POND SITING REPORT
DRAFT

Florida Department of Transportation

District One

State Road (SR) 70 Project Development and Environment (PD&E) Study

West of SR 31 to SE Highlands County Line Road

Desoto County, Florida

Financial Management Number: 451942-2-52-01

ETDM Number: 14569

Date: November 2025

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022 and executed by the Federal Highway Administration and FDOT.

POND SITING REPORT

STATE ROAD (SR) 70

FROM WEST OF SR 31 TO
SE HIGHLANDS COUNTY LINE ROAD

DESOTO COUNTY, FLORIDA

Financial Management Number: 451942-2-52-01

ETDM Number: 14569

Prepared for:

Florida Department of Transportation District One
801 North Broadway Avenue
Bartow, Florida 33830

Prepared by:

HNTB Corporation
201 North Franklin Street, Suite 1200
Tampa, Florida 33602

November 2025

EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) proposes to improve a segment of State Road 70 (SR 70**)** in Desoto County, Florida. The project is also being referred to as SR 70 Segments 9-10. This report presents the Stormwater Management Facility (SMF) and Floodplain Compensation Site (FPC) alternatives evaluated to satisfy federal, state, and local stormwater management requirements.

The existing typical section consists of both a four-lane and two-lane, undivided roadway with 12-foot travel lanes and an outside shoulder width of 10 feet (5-foot paved). The proposed roadway typical section will mill and resurface as well as widen SR 70 from two to four lanes where applicable.

The SMF alternatives were developed to accommodate the proposed improvements while meeting the applicable stormwater treatment and attenuation criteria. The FPC have been developed to compensate the floodplain encroachments from the proposed roadway improvements. The vertical datum for this project is the North American Vertical Datum of 1988 (NAVD88). Elevations can be converted to the National Geodetic Vertical Datum of 1929 (NGVD29) by adding a conversion factor of 1.16 feet (NGVD29 = NAVD88 + 1.16').

This Pond Siting Report is being prepared in support of the SR 70 Project Development and Environment (PD&E) study being completed within the subject project limits under FPID #451942-1-22-01. Please note, as this project is being completed as a PD&E and Design overlap project, it is incorporating Design-level data collection, and the project design prepared under FPID #451942-2-52-01 (west of SR 31 to the Highlands County Line). This Pond Siting Report is a preliminary tool used to identify and assess potential SMF and FPC sites using a comparative analysis of alternatives. The recommendations are based on preliminary data and engineering judgment, with pond sizing and drainage boundaries subject to refinement during final design.

The project is located within the Peace River above Joshua Creek (WBID 1623C), Joshua Creek above Peace River (WBID 1950A), an unnamed branch (WBID 1974), Honey Run (WBID 1977), Prairie Creek (WBID 1962), and Cow Slough (WBID 1964) waterbodies. Under existing conditions, stormwater runoff is generally conveyed via ditches and cross drains to offsite wetlands or depressional areas. The offsite stormwater runoff tends to generally flow from north to south across SR 70. There are twenty existing linear ponds along the project within the SR 70 right-of-way due to the previous median passing lane project under ERP # 44033219.000 and the addition of turn lanes for the Florida Civil Commitment Center and Desoto Recycling and Disposal Waste Management Facility under ERP # 43008749.008 and 43008749.010, respectively. To address the impacts to the existing linear ponds in the proposed condition, the SMFs have been designed to fully compensate for the existing treatment and attenuation volumes. Proposed drainage patterns aim to maintain the existing flow paths wherever feasible.

Cow Slough (WBID 1964) is listed as a nutrient-impaired waterbody. This project does not discharge to any Outstanding Florida Waters (OFWs).

SMF and FPC design criteria for this project are based on FDOT's Drainage Manual and Southwest Florida Water Management District (SWFWMD) Environmental Resource Permit (ERP) Applicant's Handbook Volume II (June 2018). Key design criteria include:

- SMFs must provide a net improvement in average annual loading of both Total Nitrogen (TN) and Total Phosphorus (TP) for impaired waterbody.
- Encroachment to the 100-year floodplain requires equivalent compensating storage between the seasonal high water level and the 100-year floodplain elevation.

Each SMF alternative was evaluated considering impacts to cultural and environmental resources, potential hazardous material sites, right-of-way requirements, and stormwater performance metrics.

Each FPC alternative was evaluated to mitigate the encroachment within the 100-year floodplain as defined by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs). FPC sites were recommended according to several factors: cultural resources such as historic structures and archaeological features, environmental impacts including wetlands, upland habitat, and protected species, hazardous materials contamination, economic factors including estimated right-of-way acquisition and construction costs. Considered alternatives within this report include "cup for cup" compensation sites.

Drainage maps can be found in Appendix 6, and SMF and FPC alternatives are provided in the tables found in Section 3 and 4.

Table 1-1 Recommended SMF Alternatives

	Recommended SMFs												
	Roadway Basin 0901	**Roadway Basin 0902**	**Roadway Basin 0903**	**Roadway Basin 0904**	**Roadway Basin 1001**	**Roadway Basin 1002**	**Roadway Basin 1003**	**Roadway Basin 1004**	**Roadway Basin 1005**	**Roadway Basin 1006**	**Roadway Basin 1007**	**Roadway Basin 1008**	**Roadway Basin 1009**
Recommended SMF Alternative	**SMF 0901A**	**SMF 0902A**	**SMF 0903B**	**SMF 0904A**	**SMF 1001A**	**SMF 1002A**	**SMF 1003B**	**SMF 1004A**	**SMF 1005C**	**SMF 1006A**	**SMF 1007A**	**SMF 1008A**	**SMF 1009A**
Document Section No. for Basin Alternatives	**3.1**	**3.2**	**3.3**	**3.4**	**3.5**	**3.6**	**3.7**	**3.8**	**3.9**	**3.10**	**3.11**	**3.12**	**3.13**
POND DESCRIPTION	WET	LINER	WET	LINER	WET	WET	WET	LINEAR	LINEAR	WET	DRY	DRY	DRY
LOCATION (BEGIN STATION)	4028+36.24	4112+79.84	4178+46.85	4241+41.14	4299+40.01	4384+66.29	4438+91.86	4493+68.80	4522+00.00	4617+31.84	4670+91.44	4806+44.35	4856+04.75
LOCATION (END STATION)	4034+63.01	4116+90.93	4181+97.91	4244+13.76	4305+36.80	4389+16.68	4443+68.71	4500+68.80	4528+00.00	4622+39.50	4676+95.59	4812+20.29	4859+60.22
SIDE (LT, RT)	LT	RT	LT	LT	RT	RT	LT	RT	LT	RT	RT	RT	LT
SMF AREA (ACRES)	6.74	2.10	1.32	1.09	3.02	2.49	2.84	0.80	1.31	2.91	3.75	5.00	1.87
RIGHT-OF-WAY REQUIRED (ACRES)	8.47	3.61	2.66	2.49	4.44	3.47	3.94	1.40	0.00	4.33	5.57	6.34	2.69
EASEMENT REQUIRED (ACRES)	0.00	0.00	0.00	0.00	0.00	0.34	0.16	0.17	0.01	0.46	0.50	0.45	0.39
EST. GROUND ELEVATION (FT) @ SMF SITE	63.50	59.00	62.50	63.00	64.00	69.00	74.00	72.50	VARIES	76.50	80.00	83.00	82.50
PROPOSED LEOP WITHIN BASIN (FT)	64.92	61.18	64.63	64.09	66.57	71.57	75.91	77.28	77.47	79.78	83.96	85.52	84.81
EST. SHWL AT SITE (OUTFALL FOR LINER) (FT)	62.50	52.40	61.00	55.20	62.00	67.00	71.70	71.50	VARIES	75.50	78.80	82.00	81.50
TREATMENT VOLUME REQUIRED (ACRE-FEET)	0.86	0.70	0.34	0.44	1.03	0.78	0.77	0.09	0.79	0.82	0.47	0.47	0.19
TREATMENT VOLUME PROVIDED (ACRE-FEET)	1.12	0.93	0.46	0.66	1.60	0.98	1.21	0.15	0.82	0.99	1.35	1.21	0.67
ATTENUATION VOLUME REQUIRED (ACRE-FEET)	6.54	3.87	1.56	2.57	5.72	4.93	3.93	0.03	1.40	5.71	7.24	4.77	1.07
ATTENUATION VOLUME PROVIDED (ACRE-FEET)	6.89	3.87	1.73	2.98	5.98	5.24	4.31	0.04	1.46	5.85	7.54	4.96	1.11
SOILS NAME	[31] POMPANO [36] SMYRNA	[36] SMYRNA	[21] MALABAR [36] SMYRNA	[13] EAUGALLIE [36] SMYRNA	[14] FARMTON	[21] MALABAR	[13] EAUGALLIE [14] FARMTON	[21] MALABAR	[14] FARMTON	[20] IMMOKALEE	[24] MYAKKA [36] SMYRNA [40] VALKARIA	[3] BASINGER [20] IMMOKALEE [40] VALKARIA	[20] IMMOKALEE [40] VALKARIA
HYDROLOGIC SOIL GROUP	A/D	A/D	A/D	A/D	B/D	A/D	A/D B/D	A/D	B/D	B/D	A/D	A/D B/D	A/D B/D
LAND USE	[2100] Cropland and Pastureland	[1100] Residential Low Density [6150] Stream and Lake Swamps	[2100] Cropland and Pastureland	[4110] Pine Flatwoods	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[1500] Industrial	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland
FLOODPLAIN IMPACTS (ACRE-FEET)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FLOODPLAIN COMPENSATION COST	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
RECORDED HISTORICAL STRUCTURES/RESOURCES	LOW	MEDIUM	HIGH	HIGH	LOW	LOW	LOW	LOW	EXISTING R/W	LOW	LOW	LOW	LOW
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	MEDIUM	LOW	LOW	LOW	LOW	LOW	LOW	LOW		LOW	LOW	MEDIUM	MEDIUM
PROTECTED, THREATENED, & ENDANGERED SPECIES	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	HIGH	MEDIUM	LOW		LOW	LOW	LOW	LOW
SPECIES MITIGATION COST	$10,000	$10,000	$5,000	$12,500	$5,000	$22,000	$11,000	$5,000		$5,000	$0	$2,500	$0
MAJOR UTILITIES PRESENT	FPL	FGT	FPL & FGT	FPL	FGT	FPL & FGT	N/A	FGT		FGT	FGT	FPL & FGT	N/A
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N	N	N	N	N	N		N	N	N	N
SECTION 4(F) PRESENT	Old SR 18/Mahon Avenue linear path	N/A	Old SR 18/Mahon Avenue linear path	Old SR 18/Mahon Avenue linear path	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
SECTION 4(F) IMPACTED (Y/N)	Y	N	Y	Y	N	N	N	N		N	N	N	N
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00	$0.00
ESTIMATED WETLAND IMPACTS (ACRES)	0.00	1.03	0.04	0.19	0.00	0.02	0.14	0.04		0.06	0.00	0.00	0.08
WETLAND MITIGATION COST	$0	$103,000	$4,000	$19,000	$0	$2,000	$14,000	$4,000		$6,000	$0.00	$0	$8,000
NUMBER OF PARCELS	1	2	1	1	1	1	1	1	0	1	2	1	1
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P	P	P	P	P	P	N/A	P	P	P	P
ESTIMATED CONSTRUCTION COST	$1,624,894	$1,524,676	$684,562	$1,026,790	$1,640,365	$1,488,893	$1,073,750	$644,984	$846,618	$909,247	$1,322,908	$1,358,171	$717,944
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$485,000	$200,000	$185,000	$135,000	$155,000	$150,000	$150,000	$100,000	$60,000	$255,000	$200,000	$220,000	$185,000
TOTAL ESTIMATED COSTS	**$2,119,894**	**$1,837,676**	**$878,562**	**$1,193,290**	**$1,800,365**	**$1,662,893**	**$1,248,750**	**$753,984**	**$906,618**	**$1,175,247**	**$1,522,908**	**$1,580,671**	**$910,944**

Notes:

(1) Mitigation and cost estimates for wetlands, species, and conservation impacts are based on the work product of the environmental scientists. Preliminary wetland impacts have been determined for this PSR based on a combination of National Wetlands Inventory (NWI) maps produced by the U.S. Fish and Wildlife Service (USFWS), environmental field surveys, aerial imagery, and scientific judgement. Refer to Section 2.8 for discussion on the preliminary multi-disciplined environmental analysis.

(2) Estimated construction costs and right-of-way cost estimates can be found in Appendix 7.

Table 1-2 Recommended FPC Alternatives

	Recommended FPCs										
	Floodplain 1001	**Floodplain 1002**		**Floodplain 1003**	**Floodplain 1004**	**Floodplain 1005**	**Floodplain 1006**	**Floodplain 1007**	**Floodplain 1008**	**Floodplain 1009**	**Floodplain 1010**
Recommended FPC Alternative	**Alternative 1**	**Alternative 1**	**Alternative 2**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 1**	**Alternative 3**	**Alternative 1**	**Alternative 3**	**Alternative 2**
	FPC 1001A	**FPC 1002-NA**	**FPC 1002-SB**	**FPC 1003A**	**FPC 1004B**	**FPC 1005C**	**FPC 1006A**	**FPC 1007C**	**FPC 1008A**	**FPC 1009C**	**FPC 1010B**
LOCATION (BEGIN STATION)	4298+58.24	4345+91.03	4353+65.40	4491+41.54	4523+13.60	4523+14.81	4597+50.93	4622+61.74	4666+98.83	4720+81.36	4829+49.47
LOCATION (END STATION)	4304+10.52	4351+44.19	4358+60.80	4500+01.33	4546+43.13	4546+56.99	4612+22.31	4629+86.40	4672+70.73	4725+41.42	4848+46.84
SIDE (LT, RT)	LT	LT	RT	RT	LT	LT	RT	RT	RT	RT	RT
FPC AREA (ACRES)	2.66	2.51	0.89	5.70	30.09	37.88	17.33	3.82	2.22	1.61	43.42
AVE. EST. GROUND ELEVATION (FT) @ FPC SITE	64.00	68.48	68.73	72.48	75.50	76.00	76.80	77.00	80.00	83.00	82.10
AVE. EST. SHW ELEVATION (FT)	63.40	66.60	67.00	71.23	74.06	74.74	75.51	75.13	78.50	81.30	80.78
LAND USE	[2100] CROPLAND AND PASTURELAND	[2100] CROPLAND AND PASTURELAND	[2600] HERBACEOUS	[2100] CROPLAND AND PASTURELAND	[2200] TREE CROPS & [3300] MIXED RANGELAND	[2200] TREE CROPS & [2400] NURSERIES AND VINEYARDS	[2100] CROPLAND AND PASTURELAND & [2600] OTHER OPEN LANDS	[2100] CROPLAND AND PASTURELAND	[2100] CROPLAND AND PASTURELAND	[2100] CROPLAND AND PASTURELAND	[2100] CROPLAND AND PASTURELAND
RECORDED HISTORICAL STRUCTURES/RESOURCES	Low	Low	Low	Low	Medium	Low	Low	Low	Low	Low	Medium
TENTATIVE HAZARD RANKING	Low	Low	Low	Low	Low	Medium	Low	Low	Low	Medium	Medium
PROTECTED, THREATENED, & ENDANGERED SPECIES	High	Medium	High	Medium	High	Low	Medium	Low	High	High	High
SPECIES MITIGATION COST	$15,000	$10,000	$15,000	$10,000	$25,000	$0	$10,000	$0	$15,000	$12,500	$18,000
MAJOR UTILITIES PRESENT	N	N	FGT	FGT	N	N	FGT	FGT	FGT	FGT	FGT
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N	N	N	N	N	N	N	N	N
SECTION 4(F) PRESENT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SECTION 4(F) IMPACTED (Y/N)	N	N	N	N	N	N	N	N	N	N	N
CONSERVATION LANDS IMPACT AREA (ACRES)	0	0	0	0	0	0	0	0	0	0	0
CONSERVATION MITIGATION COST	0	0	0	0	0	0	0	0	0	0	0
ESTIMATED WETLAND IMPACTS (ACRES)	0.78	0.04	0.45	0.43	0	0.12	0.79	0.29	0.35	0.08	0.65
WETLAND MITIGATION COST	$78,000	$4,000	$45,000	$43,000	$0	$12,000	$79,000	$29,000	$35,000	$8,000	$65,000
NUMBER OF PARCELS	1	1	2	1	1	1	1	1	1	1	2
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P/WT	P	P	P	P	P	P	P	P
ESTIMATED CONSTRUCTION COST	$173,274	$263,127	$82,397	$312,427	$1,494,170	$1,824,631	$844,516	$296,744	$179,617	$116,464	$2,073,237
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$145,000	$140,000	$90,000	$275,000	$1,555,000	$1,805,000	$530,000	$190,000	$145,000	$108,000	$1,205,000
TOTAL ESTIMATED COSTS	**$411,274**	**$417,127**	**$232,397**	**$640,427**	**$3,074,170**	**$3,641,631**	**$1,463,516**	**$515,744**	**$374,617**	**$244,964**	**$3,361,237**

Notes:

(1) Mitigation and cost estimates for wetlands, species, and conservation impacts are based on the work product of the environmental scientists. Preliminary wetland impacts have been determined for this PSR based on a combination of National Wetlands Inventory (NWI) maps produced by the U.S. Fish and Wildlife Service (USFWS), environmental field surveys, aerial imagery, and scientific judgement. Refer to Section 2.8 for discussion on the preliminary multi-disciplined environmental analysis.

