.6-22.5)
2-day	4.44 (3.72-5.30)	5.17 (4.33-6.17)	6.50 (5.42-7.77)	7.74 (6.43-9.29)	9.65 (7.87-12.1)	11.3 (8.96-14.2)	13.1 (10.0-16.7)	15.0 (11.1-19.5)	17.8 (12.7-23.5)	20.1 (13.9-26.6)
3-day	4.89 (4.12-5.81)	5.69 (4.78-6.76)	7.15 (5.99-8.51)	8.50 (7.09-10.2)	10.6 (8.66-13.2)	12.4 (9.85-15.4)	14.3 (11.0-18.1)	16.4 (12.1-21.2)	19.4 (13.9-25.5)	21.9 (15.1-28.8)
4-day	5.29 (4.46-6.26)	6.12 (5.16-7.25)	7.63 (6.42-9.06)	9.04 (7.56-10.8)	11.2 (9.19-13.9)	13.0 (10.4-16.2)	15.0 (11.6-19.0)	17.2 (12.8-22.2)	20.3 (14.5-26.6)	22.9 (15.9-30.0)
7-day	6.33 (5.38-7.45)	7.18 (6.09-8.45)	8.72 (7.38-10.3)	10.2 (8.54-12.0)	12.3 (10.2-15.2)	14.2 (11.4-17.5)	16.2 (12.6-20.3)	18.4 (13.7-23.5)	21.5 (15.5-28.0)	24.1 (16.8-31.4)
10-day	7.26 (6.19-8.50)	8.13 (6.93-9.54)	9.71 (8.24-11.4)	11.1 (9.41-13.1)	13.3 (11.0-16.2)	15.1 (12.2-18.6)	17.1 (13.3-21.3)	19.2 (14.4-24.4)	22.2 (16.0-28.8)	24.7 (17.3-32.1)
20-day	9.87 (8.48-11.5)	11.0 (9.41-12.8)	12.8 (11.0-14.9)	14.4 (12.2-16.8)	16.6 (13.7-19.9)	18.4 (14.9-22.3)	20.3 (15.8-24.9)	22.2 (16.7-27.8)	24.8 (17.9-31.7)	26.8 (18.9-34.7)
30-day	12.1 (10.4-14.0)	13.4 (11.6-15.6)	15.6 (13.4-18.1)	17.4 (14.8-20.2)	19.8 (16.3-23.4)	21.6 (17.5-25.9)	23.4 (18.3-28.6)	25.2 (19.0-31.4)	27.6 (20.0-35.0)	29.4 (20.8-37.8)
45-day	15.0 (13.0-17.3)	16.7 (14.4-19.2)	19.3 (16.7-22.3)	21.4 (18.3-24.8)	24.1 (19.9-28.3)	26.0 (21.1-30.9)	27.9 (21.9-33.8)	29.7 (22.4-36.6)	31.9 (23.2-40.2)	33.4 (23.7-42.8)
60-day	17.5 (15.2-20.1)	19.5 (16.9-22.4)	22.5 (19.5-25.9)	24.9 (21.5-28.8)	27.9 (23.2-32.6)	30.1 (24.4-35.6)	32.0 (25.2-38.6)	33.9 (25.6-41.6)	36.0 (26.2-45.2)	37.4 (26.7-47.9)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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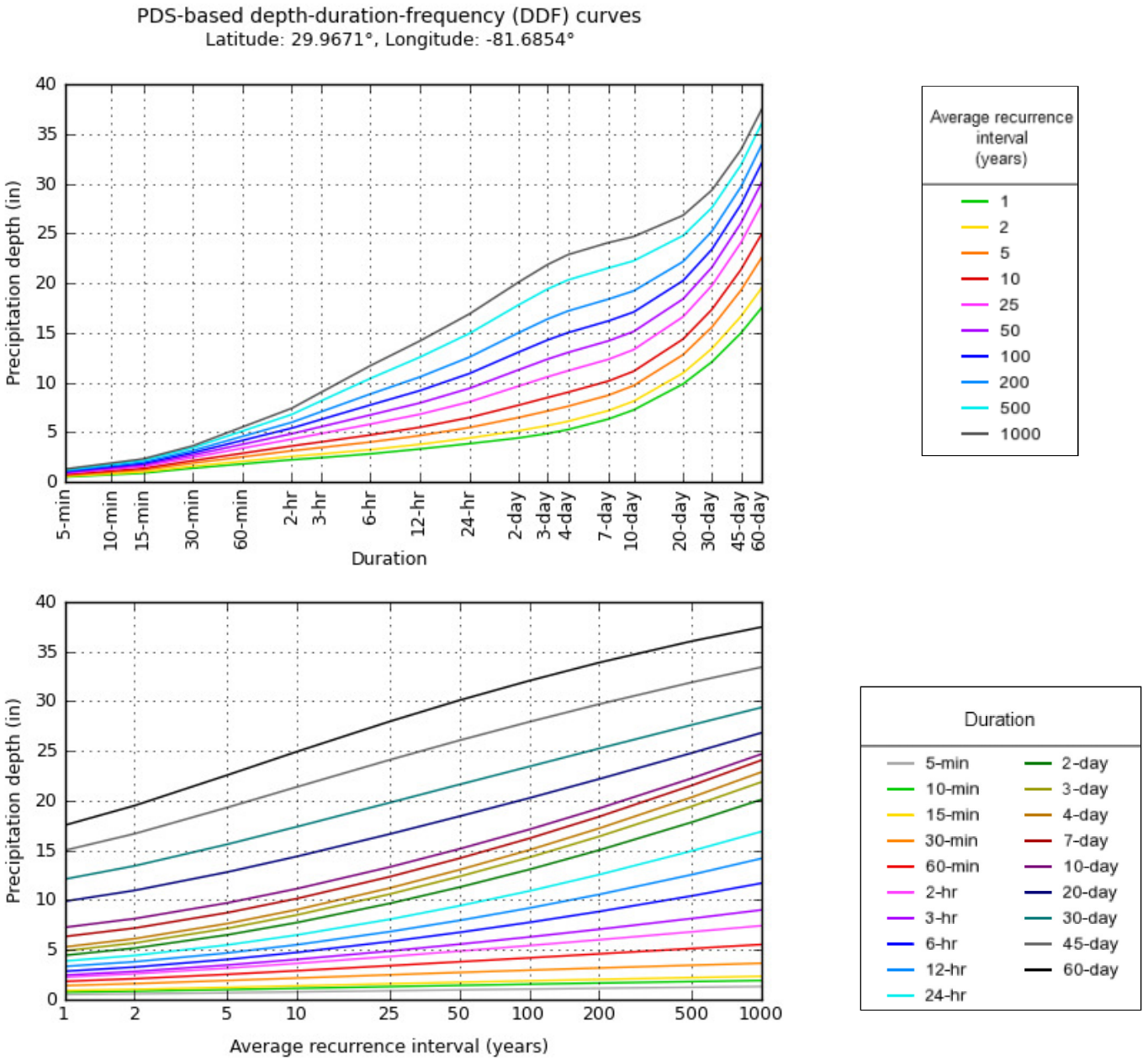
PF graphical



NOAA Atlas 14, Volume 9, Version 2

Created (GMT): Tue Jan 18 21:08:34 2022

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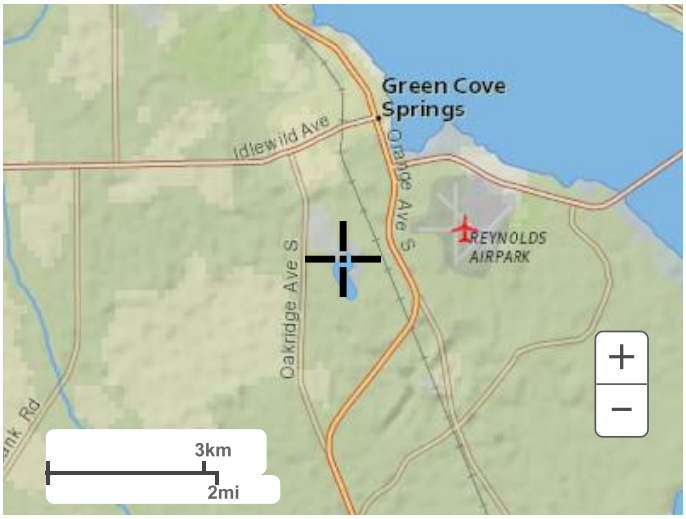
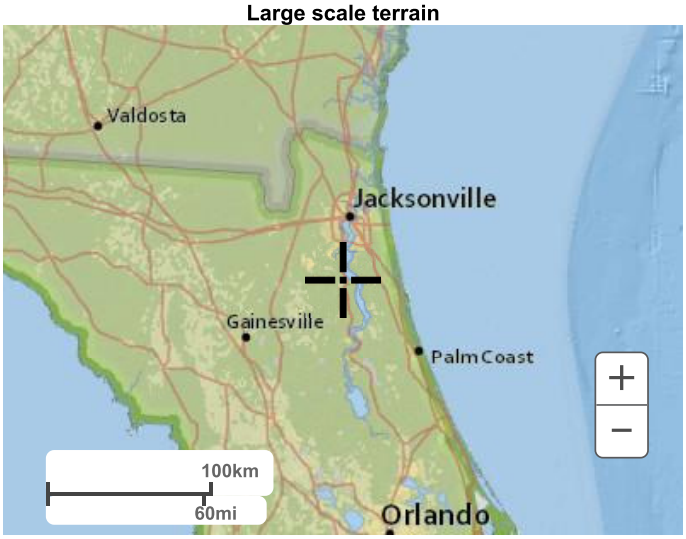
Maps & aerials