(2) Estimated construction costs and right-of-way cost estimates can be found in Appendix 7.

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1 PROJECT OVERVIEW

1.1 Project Description

The Florida Department of Transportation (FDOT) proposes to improve a segment of State Road 70 (SR 70) from west of SR 31 to the Highlands County line in Desoto County, FL, which begins at M.P. 14.973 and ends at M.P 31.763. The project is also being referred to as SR 70 Segments 9-10. The existing typical section from Station 4006+64.47 to Station 4043+00.00 consists of a four-lane divided roadway with 12-foot travel lanes and 10-foot (5-foot paved) outside shoulders. The existing typical section from Station 4043+00.00 to Station 4890+15.00 consists of a two-lane, undivided roadway with 12-foot travel lanes and an outside shoulder width of 10 foot (5-foot paved). The proposed project will mill and resurface SR 70 where the existing design is four lanes and will widen SR 70 from two to four lanes where the existing design is two lanes.

The proposed typical section from Station 4006+64.47 to Station 4043+00.00 is a four-lane divided roadway with 12-foot travel lanes, 10-foot (5-foot paved) outside shoulders, 4-foot paved inside shoulders, type E median curbs, right-turn and left-turn lanes, and roadside ditches. The proposed typical section from Station 4043+00.00 to Station 4889+54.61 is a four-lane divided roadway with 12-foot travel lanes, 10-foot (5-foot paved) outside shoulders, 8-foot (4-foot paved) inside shoulders, median ditch, and roadside ditches. A 10-foot shared use path is included on the northern side of the roadway from Station 4006+64.47 to Station 4279+22.00 and transitioning to the southern side of the roadway from Station 4255+00.00 to Station 4890+15.00.

1.2 Purpose

The purpose of this project is to improve operational conditions for emergency evacuations along the SR 70 corridor from SR 31 to the Highlands County line. This Pond Siting Report is being prepared in support of the SR 70 Project Development and Environment (PD&E) study being completed within the subject project limits under FPID #451942-1-22-01. This report presents the Stormwater Management Facility (SMF) and Floodplain Compensation Site (FPC) alternatives evaluated to satisfy federal, state, and local stormwater management requirements.

2 PROJECT DESIGN INFORMATION

2.1 Data Sources

Correspondence and Meetings – Appendix 2

- Drainage Kickoff Meeting (May 13, 2024)
- Pond Siting Meeting (September 9, 2024)
- Pond Siting Report (PSR) Checkpoint #1 Meeting (February 21, 2025)
- PSR Checkpoint #2 Meeting (May 19, 2025)
- PSR Checkpoint #3 Meeting (August 13, 2025)

Technical Reference and Regulation Material

- FDOT Drainage Manual (January 2025)
- FDOT Drainage Design Guide (January 2024)
- SWFWMD Environmental Resource Permit (ERP) Applicant's Handbook Volume I (June 2024)
- SWFWMD ERP Applicant's Handbook Volume II (June 2018)

Aerial Photography, Maps, Plan, and Survey

- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Desoto County Soil Survey (2024) – Appendix 5
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) – Community-Panel No.:, 12027C0179C, 12027C0185C, 12027C0205C, 12027C0210C, and 12027C0230C, effective November 6, 2013 – Appendix 1
- 2024 FDOT Aerial Photography
- National Wetlands Inventory (NWI) Wetlands Data
- Desoto County Property Lines
- FDOT Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST)
- Google Earth Pro

Reports and Studies

- FEMA Flood Insurance Study Number 12027CV000B (Revised October 7, 2021)

2.2 Existing Drainage Patterns

An assessment of the existing conditions and drainage patterns was performed along the corridor. The assessment included a review of historical drainage maps, Florida Geographic Information Office (FGIO) Light Detection and Ranging (LiDAR) data, Desoto County contours, FEMA FIRMs, existing SWFWMD permits, and USGS quadrangle maps. Field verification of topographic features and drainage outfalls was also conducted.

The project is located within the Peace River above Joshua Creek (WBID 1623C), Joshua Creek above Peace River (WBID 1950A), an unnamed branch (WBID 1974), Honey Run (WBID 1977), Prairie Creek (WBID 1962), and Cow Slough (WBID 1964) Waterbodies. Under existing conditions, stormwater runoff is generally conveyed via ditches and cross drains to offsite wetlands or depressional areas. The offsite stormwater runoff tends to generally flow from north to south across SR 70. There are twenty existing linear ponds along the project within the SR 70 right-of-way due to the previous median passing lane project under ERP # 44033219.000 and the addition of turn lanes for the Florida Civil Commitment Center and Desoto Recycling and Disposal Waste Management Facility under ERP # 43008749.008 and 43008749.010, respectively. This project anticipates impacting the existing ponds. See Table 2-1 for a summary of the existing pond storage.

Table 2-1 Existing Pond Storage

Permit Begin STA	Permit End STA	CL SR 70 Begin STA	CL SR 70 End STA	Basin (Pre/Post)	Permit No.	Storage Name	Dry/Wet	Existing Treatment Vol. (Ac-Ft)	Existing Attenuation Vol. (Ac-Ft)
1802+20	1804+74	4004+29	4007+49	1/0901	32402.001	1090	Dry	0.023	0.136
1805+23	1807+05	4007+35	4011+68	1/0901	32402.001	1100	Dry	0.021	0.119
1832+28	1842+68	4034+42	4044+81	1/0901	32402.000	2130	Dry	0.042	0.423
1842+68	1852+06	4044+81	4054+16	1/0901	32402.000	2131	Dry	0.214	1.120
1137+65	1150+00	4339+33	4351+68	5/1001	33219.000	1137	Dry	0.008	0.017
1150+00	1156+60	4352+11	4358+71	5/1001	33219.000	1150	Dry	0.027	0.057
1156+90	1175+00	4359+13	4377+23	6/1002	33219.000	1175	Dry	0.046	0.086
1175+00	1179+00	4377+23	4381+23	6/1002	33219.000	1179	Dry	0.011	0.023
1184+50	1200+00	4386+68	4402+18	6/1002	33219.000	1200	Dry	0.047	0.091
1200+00	1208+00	4402+18	4410+17	6/1002	33219.000	1205	Dry	0.023	0.046
1218+00	1237+00	4420+23	4439+23	7/1003	33219.000	1218 & 1226	Dry	0.031	0.063
1237+00	1249+00	4439+23	4451+20	7/1003	33219.000	1237	Dry	0.033	0.068
1249+00	1261+80	4451+20	4464+00	7/1003	33219.000	1249	Dry	0.032	0.063
1263+20	1286+80	4465+44	4489+04	8/1004	33219.000	1277	Dry	0.047	0.097
N/A	N/A	4576+34	4586+82	10/1005	8749.010	N-1A	Dry	0.199	0.000
N/A	N/A	4588+37	4595+13	10/1005	8749.010	N-1B	Dry	0.066	0.000
N/A	N/A	4595+13	4595+70	10/1005	8749.008	N-1	Dry	0.000	0.087
N/A	N/A	4595+70	4596+08	10/1005	8749.008	N-2	Dry	0.054	0.009
N/A	N/A	4581+93	4586+88	10/1005	8749.008	S-1	Dry	0.080	0.062
1396+40	1420+00	4598+64	4622+24	10/1005	33219.000	1397 & 1406	Dry	0.038	0.062
1421+20	1426+30	4623+21	4628+51	12/1006	33219.000	1426	Dry	0.017	0.027
1429+00	1439+00	4630+89	4641+16	12/1006	33219.000	1429	Dry	0.028	0.044
1439+00	1460+00	4641+16	4662+53	12/1006	33219.000	1439	Dry	0.052	0.084
1522+80	1557+80	4716+64	4759+64	14/Direct	33219.000	1520 & 1524	Dry	0.083	0.177
1558+60	1585+00	4760+64	4787+04	15/1008	33219.000	1582 & 1591	Dry	0.074	0.154

An aerial-based drainage map is included in Appendix 6. See Appendix 1 for a map of the WBID boundaries within the project limits.

An approximate fifty-foot wide existing FGT easement runs along SR 70. The easement starts on the south side of SR 70 just east of SE Townsend Road and continues west before crossing to the north side of SR 70 west of NE Hansel Avenue. The easement continues west before crossing to the south side of SR 70 west of NE Forrest Avenue and continues west to beyond the end of the project.

2.3 Tailwater

The western portion of the project from west of SR 31 to NE Four Mile Grade outfalls into Joshua Creek. The Durrance Branch and Whidden Branch convey stormwater runoff from the project area to Joshua Creek. The conflux of Joshua Creek and the Peace River is approximately 5.3 miles southwest of the SR 70 and SR 31 intersection.

The eastern portion of the project from NE Four Mile Grade to SE Highlands County Line Road outfalls into Prairie Creek. The conflux of Prairie Creek and the Peace River is approximately 18 miles southwest of the SR 70 and SR 31 intersection near the Charlotte Harbor estuary.

Tailwater and outfall conditions were established using surveyed biological indicators.

2.4 Floodplain

The applicable FEMA FIRMs (community-panel numbers 12027C0179C, 12027C0185C, 12027C0205C, 12027C0210C, and 12027C0230C, effective November 6, 2013) show the 100-year flood hazard areas along the project corridor are designated as Zone A, which means that no base flood elevations have been determined. Refer to the FEMA FIRM in Appendix 1.

Whidden Branch and Joshua Creek are regulatory floodways in Zone AE. At SR 70, the 100-year floodway elevation for Whidden Branch and Joshua Creek is approximately 57.2-feet and 63.0-feet, respectively. A No-rise Certification meeting the National Flood Insurance Program Requirements, 60.3 (d)(3), will be required to demonstrate that the project will not increase flood heights.

2.5 Rules and Regulatory Agency Coordination

2.5.1 Permits

The project is located within the jurisdiction of the SWFWMD. An ERP will be obtained from the SWFWMD. A pre-application meeting will be held with SWFWMD prior to permitting to provide an overview of the project and confirm the stormwater management design criteria.

As this project will disturb more than one acre of land, coverage under the National Pollutant Discharge Elimination System (NPDES) Construction Generic Permit (CGP) will be required prior to construction. Additionally, the project will require a permit from the United States Army Corps of Engineers to meet Section 404 of the Clean Water Act for wetland dredge and fill activities.

This project is being reviewed under the stormwater treatment criteria in effect prior to the June 2024 update to ERP Volume I. Per Section 8.3 of SWFWMD Applicant's Handbook Volume I, the new stormwater quality nutrient permitting requirements do not apply to public transportation projects scheduled for completion of the PD&E Study including Location Design Concept Acceptance (LDCA) prior to June 28, 2026, or which are in the design or construction phases. This

project qualifies for that exemption based on its current design status and its relationship to an ongoing PD&E Study covering the same corridor.

2.5.2 Water Quality (Treatment)

The stormwater treatment criteria within the Segment 9-10 project limits follow the SWFWMD requirements, which include:

1. A wet detention system shall provide treatment for one inch of runoff from the contributing drainage area.

2. The treatment volume in wet ponds shall not exceed 18 inches above the control elevation (orifice elevation or seasonal high water (SHW) level).

3. Wet ponds must include an orifice designed to allow no more than one-half of the treatment volume to bleed down in the first 60 hours and the remaining volume in no less than 120 hours.

4. Dry retention systems must provide treatment for the runoff from the first one inch of rainfall. For basins with contributing areas less than 100 acres, treatment of one-half inch of rainfall may be used as an alternative.

5. In the calculations, the assumed treatment area is equal to the new impervious area contributing to the SMF.

Within the project limits, only one impaired waterbody has been identified: Cow Slough (WBID 1964), which is impaired for nutrients and macrophytes. The SMF will provide a level of treatment sufficient to ensure that the post-development average annual nutrient loading does not exceed the nutrient loading of the pre-development condition.

Wet detention ponds are designed to include a minimum permanent pool depth of 2.0 feet, consistent with SWFWMD Applicant Handbook Volume II Section 4.1. Each pond includes a 1:4 slope from the control elevation to the top of the littoral shelf, followed by a 1:2 slope to the pond bottom at an assumed maximum depth of 10 feet. Littoral zone improvement credit was assumed at 10%. This configuration aligns with the pond geometry guidance in Figure 5.2 of the FDOT Drainage Manual. Permanent pool volumes and supporting calculations are included in Appendix 3.

2.5.3 Water Quantity (Attenuation)

For basins with a positive outfall, or open basins, SWFWMD will require the post-development peak discharge rate from the basin be less than or equal to the pre-development peak discharge rate for the 25-year/24-hour SWFWMD storm event.

For basins without a positive discharge, or closed basins, the project shall also retain the pre versus post runoff volume for the 100-year/24-hour SWFWMD storm event and the 100-year/240-hour FDOT storm event.

Rainfall depths for open basins were obtained from the rainfall maps provided in the SWFWMD Applicant's Handbook, while rainfall depths for closed basins were obtained from NOAA Atlas 14 data in accordance with FDOT criteria.

No basins within the project limits have been identified as subject to any historical flooding, and no closed basins have been identified. Therefore, the project is not subject to the requirements of Chapter 14-86, F.A.C.

2.5.4 Drainage Design Criteria

A summary of the drainage design criteria is included in Table 2-2.

Table 2-2 Summary of Drainage Design Criteria

Detention & Retention Ponds	Maintenance Berm	Horizontal Clearance	20 ft Minimum	DM Sect. 5.4.4.2
		Slope	1:8 or Flatter (For At Least 15 ft Adjacent to Pond)	
	Corners		30 ft Minimum Turning Radius (At Maintenance Berm's Inside Edge)	
	Freeboard	Offsite Ponds	1.0 ft Minimum	
		Linear Ditches	0.5 ft Minimum	
	Fencing		Side Slope ≥ 1:4	

Note:
DM denotes FDOT Drainage Manual (January 2025).

2.5.5 Floodplain Compensation

Equivalent compensating storage will be required to be provided between the lowest level of the encroachment and the 100-year flood level to allow storage function during all lesser flood events.

2.6 Geotechnical Information and Project Soil Conditions

2.6.1 Soil Characteristics

A review of the USDA NRCS Desoto County Soil Survey was conducted to assess the general soil characteristics within the project area. The survey provides hydrologic soil group (HSG)

classifications, estimated seasonal high groundwater table (SHGWT) depths, and drainage characteristics that influence stormwater management facility (SMF) and FPC performance.

Table 2-3 summarizes the primary soil types, HSG classifications, and estimated SHGWT depths for each drainage basin.

Table 2-3 Project Soil Conditions

Basin	Proposed Begin STA	Proposed End STA	Map Unit	Soil Name	Hydrologic Soil Group	Estimated SHGWT Depth (ft)
0901	4002+30	4066+00	2	Ancolte Sand	A/D	0
			3	Basinger Sand	A/D	0 - 1
			20	Immokalee Sand	B/D	0.5 - 1.5
			25	Ona Sand	B/D	0.5 - 1.5
			31	Pompano Sand	A/D	0.25 - 1.5
			36	Smyrna Sand	A/D	0.5 - 1.5
0902	4066+00	4163+75	3	Basinger Sand	A/D	0 - 1
			4	Basinger Sand	A/D	0
			13	EauGallie Sand	A/D	0.5 - 1.5
			14	Farmton Sand	B/D	0.5 - 1.5
			20	Immokalee Sand	B/D	0.5 - 1.5
			21	Malabar Sand	A/D	0.25 - 1.5
			23	Malabar Sand	A/D	0
			25	Ona Sand	B/D	0.5 - 1.5
			36	Smyrna Sand	A/D	0.5 - 1.5
			42	Zolfo Sand	A	1.5 - 3.5
0903	4163+75	4210+05	2	Ancolte Sand	A/D	0
			14	Farmton Sand	B/D	0.5 - 1.5
			21	Malabar Sand	A/D	0.25 - 1.5
			36	Smyrna Sand	A/D	0.5 - 1.5
			41	Wabasso Sand	A/D	0.5 - 1.5
0904	4210+05	4279+56	2	Ancolte Sand	A/D	0
			3	Basinger Sand	A/D	0 - 1
			13	EauGallie Sand	A/D	0.5 - 1.5
			20	Immokalee Sand	B/D	0.5 - 1.5
			36	Smyrna Sand	A/D	0.5 - 1.5
			41	Wabasso Sand	A/D	0.5 - 1.5
			42	Zolfo Sand	A	1.5 - 3.5
1001	4279+42	4364+43	3	Basinger Sand	A/D	0 - 1
			13	EauGallie Sand	A/D	0.5 - 1.5
			14	Farmton Sand	B/D	0.5 - 1.5
			20	Immokalee Sand	B/D	0.5 - 1.5
			21	Malabar Sand	A/D	0.25 - 1.5
			24	Myakka Sand	A/D	0.5 - 1.5
			36	Smyrna Sand	A/D	0.5 - 1.5
1002	4364+43	4419+00	14	Farmton Sand	B/D	0.5 - 1.5
			20	Immokalee Sand	B/D	0.5 - 1.5
			21	Malabar Sand	A/D	0.25 - 1.5
			23	Malabar Sand	A/D	0
1003	4419+00	4489+26	13	EauGallie Sand	A/D	0.5 - 1.5
			14	Farmton Sand	B/D	0.5 - 1.5
			20	Immokalee Sand	B/D	0.5 - 1.5
			21	Malabar Sand	A/D	0.25 - 1.5
			40	Valkaria Sand	A/D	0.25 - 1.5
1004	4489+26	4516+91	13	EauGallie Sand	A/D	0.5 - 1.5
			14	Farmton Sand	B/D	0.5 - 1.5
			21	Malabar Sand	A/D	0.25 - 1.5
1005	4516+91	4615+32	14	Farmton Sand	B/D	0.5 - 1.5
			20	Immokalee Sand	B/D	0.5 - 1.5
			21	Malabar Sand	A/D	0.25 - 1.5
			22	Malabar Sand	A/D	0.5 - 1.5
			24	Myakka Sand	A/D	0.5 - 1.5
			26	Pineda-Pineda Sand	A/D	0.5 - 1.5
			40	Valkaria Sand	A/D	0.25 - 1.5

Basin	Proposed Begin STA	Proposed End STA	Map Unit	Soil Name	Hydrologic Soil Group	Estimated SHGWT Depth (ft)
1006	4615+32	4669+62	3	Basinger Sand	A/D	0 - 1
			20	Immokalee Sand	B/D	0.5 - 1.5
			21	Malabar Sand	A/D	0.25 - 1.5
			24	Myakka Sand	A/D	0.5 - 1.5
			40	Valkaria Sand	A/D	0.25 - 1.5
1007	4669+62	4761+70	20	Immokalee Sand	B/D	0.5 - 1.5
			24	Myakka Sand	A/D	0.5 - 1.5
			32	Punta Sand	A/D	0.5 - 1.5
			36	Smyrna Sand	A/D	0.5 - 1.5
			40	Valkaria Sand	A/D	0.25 - 1.5
1008	4761+70	4845+62	3	Basinger Sand	A/D	0 - 1
			20	Immokalee Sand	B/D	0.5 - 1.5
			36	Smyrna Sand	A/D	0.5 - 1.5
			40	Valkaria Sand	A/D	0.25 - 1.5
1009	4845+62	4906+08	12	Basinger Sand	A/D	0 - 1
			20	Immokalee Sand	B/D	0.5 - 1.5
			20	Samsula Muck	A/D	0
			24	Myakka Sand	A/D	0.5 - 1.5
			34	Samsula Muck	A/D	0
			39	Smyrna Sand	A/D	0.5 - 1.5
			40	Valkaria Sand	A/D	0.25 - 1.5

2.6.2 Curve Numbers

Curve Numbers (CNs) were assigned based on land use conditions and HSG classifications from the USDA NRCS Desoto County Soil Survey. The conditions and values were taken from Table B-7 of the FDOT Drainage Design Guide and reflect existing and proposed conditions.

Land use descriptions were assigned using the Florida Land Use, Cover and Forms Classification System (FLUCCS) from FDOT. CN values were determined using NRCS land use classifications, with adjustments for soil type, impervious coverage, and anticipated moisture conditions. The final CN values applied in this pond siting report are summarized in Table 2-4.

Table 2-4 Curve Numbers Summary

Land Use Description	Hydrologic Soil Group			
	A	B	C	D
Pasture				
Poor Condition	68	79	86	89
Good Condition	39	61	74	80
Open Spaces				
Poor Condition	68	79	86	89
Fair Condition	49	69	79	84
Good Condition	39	61	74	80
Wetland	95			
Impervious	98			
Open Water	100			

2.6.3 Geotechnical Investigation

To support the stormwater management facility (SMF) and FPC site selection process, Tierra, Inc. conducted geotechnical borings at each proposed SMF and FPC location. These investigations provided site-specific verification of SHGWT elevations, soil permeability, and subsurface conditions to confirm the feasibility of the proposed SMF and FPC alternatives.

The results were compared against the USDA NRCS Desoto County Soil Survey to identify any discrepancies and refine the pond siting process. The geotechnical findings were used to ensure compliance with the FDOT and SWFWMD stormwater design criteria.

The preliminary geotechnical borings data, along with the Desoto County Soil Survey, is included in Appendix 5 for reference.

2.7 Base Clearance Water Elevation Consideration

Per FDOT requirements, a minimum three-foot clearance must be maintained between the Base Clearance Water Elevation (BCWE) and the roadway base course at the low edge of pavement (LEOP). In areas where linear ponds are implemented, the three-foot clearance is typically measured from the weir elevation of the linear ponds rather than from the SHGWT. Per FDOT Drainage Manual Section 5.4.1.5, a lower elevation may be used if (i) in-situ soils are classified as Hydrologic Soil Group A; (ii) geotechnical investigation reveals there is no confining layer to impede drawdown; and (iii) construction activities are limited within the treatment swale to avoid compaction and tracking of silt and muck.

The majority of the linear ponds identified in this PSR are located within in-situ soils that are classified as HSG A; therefore, it is assumed that the in-situ SHGWTs can be used to establish the BCWE.

For the linear ponds located within in-situ soils classified as HSG A/D, this will require concurrence from the Department that the in-situ SHGWTs can be used to establish to the BCWE, in lieu of the weir elevation, as previously discussed with the District Drainage Engineer.

For the linear ponds located within in-situ soils that are not classified as HSG A and HSG A/D, this PSR assumes that the roadway profile will need to be raised in order to meet the base clearance requirements using the higher BCWE at the weirs. Where roadside ditches are hydraulically connected to proposed ponds, the Base Clearance Water Elevation may be controlled by the 24-hour stage of the design storm high water elevation within the ditch. This consideration will be addressed during the Design phase. Where roadside ditches are proposed, the estimated roadway reconstruction cost and the estimated roadway right-of-way cost are included as part of the evaluation.

2.8 Environmental Analysis

A preliminary multi-disciplined environmental analysis was performed for each pond alternative, including desktop cultural resources investigations, Level I contamination screenings, evaluation of potential impacts to threatened and endangered species, and estimates of potential wetland impacts. The results of the environmental analysis are both qualitative and quantitative. Qualitative ratings, such as high, medium, or low apply to cultural resources, contamination, and listed/protected species. Mitigation credit costs were applied to the estimated impacts to wetlands, and threatened and endangered species, and are included within the total cost for each alternative.

2.8.1 Historical and Archaeological Assessment

In general, the areas identified for the SR 70 roadway improvements and pond site alternatives have a variable low to high risk of impact to archeological and historical resources. However, several alternatives have been noted to have a high potential due to proximity to the National Register of Historic Places-eligible Old SR 18/Mahon Avenue linear path and historic Fenton's Feeders business at 1058-1060 SE Hansel Avenue. Evaluation of the project's potential involvement with archaeological and historical resources is on-going and will be documented in the PD&E study's Cultural Resources Assessment Survey for Stormwater Ponds and Floodplain Compensation Facilities for agency consultation.

2.8.2 Hazardous Material Assessment

A desktop screening of the areas identified for the SR 70 roadway improvements and SMF and FPC site alternatives for potential sources of contamination and hazardous materials identified several potential sources that may require further Level II or Level III Screening. Identified potential sources with an elevated, medium risk are summarized in Table 2-5. These sites have been determined to have potential contaminants, which may impact the project corridor.

Table 2-5 Medium Risk Contamination Summary

Source Description	Risk Ranking
Murphy gas station	Medium
Citrus groves and associated facilities	Medium
DeSoto Recycling & Disposal	Medium

Evaluation of the project's potential involvement with potential contamination is on-going and will be documented in the PD&E study's Contamination Screening Evaluation Report for Stormwater Ponds and Floodplain Compensation Facilities for District review. For sites determined to have a risk rating of "Medium" or "High," Level II field screening will be conducted if it is determined during the project's design that its construction activities could be within their vicinity. A soil and groundwater sampling plan will be developed for each site, if applicable. The sampling plan will provide sufficient detail as to the number of soil and groundwater samples to

be obtained and the specific analytical test(s) to be performed. A site location sketch for each facility showing all proposed boring locations and groundwater monitoring wells will be prepared. Level II sampling activities will be coordinated with the District Contamination Impact Coordinator (DCIC).

2.8.3 Wetland and Vegetative Cover

Wetland and other surface water boundaries were reviewed in both desktop and field evaluations in conformance with the federal and state criteria promulgated in the Corps of Engineers Wetlands Delineation Manual, the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Atlantic and Gulf Coastal Plain Region: Version 2, the Florida Wetlands Delineation Manual, and Rule 62-340, F.A.C., Delineation of the Landward Extent of Wetlands and Surface Waters. Wetlands have been delineated adjacent to the proposed SR 70 roadway widening limits and additional areas where pond siting and floodplain compensation alternatives are anticipated. Preliminary wetland impacts have been determined for this PSR based on a combination of National Wetlands Inventory (NWI) maps produced by the U.S. Fish and Wildlife Service (USFWS), environmental field surveys, aerial imagery, and scientific judgement. Consistent with 62.345 F.A.C., a Uniform Mitigation Assessment Methodology (UMAM) functional loss analysis was performed on representative wetland impact areas. The project's wetland impact analysis is on-going and will be documented in the PD&E study's Natural Resources Evaluation report for agency consultation, as well as provided in support of the environmental resource permitting and future PD&E re-evaluation documentation as appropriate. Wetland impacts which will result from the construction of this project will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and 22 United States Code (U.S.C.) § 1344.

2.8.4 Habitat Assessment

Based on the information collected, field reviews, and species-specific surveys conducted for this project, a list of protected species with the potential to occur within the project study area was generated. This list includes a total of approximately 45 federal or state protected species that have the potential for occurrence within the project study area. These protected species include 26 plants, one invertebrate, three reptiles, 11 birds, and four mammals. The project's involvement with listed/protected species and their habitats is on-going and will be documented in the PD&E study's Natural Resources Evaluation report for agency consultation, as well as provided in support of the environmental resource permitting and any future PD&E re-evaluation documentation as appropriate. To the extent feasible, the FDOT will complete species-specific mitigation activities prior to the commencement of construction.

2.8.5 Wildlife Crossings

It is the intent for this corridor to provide opportunities for wildlife crossings. These passages will enhance wildlife connectivity that was severed by the construction of SR 70. Wildlife crossing siting opportunities were evaluated along the SR 70 corridor. Consideration of appropriate locations were analyzed through GIS data, which included current aerials, Florida Land Use, Cover and Forms Classification System (FLUCCS), NWI, USFWS and Florida Fish and Wildlife Conservation Commission (FWC) species data and coordination with District staff. These data sources were overlayed on current aerials and follow up field inspections were conducted to validate potential crossing locations identified during the desktop review. Undeveloped areas with natural systems on both sides of SR 70 such as wetlands and creek systems were considered an important factor in the analysis. While the western bridge crossing is intended to benefit large mammals (Florida panther and black bear), the other culvert crossings which are not solely designated as wildlife crossings for this project will provide an opportunity for the movement of amphibian, reptile, and small mammal species. Infrastructure improvements for environmental access and attractants are anticipated to include twin bridge structures, so that the crossings are punctuated by natural light and specialized grading and/or materials to provide traversable pathways.

It is the design intent for the new wildlife crossings inverts to be set above estimated SHGWT to be generally dry and accessible during normal conditions. However, during large storm events, these crossings do convey flows between the adjacent areas north and south of SR 70. Table 2-6 provides a summary of the proposed wildlife crossings.

Table 2-6 Wildlife Crossing Summary

Number	Begin MP	Station	Description	Bridge No.	Length (ft) [(1)]
WC-1	16.896	4106+10	Whidden Creek Florida I-Beam Bridge	40024	140
WC-2	19.705	4254+50	Joshua Creek Florida I-Beam Bridge	40027	170
WC-3	22.828	4419+00	Tiger Bay Florida I-Beam Bridge	40031	76
WC-4	24.16	4489+30	Mossy Gully Florida I-Beam Bridge	40032	96
WC-5	24.691	4517+60	DCI Canal Florida I-Beam Bridge	40033	76
WC-6	27.573	4669+90	Long Point Marsh Florida I-Beam Bridge	40037	96
WC-7	30.916	4846+40	Parker Creek Florida I-Beam Bridge	40940	96

Note: [(1)] Lengths may be subject to change.

3 ALTERNATIVE STORMWATER MANAGEMENT FACILITY (SMF) SITES

The project is located in the Joshua Creek and Prairie Creek watersheds in Desoto County, Florida. For the purpose of analysis and reference, the watersheds are divided into eighteen existing drainage basins. There are 25 impacted existing ponds along the project ERP # 32402.000, ERP # 33219.000, and ERP #8749.010. In the existing condition, stormwater runoff sheet flows off the roadway and is conveyed through existing cross drains to receiving wetlands and water bodies located adjacent to the project corridor. The proposed condition will maintain the existing drainage patterns and outfalls. For the purpose of analysis and reference, the project area is divided into thirteen proposed roadway basins based on the proposed roadway profile. Basin divides are based on the 30% Concept Plans (March 2025) and are subject to refinement during subsequent design phases. Offsite flow into the project area will be bypassed where feasible. Where offsite flow co-mingles with the proposed SMF contributing area, the District Drainage Engineer will be consulted to determine whether to bypass the offsite flow instead. Offsite flows will be evaluated in the subsequent design phase of the project, and co-mingling will not affect the required SMF treatment and attenuation volume developed in this PSR. FDOT is responsible for treating stormwater runoff generated from the project area, but is not responsible for treating offsite flow into the project area per Section 373.413(6), F.S.. Furthermore, the required attenuation volume will remain unchanged since the stormwater runoff from the offsite areas in the pre and post condition will remain the same.

The following sections describe each basin with its SMF alternatives and a summary of the analysis. The existing and proposed drainage patterns for each basin are illustrated in the drainage maps included in this section and Appendix 6. The preliminary configuration and calculations for each SMF alternative are also included in Appendix 3.

The SMF alternatives were analyzed and evaluated for cultural resources such as historic structures and archaeological features; environmental impacts including wetlands, upland habitat, and protected, threatened, and endangered (T/E) species involvement; petroleum and hazardous materials contamination; economic factors including acquisition of right-of-way for pond footprints outside the roadway right-of-way and special construction; and hydrologic and hydraulic characteristics. All FDOT parcels, including surplus parcels within the Segment 9 and 10 limits, were evaluated during pond siting. Only the most suitable parcels were carried forward into the alternatives presented. There are no surplus parcels more suitable for pond siting than those already selected. The supporting documentation for right-of-way acquisition cost estimate is included in Appendix 7. The preferred SMF sites will be reviewed in a title search for any easements. This review will continue during the design phase of the project.

Considered Alternatives

Offsite Ponds: A minimum of three offsite SMF alternatives were considered for each basin within the project area. These alternatives include both wet detention and dry retention facilities, depending on site conditions and regulatory requirements. Each alternative was evaluated based on treatment volume, constructability, environmental impacts, and overall cost. These offsite pond alternatives for each basin can be found in the aerial-based drainage map in Appendix 6.

Linear Ponds: Linear ponds were considered for some basins and are typically located within or immediately adjacent to the proposed right-of-way. These facilities are used primarily for water quality as a treatment train. The typical linear pond cross section is assumed to have a 1:6 front slope, 1:3 back slope, and a minimum 5-foot bottom width, with geometry adjusted as needed to match available ROW and longitudinal grade. In the area with linear ponds, the BCWE is generally coincided with the weir elevation of the linear ponds per FDOT Drainage Manual Section 5.4.1.5. Therefore, the roadway profile and the reconstruction limit adjustments with the implementation of linear ponds and their costs are reflected in Construction Cost and mainline ROW estimate. These linear pond alternatives for certain basins can be found in the aerial-based drainage map in Appendix 6.

Existing Storage Consideration

Due to the elimination of existing linear ponds, the treatment and attenuation volumes of those linear ponds are proposed to be restored within the proposed SMFs. Given all existing linear ponds are dry retention, they provided were permitted to treat 0.5-inch of runoff. When the SMFs are wet detention SMFs, the proposed SMFs will need to provide 1.0-inch of runoff; therefore, the restored treatment volume in the proposed wet detention SMF is twice the existing dry retention treatment volume.

3.1 Basin 0901

3.1.1 Pre-Development Analysis

Basin 1 is an open basin extending from Station 4002+30 to Station 4060+18 on the left side of SR 70. Under existing conditions, there is a dual ditch system located at segments north and south of the road that collects stormwater runoff. The ditch closest to the road collects stormwater runoff sheet flowing off the roadway and adjacent lands. The ditch furthest from the road collects stormwater runoff sheet flowing from offsite areas. Both ditches along with swales discharge to a cross drain near Station 4014+80, which connects to Durrance Branch and ultimately Joshua Creek above Peace River. There are twelve linear ponds identified in ERP #32402.000 and ERP #32402.001 that provide both treatment and attenuation under existing conditions. Relevant excerpts from this permit can be found in Appendix 9. The predominant soils within the basin are Basinger Fine Sand**,** Smyrna Fine Sand, Immokalee Fine Sand, and Ona Fine Sand, classified as Hydrologic Soil Group A/D and B/D.

3.1.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 0901. The post-development basin extends from Station 4002+30 to Station 4066+00, consisting of milling and resurfacing as well as new construction in the eastbound and westbound directions. Of the twelve existing ponds, four are impacted by the proposed improvements. The treatment and attenuation of the existing ponds impacted are considered in the sizing of the proposed sites. These impacts are addressed by the proposed SMF alternatives, which provide equivalent or greater treatment and attenuation volumes. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems and conveyed to the proposed SMFs for treatment and attenuation. The predominant soils within the post-development basin are Basinger Fine Sand**,** Smyrna Fine Sand, Immokalee Fine Sand, Ona Fine Sand, Anclote Mucky Fine Sand, and Pompano Fine Sand, classified as Hydrologic Soil Group A/D and B/D.