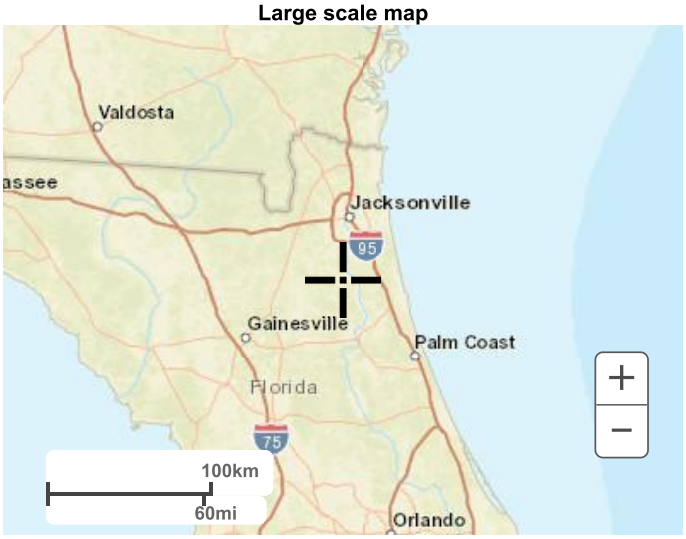
Small scale terrain



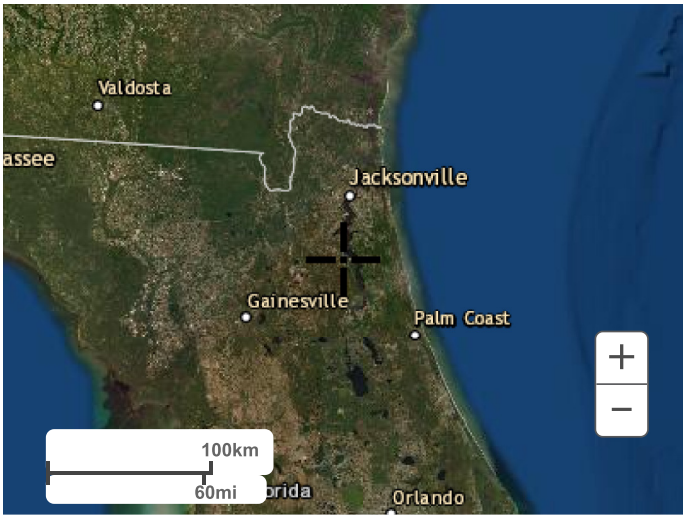
Large scale terrain



Large scale map



Large scale aerial



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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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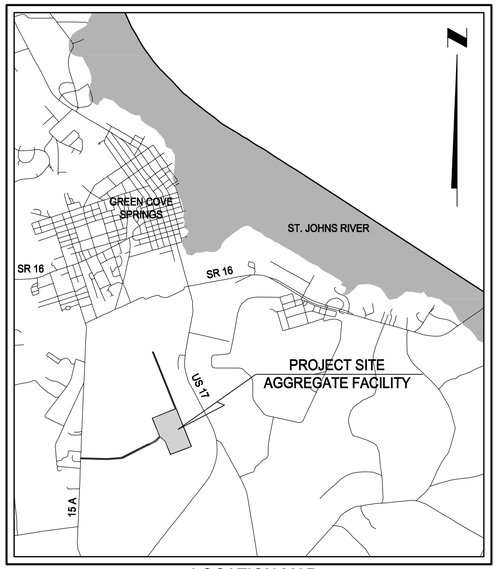
NDCIA			Percent DCIA													
CN	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
60	0.158	0.166	0.174	0.181	0.189	0.197	0.203	0.208	0.214	0.219	0.225	0.2328	0.2406	0.2484	0.2562	0.264
61	0.160	0.168	0.176	0.184	0.191	0.199	0.205	0.210	0.216	0.221	0.227	0.23456	0.24232	0.25008	0.25784	0.2656
62	0.162	0.170	0.178	0.186	0.194	0.201	0.207	0.212	0.218	0.223	0.229	0.23632	0.24404	0.25176	0.25948	0.2672
63	0.165	0.172	0.180	0.188	0.196	0.204	0.209	0.214	0.220	0.225	0.230	0.23808	0.24576	0.25344	0.26112	0.2688
64	0.167	0.175	0.182	0.190	0.198	0.206	0.211	0.216	0.222	0.227	0.232	0.23984	0.24748	0.25512	0.26276	0.2704
65	0.169	0.177	0.185	0.192	0.200	0.208	0.213	0.218	0.224	0.229	0.234	0.2416	0.2492	0.2568	0.2644	0.272
66	0.172	0.180	0.188	0.195	0.203	0.211	0.216	0.221	0.226	0.231	0.236	0.2438	0.2514	0.259	0.2666	0.2742
67	0.175	0.183	0.191	0.198	0.206	0.214	0.219	0.224	0.229	0.234	0.238	0.246	0.2536	0.2612	0.2688	0.2764
68	0.178	0.186	0.194	0.201	0.209	0.217	0.222	0.226	0.231	0.236	0.241	0.2482	0.2558	0.2634	0.271	0.2786
69	0.181	0.189	0.197	0.204	0.212	0.220	0.225	0.229	0.234	0.238	0.243	0.2504	0.258	0.2656	0.2732	0.2808
70	0.184	0.192	0.199	0.207	0.214	0.222	0.227	0.231	0.236	0.240	0.245	0.2526	0.2602	0.2678	0.2754	0.283
71	0.188	0.196	0.203	0.211	0.218	0.226	0.230	0.235	0.239	0.244	0.248	0.25592	0.26344	0.27096	0.27848	0.286
72	0.197	0.203	0.210	0.216	0.223	0.230	0.234	0.238	0.243	0.247	0.252	0.25924	0.26668	0.27412	0.28156	0.289
73	0.201	0.207	0.214	0.220	0.227	0.233	0.238	0.242	0.246	0.251	0.255	0.26256	0.26992	0.27728	0.28464	0.292
74	0.205	0.211	0.218	0.224	0.231	0.237	0.241	0.246	0.250	0.254	0.259	0.26588	0.27316	0.28044	0.28772	0.295
75	0.205	0.212	0.219	0.227	0.234	0.241	0.245	0.249	0.254	0.258	0.262	0.2692	0.2764	0.2836	0.2908	0.298
76	0.211	0.218	0.225	0.232	0.239	0.246	0.250	0.254	0.259	0.263	0.267	0.27376	0.28092	0.28808	0.29524	0.3024
77	0.217	0.224	0.231	0.238	0.245	0.252	0.256	0.260	0.263	0.267	0.271	0.27832	0.28544	0.29256	0.29968	0.3068
78	0.222	0.229	0.236	0.243	0.250	0.257	0.261	0.265	0.268	0.272	0.276	0.28288	0.28996	0.29704	0.30412	0.3112
79	0.228	0.235	0.242	0.249	0.256	0.263	0.266	0.270	0.273	0.277	0.280	0.28744	0.29448	0.30152	0.30856	0.3156
80	0.234	0.241	0.248	0.254	0.261	0.268	0.271	0.275	0.278	0.282	0.285	0.292	0.299	0.306	0.313	0.32
81	0.243	0.250	0.256	0.263	0.270	0.276	0.280	0.283	0.286	0.289	0.292	0.29932	0.30624	0.31316	0.32008	0.327
82	0.252	0.258	0.265	0.272	0.278	0.285	0.288	0.291	0.294	0.297	0.300	0.30664	0.31348	0.32032	0.32716	0.334
83	0.260	0.267	0.274	0.280	0.287	0.293	0.296	0.299	0.302	0.304	0.307	0.31396	0.32072	0.32748	0.33424	0.341
84	0.269	0.276	0.282	0.289	0.295	0.302	0.304	0.307	0.309	0.312	0.315	0.32128	0.32796	0.33464	0.34132	0.348
85	0.278	0.284	0.291	0.297	0.304	0.31	0.312	0.315	0.317	0.320	0.322	0.3286	0.3352	0.3418	0.3484	0.355
86	0.287	0.293	0.299	0.306	0.312	0.318	0.320	0.322	0.325	0.327	0.329	0.33648	0.34396	0.35144	0.35892	0.3664
87	0.296	0.302	0.308	0.314	0.320	0.326	0.328	0.330	0.332	0.334	0.336	0.34436	0.35272	0.36108	0.36944	0.3778
88	0.305	0.311	0.317	0.322	0.328	0.334	0.336	0.338	0.339	0.341	0.343	0.35224	0.36148	0.37072	0.37996	0.3892
89	0.314	0.320	0.325	0.331	0.336	0.342	0.344	0.345	0.347	0.348	0.35	0.36012	0.37024	0.38036	0.39048	0.4006
90											0.384	0.3896	0.3952	0.4008	0.4064	0.412

AGGREGATE FACILITY

CLAY COUNTY, FLORIDA

PREPARED FOR
GUSTAFSON'S CATTLE, INC.