3.1.3 Alternative 1

SMF 0901A is a 6.74-acre wet detention pond located on the left side of the roadway from Station 4028+36 to Station 4034+64. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4022+04 and ends at Station 4066+00. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 0901A is 63.50 feet, with a proposed LEOP of 64.92 feet and a SHGWT elevation of 62.50 feet. The required attenuation volume is 6.54 acre-feet, while 6.89 acre-feet is provided.

The predominant soils at this location are Pompano Fine Sand and Smyrna Fine Sand, which are classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Medium. This site has a Medium potential to impact protected, threatened, or endangered species, with a species mitigation cost of $10,000. No wetland or conservation land impacts are anticipated with this alternative.

Old SR 18/Mahon Avenue linear path, which is a Section 4(f) area, is located near the site, with potential impacts. A Florida Power and Light (FPL) transmission line is present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $2,119,894.

3.1.4 Alternative 2

SMF 0901B is a 5.79-acre wet detention pond located on the left side of the roadway from Station 4041+66 to Station 4046+54. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to

the pond begins at Station 4022+04 and ends at Station 4066+00. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 0901B is 63.50 feet, with a proposed LEOP of 64.92 feet and a SHGWT elevation of 59.20 feet taken from a wetland indicator documented at the outfall location. The control elevation is based on the biological indicator, WLPT-114-LT-3, at the cross drain at Station 4015+31. The pond is assumed to require a liner. The required attenuation volume is 8.40 acre-feet, while 9.14 acre-feet is provided.

The predominant soil at this location is Basinger Fine Sand, which is classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [2100] Cropland and Pastureland and [5300] Reservoirs. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a Medium potential to impact protected, threatened, or endangered species, with a species mitigation cost of $10,000. Estimated wetland impacts are 3.02 acres, with a wetland mitigation cost of $302,000. No conservation land impacts are anticipated with this alternative.

Old SR 18/Mahon Avenue linear path, which is a Section 4(f) area, is located near the site, with potential impacts. A Florida Power and Light (FPL) transmission line is present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are floodplain impacts; however, the existing floodplain storage was incorporated into the proposed pond volume, as seen in the existing storage section of the pond calculations in Appendix 3. Therefore, no net loss of floodplain storage will occur, and no compensation cost is required. Total cost is estimated to be $3,477,106.

3.1.5 Alternative 3

Alternative 3 includes SMF 0901C and SMF 0901D. Runoff collected in this basin will be conveyed to SMF 0901C, which is a 1.34-acre wet detention pond located on the left side of the roadway from Station 4025+02 to Station 4027+98. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4021+59 and ends at Station 4066+00. After treatment and attenuation at SMF 0901C, runoff is conveyed to SMF 0901D. SMF 0901D is a 2.72-acre wet detention pond located on the left side of the roadway from Station 4021+75 to Station 4024+09. The two ponds will be connected by an equalizer pipe to allow flow between them. Following attenuation at SMF 0901D, runoff is discharged to the outfall.

The estimated ground elevation at SMF 0901C and SMF 0901D is 64.00 feet. The proposed LEOP within the basin is 64.92 feet. The SHGWT elevation for SMF 0901C and SMF 0901D is 61.80 feet. The required attenuation volume for the alternative is 4.70 acre-feet, while 4.84 acre-feet is provided.

The predominant soils at this location are Anclote Mucky Fine Sand and Smyrna Fine Sand, which are classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources for this alternative are rated Low. The hazardous material risk rating is Medium for this alternative. This alternative has a Low potential to impact protected, threatened, or endangered species, with a species mitigation cost of $5,000. No wetland or conservation land impacts are anticipated with this alternative.

Old SR 18/Mahon Avenue linear path, which is a Section 4(f) area, is located near the sites, with potential impacts. A Florida Power and Light (FPL) transmission line is present near the sites, with no potential impacts. Two parcels are affected, requiring a partial take (P) and whole take (WT) of another. There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $4,507,593.

Table 3-1 Basin 0901 SMF Alternatives

Basin Condition: One SMF is required	Roadway Basin 0901 SMF Alternatives			
	Alt. 1	Alt. 2	Alt. 3	
	SMF 0901A	SMF 0901B	SMF 0901C	SMF 0901D
POND DESCRIPTION	WET	LINER	WET	WET
LOCATION (BEGIN STATION)	4028+36.24	4041+66.94	4025+02.95	4021+75.90
LOCATION (END STATION)	4034+63.01	4046+53.39	4027+97.76	4024+08.55
SIDE (LT, RT)	LT	LT	LT	LT
SMF AREA (ACRES)	6.74	5.79	1.34	2.72
RIGHT-OF-WAY REQUIRED (ACRES)	8.47	7.31	2.34	3.81
EASEMENT REQUIRED (ACRES)	0.00	0.00	0.06	0.00
EST. GROUND ELEVATION (FT) @ SMF SITE	63.50	63.50	64.00	64.00
PROPOSED LEOP WITHIN BASIN (FT)	64.92	64.92	64.92	64.92
EST. SHWL AT SITE (OUTFALL FOR LINER) (FT)	62.50	59.20	61.80	61.80
TREATMENT VOLUME REQUIRED (ACRE-FEET)	0.86	0.86	0.86	
TREATMENT VOLUME PROVIDED (ACRE-FEET)	1.12	0.93	0.88	
ATTENUATION VOLUME REQUIRED (ACRE-FEET)	6.54	8.40	4.70	
ATTENUATION VOLUME PROVIDED (ACRE-FEET)	6.89	9.14	4.84	
SOILS NAME	[31] POMPANO [36] SMYRNA	[3] BASINGER	[36] SMYRNA	[2] ANCLOTE [36] SMYRNA
HYDROLOGIC SOIL GROUP	A/D	A/D	A/D	A/D
LAND USE	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland [5300] Reservoirs	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland
FLOODPLAIN IMPACTS (ACRE-FEET)	0.00	0.00	0.00	
FLOODPLAIN COMPENSATION COST	$0.00	$0.00	$0.00	
RECORDED HISTORICAL STRUCTURES/RESOURCES	LOW	LOW	LOW	
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	MEDIUM	LOW	MEDIUM	
PROTECTED, THREATENED, & ENDANGERED SPECIES	MEDIUM	MEDIUM	LOW	
SPECIES MITIGATION COST	$10,000	$10,000	$5,000	
MAJOR UTILITIES PRESENT	FPL	FPL	FPL	FPL
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N	N
SECTION 4(F) PRESENT	Old SR 18/Mahon Avenue linear path	Old SR 18/Mahon Avenue linear path	Old SR 18/Mahon Avenue linear path	
SECTION 4(F) IMPACTED (Y/N)	Y	Y	Y	
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00	
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00	
ESTIMATED WETLAND IMPACTS (ACRES)	0.00	3.02	0.00	
WETLAND MITIGATION COST	$0.00	$302,000	$0.00	
NUMBER OF PARCELS	1	1	1	1
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P	WT
ESTIMATED CONSTRUCTION COST	$1,624,894	$2,590,106	$1,492,593	
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$485,000	$575,000	$1,175,000	$1,835,000
TOTAL ESTIMATED COSTS	**$2,119,894**	**$3,477,106**	**$4,507,593**	
RECOMMENDED SMF ALTERNATIVE	**SMF 0901A**			

3.1.6 Recommended SMF Site

SMF 0901A

PROS

1. Least expensive alternative
2. No wetland impacts

CONS

1. Medium hazardous material risk rating

SMF 0901B

PROS

1. Low Hazardous Material Rating

CONS

1. Most expensive construction cost
2. Risk associated with liner
3. Existing storage impacts
4. Most wetland impacts anticipated
5. Distance to outfall

SMF 0901C and SMF 0901D

PROS

1. No wetland impacts
2. Least amount of species impacts

CONS

1. Most expensive alternative
2. Most expensive right-of-way cost

Recommendation

Based on an evaluation of total cost, construction cost, wetland impacts, species impacts, and hazardous material risk rating, SMF 0901A was selected as the preferred alternative for Roadway Basin 0901.

Supporting documentation, including the completed SMF comparison table and cost estimates, can be found in Appendix 7.

3.2 Basin 0902

3.2.1 Pre-Development Analysis

Basin 2 is an open basin extending from Station 4060+18 to Station 4160+49 on the right side of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway, adjacent lands, and offsite areas and is conveyed by roadside ditches and swales before discharging to a box culvert near Station 4106+00, which connects to Whidden Branch and ultimately Joshua Creek above Peace River. There are no linear ponds identified in existing ERPs. The predominant soils

within the basin are Zolfo Fine Sand, Basinger Fine Sand, EauGallie Fine Sand, Malabar Fine Sand, Smyrna Fine Sand, Immokalee Fine Sand, and Ona Fine Sand, classified as Hydrologic Soil Groups A, A/D, and B/D.

3.2.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 0902. The post-development basin extends from Station 4066+00 to Station 4163+75, consisting of milling and resurfacing as well as new construction in the eastbound and westbound directions. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems and conveyed to the proposed SMFs for treatment and attenuation. The predominant soils within the post-development basin are Zolfo Fine Sand**,** Basinger Fine Sand, EauGallie Fine Sand, Malabar Fine Sand, Smyrna Fine Sand, Farmton Fine Sand, Immokalee Fine Sand, and Ona Fine Sand, classified as Hydrologic Soil Groups A, A/D, and B/D.

3.2.3 Alternative 1

SMF 0902A is a 2.10-acre wet detention pond located on the right side of the roadway from Station 4112+79 to Station 4116+91. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4112+67 and ends at Station 4163+75. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 0902A is 59.00 feet, with a proposed LEOP of 61.18 feet and a SHGWT elevation of 52.40 feet taken from a wetland indicator documented at the outfall location. The control elevation is based on the biological indicators, SH9-21, SH9-22, and WLPT-206-R-L-7, at the cross drain at Station 4106+43. The pond is assumed to have a liner. The required attenuation volume is 3.87 acre-feet, while 3.87 acre-feet is provided.

The predominant soil at this location is Smyrna Fine Sand, which is classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [1100] Residential Low Density and [6150] Stream and Lake Swamps. Recorded historical resources at this location are rated Medium. The hazardous material risk rating is Low. This site has a Medium potential to impact protected, threatened, or endangered species, with a species mitigation cost of $10,000. Estimated wetland impacts are 1.03 acres, with a wetland mitigation cost of $103,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Gas Transmission (FGT) gas pipeline is present near the site, with no potential impacts. Two parcels are affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,837,676.

3.2.4 Alternative 2

SMF 0902B is a 2.55-acre wet detention pond located on the right side of the roadway from Station 4096+60 to Station 4100+37. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4066+00 and ends at Station 4106+80. Due to the site location, part of the contributing drainage area is on the east side of the Whidden Creek bridge, presenting the challenge of running a pipe crossing beneath the creek to convey water to the pond. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 0902B is 59.00 feet, with a proposed LEOP of 61.17 feet and a SHGWT elevation of 57.50 feet. The required attenuation volume is 4.08 acre-feet, while 4.19 acre-feet is provided.

The predominant soils at this location are Basinger Fine Sand, Smyrna Fine Sand, and Zolfo Fine Sand which are classified as Hydrologic Soil Group A and A/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a Medium potential to impact protected, threatened, or endangered species, with a species mitigation cost of $10,000. No wetland or conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Gas Transmission (FGT) gas pipeline is present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $2,741,224.

3.2.5 Alternative 3

Alternative 3 includes SMF 0902C and SMF 0902D. Runoff collected in this basin will be conveyed to a system of dry linear ponds (SMF 0902D) extending from Station 4074+00 to Station 4161+80 on the right side of the roadway. This alternative is sized to treat and attenuate the full basin, as all runoff is conveyed to linear ponds distributed throughout the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4066+00 and ends at Station 4099+40 along the eastbound lanes of the roadway. The contributing area continues along the eastbound lanes, beginning at Station 4112+80 and ending at Station 4163+75. SMF 0902D provides both treatment and attenuation. Following treatment and attenuation from SMF 0902D, runoff is conveyed to SMF 0902C. SMF 0902C is a 2.41-acre wet detention pond located on the right side of the roadway from Station 4112+79 to Station 4117+97. Following attenuation at SMF 0902C, runoff is discharged to the outfall.

The estimated ground elevation and SHGWT elevation across SMF 0902D varies. The proposed LEOP within the basin is 61.18 feet. The estimated ground elevation at SMF 0902C is 59.00 feet,

and the SHGWT elevation is 57.30 feet. The required attenuation volume for the alternative is 4.02 acre-feet, while 4.28 acre-feet is provided.

The predominant soils for this alternative are Basinger Fine Sand, Smyrna Fine Sand, EauGallie Fine Sand, Immokalee Fine Sand, and Ona Fine Sand, which are classified as Hydrologic Soil Group A/D and B/D. The land use in the SMF footprint is [1100] Residential Low Density, [1500] Industrial, [2100] Cropland and Pastureland, and [6150] Streams and Lake Swamps. Recorded historical resources for this alternative are rated Medium. The hazardous material risk rating is Low for this alternative. This alternative has a Medium potential to impact protected, threatened, or endangered species, with a species mitigation cost of $10,000. Estimated wetland impacts are 1.04 acres, with a wetland mitigation cost of $104,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the sites. A Florida Gas Transmission (FGT) gas pipeline is present near SMF 0902C, with no potential impacts. A Florida Gas Transmission (FGT) gas pipeline and a Florida Power and Light (FPL) transmission line are present near SMF 0902D, with no potential impacts. Some of the proposed linear ponds are located in areas with B/D soils, which necessitate additional base clearance. While the roadway profile was not raised as part of this study, the estimated cost to raise the profile in those locations has been included in the construction cost. A breakdown of these estimated costs is provided in Appendix 7 – Construction Cost Estimate. Five parcels are affected, requiring a partial take (P) of each. There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $11,056,561.

Table 3-2 Basin 0902 SMF Alternatives

Basin Condition: One SMF is required	Roadway Basin 0902 SMF Alternatives			
	Alt. 1	Alt. 2	Alt. 3	
	SMF 0902A	SMF 0902B	SMF 0902C	SMF 0902D
POND DESCRIPTION	LINER	WET	WET	LINEAR
LOCATION (BEGIN STATION)	4112+79.84	4096+60.16	4112+79.84	4074+00.00
LOCATION (END STATION)	4116+90.93	4100+36.76	4117+96.54	4161+80.00
SIDE (LT, RT)	RT	RT	RT	RT
SMF AREA (ACRES)	2.10	2.55	2.41	4.23
RIGHT-OF-WAY REQUIRED (ACRES)	3.61	4.31	4.57	5.37
EASEMENT REQUIRED (ACRES)	0.00	0.00	0.00	0.00
EST. GROUND ELEVATION (FT) @ SMF SITE	59.00	59.00	59.00	VARIES
PROPOSED LEOP WITHIN BASIN (FT)	61.18	61.17	61.18	61.18
EST. SHWL AT SITE (OUTFALL FOR LINER) (FT)	52.40	57.50	57.30	VARIES
TREATMENT VOLUME REQUIRED (ACRE-FEET)	0.70	0.70	0.35	
TREATMENT VOLUME PROVIDED (ACRE-FEET)	0.93	0.71	1.27	
ATTENUATION VOLUME REQUIRED (ACRE-FEET)	3.87	4.08	4.02	
ATTENUATION VOLUME PROVIDED (ACRE-FEET)	3.87	4.19	4.28	
SOILS NAME	[36] SMYRNA	[3] BASINGER [36] SMYRNA [42] ZOLFO	[25] ONA [36] SMYRNA	[3] BASINGER [13] EAUGALLIE [20] IMMOKALEE [25] ONA [36] SMYRNA
HYDROLOGIC SOIL GROUP	A/D	A A/D	A/D B/D	A/D B/D
LAND USE	[1100] Residential Low Density [6150] Stream and Lake Swamps	[2100] Cropland and Pastureland	[1100] Residential Low Density [6150] Stream and Lake Swamps	[1100] Residential Low Density [1500] Industrial [2100] Cropland and Pastureland
FLOODPLAIN IMPACTS (ACRE-FEET)	0.00	0.00	0.00	
FLOODPLAIN COMPENSATION COST	$0.00	$0.00	$0.00	
RECORDED HISTORICAL STRUCTURES/RESOURCES	MEDIUM	LOW	MEDIUM	
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	LOW	LOW	LOW	
PROTECTED, THREATENED, & ENDANGERED SPECIES	MEDIUM	MEDIUM	MEDIUM	
SPECIES MITIGATION COST	$10,000	$10,000	$10,000	
MAJOR UTILITIES PRESENT	FGT	FGT	FGT	FPL & FGT
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N	N
SECTION 4(F) PRESENT	N/A	N/A	N/A	
SECTION 4(F) IMPACTED (Y/N)	N	N	N	
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00	
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00	
ESTIMATED WETLAND IMPACTS (ACRES)	1.03	0.00	1.04	
WETLAND MITIGATION COST	$103,000	$0	$104,000	
NUMBER OF PARCELS	2	1	2	3
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P	P
ESTIMATED CONSTRUCTION COST	$1,524,676	$2,456,224	$10,297,561	
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$200,000	$275,000	$220,000	$425,000
TOTAL ESTIMATED COSTS	**$1,837,676**	**$2,741,224**	**$11,056,561**	
RECOMMENDED SMF ALTERNATIVE	**SMF 0902A**			

3.2.6 Recommended SMF Site

SMF 0902A

PROS

1. Least expensive alternative
2. Least expensive construction cost

CONS

1. Risk associated with liner
2. Wetland impacts anticipated

SMF 0902B

PROS

1. Second least expensive alternative
2. No wetlands impacted

CONS

1. Second most expensive construction cost

SMF 0902C and SMF 0902D

PROS

1. Least treatment volume required

CONS

1. Most expensive alternative
2. Most wetland impacts anticipated

Recommendation

Based on an evaluation of total cost, construction cost, wetland impacts, liner concerns, and treatment volume considerations, SMF 0902A was selected as the preferred alternative for Roadway Basin 0902.