P.O. BOX 600337
JACKSONVILLE, FLORIDA 32260



LOCATION MAP

N.T.S.

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TEL: (904) 642-8990
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CA - 00002584 LC - 0000316

REVISED: JUNE, 2015

DRAWING INDEX	
SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	GENERAL NOTES AND LEGEND
3	PRE DEVELOPMENT DRAINAGE PLAN
4	POST DEVELOPMENT DRAINAGE PLAN
5	MASTER SITE PLAN
6A–6E	ROADWAY PLAN AND PROFILE
6F	C.R. 15A TURN LANE PLAN
6G–6H	C.R. 15A ROADWAY CROSS SECTIONS
7A–7G	ROADWAY CROSS SECTIONS
8A–8B	PAVING AND DRAINAGE PLAN
8C–8D	RAIL SPUR CULVERT PLAN
9A–9F	RAIL SPUR PLAN AND PROFILE
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11A–11C	POND GEOMETRY AND CROSS SECTIONS
12A–12B	PAVING AND DRAINAGE DETAILS
12C	CONTROL STRUCTURE DETAILS
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13	SEDIMENT AND EROSION CONTROL PLAN
14	SEDIMENT AND EROSION CONTROL DETAILS
15	STORMWATER POLLUTION PREVENTION PLAN
16	STORMWATER POLLUTION PREVENTION CONTRACTORS CERTIFICATION
17	DEWATERING PLAN
18	DEWATERING PLAN
P1	PRE DEVELOPMENT NODAL DIAGRAM
P2	POST DEVELOPMENT NODAL DIAGRAM
TCP1	TRAFFIC CONTROL PLAN
LC–01	COVER SHEET NOTES
LC–02–LC–04	LANDSCAPE PLAN
LC–05	LANDSCAPE SPECIFICATIONS

PLANS PREPARED UNDER THE DIRECTION OF:

SCOTT A. WILD, P.E.
P.E. NUMBER: 47030

REVISIONS:

ETM NO. 11-070-02
DRAWN BY: MKJ
DESIGNED BY: SAW
CHECKED BY: SAW
DATE: JUNE, 2015

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COVER SHEET

AGGREGATE FACILITY FOR GUSTAFSON'S CATTLE, INC.

DRAWING NUMBER
1

PLOTTED: December 10, 2015 – 4:54 PM, BY: Kevin Jeter

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NOTE:
1. DITCH NODE N017 AND RR DITCH NODES N007, N008, N009B AND N011 DATA FROM FLOOD STUDY BY:
JIM HUMPHRIES, PE
HUMPHRIES CONSULTING & ENGINEERING, INC.

2. ELEVATION CONTOURS SHOWN ARE FROM LIDAR TOPO. WITHIN PROJECT BOUNDARY AND C.R. 15A, TOPOGRAPHIC SURVEY PROVIDED BY ROBERT M. ANGAS AND ASSOCIATES, INC. DATED 06-08-15

GRAPHIC SCALE
0 200 400 800

GOVERNORS CREEK

PRE BASIN 11
39.30 Ac
CN = 79
Tc = 166 Min.
K' = 256

Tc Path
L=1,409 FT

PRE BASIN 12
16.43 Ac
CN = 79
Tc = 147 Min.
K' = 256

EX. 24" CMP

RR NODE
N007

EX. 24" RCP
UNDER RR

Tc Path
L=1,131 FT

Tc Path
L=1,624 FT

PRE BASIN 13
42.40 Ac
CN = 79
Tc = 172 Min.
K' = 256

RR NODE
N008

EX. DBL. 42"
CMP UNDER RR

PRE BASIN 10
24.28 Ac
CN = 79
Tc = 56 Min.
K' = 323

EX. DBL.
24"x38" ERCP
CULVERT

Tc Path
L=1,480 FT

GUSTAFSON'S
WASTE STORAGE POND
FDEP PERMIT No. FLA011384

PRE BASIN 9
177 Ac
CN = 68
Tc = 108 Min.
K' = 323

Tc Path
L=2,119 FT

PRE BASIN 6
68.14 Ac
CN = 79
Tc = 57 Min.
K' = 323

Tc Path
L=1,337 FT

PRE BASIN 7A
51.55 Ac
CN = 79
Tc = 130 Min.
K' = 256

PRE BASIN 2
44.93 Ac
CN = 79
Tc = 166 Min.
K' = 256

C.R. 15A

EX. 8'x3'
CONC. BOX
CULVERT

Tc Path
L=1,420 FT

Tc Path
L=1,938 FT

RR NODE
N009B

U.S. 17

EX. 42"
CMP

Tc Path
L=1,110 FT

Tc Path
L=1,709 FT

PRE BASIN 7
23.15 Ac
CN = 79
Tc = 128 Min.
K' = 256

PRE BASIN 8
14.49 Ac
CN = 79
Tc = 98 Min.
K' = 256

PRE BASIN 1
72.74 Ac
CN = 79
Tc = 113 Min.
K' = 256

Tc Path
L=1,360 FT

PRE BASIN 3
3.09 Ac
CN = 79
Tc = 69 Min.
K' = 323

PRE BASIN 4
2.62 Ac
CN = 79
Tc = 98 Min.
K' = 256

PRE BASIN 5
2.53 Ac
CN = 79
Tc = 95 Min.
K' = 256

EX. 30" RCP
UNDER RR

RR NODE
N011

EX. 30"
CMP

NODE
N017

EX. 30" RCP
UNDER RR

PROPOSED STATE ROAD No. 23
(FIRST COAST OUTER BELTWAY)
(PER FLORIDA DEPARTMENT RIGHT OF WAY
MAP SECTION No. 71493)

25' TEMPORARY CONSTRUCTION
EASEMENT O.R.B. 3192, PG. 37

50' GAS EASEMENT O.R.B. 3192, PG. 37

PROPOSED S.I.Y. L.A.R.W.

PLANS PREPARED UNDER THE DIRECTION OF:

SCOTT A. WILD, P.E.
P.E. NUMBER: 47030

PLOTTED: December 10, 2015 – 3:43 PM, BY: Kevin Jeter

REVISIONS:

ETM NO. 11-070-02
DRAWN BY: MKJ
DESIGNED BY: SAW
CHECKED BY: SAW
DATE: JUNE, 2015

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PRE DEVELOPMENT DRAINAGE PLAN

AGGREGATE FACILITY
FOR
GUSTAFSON'S CATTLE, INC.

DRAWING NUMBER
3

G:\11-070\11-070-02\Design\Plots\11-070-02 Pre.dwg

NOTE:
1. DITCH NODE N017 AND RR DITCH NODES N007, N008, N009B AND N011 DATA FROM FLOOD STUDY BY:
JIM HUMPHRIES, PE
HUMPHRIES CONSULTING & ENGINEERING, INC.

2. ELEVATION CONTOURS SHOWN ARE FROM LIDAR TOPO. WITHIN PROJECT BOUNDARY AND C.R. 15A, TOPOGRAPHIC SURVEY PROVIDED BY ROBERT M. ANGAS AND ASSOCIATES, INC. DATED 06-08-15

APPROXIMATE DRAINAGE AREA TO WASTE STORAGE POND, IF RE-DEVELOPED IN THE FUTURE, AREA CAN OUTFALL, AFTER APPROPRIATE STORMWATER MANAGEMENT, EASTERLY TO CULVERTS UNDER THE RAILROAD TRACKS OR SOUTHERLY TO CROSS DRAINS UNDER PROPOSED ROAD.