Supporting documentation, including the completed SMF comparison table and cost estimates, can be found in Appendix 7.

3.3 Basin 0903

3.3.1 Pre-Development Analysis

Basin 3 is an open basin extending from Station 4160+49 to Station 4210+77 in the westbound direction and Station 4160+49 to Station 4207+10 in the eastbound direction of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway, adjacent lands, and offsite areas and is conveyed by roadside ditches and swales before discharging to a cross drain near Station 4177+60, which connects to a floodplain area and ultimately Joshua Creek above Peace River. There are no linear ponds identified in existing ERPs. The predominant soils within the basin are Eaugallie Fine Sand, Malabar Fine Sand, Wabasso Fine Sand, Smyrna Fine Sand, and Farmton Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.3.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 0903. The post-development basin extends from Station 4163+75 to Station 4210+05, consisting of milling and resurfacing as well as new construction in the eastbound and westbound directions. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems and conveyed to the proposed SMFs for treatment and attenuation. The predominant soils within the post-development basin are Anclote Mucky Fine Sand, EauGallie Fine Sand, Malabar Fine Sand, Wabasso Fine Sand, Smyrna Fine Sand, and Farmton Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.3.3 Alternative 1

SMF 0903A is a 0.92-acre wet detention pond located on the right side of the roadway from Station 4179+51 to Station 4182+63. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4178+40 and ends at Station 4210+05. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 0903A is 60.00 feet, with a proposed LEOP of 64.63 feet and a SHGWT elevation of 59.60 feet. The required attenuation volume is 1.39 acre-feet, while 1.52 acre-feet is provided.

The predominant soils at this location are Anclote Mucky Fine Sand, Malabar Fine Sand, and Smyrna Fine Sand which are classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a Low potential to impact protected, threatened, or endangered species, with a species mitigation cost of $5,000. Estimated wetland impacts are 0.02 acres, with a wetland mitigation cost of $2,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas or major utilities located near the site. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $925,267.

3.3.4 Alternative 2

SMF 0903B is a 1.32-acre wet detention pond located on the left side of the roadway from Station 4178+46 to Station 4181+98. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4178+00 and ends at Station 4210+05. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 0903B is 62.50 feet, with a proposed LEOP of 64.63 feet and a SHGWT elevation of 61.00 feet. The required attenuation volume is 1.56 acre-feet, while 1.73 acre-feet is provided.

The predominant soils at this location are Malabar Fine Sand and Smyrna Fine Sand, which are classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated High. The hazardous material risk rating is Low. This site has a Low potential to impact protected, threatened, or endangered species, with a species mitigation cost of $5,000. Estimated wetland impacts are 0.04 acres, with a wetland mitigation cost of $4,000. No conservation land impacts are anticipated with this alternative.

Old SR 18/Mahon Avenue linear path, which is a Section 4(f) area, is located near the site, with potential impacts. A Florida Gas Transmission (FGT) gas pipeline and a Florida Power and Light (FPL) transmission line are present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $878,562.

3.3.5 Alternative 3

SMF 0903C consists of dry linear ponds located on the right side of the roadway from Station 4168+20 to Station 4197+00. This alternative is sized to treat and attenuate the full basin, as all runoff is conveyed to linear ponds distributed throughout the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4163+75 and ends at Station 4173+00 along the eastbound lanes of the roadway. The contributing area continues along the eastbound lanes, beginning at Station 4178+40 and ending at Station 4210+05. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation and SHGWT elevation vary across the pond system. The proposed LEOP within the basin is 64.63 feet. The required attenuation volume is 1.21 acre-feet, while 1.35 acre-feet is provided.

The soils within the SMF footprint include Farmton Fine Sand, Malabar Fine Sand, Smyrna Fine Sand, and Wabasso Fine Sand, classified as Hydrologic Soil Groups A/D and B/D. The land use in the SMF footprint includes [2100] Cropland and Pastureland and [2600] Other Open Lands. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Medium. This site has a Low potential to impact protected, threatened, or endangered species, with no species mitigation cost. No wetland or conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Power and Light (FPL) transmission line is present near the site, with no potential impacts. Some of the proposed linear ponds are located in areas with B/D soils, which necessitate additional base clearance. While the roadway

profile was not raised as part of this study, the estimated cost to raise the profile in those locations has been included in the construction cost. A breakdown of these estimated costs is provided in Appendix 7 – Construction Cost Estimate. Two parcels are affected, requiring a partial take (P) of each. There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $2,408,597.

Table 3-3 Basin 0903 SMF Alternatives

Basin Condition: One SMF is required	Roadway Basin 0903 SMF Alternatives		
	Alt. 1	Alt. 2	Alt. 3
	SMF 0903A	SMF 0903B	SMF 0903C
POND DESCRIPTION	WET	WET	LINEAR
LOCATION (BEGIN STATION)	4179+51.12	4178+46.85	4168+20.00
LOCATION (END STATION)	4182+62.16	4181+97.91	4197+00.00
SIDE (LT, RT)	RT	LT	RT
SMF AREA (ACRES)	0.92	1.32	2.76
RIGHT-OF-WAY REQUIRED (ACRES)	1.85	2.66	1.70
EASEMENT REQUIRED (ACRES)	0.11	0.00	0.37
EST. GROUND ELEVATION (FT) @ SMF SITE	60.00	62.50	VARIES
PROPOSED LEOP WITHIN BASIN (FT)	64.63	64.63	64.63
EST. SHWL AT SITE (OUTFALL FOR LINER) (FT)	59.60	61.00	VARIES
TREATMENT VOLUME REQUIRED (ACRE-FEET)	0.34	0.34	0.17
TREATMENT VOLUME PROVIDED (ACRE-FEET)	0.46	0.46	0.57
ATTENUATION VOLUME REQUIRED (ACRE-FEET)	1.39	1.56	1.21
ATTENUATION VOLUME PROVIDED (ACRE-FEET)	1.52	1.73	1.35
SOILS NAME	[2] ANCLOTE [21] MALABAR [36] SMYRNA	[21] MALABAR [36] SMYRNA	[14] FARMTON [21] MALABAR [36] SMYRNA [41] WABASSO
HYDROLOGIC SOIL GROUP	A/D	A/D	A/D B/D
LAND USE	[2100] Pastureland and Cropland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland [2600] Other Open Lands
FLOODPLAIN IMPACTS (ACRE-FEET)	0.00	0.00	0.00
FLOODPLAIN COMPENSATION COST	$0.00	$0.00	$0.00
RECORDED HISTORICAL STRUCTURES/RESOURCES	LOW	HIGH	LOW
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	LOW	LOW	MEDIUM
PROTECTED, THREATENED, & ENDANGERED SPECIES	LOW	LOW	LOW
SPECIES MITIGATION COST	$5,000	$5,000	$0
MAJOR UTILITIES PRESENT	N/A	FPL & FGT	FPL
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N
SECTION 4(F) PRESENT	N/A	Old SR 18/Mahon Avenue linear path	N/A
SECTION 4(F) IMPACTED (Y/N)	N	Y	N
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00
ESTIMATED WETLAND IMPACTS (ACRES)	0.02	0.04	0.00
WETLAND MITIGATION COST	$2,000	$4,000	$0
NUMBER OF PARCELS	1	1	2
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P
ESTIMATED CONSTRUCTION COST	$768,267	$684,562	$2,118,597
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$150,000	$185,000	$290,000
TOTAL ESTIMATED COSTS	**$925,267**	**$878,562**	**$2,408,597**
RECOMMENDED SMF ALTERNATIVE	**SMF 0903B**		

3.3.6 Recommended SMF Site

SMF 0903A

PROS	CONS
1. Second least expensive alternative	1. Second most expensive construction cost
2. Least expensive right-of-way cost	2. Wetland impacts anticipated

SMF 0903B

PROS	CONS
1. Least expensive alternative	1. Wetland impacts anticipated
2. Least expensive construction cost	2. Section 4(F) Land Impacted

SMF 0903C

PROS	CONS
1. No wetland impacts anticipated	1. Most expensive alternative
2. No species impacts anticipated	2. Medium Hazardous Material Rating

Recommendation

Based on an evaluation of total cost, construction cost, wetland impacts, species impacts, right-of-way cost, construction cost, Section 4(F) lands considerations, and hazardous material risk rating, SMF 0903B was selected as the preferred alternative for Roadway Basin 0903.

Supporting documentation, including the completed SMF comparison table and cost estimates, can be found in Appendix 7.

3.4 Basin 0904

3.4.1 Pre-Development Analysis

Basin 4 is an open basin extending from Station 4210+77 to Station 4279+56 in the westbound direction and Station 4207+10 to Station 4279+56 in the eastbound direction of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway and adjacent lands and is conveyed by roadside ditches and swales before discharging to a box culvert near Station 4254+40, which connects to Joshua Creek above Peace River. There are no linear ponds identified in existing ERPs. The predominant soils within the basin are Zolfo Fine Sand, Anclote Mucky Fine Sand, Basinger Fine Sand, EauGallie Fine Sand, Smyrna Fine Sand, Immokalee Fine Sand, and Wabasso Fine Sand, classified as Hydrologic Soil Groups A, A/D, B/D.

3.4.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 0904. The post-development basin extends from Station 4210+05 to Station 4279+46, consisting of milling and resurfacing as well as new construction in the eastbound and westbound directions. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems and conveyed to the proposed SMFs for treatment and attenuation. The predominant soils within the post-development basin are Zolfo Fine Sand, Basinger Fine Sand, Smyrna Fine Sand, Immokalee Fine Sand, Anclote Mucky Fine Sand, Eaugallie Fine Sand, and Wabasso Fine Sand, classified as Hydrologic Soil Groups A, A/D, B/D.

3.4.3 Alternative 1

SMF 0904A is a 1.09-acre wet detention pond located on the left side of the roadway from Station 4241+41 to Station 4244+14. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4210+05 and ends at Station 4245+20. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 0904A is 63.00 feet, with a proposed LEOP of 64.09 feet and a SHGWT elevation of 55.20 feet taken from a stain line documented at the outfall location. The control elevation is based on the biological indicators, SH9-51 and SHW-354, at the cross drain at Station 4254+07. The pond is assumed to have a liner. The required attenuation volume is 2.57 acre-feet, while 2.98 acre-feet is provided.

The predominant soils at this location are EauGallie Fine Sand and Smyrna Fine Sand, which are classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [4110] Pine Flatwoods. Recorded historical resources at this location are rated High. The hazardous material risk rating is Low. This site has a Medium potential to impact protected, threatened, or endangered species, with a species mitigation cost of $12,500. Estimated wetland impacts are 0.19 acres, with a wetland mitigation cost of $19,000. No conservation land impacts are anticipated with this alternative.

Old SR 18/Mahon Avenue linear path, which is a Section 4(f) area, is located near the site, with potential impacts. A Florida Power and Light (FPL) transmission line is present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,193,290.

3.4.4 Alternative 2

SMF 0904B is a 1.08-acre wet detention pond located on the right side of the roadway from Station 4225+58 to Station 4228+63. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to

the pond begins at Station 4210+05 and ends at Station 4236+00. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 0904B is 64.30 feet, with a proposed LEOP of 64.09 feet and a SHGWT elevation of 56.70 feet. The SHGWT elevation is based on SHW-354, located at the outfall at Station 4254+07. The pond is assumed to have a liner. The required attenuation volume is 2.50 acre-feet, while 2.83 acre-feet is provided.

The predominant soils at this location are Basinger Fine Sand and Immokalee Fine Sand, which are classified as Hydrologic Soil Group A/D and B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Medium. The hazardous material risk rating is Low. This site has a Medium potential to impact protected, threatened, or endangered species, with a species mitigation cost of $15,000. No wetland or conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Power and Light (FPL) transmission line is present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $2,618,850.

3.4.5 Alternative 3

Alternative 3 includes SMF 0904C and SMF 0904D. Runoff collected in this basin will be conveyed to a system of dry linear ponds (SMF 0904D) extending from Station 4210+20 to Station 4243+40 on the right side of the roadway. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to the ponds begins at Station 4210+05 and ends at Station 4245+20. SMF 0904D provides both treatment and attenuation. Following treatment and attenuation from SMF 0904D, runoff is conveyed to SMF 0904C. SMF 0904C is a 2.59-acre wet detention pond located on the left side of the roadway from Station 4240+34 to Station 4244+11. Following attenuation at SMF 0904C, runoff is discharged to the outfall.

The estimated ground elevation and SHGWT elevation across SMF 0904D varies. The proposed LEOP within the basin is 64.09 feet. The estimated ground elevation at SMF 0904C is 63.00 feet, and the SHGWT elevation is 55.20 feet. The required attenuation volume for the alternative is 3.62 acre-feet, while 3.64 acre-feet is provided.

The predominant soils for this alternative are Basinger Fine Sand, EauGallie Fine Sand, and Smyrna Fine Sand, which are classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [1100] Residential Low Density, [2100] Cropland and Pastureland, [4110] Pine Flatwoods, [6430] Wet Prairie, and [8100] Transportation. Recorded historical resources for this alternative are rated High. The hazardous material risk rating is Low for this alternative. This alternative has a Medium potential to impact protected, threatened, or endangered species, with a

species mitigation cost of $10,000. Estimated wetland impacts are 0.27 acres, with a wetland mitigation cost of $27,000. No conservation land impacts are anticipated with this alternative.

Old SR 18/Mahon Avenue linear path, which is a Section 4(f) area, is located near the sites, with potential impacts. A Florida Power and Light (FPL) transmission line is present near SMF 0904C, with no potential impacts. A Florida Gas Transmission (FGT) gas pipeline is present near SMF 0904D, with no potential impacts. Three parcels are affected, requiring a partial take (P) of each. There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $4,099,162.

Table 3-4 Basin 0904 SMF Alternatives

Basin Condition: One SMF is required	Roadway Basin 0904 SMF Alternatives			
	Alt. 1	Alt. 2	Alt. 3	
	SMF 0904A	SMF 0904B	SMF 0904C	SMF 0904D
POND DESCRIPTION	LINER	LINER	WET	LINEAR
LOCATION (BEGIN STATION)	4241+41.14	4225+58.55	4240+34.00	4210+20.00
LOCATION (END STATION)	4244+13.76	4228+62.07	4244+10.96	4243+40.00
SIDE (LT, RT)	LT	RT	LT	RT
SMF AREA (ACRES)	1.09	1.08	2.59	1.61
RIGHT-OF-WAY REQUIRED (ACRES)	2.49	1.64	3.80	0.77
EASEMENT REQUIRED (ACRES)	0.00	1.28	0.00	0.00
EST. GROUND ELEVATION (FT) @ SMF SITE	63.00	64.30	63.00	VARIES
PROPOSED LEOP WITHIN BASIN (FT)	64.09	64.09	64.09	64.09
EST. SHWL AT SITE (OUTFALL FOR LINER) (FT)	55.20	56.70	55.20	VARIES
TREATMENT VOLUME REQUIRED (ACRE-FEET)	0.44	0.44	0.22	
TREATMENT VOLUME PROVIDED (ACRE-FEET)	0.66	0.61	0.58	
ATTENUATION VOLUME REQUIRED (ACRE-FEET)	2.57	2.50	3.62	
ATTENUATION VOLUME PROVIDED (ACRE-FEET)	2.98	2.83	3.64	
SOILS NAME	[13] EAUGALLIE [36] SMYRNA	[3] BASINGER [20] IMMOKALEE	[13] EAUGALLIE [36] SMYRNA	[3] BASINGER [13] EAUGALLIE [36] SMYRNA
HYDROLOGIC SOIL GROUP	A/D	A/D B/D	A/D	A/D
LAND USE	[4110] Pine Flatwoods	[2100] Cropland and Pastureland	[4110] Pine Flatwoods	[1100] Residential Low Density [2100] Cropland and Pastureland [6430] Wet Prairie [8100] Transportation
FLOODPLAIN IMPACTS (ACRE-FEET)	0.00	0.00	0.00	
FLOODPLAIN COMPENSATION COST	$0.00	$0.00	$0.00	
RECORDED HISTORICAL STRUCTURES/RESOURCES	HIGH	MEDIUM	HIGH	
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	LOW	LOW	LOW	
PROTECTED, THREATENED, & ENDANGERED SPECIES	MEDIUM	MEDIUM	MEDIUM	
SPECIES MITIGATION COST	$12,500	$15,000	$10,000	
MAJOR UTILITIES PRESENT	FPL	FPL	FPL	FGT
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N	N
SECTION 4(F) PRESENT	Old SR 18/Mahon Avenue linear path	N/A	Old SR 18/Mahon Avenue linear path	
SECTION 4(F) IMPACTED (Y/N)	Y	N	Y	
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00	
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00	
ESTIMATED WETLAND IMPACTS (ACRES)	0.19	0.00	0.27	
WETLAND MITIGATION COST	$19,000	$0	$27,000	
NUMBER OF PARCELS	1	1	1	2
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P	P
ESTIMATED CONSTRUCTION COST	$1,026,790	$2,408,850	$3,677,162	
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$135,000	$195,000	$225,000	$160,000
TOTAL ESTIMATED COSTS	**$1,193,290**	**$2,618,850**	**$4,099,162**	
RECOMMENDED SMF ALTERNATIVE	**SMF 0904A**			

3.4.6 Recommended SMF Site

SMF 0904A

PROS

1. Least expensive alternative
2. Least expensive construction cost

CONS

1. Wetland impacts anticipated
2. Risk associated with liner

SMF 0904B

PROS

1. No wetland impacts anticipated
2. Second lowest right-of-way cost

CONS

1. Most amount of species impacts
2. Risk associated with liner

SMF 0904C and SMF 0904D

PROS

1. Least amount of species impacts

CONS

1. Most expensive alternative
2. Most wetland impacts anticipated

Recommendation

Based on an evaluation of total cost, construction cost, wetland impacts, right-of-way cost, species impacts, and liner concerns, SMF 0904A was selected as the preferred alternative for Roadway Basin 0904.

Supporting documentation, including the completed SMF comparison table and cost estimates, can be found in Appendix 7.

3.5 Basin 1001

3.5.1 Pre-Development Analysis

Basin 5 is an open basin extending from Station 4279+56 to Station 4358+94 in the westbound direction and Station 4279+56 to Station 4362+01 in the eastbound direction of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway, adjacent lands, and offsite areas and is conveyed by roadside ditches and swales before discharging to a cross drain near Station 4297+00, which connects to Joshua Creek above Peace River. There are two linear ponds identified in ERP #33219.00 that provide both treatment and attenuation under existing conditions. Relevant excerpts from this permit can be found in Appendix 9. The predominant soils within the

basin are Basinger Fine Sand, EauGallie Fine Sand, Malabar Fine Sand, Myakka Fine Sand, Smyrna Fine Sand, and Farmton Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.5.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 1001. The post-development basin extends from Station 4279+46 to Station 4364+43, consisting of milling and resurfacing as well as new construction in the eastbound and westbound directions. Of the two existing ponds, two are impacted by the proposed improvements. The treatment and attenuation of the existing ponds impacted are considered in the sizing of the proposed sites. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems and conveyed to the proposed SMFs for treatment and attenuation. The predominant soils within the post-development basin are Basinger Fine Sand, EauGallie Fine Sand, Malabar Fine Sand, Myakka Fine Sand, Smyrna Fine Sand, and Farmton Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.5.3 Alternative 1

SMF 1001A is a 3.02-acre wet detention pond located on the right side of the roadway from Station 4299+40 to Station 4305+37. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4299+40 and ends at Station 4364+43. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1001A is 64.00 feet, with a proposed LEOP of 66.57 feet and a SHGWT elevation of 62.00 feet. The required attenuation volume is 5.72 acre-feet, while 5.98 acre-feet is provided.

The predominant soils at this location are Farmton Fine Sand, which are classified as Hydrologic Soil Group B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a Low potential to impact protected, threatened, or endangered species, with a species mitigation cost of $5,000. No wetland or conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Gas Transmission (FGT) gas pipeline is present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,800,365.

3.5.4 Alternative 2

SMF 1001B is a 3.12-acre wet detention pond located on the right side of the roadway from Station 4305+51 to Station 4309+91. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4305+60 and ends at Station 4364+43. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1001B is 63.50 feet, with a proposed LEOP of 66.57 feet and a SHGWT elevation of 62.20 feet. The required attenuation volume is 5.78 acre-feet, while 5.97 acre-feet is provided.

The predominant soils at this location are Farmton Fine Sand, which are classified as Hydrologic Soil Group B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a Low potential to impact protected, threatened, or endangered species, with a species mitigation cost of $5,000. No wetland or conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Gas Transmission (FGT) gas pipeline and a Florida Power and Light (FPL) transmission line are present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $2,411,517.

3.5.5 Alternative 3

Alternative 3 includes SMF 1001C and SMF 1001D. Runoff collected in this basin will be conveyed to a system of dry linear ponds (SMF 1001D) extending from Station 4280+20 to Station 4364+00 on the left and right side of the roadway. This alternative is sized to treat and attenuate the full basin, as all runoff is conveyed to linear ponds distributed throughout the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4298+20 and ends at Station 4364+43. SMF 1001D provides both treatment and attenuation. Following treatment and attenuation from SMF 1001D, runoff is conveyed to SMF 1001C. SMF 1001C is a 3.82-acre wet detention pond located on the left side of the roadway from Station 4301+08 to Station 4304+59. Following attenuation at SMF 1001C, runoff is discharged to the outfall.

The estimated ground elevation and SHGWT elevation across SMF 1001D varies. The proposed LEOP within the basin is 66.57 feet. The estimated ground elevation at SMF 1001C is 64.50 feet, and the SHGWT elevation is 63.90 feet. The required attenuation volume for the alternative is 6.00 acre-feet, while 6.03 acre-feet is provided.

The predominant soils for this alternative are Basinger Fine Sand, EauGallie Fine Sand, Farmton Fine Sand, Malabar Fine Sand, Myakka Fine Sand, and Smyrna Fine Sand, which are classified as

Hydrologic Soil Group A/D and B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland, [6410] Freshwater Marshes, and [8100] Transportation. Recorded historical resources for this alternative are rated Low. The hazardous material risk rating is Low for this alternative. This alternative has a Medium potential to impact protected, threatened, or endangered species, with a species mitigation cost of $10,000. Estimated wetland impacts are 0.40 acres, with a wetland mitigation cost of $40,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the sites. A Florida Power and Light (FPL) transmission line is present near the sites, with no potential impacts. Some of the proposed linear ponds are located in areas with B/D soils, which necessitate additional base clearance. While the roadway profile was not raised as part of this study, the estimated cost to raise the profile in those locations has been included in the construction cost. A breakdown of these estimated costs is provided in Appendix 7 – Construction Cost Estimate. One parcel is affected, requiring a partial take (P) of each. There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $10,621,062.

Table 3-5 Basin 1001 SMF Alternatives

Basin Condition: One SMF is required	Roadway Basin 1001 SMF Alternatives			
	Alt. 1	Alt. 2	Alt. 3	
	SMF 1001A	SMF 1001B	SMF 1001C	SMF 1001D
POND DESCRIPTION	WET	WET	WET	LINEAR
LOCATION (BEGIN STATION)	4299+40.01	4305+51.18	4301+08.25	4280+20.00
LOCATION (END STATION)	4305+36.80	4309+90.52	4304+58.86	4364+00.00
SIDE (LT, RT)	RT	RT	LT	LT & RT
SMF AREA (ACRES)	3.02	3.12	3.82	5.82
RIGHT-OF-WAY REQUIRED (ACRES)	4.44	5.40	5.71	0.00
EASEMENT REQUIRED (ACRES)	0.00	0.00	0.00	0.00
EST. GROUND ELEVATION (FT) @ SMF SITE	64.00	63.50	64.50	VARIES
PROPOSED LEOP WITHIN BASIN (FT)	66.57	66.57	66.57	66.57
EST. SHWL AT SITE (OUTFALL FOR LINER) (FT)	62.00	62.20	63.90	VARIES
TREATMENT VOLUME REQUIRED (ACRE-FEET)	1.03	1.03	0.52	
TREATMENT VOLUME PROVIDED (ACRE-FEET)	1.60	1.76	1.58	
ATTENUATION VOLUME REQUIRED (ACRE-FEET)	5.72	5.78	6.00	
ATTENUATION VOLUME PROVIDED (ACRE-FEET)	5.98	5.97	6.03	
SOILS NAME	[14] FARMTON	[14] FARMTON	[14] FARMTON	[3] BASINGER [13] EAUGALLIE [14]FARMTON [21] MALABAR [24] MYAKKA [36] SMYRNA
HYDROLOGIC SOIL GROUP	B/D	B/D	B/D	A/D B/D
LAND USE	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland [6410] Freshwater Marshes [8100] Transportation
FLOODPLAIN IMPACTS (ACRE-FEET)	0.00	0.00	0.00	
FLOODPLAIN COMPENSATION COST	$0.00	$0.00	$0.00	
RECORDED HISTORICAL STRUCTURES/RESOURCES	LOW	LOW	LOW	
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	LOW	LOW	LOW	
PROTECTED, THREATENED, & ENDANGERED SPECIES	LOW	LOW	MEDIUM	
SPECIES MITIGATION COST	$5,000	$5,000	$10,000	
MAJOR UTILITIES PRESENT	FGT	FPL & FGT	FPL	FPL
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N	N
SECTION 4(F) PRESENT	N/A	N/A	N/A	
SECTION 4(F) IMPACTED (Y/N)	N	N	N	
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00	
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00	
ESTIMATED WETLAND IMPACTS (ACRES)	0.00	0.00	0.40	
WETLAND MITIGATION COST	$0.00	$0.00	$40,000	
NUMBER OF PARCELS	1	1	1	0
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P	N/A
ESTIMATED CONSTRUCTION COST	$1,640,365	$2,201,517	$10,386,062	
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$155,000	$205,000	$185,000	$0.00
TOTAL ESTIMATED COSTS	**$1,800,365**	**$2,411,517**	**$10,621,062**	
RECOMMENDED SMF ALTERNATIVE	**SMF 1001A**			

3.5.6 Recommended SMF Site

SMF 1001A

PROS

1. Least expensive alternative
2. Least expensive construction cost
3. No wetland impacts anticipated

CONS

1. Protected species impacts anticipated

SMF 1001B

PROS

1. No wetland impacts anticipated
2. Second least expensive alternative

CONS

1. Most expensive right-of-way cost

SMF 1001C and SMF 1001D

PROS

1. Least treatment volume required

CONS

1. Most expensive alternative
2. Most wetland impacts anticipated
3. Most amount of species impacts

Recommendation

Based on an evaluation of total cost, construction cost, wetland impacts, species impacts, and right-of-way cost, SMF 1001A was selected as the preferred alternative for Roadway Basin 1001.

Supporting documentation, including the completed SMF comparison table and cost estimates, can be found in Appendix 7.

3.6 Basin 1002

3.6.1 Pre-Development Analysis

Basin 6 is an open basin extending from Station 4358+94 to Station 4416+44 in the westbound direction and Station 4362+01 to Station 4392+25 in the eastbound direction of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway, adjacent lands, and offsite areas and is conveyed by roadside ditches and swales before discharging to a cross drain near Station 4384+60, which connects to Joshua Creek above Peace River. There are four linear ponds identified in ERP #33219.00 that provide both treatment and attenuation under existing conditions. Relevant excerpts from this permit can be found in Appendix 9. The predominant soils within the

post-development basin are Malabar Fine Sand, Valkaria Fine Sand, Farmton Fine Sand, and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.6.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 1002. The post-development basin extends from Station 4364+43 to Station 4419+00, consisting of milling and resurfacing in the eastbound direction as well as new construction in the westbound direction. Of the four existing ponds, four are impacted by the proposed improvements. The treatment and attenuation of the existing ponds impacted are considered in the sizing of the proposed sites. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems and conveyed to the proposed SMFs for treatment and attenuation. The predominant soils within the post-development basin are EauGallie Fine Sand, Malabar Fine Sand, Valkaria Fine Sand, Farmton Fine Sand, and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.6.3 Alternative 1

SMF 1002A is a 2.49-acre wet detention pond located on the right side of the roadway from Station 4384+66 to Station 4389+17. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. The contributing drainage area encompasses the full basin. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1002A is 69.00 feet, with a proposed LEOP of 71.57 feet and a SHGWT elevation of 67.00 feet. The required attenuation volume is 4.93 acre-feet, while 5.24 acre-feet is provided.

The predominant soils at this location are Malabar Fine Sand, which are classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a High potential to impact protected, threatened, or endangered species, with a species mitigation cost of $22,000. Estimated wetland impacts are 0.02 acres, with a wetland mitigation cost of $2,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Gas Transmission (FGT) gas pipeline and a Florida Power and Light (FPL) transmission line are present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,662,893.

3.6.4 Alternative 2

SMF 1002B is a 3.18-acre wet detention pond located on the left side of the roadway from Station 4387+05 to Station 4392+40. This alternative is sized to treat and attenuate the new impervious

area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. The contributing drainage area encompasses the full basin. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1002B is 69.00 feet, with a proposed LEOP of 71.57 feet and a SHGWT elevation of 67.80 feet. The required attenuation volume is 5.24 acre-feet, while 5.32 acre-feet is provided.

The predominant soils at this location are Farmton Fine Sand, Malabar Fine Sand, and Valkaria Fine Sand, which are classified as Hydrologic Soil Group A/D and B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a High potential to impact protected, threatened, or endangered species, with a species mitigation cost of $22,000. Estimated wetland impacts are 0.04 acres, with a wetland mitigation cost of $4,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Power and Light (FPL) transmission line is present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,929,687.

3.6.5 Alternative 3

Alternative 3 includes SMF 1002C and SMF 1002D. Runoff collected in this basin will be conveyed to a system of dry linear ponds (SMF 1002D) extending from Station 4364+50 to Station 4396+60 on the left and right side of the roadway. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the ponds. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4364+43 and ends at Station 4419+00. SMF 1002D provides both treatment and attenuation. Following treatment and attenuation from SMF 1002D, runoff is conveyed to SMF 1002C. SMF 1002C is a 2.26-acre wet detention pond located on the right side of the roadway from Station 4384+66 to Station 4389+02. Following attenuation at SMF 1002C, runoff is discharged to the outfall.

The estimated ground elevation and SHGWT elevation across SMF 1002D varies. The proposed LEOP within the basin is 71.57 feet. The estimated ground elevation at SMF 1002C is 69.00 feet, and the SHGWT elevation is 67.40 feet. The required attenuation volume for the alternative is 4.86 acre-feet, while 5.13 acre-feet is provided.

The predominant soils for this alternative are Farmton Fine Sand, Immokalee Fine Sand, Malabar Fine Sand, and Valkaria Fine Sand, which are classified as Hydrologic Soil Group A/D and B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources for this alternative are rated Low. The hazardous material risk rating is Low for this

alternative. This alternative has a High potential to impact protected, threatened, or endangered species, with a species mitigation cost of $20,000. Estimated wetland impacts are 0.02 acres, with a wetland mitigation cost of $2,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the sites. A Florida Gas Transmission (FGT) gas pipeline and a Florida Power and Light (FPL) transmission line are present near the sites, with no potential impacts. Some of the proposed linear ponds are located in areas with B/D soils, which necessitate additional base clearance. While the roadway profile was not raised as part of this study, the estimated cost to raise the profile in those locations has been included in the construction cost. A breakdown of these estimated costs is provided in Appendix 7 – Construction Cost Estimate. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $4,270,398.

Table 3-6 Basin 1002 SMF Alternatives

Basin Condition: One SMF is required	Roadway Basin 1002 SMF Alternatives			
	Alt. 1	Alt. 2	Alt. 3	
	SMF 1002A	SMF 1002B	SMF 1002C	SMF 1002D
POND DESCRIPTION	WET	WET	WET	LINEAR
LOCATION (BEGIN STATION)	4384+66.29	4387+05.49	4384+66.34	4364+50.00
LOCATION (END STATION)	4389+16.68	4392+39.87	4389+01.68	4396+60.00
SIDE (LT, RT)	RT	LT	RT	LT & RT
SMF AREA (ACRES)	2.49	3.18	2.26	2.77
RIGHT-OF-WAY REQUIRED (ACRES)	3.47	4.27	3.15	0.00
EASEMENT REQUIRED (ACRES)	0.34	0.37	0.34	0.00
EST. GROUND ELEVATION (FT) @ SMF SITE	69.00	69.00	69.00	VARIES
PROPOSED LEOP WITHIN BASIN (FT)	71.57	71.57	71.57	71.57
EST. SHWL AT SITE (OUTFALL FOR LINER) (FT)	67.00	67.80	67.40	VARIES
TREATMENT VOLUME REQUIRED (ACRE-FEET)	0.78	0.78	0.39	
TREATMENT VOLUME PROVIDED (ACRE-FEET)	0.98	1.13	0.89	
ATTENUATION VOLUME REQUIRED (ACRE-FEET)	4.93	5.24	4.86	
ATTENUATION VOLUME PROVIDED (ACRE-FEET)	5.24	5.32	5.13	
SOILS NAME	[21] MALABAR	[14] FARMTON [21] MALABAR [40] VALKARIA	[21] MALABAR	[14] FARMTON [20] IMMOKALEE [21] MALABAR [40] VALKARIA
HYDROLOGIC SOIL GROUP	A/D	A/D B/D	A/D	A/D B/D
LAND USE	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland
FLOODPLAIN IMPACTS (ACRE-FEET)	0.00	0.00	0.00	
FLOODPLAIN COMPENSATION COST	$0.00	$0.00	$0.00	
RECORDED HISTORICAL STRUCTURES/RESOURCES	LOW	LOW	LOW	
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	LOW	LOW	LOW	
PROTECTED, THREATENED, & ENDANGERED SPECIES	HIGH	HIGH	HIGH	
SPECIES MITIGATION COST	$22,000	$22,000	$20,000	
MAJOR UTILITIES PRESENT	FPL & FGT	FPL	FPL & FGT	FPL & FGT
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N	N
SECTION 4(F) PRESENT	N/A	N/A	N/A	
SECTION 4(F) IMPACTED (Y/N)	N	N	N	
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00	
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00	
ESTIMATED WETLAND IMPACTS (ACRES)	0.02	0.04	0.02	
WETLAND MITIGATION COST	$2,000	$4,000	$2,000	
NUMBER OF PARCELS	1	1	1	0
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P	N/A
ESTIMATED CONSTRUCTION COST	$1,488,893	$1,728,687	$3,923,398	
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$150,000	$175,000	$140,000	$185,000.00
TOTAL ESTIMATED COSTS	**$1,662,893**	**$1,929,687**	**$4,270,398**	
RECOMMENDED SMF ALTERNATIVE	**SMF 1002A**			

3.6.6 Recommended SMF Site

SMF 1002A

PROS	CONS
1. Least expensive alternative 2. Least expensive construction cost	1. Second most expensive right-of-way cost

SMF 1002B

PROS	CONS
1. Second least expensive alternative	1. Most wetland impacts anticipated 2. Most expensive right-of-way cost

SMF 1002C and SMF 1002D

PROS	CONS
1. Least amount of species impacts	1. Most expensive alternative

Recommendation

Based on an evaluation of total cost, construction cost, wetland impacts, species impacts, and right-of-way cost, SMF 1002A was selected as the preferred alternative for Roadway Basin 1002.