GRAPHIC SCALE
0 200 400 800

GOVERNORS CREEK

165.2 Ac.

GUSTAFSON'S
WASTE STORAGE POND
FDEP PERMIT No. FLA011384

OFFSITE BASIN 11
39.30 Ac
CN = 79
Tc = 166 Min.
K' = 256

Tc Path
L=1,409 FT

OFFSITE BASIN 12
16.43 Ac
CN = 79
Tc = 147 Min.
K' = 256

EX. 24" CMP

Tc Path
L=1,131 FT

Tc Path
L=1,624 FT

RR NODE
N007

EX. 24" RCP
UNDER RR

OFFSITE BASIN 10
24.28 Ac
CN = 79
Tc = 56 Min.
K' = 323

EX.
CULVERT

Tc Path
L=1,480 FT

OFFSITE BASIN 13
42.40 Ac
CN = 79
Tc = 172 Min.
K' = 256

RR NODE
N008

EX. DBL. 42"
CMP UNDER RR

OFFSITE BASIN 6
68.14 Ac
CN = 79
Tc = 57 Min.
K' = 323

Tc Path
L=2,119 FT

Tc Path
L=1,337 FT

OFFSITE BASIN 9
177 Ac
CN = 68
Tc = 108 Min.
K' = 323

C.R. 15A

OFFSITE BASIN 7A
51.55 Ac
CN = 79
Tc = 130 Min.
K' = 256

OFFSITE BASIN 2
39.17 Ac
CN = 79
Tc = 155 Min.
K' = 256

STORMWATER MANAGEMENT FACILITY 2
TOB EL. = 27.00 (7.10 Ac.)
WEIR EL. = N/A
NWL EL. = 23.00 (6.08 Ac.)
BOT EL. = -3.00 (0.44 Ac.)
DHW (25 yr) = 25.80
DHW (3 yr) = 24.79
DHW (MA) = 24.46

EX. 8'x3'
CONC. BOX
CULVERT

Tc Path
L=1,420 FT

OFFSITE BASIN 8
14.49 Ac
CN = 79
Tc = 98 Min.
K' = 256

Tc Path
L=1,400 FT

RR NODE
N009B

U.S. 17

EX. 42" CMP

Tc Path
L=1,110 FT

Tc Path
L=600 FT

OFFSITE BASIN 7
23.15 Ac
CN = 79
Tc = 128 Min.
K' = 256

OFFSITE BASIN 1
17.25 Ac
CN = 79
Tc = 88 Min.
K' = 256

BASIN 2
27.78 Ac
CN = 94
Tc = 15 Min.
K' = 484

MAXIMUM IMPERVIOUS AREA=13.60 Ac

Tc Path
L=1,360 FT

BASIN RD3
3.09 Ac
CN = 89
Tc = 14 Min.
K' = 484

MAXIMUM IMPERVIOUS AREA=13.90 Ac

EX. 30" RCP
UNDER RR

STORMWATER MANAGEMENT FACILITY 3
TOB EL. = 33.50 (0.45 Ac.)
WEIR EL. = N/A
NWL EL. = 29.50 (0.27 Ac.)
BOT EL. = 21.50 (0.03 Ac.)
DHW (25 yr) = 32.54
DHW (3 yr) = 32.02
DHW (MA) = 31.92

BASIN RD4
2.62 Ac
CN = 87
Tc = 32 Min.
K' = 484

STORMWATER MANAGEMENT FACILITY 4
TOB EL. = 32.50 (0.42 Ac.)
WEIR EL. = N/A
NWL EL. = 28.00 (0.23 Ac.)
BOT EL. = 20.00 (0.02 Ac.)
DHW (25 yr) = 31.48
DHW (3 yr) = 29.78
DHW (MA) = 29.57

BASIN RD5
2.53 Ac
CN = 87
Tc = 38 Min.
K' = 484

Tc Path
L=250 FT

BASIN 1
30.53 Ac
CN = 91
Tc = 15 Min.
K' = 484

OFFSITE BASIN 3
1.94 Ac
CN = 79
Tc = 42 Min.
K' = 323

RR NODE
N011

STORMWATER MANAGEMENT FACILITY 1
TOB EL. = 27.00 (5.43 Ac.)
WEIR EL. = N/A
NWL EL. = 23.00 (4.27 Ac.)
BOT EL. = 11.00 (1.03 Ac.)
DHW (25 yr) = 25.77
DHW (3 yr) = 24.75
DHW (MA) = 24.42

EX. 30" CMP

NODE
N017

STORMWATER MANAGEMENT FACILITY 5
TOB EL. = 32.00 (0.40 Ac.)
WEIR EL. = N/A
NWL EL. = 28.00 (0.23 Ac.)
BOT EL. = 20.00 (0.01 Ac.)
DHW (25 yr) = 30.58
DHW (3 yr) = 29.72
DHW (MA) = 29.52

EX. 30" RCP
UNDER RR

PROPOSED STATE ROAD No. 23
(FIRST COAST OUTER BELTWAY)
(PER FLORIDA DEPARTMENT RIGHT OF WAY MAP SECTION No. 71493)

25' TEMPORARY CONSTRUCTION EASEMENT O.R.B. 3192, PG. 37

GAS EASEMENT O.R.B. 3192, PG. 37

PROPOSED R/W

PROPOSED S/J L.A.R.W.

C S X R A I L R O A D
(FORMERLY ATLANTIC COASTLINE RAILROAD)
(100' R/W)

PLANS PREPARED UNDER THE DIRECTION OF:

SCOTT A. WILD, P.E.
P.E. NUMBER: 47030

REVISIONS:

ETM NO. 11-070-02
DRAWN BY: MKJ
DESIGNED BY: SAW
CHECKED BY: SAW
DATE: JUNE, 2015

England-Thims & Miller, Inc.
14775 Old St. Augustine Road
Jacksonville, FL 32258
TEL: (904) 642-8990
FAX: (904) 646-9485
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POST DEVELOPMENT DRAINAGE PLAN

AGGREGATE FACILITY
FOR
GUSTAFSON'S CATTLE, INC.

DRAWING NUMBER
4

PLOTTED: December 10, 2015 – 3:46 PM, BY: Kevin Jeter

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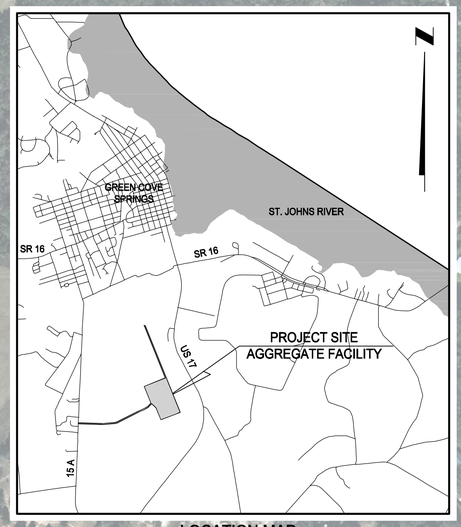


LOCATION MAP

N.T.S.

GRAPHIC SCALE

0 150 300 600

OWNER/ DEVELOPER:	GUSTAFSON'S CATTLE, INC. P.O. BOX 600337 JACKSONVILLE, FLORIDA 32260
ENGINEER:	ENGLAND–THIMS & MILLER, INC. 14775 OLD ST. AUGUSTINE ROAD JACKSONVILLE, FLORIDA 32258 (904)642–8990
LANDSCAPE ARCHITECT:	ENGLAND–THIMS & MILLER, INC. 14775 OLD ST. AUGUSTINE ROAD JACKSONVILLE, FLORIDA 32258 (904)642–8990
SURVEYOR:	ROBERT M. ANGAS ASSOCIATES, INC. 14775 OLD ST. AUGUSTINE ROAD JACKSONVILLE, FLORIDA 32258 (904)642–8550

PROPOSED RAIL SPUR

CR 15A

SMF3

PROPOSED 4,800± L.F. ENTRANCE DRIVEWAY

SMF4

SMF5

SMF2

FUTURE ASPHALT FACILITY

SCALE HOUSE

PROPOSED AGGREGATE FACILITY

PROPOSED RAIL SPUR

SMF1

C S X R A I L R O A D (FORMERLY ATLANTIC COASTLINE RAILROAD) (100' R/W)

PROPOSED R/W LINE

PROPOSED R/W LINE

PROPOSED R/W LINE

FDOT POND SITE

PROPOSED N.by L.A.R.W.

PROPOSED STATE ROAD No. 23 (FIRST COAST OUTER BELTWAY) (PER FLORIDA DEPARTMENT RIGHT OF WAY MAP SECTION No. 71493)

25' TEMPORARY CONSTRUCTION EASEMENT O.R.B. 3192, PG. 37

50' GAS EASEMENT O.R.B. 3192, PG. 37

FIRST COAST OUTER BELTWAY R/W

PROPOSED S.by L.A.R.W.

PROPOSED N.by L.A.R.W.

PROPOSED S.by L.A.R.W.

PLANS PREPARED UNDER THE DIRECTION OF:

SCOTT A. WILD, P.E.
P.E. NUMBER: 47030

REVISIONS:

ETM NO. 11-070-02
DRAWN BY: MKJ
DESIGNED BY: SAW
CHECKED BY: SAW
DATE: JUNE, 2015

England-Thims & Miller, Inc.
14775 Old St. Augustine Road
Jacksonville, FL 32258
TEL: (904) 642-8990
FAX: (904) 646-9485
CA - 00002584 LC - 0000316

ETM
VISION • EXPERIENCE • RESULTS

MASTER SITE PLAN

AGGREGATE FACILITY FOR GUSTAFSON'S CATTLE, INC.