Supporting documentation, including the completed SMF comparison table and cost estimates, can be found in Appendix 7.

3.7 Basin 1003

3.7.1 Pre-Development Analysis

Basin 7 is an open basin extending from Station 4416+44 to Station 4465+05 in the westbound direction and Station 4392+24 to Station 4465+70 in the eastbound direction of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway, adjacent lands, and offsite areas and is conveyed by roadside ditches and swales before discharging to a cross drain near Station 4419+00, which connects to Tiger Bay above Peace River. There are three linear ponds identified in ERP #33219.00 that provide both treatment and attenuation under existing conditions. Relevant excerpts from this permit can be found in Appendix 9. The predominant soils within the basin are EauGallie Fine Sand, Malabar Fine Sand, Valkaria Fine Sand, Farmton Fine Sand, and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.7.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 1003. The post-development basin extends from Station 4419+00 to Station 4489+26, consisting of milling and resurfacing as well as new construction in the eastbound and westbound directions. Of the three existing ponds, three are impacted by the proposed improvements. The treatment and attenuation of the existing ponds impacted are considered in the sizing of the proposed sites. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems and conveyed to the proposed SMFs for treatment and attenuation. The predominant soils within the post-development basin are EauGallie Fine Sand, Malabar Fine Sand, Farmton Fine Sand, and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.7.3 Alternative 1

SMF 1003A is a 3.39-acre wet detention pond located on the right side of the roadway from Station 4439+40 to Station 4444+16. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4439+00 and ends at Station 4489+26. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1003A is 74.00 feet, with a proposed LEOP of 75.91 feet and a SHGWT elevation of 72.10 feet. The required attenuation volume is 4.40 acre-feet, while 4.52 acre-feet is provided.

The predominant soils at this location are EauGallie Fine Sand, which are classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a Medium potential to impact protected, threatened, or endangered species, with a species mitigation cost of $12,000. Estimated wetland impacts are 0.06 acres, with a wetland mitigation cost of $6,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Gas Transmission (FGT) gas pipeline is present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,638,554.

3.7.4 Alternative 2

SMF 1003B is a 2.84-acre wet detention pond located on the left side of the roadway from Station 4438+91 to Station 4443+69. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station

4438+60 and ends at Station 4489+26. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1003B is 74.00 feet, with a proposed LEOP of 75.91 feet and a SHGWT elevation of 71.70 feet. The required attenuation volume is 3.93 acre-feet, while 4.31 acre-feet is provided.

The predominant soils at this location are EauGallie Fine Sand and Farmton Fine Sand, which are classified as Hydrologic Soil Group A/D and B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a Medium potential to impact protected, threatened, or endangered species, with a species mitigation cost of $11,000. Estimated wetland impacts are 0.14 acres, with a wetland mitigation cost of $14,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas or major utilities located near the site. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,248,750.

3.7.5 Alternative 3

Alternative 3 includes SMF 1003C and SMF 1003D. Runoff collected in this basin will be conveyed to a system of dry linear ponds (SMF 1003D) extending from Station 4430+70 to Station 4476+90 on the left and right side of the roadway. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4430+70 and ends at Station 4489+26. SMF 1003D provides both treatment and attenuation. Following treatment and attenuation from SMF 1003D, runoff is conveyed to SMF 1003C. SMF 1003C is a 1.40-acre wet detention pond located on the left side of the roadway from Station 4438+91 to Station 4442+19. Following attenuation at SMF 1003C, runoff is discharged to the outfall.

The estimated ground elevation and SHGWT elevation across SMF 1003D varies. The proposed LEOP within the basin is 75.91 feet. The estimated ground elevation at SMF 1003C is 74.00 feet, and the SHGWT elevation is 71.70 feet. The required attenuation volume for the alternative is 3.60 acre-feet, while 3.84 acre-feet is provided.

The predominant soils for this alternative are EauGallie Fine Sand, Farmton Fine Sand, and Malabar Fine Sand, which are classified as Hydrologic Soil Group A/D and B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources for this alternative are rated Low. The hazardous material risk rating is Low for this alternative. This alternative has a Medium potential to impact protected, threatened, or endangered species, with a

species mitigation cost of $10,000. Estimated wetland impacts are 0.10 acres, with a wetland mitigation cost of $10,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas or major utilities located near the sites. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $4,477,666.

Table 3-7 Basin 1003 SMF Alternatives

Basin Condition: One SMF is required	Roadway Basin 1003 SMF Alternatives			
	Alt. 1	Alt. 2	Alt. 3	
	SMF 1003A	SMF 1003B	SMF 1003C	SMF 1003D
POND DESCRIPTION	WET	WET	WET	LINEAR
LOCATION (BEGIN STATION)	4439+40.00	4438+91.86	4438+91.86	4430+70.00
LOCATION (END STATION)	4444+15.94	4443+68.71	4442+18.39	4476+90.00
SIDE (LT, RT)	RT	LT	LT	LT & RT
SMF AREA (ACRES)	3.39	2.84	1.40	3.97
RIGHT-OF-WAY REQUIRED (ACRES)	4.62	3.94	2.21	0.00
EASEMENT REQUIRED (ACRES)	0.63	0.16	0.17	0.00
EST. GROUND ELEVATION (FT) @ SMF SITE	74.00	74.00	74.00	VARIES
PROPOSED LEOP WITHIN BASIN (FT)	75.91	75.91	75.91	75.91
EST. SHWL AT SITE (OUTFALL FOR LINER) (FT)	72.10	71.70	71.70	VARIES
TREATMENT VOLUME REQUIRED (ACRE-FEET)	0.77	0.77	0.39	
TREATMENT VOLUME PROVIDED (ACRE-FEET)	1.26	1.21	1.14	
ATTENUATION VOLUME REQUIRED (ACRE-FEET)	4.40	3.93	3.60	
ATTENUATION VOLUME PROVIDED (ACRE-FEET)	4.52	4.31	3.84	
SOILS NAME	[13] EAUGALLIE	[13] EAUGALLIE [14] FARMTON	[13] EAUGALLIE [14] FARMTON	[13] EAUGALLIE [21] MALABAR
HYDROLOGIC SOIL GROUP	A/D	A/D B/D	A/D B/D	A/D
LAND USE	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland
FLOODPLAIN IMPACTS (ACRE-FEET)	0.00	0.00	0.00	
FLOODPLAIN COMPENSATION COST	$0.00	$0.00	$0.00	
RECORDED HISTORICAL STRUCTURES/RESOURCES	LOW	LOW	LOW	
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	LOW	LOW	LOW	
PROTECTED, THREATENED, & ENDANGERED SPECIES	MEDIUM	MEDIUM	MEDIUM	
SPECIES MITIGATION COST	$12,000	$11,000	$10,000	
MAJOR UTILITIES PRESENT	FGT	N/A	N/A	N/A
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N	N
SECTION 4(F) PRESENT	N/A	N/A	N/A	
SECTION 4(F) IMPACTED (Y/N)	N	N	N	
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00	
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00	
ESTIMATED WETLAND IMPACTS (ACRES)	0.06	0.14	0.10	
WETLAND MITIGATION COST	$6,000	$14,000	$10,000	
NUMBER OF PARCELS	1	1	1	0
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P	N/A
ESTIMATED CONSTRUCTION COST	$1,435,554	$1,073,750	$4,347,666	
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$185,000	$150,000	$110,000	$0.00
TOTAL ESTIMATED COSTS	**$1,638,554**	**$1,248,750**	**$4,477,666**	
RECOMMENDED SMF ALTERNATIVE	**SMF 1003B**			

3.7.6 Recommended SMF Site

SMF 1003A

PROS	CONS
1. Least wetland impacts anticipated	1. Most amount of species impacts 2. Second most expensive construction cost

SMF 1003B

PROS	CONS
1. Least expensive alternative 2. Least expensive construction cost	1. Most wetland impacts anticipated

SMF 1003C and SMF 1003D

PROS	CONS
1. Least amount of species impacts	1. Most expensive alternative 2. Wetland impacts anticipated

Recommendation

Based on an evaluation of total cost, construction cost, wetland impacts, species impacts, and right-of-way cost, SMF 1003B was selected as the preferred alternative for Roadway Basin 1003.

Supporting documentation, including the completed SMF comparison table and cost estimates, can be found in Appendix 7.

3.8 Basin 1004

3.8.1 Pre-Development Analysis

Basin 8 is an open basin extending from Station 4465+05 to Station 4501+54 in the westbound direction and Station 4465+70 to Station 4511+67 in the eastbound direction of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway, adjacent lands, and offsite areas and is conveyed by roadside ditches and swales before discharging to a box culvert near Station 4489+40, which connects to Mossy Gully and ultimately Prairie Creek. There is one linear pond identified in ERP #33219.000 that provides both treatment and attenuation under existing conditions. Relevant excerpts from this permit can be found in Appendix 9. The predominant soils within the basin are EauGallie Fine Sand, Malabar Fine Sand, and Farmton Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.8.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 1004. The post-development basin extends from Station 4489+26 to Station 4516+91, consisting of milling and resurfacing as well as new construction in the eastbound and westbound directions. The existing pond is impacted by the proposed improvements. The treatment and attenuation of the existing ponds impacted are considered in the sizing of the proposed sites. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems and conveyed to the proposed SMFs for treatment and attenuation. The predominant soils within the post-development basin are EauGallie Fine Sand, Malabar Fine Sand, and Farmton Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.8.3 Alternative 1

SMF 1004A is a 0.80-acre dry linear pond located on the right side of the roadway from Station 4493+68 to Station 4500+69. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4496+26 and ends at Station 4516+91 along the eastbound lanes of the roadway. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1004A is 72.50 feet, with a proposed LEOP of 77.28 feet and a SHGWT elevation of 71.50 feet. The required attenuation volume is 0.03 acre-feet, while 0.04 acre-feet is provided.

The predominant soils at this location are Malabar Fine Sand, which are classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a Low potential to impact protected, threatened, or endangered species, with a species mitigation cost of $5,000. Estimated wetland impacts are 0.04 acres, with a wetland mitigation cost of $4,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Gas Transmission (FGT) gas pipeline is present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $753,984.

3.8.4 Alternative 2

SMF 1004B is a 0.36-acre dry linear pond located on the right side of the roadway from Station 4498+45 to Station 4501+47. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4496+26 and ends at Station 4516+91 in the eastbound direction. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1004B is 72.50 feet, with a proposed LEOP of 77.28 feet and a SHGWT elevation of 71.50 feet. The required attenuation volume is 0.03 acre-feet, while 0.08 acre-feet is provided.

The predominant soils at this location are Malabar Fine Sand, which are classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a Low potential to impact protected, threatened, or endangered species, with a species mitigation cost of $5,000. Estimated wetland impacts are 0.20 acres, with a wetland mitigation cost of $20,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Gas Transmission (FGT) gas pipeline is present near the site, with no potential impacts. Two parcels are affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $2,006,079.

3.8.5 Alternative 3

SMF 1004C consists of one dry linear pond located on the left side of the roadway from Station 4501+00 to Station 4507+00. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4490+06 and ends at Station 4516+91. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation and SHGWT elevation vary across the pond system. The proposed LEOP within the basin is 77.28 feet. The required attenuation volume is 0.03 acre-feet, while 0.05 acre-feet is provided.

The soils within the SMF footprint include EauGallie Fine Sand, Farmton Fine Sand, and Malabar Fine Sand, classified as Hydrologic Soil Groups A/D and B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. SMF 1004C is proposed within the R/W so no additional environmental evaluation or mitigation was considered. No wetland or conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas or major utilities located near the site. Zero parcels are affected. There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,472,948.

Table 3-8 Basin 1004 SMF Alternatives

Basin Condition: One SMF is required	Roadway Basin 1004 SMF Alternatives		
	Alt. 1	Alt. 2	Alt. 3
	SMF 1004A	SMF 1004B	SMF 1004C
POND DESCRIPTION	LINEAR	LINEAR	LINEAR
LOCATION (BEGIN STATION)	4493+68.80	4498+45.76	4501+00.00
LOCATION (END STATION)	4500+68.80	4501+46.61	4507+00.00
SIDE (LT, RT)	RT	RT	LT
SMF AREA (ACRES)	0.80	0.36	0.28
RIGHT-OF-WAY REQUIRED (ACRES)	1.40	1.05	0.00
EASEMENT REQUIRED (ACRES)	0.17	0.66	0.02
EST. GROUND ELEVATION (FT) @ SMF SITE	72.50	72.50	VARIES
PROPOSED LEOP WITHIN BASIN (FT)	77.28	77.28	77.28
EST. SHWL AT SITE (OUTFALL FOR LINER) (FT)	71.50	71.50	VARIES
TREATMENT VOLUME REQUIRED (ACRE-FEET)	0.09	0.09	0.09
TREATMENT VOLUME PROVIDED (ACRE-FEET)	0.15	0.13	0.21
ATTENUATION VOLUME REQUIRED (ACRE-FEET)	0.03	0.03	0.03
ATTENUATION VOLUME PROVIDED (ACRE-FEET)	0.04	0.08	0.05
SOILS NAME	[21] MALABAR	[21] MALABAR	[13] EAUGALLIE [14] FARMTON [21] MALABAR
HYDROLOGIC SOIL GROUP	A/D	A/D	A/D B/D
LAND USE	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland
FLOODPLAIN IMPACTS (ACRE-FEET)	0.00	0.00	0.00
FLOODPLAIN COMPENSATION COST	$0.00	$0.00	$0.00
RECORDED HISTORICAL STRUCTURES/RESOURCES	LOW	LOW	EXISTING R/W
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	LOW	LOW	
PROTECTED, THREATENED, & ENDANGERED SPECIES	LOW	LOW	
SPECIES MITIGATION COST	$5,000	$5,000	
MAJOR UTILITIES PRESENT	FGT	FGT	
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	
SECTION 4(F) PRESENT	N/A	N/A	
SECTION 4(F) IMPACTED (Y/N)	N	N	
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	
CONSERVATION MITIGATION COST	$0.00	$0.00	
ESTIMATED WETLAND IMPACTS (ACRES)	0.04	0.20	
WETLAND MITIGATION COST	$4,000	$20,000	
NUMBER OF PARCELS	1	2	0
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	N/A
ESTIMATED CONSTRUCTION COST	$644,984	$1,876,079	$1,412,948
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$100,000	$105,000	$60,000
TOTAL ESTIMATED COSTS	**$753,984**	**$2,006,079**	**$1,472,948**
RECOMMENDED SMF ALTERNATIVE	**SMF 1004A**		

3.8.6 Recommended SMF Site

SMF 1004A

PROS	CONS
1. Least expensive alternative	1. Second most expensive right-of-way cost

SMF 1004B

PROS	CONS
1. Low margin of difference in cost	1. Second most expensive alternative 2. Most expensive right-of-way cost

SMF 1004C

PROS	CONS
1. Least amount of species impacts	1. Most expensive alternative 2. Most expensive construction cost

Recommendation

Based on an evaluation of total cost, construction cost, species impacts, and right-of-way cost, SMF 1004A was selected as the preferred alternative for Roadway Basin 1004.

Supporting documentation, including the completed SMF comparison table and cost estimates, can be found in Appendix 7.

3.9 Basin 1005

3.9.1 Pre-Development Analysis

Basins 9 and 10 are open basins extending from Station 4501+54 to Station 4623+02 in the westbound direction and Station 4511+67 to Station 4595+05 in the eastbound direction of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway, adjacent lands, and offsite areas and is conveyed by roadside ditches and swales before discharging to a box culvert near Station 4517+40 and Station 4572+60, which connects to Mossy Gully and ultimately Prairie Creek. There are six linear ponds identified in ERP #33219.000 and #8749.008 that provide both treatment and attenuation under existing conditions. Relevant excerpts from this permit can be found in Appendix 9. The predominant soils within the basin are EauGallie Fine Sand, Malabar

Fine Sand, Myakka Fine Sand, Pineda-Pineda Wet Fine Sand, Valkaria Fine Sand, and Farmton Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.9.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 1005. The post-development basin extends from Station 4516+91 to Station 4615+32, consisting of milling and resurfacing as well as new construction in the westbound direction. In the eastbound direction Basin 1005 extends from Station 4516+91 to Station 4594+88. Within Basin 1005, direct discharge Basin 11a extends in the eastbound direction from Station 4594+88 to Station 4595+89 and direct discharge Basin 11b extends in the eastbound direction from Station 4595+88 to Station 4608+40. Basin 1005 continues in the eastbound direction from Station 4608+40 to Station 4615+32. Eastbound work consists of milling and resurfacing as well as new construction. Of the six existing ponds, six are impacted by the proposed improvements. The treatment and attenuation of the existing ponds impacted are considered in the sizing of the proposed sites. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems and conveyed to the proposed SMFs for treatment and attenuation. The predominant soils within the post-development basin are Malabar Fine Sand, Myakka Fine Sand, Pineda-Pineda Wet Fine Sand, Valkaria Fine Sand, Farmton Fine Sand, and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.9.3 Alternative 1

SMF 1005A is a 1.84-acre wet detention pond located on the left side of the roadway from Station 4548+79 to Station 4553+27. This alternative is sized to treat and attenuate the new impervious area. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4516+91 and ends at Station 4584+26. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1005A is 75.00 feet, with a proposed LEOP of 77.47 feet and a SHGWT elevation of 73.40 feet. The required attenuation volume is 1.93 acre-feet, while 2.08 acre-feet is provided.