DRAWING NUMBER
5

PLOTTED: December 10, 2015 – 3:47 PM, BY: Kevin Jeter

G:\11-070\11-070-02\Design\Plots\11-070-02 MSP.dwg

Sections of offsite sidewalk are proposed along CR15 running in sections north from the site. This sidewalk crosses existing tie in points for offsite flow to get into the existing swale system along CR15. For sections where sidewalk is proposed there are 2 crossings where 12”x18” elliptical pipes are proposed, Crossings 1 and 2 from the exhibit below. The worst-case flow is analyzed to show that proposed same size crossings at each sidewalk point will be able to handle the flow without overtopping the proposed sidewalk. This is for offsite flow coming to the Right of Way and will travel under the proposed sidewalk not the combined flow that is running N/S in the CR 15 Right of Way. These are placed at existing ditches and do not negatively affect any offsite areas. Future sidewalk may be built along CR15, outside of what the current plans propose, at a later date and those crossings and sidewalk designs will be done by others.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

NORTH

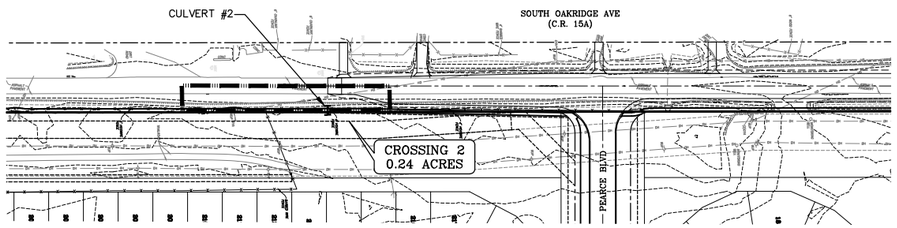
LEGEND

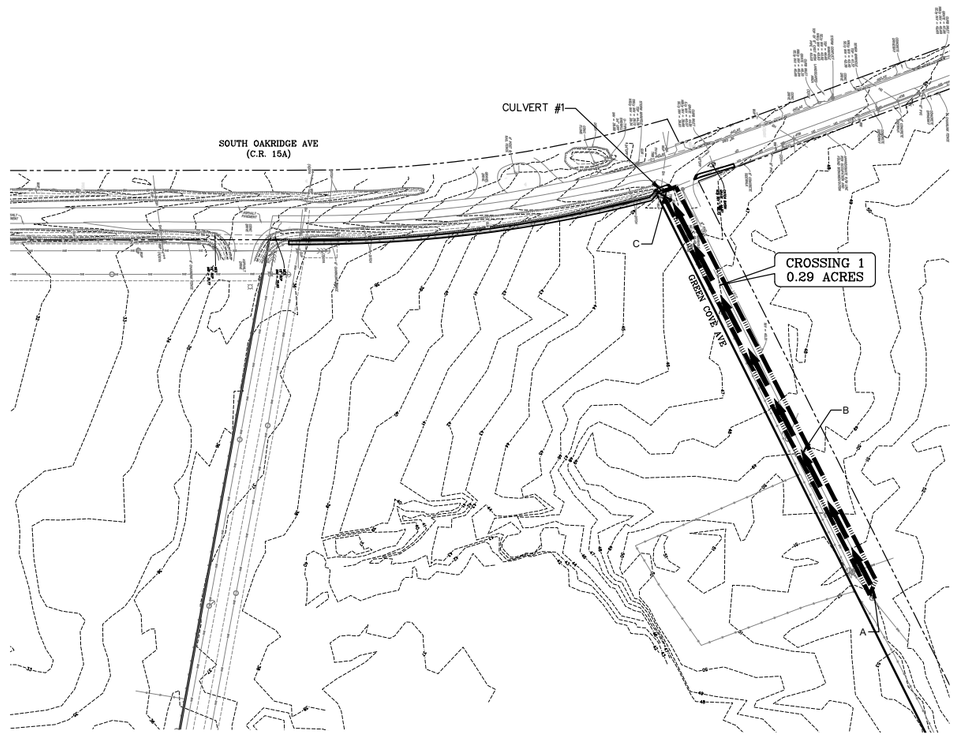
= Tc PATH

= FLOW DIRECTION

= BASIN BOUNDARY

XXXBASINX
X.XX ACRES
= BASIN I.D. & SIZE





THE ROOKERY – PHASE 1

NOT RELEASED FOR CONSTRUCTION

P:\2008-499 AYRSHIRE\EXHIBITS\499 OFFSITE SIDEWALK CULVERT DIVIDES.DWG 5/11/2022 11:43 AM Mike Reilly

REVISIONS			
NO.	DATE	DESCRIPTION	BY:
–	–	–	–

DESIGNED BY:	DAI
DRAWN BY:	MR/SM/SS/NS
CHECKED BY:	VJD
SCALE:	1" = 100'
DATE:	5/11/2022
PROJ. NO.:	2008-499

Dunn & Associates, Inc.
CIVIL ENGINEERS / LAND PLANNERS
8647 Baypine Road, Suite 200
Jacksonville, Florida 32256
Phone: (904)363-8916 Fax: (904)363-8917
www.dunneng.com

THE ROOKERY – PHASE 1
FOR:
D.R. HORTON, INC. – JACKSONVILLE

CLAY COUNTY, FLORIDA

OFFSITE SIDEWALK CULVERT DIVIDES

VINCENT J. DUNN ENGINEER NO. 39452
DAVID M. TAYLOR ENGINEER NO. 44164
GLEN R. WIEGER ENGINEER NO. 81419

Sheet No. 1 of 1

OSC-1
DWG. NO.

Project Name: The Rookery **DAI Project #:** 2008-499
Client: DR Horton, Inc. - Jacksonville **Engineer:** GRW
Date: 5/11/22

SIDEWALK CROSSING CULVERT SIZING

Crossing 1

Time of Concentration Calculation (Tc)

SHEET FLOW				Tt=(0.007(nL)^0.8 / P^0.5 S^0.4)*60				
Tt Path	Surf. Desc.	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft)	n	P	Tt(min)
AB	Woods	220	52.0	49	0.0136	0.4	5.04	37.5
SHALLOW CONCENTRATED FLOW							Tt=L / V*60	
Tt Path	Surf. Desc	Length (ft)	Up Stream	Dn Stream	Slope(ft/ft)	Velocity(fps)		
BC	Woods	420	49	43.0	0.0143	1.9	Tc=	3.6 Min
							USE	42.0 Min

Rational Method Calculation (Q= cIA)

Total Basin Area (A)	0.29	acres	
Impervious	0.12	acres	(C = 0.95)
Open Space	0.17	acres	(C = 0.2)
Runoff Coefficient (C) =	0.51		
Rainfall Intensity (I) =	145/(Tc+20)^0.93		
Rainfall Intensity (I) =	3.12	in/hr	
Q =	0.46	cfs	

Crossing 2

Time of Concentration (Tc) is conservatively assumed t0 be 10 mins for this basin

Rational Method Calculation (Q= cIA)

Total Basin Area (A)	0.24	acres	
Impervious	0.14	acres	(C = 0.95)
Open Space	0.10	acres	(C = 0.2)
Runoff Coefficient (C) =	0.64		
Rainfall Intensity (I) =	145/(Tc+20)^0.93		
Rainfall Intensity (I) =	6.13	in/hr	
Q =	0.94	cfs	

CR 15 Sidewalk

Culverts

CIVIL TOOLS PRO
English Units
05-11-2022 11:29:51

Data Entered

Diameter	=	12.00 in
Length	=	40.00 ft
Manning's N	=	0.012
Ent+Exit Coefficients	=	0.600
Inlet Control Coefficients	=	1.200
Invert Elevation Out	=	33.30 ft
Invert Elevation In	=	33.40 ft
Tailwater Elevation	=	34.00 ft
Elevation Increment	=	0.10 ft

Results

Headwater (ft)	Control	Flow (cfs)
34.40	OC	1.54
34.50	OC	2.18
34.60	OC	2.67
34.70	OC	3.09
34.80	OC	3.45
34.90	OC	3.78
35.00	OC	4.08
35.10	OC	4.37
35.20	OC	4.63
35.30	OC	4.88
35.40	OC	5.12
35.50	OC	5.35
35.60	OC	5.57
35.70	OC	5.78
35.80	OC	5.98

FL-DOT Report

Line No	To Line	Type of struc	n - Value	Len	Drainage Area			Time of conc	Time of Flow in sect	Inten (I)	Total CA	Add Q	Inlet elev	Elev of HGL			Rise	HGL	ADD		Date: 4/25/2022
					C1 = 0.2 C2 = 0.5 C3 = 0.9							Total Flow		Elev of Crown			Span	Pipe	Full Flow		Frequency: 5 yrs
														Elev of Invert							Proj: Rookery Phase 1 Sto
					Increment (ac)	Sub-Total (ac)	Sum CA					Q		Up	Down	Fall	Size	Slope	Vel	Cap	
				(ft)				(min)	(min)	(in/hr)		(cfs)	(ft)	(ft)	(ft)	(ft)	(in)	(%)	(ft/s)	(cfs)	Line description
30	29	Comb	0.013	32.854	0.00	0.00	0.00	10.00	0.72	6.25	0.15	0.00	34.17	32.32	32.31	0.00	15	0.01	0.79	0.94	S-56 - S-57
					0.30	0.30	0.15					0.94		32.45	32.35		15	0.30	2.90	3.56	
					0.00	0.00	0.00							31.20	31.10	0.10	Cir				
29	28	Comb	0.013	152.119	0.00	0.00	0.00	10.72	0.89	6.13	0.57	0.00	34.17	32.19	31.79	0.40	15	0.26	3.06	3.46	S-57 - S-58
					0.83	1.13	0.57					3.46		32.35	31.95		15	0.26	2.70	3.31	
					0.00	0.00	0.00							31.10	30.70	0.40	Cir				
28	End	MH	0.013	81.501	0.01	0.01	0.00	11.60	0.49	6.00	0.57	0.00	34.70	31.08	30.85	0.23	15	0.28	2.77	3.40	S-58 - S-59
					0.00	1.13	0.57					3.40		29.25	29.00		15	0.31	2.91	3.58	
					0.00	0.00	0.00							28.00	27.75	0.25	Cir				
---	---																				
27	24	Comb	0.013	39.503	0.00	0.00	0.00	10.00	0.81	6.25	0.16	0.00	33.25	31.15	31.14	0.01	15	0.02	0.81	1.00	S-53C - S-53D
					0.32	0.32	0.16					1.00		30.95	30.85		15	0.25	2.65	3.25	
					0.00	0.00	0.00							29.70	29.60	0.10	Cir				
---	---																				
26	25	Comb	0.013	44.287	0.00	0.00	0.00	10.00	0.34	6.25	0.43	0.00	33.25	31.53	31.46	0.07	15	0.17	2.16	2.65	S-53A - S-53B
					0.85	0.85	0.43					2.65		31.30	31.20		15	0.23	2.50	3.07	
					0.00	0.00	0.00							30.05	29.95	0.10	Cir				
25	24	Comb	0.013	52.542	0.00	0.00	0.00	10.34	0.31	6.19	0.82	0.00	33.25	31.27	31.14	0.12	18	0.23	2.86	5.05	S-53B - S-53D
					0.78	1.63	0.82					5.05		31.20	31.10		18	0.19	2.59	4.58	
					0.00	0.00	0.00							29.70	29.60	0.10	Cir				
24	End	Comb	0.013	167.236	0.00	0.00	0.00	10.81	1.20	6.12	1.19	0.00	33.25	31.02	30.85	0.17	24	0.10	2.31	7.25	S-53D - S-53
					0.42	2.37	1.19					7.25		30.85	30.60		24	0.15	2.78	8.74	
					0.00	0.00	0.00							28.85	28.60	0.25	Cir				
---	---																				
23	22	Comb	0.013	28.115	0.00	0.00	0.00	10.00	0.17	6.25	0.54	0.00	33.44	31.49	31.42	0.08	15	0.27	2.72	3.34	S-43 - S-44
					1.07	1.07	0.54					3.34		30.50	30.40		15	0.36	3.14	3.85	
					0.00	0.00	0.00							29.25	29.15	0.10	Cir				
22	21	Comb	0.013	65.042	0.00	0.00	0.00	10.17	0.36	6.22	0.85	0.00	33.44	31.35	31.18	0.16	18	0.25	2.99	5.29	S-44 - S-45
					0.63	1.70	0.85					5.29		30.40	30.25		18	0.23	2.85	5.04	
					0.00	0.00	0.00							28.90	28.75	0.15	Cir				
21	End	MH	0.013	114.421	0.01	0.01	0.00	10.53	0.64	6.16	0.85	0.00	34.50	31.14	30.85	0.29	18	0.25	2.97	5.25	S-45 - S-46
					0.00	1.70	0.85					5.25		30.25	30.00		18	0.22	2.78	4.91	
					0.00	0.00	0.00							28.75	28.50	0.25	Cir				
---	---																				

NOTES: Intensity = 125.14 / (Inlet time + 22.80) ^ 0.86 (in/hr) ; Time of flow in section is based on full flow.

Project File: Rookery Phase 1 Storm Tabs.stm

FL-DOT Report

Line No	To Line	Type of struc	n - Value	Len	Drainage Area			Time of conc	Time of Flow in sect	Inten (I)	Total CA	Add Q	Inlet elev	Elev of HGL			Rise	HGL	ADD		Date: 4/25/2022
					C1 = 0.2 C2 = 0.5 C3 = 0.9							Total Flow		Elev of Crown			Span	Pipe	Full Flow		Frequency: 5 yrs
														Elev of Invert							Proj: Rookery Phase 1 Sto
					Increment (ac)	Sub-Total (ac)	Sum CA					Q		Up	Down	Fall	Size	Slope	Vel	Cap	
				(ft)				(min)	(min)	(in/hr)		(cfs)	(ft)	(ft)	(ft)	(ft)	(in)	(%)	(ft/s)	(cfs)	Line description
20	19	Comb	0.013	29.888	0.00	0.00	0.00	10.00	0.10	6.25	0.97	0.00	34.34	33.54	33.28	0.26	15	0.88	4.94	6.06	S-39 - S-40
					1.94	1.94	0.97					6.06		32.80	32.70		15	0.33	3.04	3.74	
					0.00	0.00	0.00							31.55	31.45	0.10	Cir				
19	End	Comb	0.013	152.245	0.00	0.00	0.00	10.10	0.42	6.23	1.20	0.00	34.34	32.89	30.85	2.04	15	1.34	6.09	7.48	S-40 - S-41
					0.46	2.40	1.20					7.48		29.50	29.00		15	0.33	3.02	3.70	
					0.00	0.00	0.00							28.25	27.75	0.50	Cir				
---	---																				
18	17	Comb	0.013	39.510	0.00	0.00	0.00	10.00	0.53	6.25	0.25	0.00	35.39	32.94	32.91	0.03	15	0.07	1.78	1.53	S-31 - S-32
					0.49	0.49	0.25					1.53		33.40	33.30		15	0.25	2.65	3.25	
					0.00	0.00	0.00							32.15	32.05	0.10	Cir				
17	16	Comb	0.013	200.026	0.00	0.00	0.00	10.53	1.96	6.16	0.49	0.00	35.39	32.77	32.60	0.17	18	0.08	2.11	2.99	S-32 - S-33
					0.48	0.97	0.49					2.99		33.30	32.70		18	0.30	3.25	5.75	
					0.00	0.00	0.00							31.80	31.20	0.60	Cir				
16	12	MH	0.013	184.206	0.01	0.01	0.00	12.49	1.86	5.87	0.49	0.00	37.40	32.60	32.47	0.12	18	0.07	1.64	2.86	S-33 - S-34
					0.00	0.97	0.49					2.86		32.70	32.15		18	0.30	3.25	5.74	
					0.00	0.00	0.00							31.20	30.65	0.55	Cir				
---	---																				
15	14	Comb	0.013	31.098	0.00	0.00	0.00	10.00	0.12	6.25	0.82	0.00	35.64	34.66	34.46	0.20	15	0.63	4.17	5.12	S-28 - S-29
					1.64	1.64	0.82					5.12		34.25	34.15		15	0.32	2.98	3.66	
					0.00	0.00	0.00							33.00	32.90	0.10	Cir				
14	13	Comb	0.013	196.486	0.00	0.00	0.00	10.12	0.99	6.23	1.67	0.00	35.64	34.33	33.91	0.42	24	0.21	3.31	10.40	S-29 - S-30
					1.70	3.34	1.67					10.40		34.15	33.75		24	0.20	3.25	10.21	
					0.00	0.00	0.00							32.15	31.75	0.40	Cir				
13	12	Comb	0.013	40.522	0.00	0.00	0.00	11.12	0.18	6.07	1.92	0.00	35.76	33.81	33.70	0.11	24	0.27	3.71	11.65	S-30 - S-34
					0.50	3.84	1.92					11.65		33.75	33.70		24	0.12	2.53	7.94	
					0.00	0.00	0.00							31.75	31.70	0.05	Cir				
12	11	Comb	0.013	176.490	0.00	0.01	0.00	14.34	0.93	5.61	2.66	0.00	35.76	32.26	32.02	0.23	30	0.13	3.04	14.91	S-34 - S-35
					0.50	5.31	2.66					14.91		32.15	31.90		30	0.14	3.14	15.44	
					0.00	0.00	0.00							29.65	29.40	0.25	Cir				
11	10	Comb	0.013	27.908	0.00	0.01	0.00	15.28	0.11	5.49	3.56	0.00	34.34	31.90	31.85	0.05	30	0.18	3.98	19.55	S-35 - S-36
					1.80	7.11	3.56					19.55		31.90	31.85		30	0.18	3.54	17.36	
					0.00	0.00	0.00							29.40	29.35	0.05	Cir				

NOTES: Intensity = 125.14 / (Inlet time + 22.80) ^ 0.86 (in/hr) ; Time of flow in section is based on full flow.

Project File: Rookery Phase 1 Storm Tabs.stm

FL-DOT Report

Line No	To Line	Type of struc	n - Value	Len	Drainage Area			Time of conc	Time of Flow in sect	Inten (I)	Total CA	Add Q	Inlet elev	Elev of HGL			Rise	HGL	ADD		Date: 4/25/2022
					C1 = 0.2 C2 = 0.5 C3 = 0.9							Total Flow		Elev of Crown			Span	Pipe	Full Flow		Frequency: 5 yrs
														Elev of Invert							Proj: Rookery Phase 1 Sto
					Increment (ac)	Sub-Total (ac)	Sum CA					Q		Up	Down	Fall	Size	Slope	Vel	Cap	
				(ft)				(min)	(min)	(in/hr)		(cfs)	(ft)	(ft)	(ft)	(ft)	(in)	(%)	(ft/s)	(cfs)	Line description
10	9	Comb	0.013	136.500	0.00	0.01	0.00	15.39	0.51	5.48	3.86	0.00	34.34	31.35	31.03	0.32	30	0.23	4.88	21.14	S-36 - S-37
					0.60	7.71	3.86					21.14		31.85	31.40		30	0.33	4.80	23.55	
					0.00	0.00	0.00							29.35	28.90	0.45	Cir				
9	End	MH	0.013	19.039	0.01	0.02	0.00	15.91	0.07	5.42	3.86	0.00	33.90	30.90	30.85	0.05	30	0.26	4.26	20.91	S-37 - S-38
					0.00	7.71	3.86					20.91		29.10	29.00		30	0.53	6.06	29.72	
					0.00	0.00	0.00							26.60	26.50	0.10	Cir				
---	---																				
8	End	Genr	0.013	32.796	0.00	0.00	0.00	10.00	0.18	6.25	1.50	0.00	33.10	30.92	30.86	0.06	24	0.17	2.98	9.37	S-24 - S-25
					3.00	3.00	1.50					9.37		29.10	29.00		24	0.30	3.98	12.49	
					0.00	0.00	0.00							27.10	27.00	0.10	Cir				
---	---																				
7	End	Comb	0.013	32.890	0.00	0.00	0.00	10.00	0.86	6.25	0.13	0.00	33.29	30.86	30.86	0.00	15	0.01	0.64	0.78	S-19 - S-20
					0.25	0.25	0.13					0.78		30.25	30.15		15	0.30	2.90	3.56	
					0.00	0.00	0.00							29.00	28.90	0.10	Cir				
---	---																				
6	End	Comb	0.013	39.827	0.00	0.00	0.00	10.00	1.37	6.25	0.10	0.00	33.93	30.86	30.86	0.00	15	0.01	0.66	0.59	S-16 - S-17
					0.19	0.19	0.10					0.59		31.30	31.20		15	0.25	2.64	3.24	
					0.00	0.00	0.00							30.05	29.95	0.10	Cir				
---	---																				
5	End	Comb	0.013	41.978	0.00	0.00	0.00	10.00	0.42	6.25	0.33	0.00	34.57	32.04	31.77	0.27	15	0.65	3.24	2.06	S-9 - S-12
					0.66	0.66	0.33					2.06		32.55	32.45		15	0.24	2.57	3.15	
					0.00	0.00	0.00							31.30	31.20	0.10	Cir				
---	---																				
4	3	Comb	0.013	27.899	0.00	0.00	0.00	10.00	0.10	6.25	0.95	0.00	34.96	34.38	34.15	0.23	15	0.84	4.81	5.90	S-10 - S-11
					1.89	1.89	0.95					5.90		32.95	32.85		15	0.36	3.15	3.87	
					0.00	0.00	0.00							31.70	31.60	0.10	Cir				
3	End	Comb	0.013	357.691	0.00	0.00	0.00	10.10	1.39	6.23	2.17	0.00	34.96	33.72	31.72	2.00	24	0.56	5.22	13.52	S-11 - S-12
					2.45	4.34	2.17					13.52		32.85	32.40		24	0.13	2.55	8.02	
					0.00	0.00	0.00							30.85	30.40	0.45	Cir				
---	---																				
2	1	Comb	0.013	31.573	0.00	0.00	0.00	10.00	0.10	6.25	1.04	0.00	33.44	31.87	31.55	0.32	15	1.01	5.29	6.50	S-1 - S-2
					2.08	2.08	1.04					6.50		31.65	31.55		15	0.32	2.96	3.63	
					0.00	0.00	0.00							30.40	30.30	0.10	Cir				
1	End	Comb	0.013	155.341	0.00	0.00	0.00	10.10	0.84	6.23	1.57	0.00	33.44	31.15	30.86	0.29	24	0.19	3.10	9.75	S-2 - S-3
					1.05	3.13	1.57					9.75		29.50	29.00		24	0.32	4.08	12.83	
					0.00	0.00	0.00							27.50	27.00	0.50	Cir				

NOTES: Intensity = 125.14 / (Inlet time + 22.80) ^ 0.86 (in/hr) ; Time of flow in section is based on full flow.

Project File: Rookery Phase 1 Storm Tabs.stm

FL-DOT Report

Line No	To Line	Type of struc	n - Value	Len	Drainage Area			Time of conc	Time of Flow in sect	Inten (I)	Total CA	Add Q	Inlet elev	Elev of HGL			Rise	HGL	ADD		Date: 10/24/2022
					C1 = 0.2 C2 = 0.5 C3 = 0.9							Total Flow		Elev of Crown			Span	Pipe	Full Flow		Frequency: 5 yrs
														Elev of Invert							Proj: Rookery Phase 1 Ame
					Incre-ment (ac)	Sub-Total (ac)	Sum CA					Q		Up	Down	Fall	Size	Slope	Vel	Cap	
				(ft)				(min)	(min)	(in/hr)		(cfs)	(ft)	(ft)	(ft)	(ft)	(in)	(%)	(ft/s)	(cfs)	Line description
11	9	MH	0.012	63.000	0.00	0.00	0.00	10.00	2.58	6.25	0.08	0.00	33.20	31.91	31.91	0.00	15	0.01	0.41	0.50	S-24A - S-24C
					0.16	0.16	0.08					0.50		31.20	31.05		15	0.23	2.74	3.37	
					0.00	0.00	0.00							29.95	29.80	0.15	Cir				
---	---																				
10	9	MH	0.012	46.001	0.65	0.65	0.13	10.00	1.16	6.25	0.13	0.00	33.20	31.92	31.91	0.01	15	0.01	0.66	0.81	S-24B - S-24C
					0.00	0.00	0.00					0.81		31.20	31.05		15	0.33	3.28	4.02	
					0.00	0.00	0.00							29.95	29.80	0.15	Cir				
9	8	Genr	0.012	60.000	0.00	0.65	0.13	12.58	0.56	5.85	0.35	0.00	33.20	31.84	31.79	0.05	15	0.09	1.69	2.07	S-24C - S-24D
					0.00	0.16	0.08					2.07		31.05	30.90		15	0.24	2.79	3.43	
					0.16	0.16	0.14							29.80	29.65	0.14	Cir				
8	7	Genr	0.012	61.654	0.00	0.65	0.13	13.14	0.41	5.77	0.50	0.00	33.20	31.74	31.63	0.10	15	0.17	2.34	2.88	S-24D - S-24E
					0.00	0.16	0.08					2.88		30.90	30.75		15	0.25	2.84	3.49	
					0.16	0.32	0.29							29.65	29.50	0.15	Cir				
7	1	MH	0.012	106.001	0.00	0.65	0.13	13.55	0.58	5.72	0.62	0.00	33.20	31.57	31.30	0.27	15	0.26	2.90	3.56	S-24E - S-24
					0.25	0.41	0.21					3.56		30.75	30.50		15	0.24	2.78	3.41	
					0.00	0.32	0.29							29.50	29.25	0.25	Cir				
---	---																				
6	5	MH	0.012	65.431	0.20	0.20	0.04	10.00	5.36	6.25	0.04	0.00	33.20	31.81	31.81	0.00	15	0.00	0.20	0.25	S-24F - S-24G
					0.00	0.00	0.00					0.25		31.20	31.05		15	0.23	2.74	3.36	
					0.00	0.00	0.00							29.95	29.80	0.15	Cir				
5	4	Genr	0.012	60.000	0.00	0.20	0.04	15.36	0.94	5.49	0.21	0.00	33.20	31.80	31.79	0.02	15	0.03	0.94	1.16	S-24G - S-24H
					0.00	0.00	0.00					1.16		31.05	30.90		15	0.25	2.85	3.50	
					0.19	0.19	0.17							29.80	29.65	0.15	Cir				
4	3	Genr	0.012	43.500	0.00	0.20	0.04	16.30	0.38	5.37	0.38	0.00	33.20	31.77	31.73	0.04	15	0.09	1.67	2.05	S-24H - S-24I
					0.00	0.00	0.00					2.05		30.90	30.75		15	0.34	3.31	4.07	
					0.19	0.38	0.34							29.65	29.50	0.15	Cir				
3	2	MH	0.012	119.509	0.26	0.46	0.09	16.68	0.93	5.33	0.43	0.00	33.20	31.72	31.59	0.13	15	0.11	1.88	2.31	S-24I - S-24J
					0.00	0.00	0.00					2.31		30.75	30.45		15	0.25	2.85	3.50	
					0.00	0.38	0.34							29.50	29.20	0.30	Cir				
2	1	MH	0.012	162.022	0.31	0.77	0.15	17.61	1.12	5.22	0.50	0.00	33.20	31.52	31.30	0.22	15	0.14	2.11	2.59	S-24J - S-24
					0.00	0.00	0.00					2.59		30.45	30.05		15	0.25	2.85	3.49	
					0.00	0.38	0.34							29.20	28.80	0.40	Cir				

NOTES: Intensity = 125.14 / (Inlet time + 22.80) ^ 0.86 (in/hr) ; Time of flow in section is based on full flow.

Project File: Rookery Phase 1 Amenity.stm

FL-DOT Report

Line No	To Line	Type of struc	n - Value	Len	Drainage Area			Time of conc	Time of Flow in sect	Inten (I)	Total CA	Add Q	Inlet elev	Elev of HGL			Rise	HGL	ADD		Date: 10/24/2022
					C1 = 0.2 C2 = 0.5 C3 = 0.9							Total Flow		Elev of Crown			Span	Pipe	Full Flow		Frequency: 5 yrs
					Increment (ac)	Sub-Total (ac)	Sum CA					Q		Elev of Invert Up	Down	Fall	Size	Slope	Vel	Cap	Proj: Rookery Phase 1 Ame
				(ft)				(min)	(min)	(in/hr)		(cfs)	(ft)	(ft)	(ft)	(ft)	(in)	(%)	(ft/s)	(cfs)	Line description
1	End	Genr	0.012	42.497	0.45 0.00 0.00	1.87 0.41 0.70	0.37 0.21 0.63	18.73	0.18	5.10	1.21	0.00 6.17	33.20	31.01 29.50 28.00	30.89 29.00 27.50	0.12 0.50	18 18 Cir	0.29 1.17	3.49 6.98	6.17 12.33	S-24 - S-25

NOTES: Intensity = 125.14 / (Inlet time + 22.80) ^ 0.86 (in/hr) ; Time of flow in section is based on full flow.

Project File: Rookery Phase 1 Amenity.stm

From: Cammie Dewey <cdewey@sjrwmd.com>
Sent: Thursday, August 11, 2022 4:28 PM
To: Glen Wieger <gwieger@dunneng.com>
Cc: David Taylor <dtaylor@dunneng.com>; Vince Dunn <vdunn@dunneng.com>; Everett Frye <efrye@sjrwmd.com>; Amy Maxwell <amaxwell@sjrwmd.com>; Melissa Parsons <MParsons@sjrwmd.com>
Subject: RE: Loading Rates for Lower St Johns River

Glen,

I'm sorry for my delay. I wasn't able to connect with my counterparts in the SWFWMD and SFWMD to ask them about how their staff evaluates a proposed project design with multiple inter-connected wet ponds, all having the same NWL, and with one orifice control/outfall structure as quickly as I had hoped. If I am able to connect with them in the next 2-3 days I'll follow up with a summary of my findings.

I have read through the land use information. I understand that the land use has continued to remain agricultural. Since the cattle have been removed for a number of years, I think the most appropriate land use listed in BMPTrains to use for the ag areas would be Ag General, the Ag pasture would represent active livestock use of the land and based on our discussions – livestock have not utilized the area since the early 2000's. For the non-Ag areas, please use the appropriate Undeveloped land use based upon the vegetation, soils, and topography description found in the BMPTrains model.

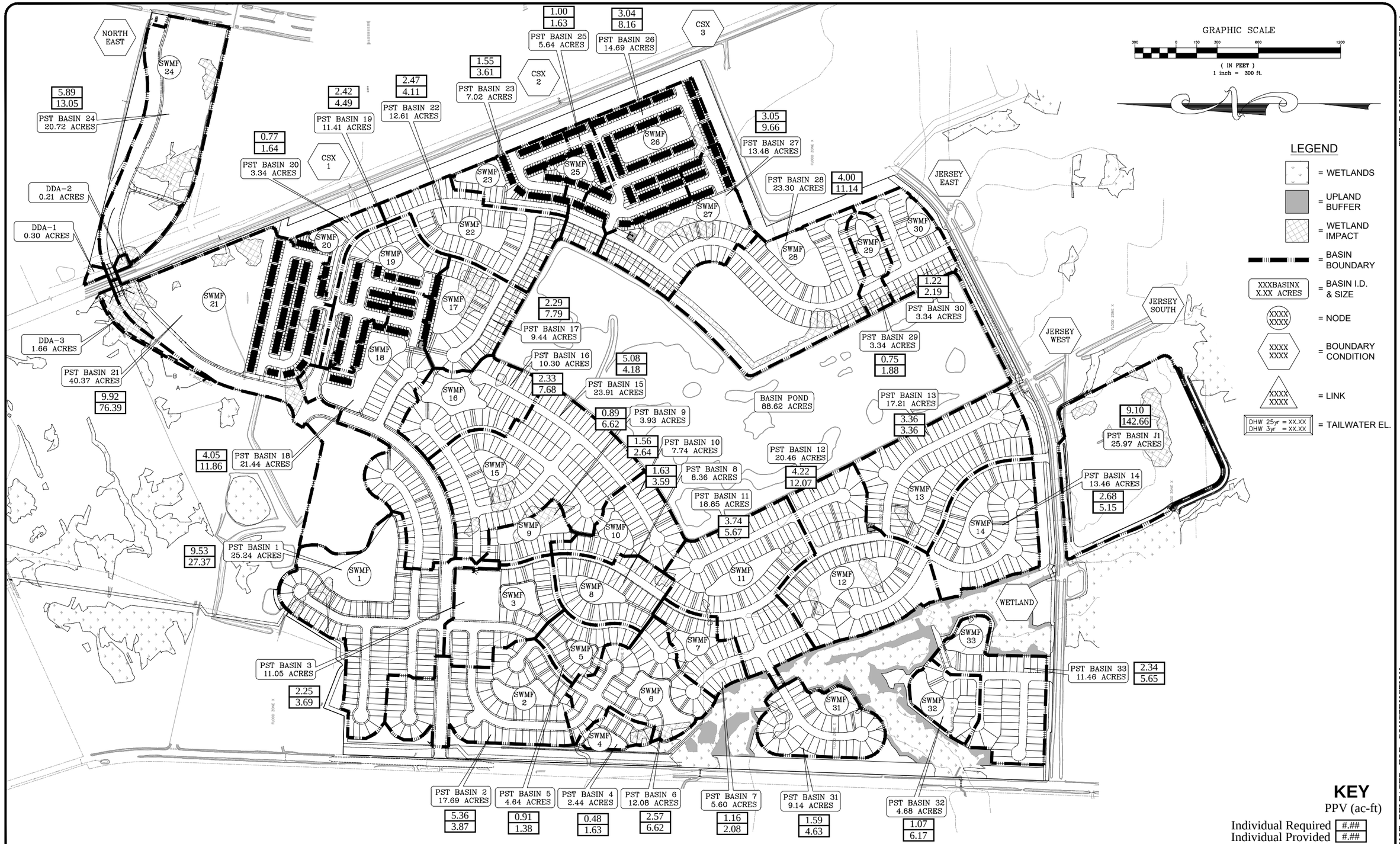
Based on your summary, to address the required treatment volume (RTV). My understanding from the Teams meeting was that the outfall from SWMF6 contained the control structure with the orifice. The required treatment volume is calculated between the orifice invert and the weir (assuming the NWL is at the orifice invert), so the RTV is estimated over all of the pond areas (ponds 1-6). Since the pond system is not cascading, the volume provided by the entire 6 pond system between the orifice invert and the weir can be used for the RTV for the combined basins 1-6. As we discussed the PPV provides the main treatment mechanism for a wet detention pond system. Based on your PPV numbers for the Phase 1, ponds 1-6 system, each pond provides for each immediate contributing basin required PPV. This system for Phase 1 is seems acceptable.

The larger development adds more weir discharge points, more ponds and moves the orifice location from the Phase 1 system. I agree, pond 15 is a little short on the required PPV, but 16 has excess when you combine the two basins/pond PPVs. Otherwise, like the Phase 1 design, the remaining basin for the entire development indicate adequate PPV is provided within each respective basin's wet pond.

The two other design features we discussed was: first, the placement of an orifice in the stormsewer collection/conveyance system and not being located in a dedicated outfall pipe system. When the orifice is located within a combined system, the stormwater runoff is short-circuited and can exit through the orifice and not enter the pond/PPV for treatment. Second, we also discussed flow paths from the inflow stormsewer pipe conveying water through the pond to an outflow pipe. Again to address short-circuiting.

Please let me know if you have any further questions. Have a nice evening.

Cammie



KEY

PPV (ac-ft)

Individual Required	#.##
Individual Provided	#.##

NOT RELEASED FOR CONSTRUCTION

P:\2008-499 AYRSHIRE\ENG PLANS\499 PRE-PST.DWG12/1/2022 4:14 PMGlen Wieger

REVISIONS			
NO.	DATE	DESCRIPTION	BY:
–	–	–	–

DESIGNED BY:	DAI
DRAWN BY:	MR/SM/SS/NS
CHECKED BY:	VJD
SCALE:	1" = 300'
DATE:	12/1/2022
PROJ. NO.:	2008-499

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