The predominant soils at this location are Malabar Fine Sand and Pineda-Pineda Wet Fine Sand, which are classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [2400] Nurseries and Vineyards and [3300] Mixed Rangeland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Medium. This site has a Medium potential to impact protected, threatened, or endangered species, with a species mitigation cost of $15,000. Estimated wetland impacts are 0.34 acre-feet, with a wetland mitigation cost of $34,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas or major utilities located near the site. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $2,261,400.

3.9.4 Alternative 2

SMF 1005B is a 1.49-acre dry retention pond located on the left side of the roadway from Station 4531+35 to Station 4536+61. This alternative is sized to treat and attenuate the new impervious area. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4516+91 and ends at Station 4584+26. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1005B is 75.00 feet, with a proposed LEOP of 77.47 feet and a SHGWT elevation of 72.70 feet. The required attenuation volume is 1.40 acre-feet, while 1.48 acre-feet is provided.

The predominant soil at this location is Farmton Fine Sand, which is classified as Hydrologic Soil Group B/D. The land use in the SMF footprint is [3300] Mixed Rangeland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a Medium potential to impact protected, threatened, or endangered species, with a species mitigation cost of $15,000. Estimated wetland impacts are 0.35 acre-feet, with a wetland mitigation cost of $35,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas or major utilities located near the site. One parcel is affected, requiring a partial take (P). Estimated floodplain impacts are 0.38 acres, with a floodplain compensation cost of $38,748. Total cost is estimated to be $1,297,332.

3.9.5 Alternative 3

SMF 1005C consists of one dry linear pond located on the left side of the roadway from Station 4522+00 to Station 4528+00. This alternative is sized to treat and attenuate the new impervious area. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4516+91 and ends at Station 4584+26. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation and SHGWT elevation vary across the pond system. The proposed LEOP within the basin is 77.47 feet. The required attenuation volume is 1.40 acre-feet, while 1.46 acre-feet is provided.

The predominant soil at this location is Farmton Fine Sand, which is classified as Hydrologic Soil Group B/D. The land use in the SMF footprint is [1500] Industrial. SMF 1004C is proposed within the R/W so no additional environmental evaluation or mitigation was considered. No wetland or conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas or major utilities located near the site. Zero parcels are affected. There are no floodplain impacts; therefore, no compensation cost is required. SMF 1005C may require revision of the roadway profile during Design to meet FDOT base clearance requirements if the weir elevation controls the BCWE and is considered in the construction cost as seen in Appendix 7. Total cost is estimated to be $906,618.

Table 3-9 Basin 1005 SMF Alternatives

Basin Condition: One SMF is required	Roadway Basin 1005 SMF Alternatives		
	Alt. 1	Alt. 2	Alt. 3
	SMF 1005A	SMF 1005B	SMF 1005C
POND DESCRIPTION	WET	DRY	LINEAR
LOCATION (BEGIN STATION)	4548+79.48	4531+35.32	4522+00.00
LOCATION (END STATION)	4553+26.22	4536+60.17	4528+00.00
SIDE (LT, RT)	LT	LT	LT
SMF AREA (ACRES)	1.84	1.49	1.31
RIGHT-OF-WAY REQUIRED (ACRES)	2.93	2.59	0.00
EASEMENT REQUIRED (ACRES)	0.66	0.47	0.01
EST. GROUND ELEVATION (FT) @ SMF SITE	75.00	75.00	VARIES
PROPOSED LEOP WITHIN BASIN (FT)	77.47	77.47	77.47
EST. SHWL AT SITE (OUTFALL FOR LINER) (FT)	73.40	72.70	VARIES
TREATMENT VOLUME REQUIRED (ACRE-FEET)	1.59	0.79	0.79
TREATMENT VOLUME PROVIDED (ACRE-FEET)	1.64	0.88	0.82
ATTENUATION VOLUME REQUIRED (ACRE-FEET)	1.93	1.40	1.40
ATTENUATION VOLUME PROVIDED (ACRE-FEET)	2.08	1.48	1.46
SOILS NAME	[22] MALABAR [26] PINEDA-PINEDA	[14] FARMTON	[14] FARMTON
HYDROLOGIC SOIL GROUP	A/D	B/D	B/D
LAND USE	[2400] Nurseries and Vineyards [3300] Mixed Rangeland	[3300] Mixed Rangeland	[1500] Industrial
FLOODPLAIN IMPACTS (ACRE-FEET)	0.00	0.38	0.00
FLOODPLAIN COMPENSATION COST	$0.00	$38,748	$0.00
RECORDED HISTORICAL STRUCTURES/RESOURCES	LOW	LOW	EXISTING R/W
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	MEDIUM	LOW	
PROTECTED, THREATENED, & ENDANGERED SPECIES	MEDIUM	MEDIUM	
SPECIES MITIGATION COST	$15,000	$15,000	
MAJOR UTILITIES PRESENT	N/A	N/A	
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	
SECTION 4(F) PRESENT	N/A	N/A	
SECTION 4(F) IMPACTED (Y/N)	N	N	
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	
CONSERVATION MITIGATION COST	$0.00	$0.00	
ESTIMATED WETLAND IMPACTS (ACRES)	0.34	0.35	
WETLAND MITIGATION COST	$34,000	$35,000	
NUMBER OF PARCELS	1	1	0
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	N/A
ESTIMATED CONSTRUCTION COST	$2,077,400	$1,083,584	$846,618
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$135,000	$125,000	$60,000
TOTAL ESTIMATED COSTS	**$2,261,400**	**$1,297,332**	**$906,618**
RECOMMENDED SMF ALTERNATIVE	**SMF 1005C**		

3.9.6 Recommended SMF Site

SMF 1005A

PROS

1. No floodplain impacts anticipated

CONS

1. Most expensive alternative
2. Medium hazardous risk rating
3. Wetland impacts anticipated

SMF 1005B

PROS

1. Low hazardous risk rating

CONS

1. Most wetland impacts anticipated
2. Floodplain impacts anticipated

SMF 1005C

PROS

1. Least expensive alternative
2. No floodplain impacts anticipated
3. Least amount of species impacts

CONS

1. Most expensive right-of-way cost

Recommendation

Based on an evaluation of total cost, construction cost, floodplain impacts, species impacts, wetland impacts, hazardous material risk rating, and right-of-way cost, SMF 1005C was selected as the preferred alternative for Roadway Basin 1005.

Supporting documentation, including the completed SMF comparison table and cost estimates, can be found in Appendix 7.

3.10 Basin 11a

3.10.1 Pre-Development Analysis

Basin 11a is an open basin extending from Station 4595+05 to Station 4596+22 in the eastbound direction of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway, adjacent lands, and offsite areas and is conveyed by roadside ditches and swales before discharging to the existing cross drain located at Station 4595+39. The predominant soils within the basin are Myakka Fine Sand and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.10.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 11a. The post-development basin extends from Station 4594+88 to Station 4595+89, consisting of milling and resurfacing as well as new construction in the eastbound and westbound directions. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems. Runoff from Basin 11a will be directly discharged to the existing outfall canal south of SR 70. A preliminary evaluation of the pre vs. post treatment and discharge volumes has been performed. The total runoff volume and treatable discharge volume is decreased in the post condition and is therefore permittable. The predominant soils within the basin are Myakka Fine Sand and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.11 Basin 11b

3.11.1 Pre-Development Analysis

Basin 11b is an open basin extending from Station 4596+21 to Station 4622+49 in the eastbound direction of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway, adjacent lands, and offsite areas and is conveyed by roadside ditches and swales before discharging to the existing cross drain located at Station 4598+11. The predominant soils within the basin are Myakka Fine Sand and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.11.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 11b. The post-development basin extends from Station 4595+88 to Station 4608+40, consisting of milling and resurfacing as well as new construction in the eastbound and westbound directions. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems. Runoff from Basin 11b will be directly discharged to the existing outfall canal south of SR 70. A preliminary evaluation of the pre vs. post treatment and discharge volumes has been performed. The total runoff volume and treatable discharge volume is decreased in the post condition and is therefore permittable. The predominant soils within the basin are Myakka Fine Sand and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.12 Basin 1006

3.12.1 Pre-Development Analysis

Basin 12 is an open basin extending from Station 4622+83 to Station 4662+91 in the westbound direction and Station 4622+49 to Station 4650+89 in the eastbound direction of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway, adjacent lands, and offsite

areas and is conveyed by roadside ditches and swales before discharging to a cross drain near Station 4629+40, which connects to Mossy Gully and ultimately Prairie Creek. There are three linear ponds identified in ERP #33219.000 that provide both treatment and attenuation under existing conditions. Relevant excerpts from this permit can be found in Appendix 9. The predominant soils within the basin are Basinger Fine Sand, Malabar Fine Sand, Myakka Fine Sand, and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.12.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 1006. The post-development basin extends from Station 4615+32 to Station 4669+62, consisting of milling and resurfacing as well as new construction in the eastbound and westbound directions. Of the three existing ponds, three are impacted by the proposed improvements. The treatment and attenuation of the existing ponds impacted are considered in the sizing of the proposed sites. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems and conveyed to the proposed SMFs for treatment and attenuation. The predominant soils within the post-development basin are Basinger Fine Sand, Malabar Fine Sand, Myakka Fine Sand, Valkaria Fine Sand, and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.12.3 Alternative 1

SMF 1006A is a 2.91-acre wet detention pond located on the right side of the roadway from Station 4617+31 to Station 4622+40. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. The contributing drainage area encompasses the full basin. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1006A is 76.50 feet, with a proposed LEOP of 79.78 feet and a SHGWT elevation of 75.50 feet. The required attenuation volume is 5.71 acre-feet, while 5.85 acre-feet is provided.

The predominant soil at this location is Immokalee Fine Sand, which is classified as Hydrologic Soil Group B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a Low potential to impact protected, threatened, or endangered species, with a species mitigation cost of $5,000. Estimated wetland impacts are 0.06 acres, with a wetland mitigation cost of $6,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Gas Transmission (FGT) gas pipeline is present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,175,247.

3.12.4 Alternative 2

SMF 1006B is a 3.77-acre wet detention pond located on the right side of the roadway from Station 4633+97 to Station 4639+16. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. The contributing drainage area encompasses the full basin. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1006A is 78.00 feet, with a proposed LEOP of 79.78 feet and a SHGWT elevation of 76.20 feet. The required attenuation volume is 6.02 acre-feet, while 6.24 acre-feet is provided.

The predominant soil at this location is Immokalee Fine Sand, which is classified as Hydrologic Soil Group B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a Low potential to impact protected, threatened, or endangered species, with a species mitigation cost of $5,000. No wetland or conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Gas Transmission (FGT) gas pipeline is present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,530,786.

3.12.5 Alternative 3

SMF 1006C consists of a system of dry linear ponds located on the right side of the roadway from Station 4617+00 to Station 4657+53. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. The contributing drainage area encompasses the full basin. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation and SHGWT elevation vary across the pond system. The proposed LEOP within the basin is 79.78 feet. The required attenuation volume is 5.13 acre-feet, while 5.87 acre-feet is provided.

The soils within the SMF footprint include Basinger Fine Sand, Immokalee Fine Sand, and Myakka Fine Sand, classified as Hydrologic Soil Groups A/D and B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Medium. This site has a Low potential to impact protected, threatened, or endangered species, with no species mitigation cost. Estimated wetland impacts are 0.08 acres, with a wetland mitigation cost of $8,000. No conservation land impacts are anticipated with this alternative.

NRHP-eligible Dorr Airfield (DeSoto Correctional Fac.), which is a Section 4(f) area, is located near the site, with potential impacts. A Florida Gas Transmission (FGT) gas pipeline and a Florida Power and Light (FPL) transmission line are present near the site, with no potential impacts. Four parcels are affected, requiring a partial take (P) of each one. There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,990,130.

Table 3-10 Basin 1006 SMF Alternatives

Basin Condition: One SMF is required	Roadway Basin 1006 SMF Alternatives		
	Alt. 1	Alt. 2	Alt. 3
	SMF 1006A	SMF 1006B	SMF 1006C
POND DESCRIPTION	WET	WET	LINEAR
LOCATION (BEGIN STATION)	4617+31.84	4633+97.86	4617+00.00
LOCATION (END STATION)	4622+39.50	4639+15.33	4657+53.00
SIDE (LT, RT)	RT	RT	RT
SMF AREA (ACRES)	2.91	3.77	4.12
RIGHT-OF-WAY REQUIRED (ACRES)	4.33	5.26	3.46
EASEMENT REQUIRED (ACRES)	0.46	0.71	0.36
EST. GROUND ELEVATION (FT) @ SMF SITE	76.50	78.00	VARIES
PROPOSED LEOP WITHIN BASIN (FT)	79.78	79.78	79.78
EST. SHWL AT SITE (OUTFALL FOR LINER) (FT)	75.50	76.20	VARIES
TREATMENT VOLUME REQUIRED (ACRE-FEET)	0.82	0.82	0.41
TREATMENT VOLUME PROVIDED (ACRE-FEET)	0.99	1.12	0.49
ATTENUATION VOLUME REQUIRED (ACRE-FEET)	5.71	6.02	5.13
ATTENUATION VOLUME PROVIDED (ACRE-FEET)	5.85	6.24	5.87
SOILS NAME	[20] IMMOKALEE	[20] IMMOKALEE	[3] BASINGER [20] IMMOKALEE [24] MYAKKA
HYDROLOGIC SOIL GROUP	B/D	B/D	A/D B/D
LAND USE	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland
FLOODPLAIN IMPACTS (ACRE-FEET)	0.00	0.00	0.00
FLOODPLAIN COMPENSATION COST	$0.00	$0.00	$0.00
RECORDED HISTORICAL STRUCTURES/RESOURCES	LOW	LOW	LOW
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	LOW	LOW	MEDIUM
PROTECTED, THREATENED, & ENDANGERED SPECIES	LOW	LOW	LOW
SPECIES MITIGATION COST	$5,000	$5,000	$0
MAJOR UTILITIES PRESENT	FGT	FGT	FPL & FGT
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N
SECTION 4(F) PRESENT	N/A	N/A	NRHP-eligible Dorr Airfleid (DeSoto Correctional Fac.)
SECTION 4(F) IMPACTED (Y/N)	N	N	Y
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00
ESTIMATED WETLAND IMPACTS (ACRES)	0.06	0.00	0.08
WETLAND MITIGATION COST	$6,000	$0.00	$8,000
NUMBER OF PARCELS	1	1	4
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P
ESTIMATED CONSTRUCTION COST	$909,247	$1,335,786	$1,717,130
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$255,000	$190,000	$265,000
TOTAL ESTIMATED COSTS	**$1,175,247**	**$1,530,786**	**$1,990,130**
RECOMMENDED SMF ALTERNATIVE	**SMF 1006A**		

3.12.6 Recommended SMF Site

SMF 1006A

PROS

1. Least expensive alternative
2. Least expensive construction cost

CONS

1. Protected species impacts
2. Second most expensive right-of-way cost

SMF 1006B

PROS

1. Second least expensive alternative

CONS

1. Protected species impacts
2. Most expensive right-of-way cost

SMF 1006C

PROS

1. No protected species impacts

CONS

1. Most expensive alternative
2. Medium hazardous risk rating

Recommendation

SMF 1006A is the lowest-cost and most preferred SMF when evaluated independently and was considered in combination with FPC alternative, FPC 1007C. Given the importance of selecting a viable and cost-effective combination of SMF and FPC sites, all SMF and FPC pairings were evaluated. The pairing of SMF 1006A and FPC 1007C yields the lowest feasible total cost and is therefore the preferred combination for Roadway Basin 1007.

Supporting documentation, including the completed SMF comparison table and cost estimates, can be found in Appendix 7.

3.13 Basin 1007

3.13.1 Pre-Development Analysis

Basin 13 is an open basin extending from Station 4662+40 to Station 4708+28 in the westbound direction and Station 4650+77 to Station 4707+64 in the eastbound direction of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway, adjacent lands, and offsite areas and is conveyed by roadside ditches and swales before discharging to a cross drain near Station 4669+80, which connects to Long Point Marsh and ultimately Prairie Creek. There are no linear ponds identified in existing ERPs. The predominant soils within the basin are Basinger Fine

Sand, Myakka Fine Sand, Punta Fine Sand, Smyrna Fine Sand, Valkaria Fine Sand, and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.13.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 1007. The post-development basin extends from Station 4669+62 to Station 4761+70, consisting of milling and resurfacing as well as new construction in the westbound direction. In the eastbound direction Basin 1007 extends from Station 4669+62 to Station 4723+33. Within Basin 1007, direct discharge Basin 14 extends from Station 4723+33 to Station 4752+80 in the eastbound direction. Basin 1007 continues in the eastbound direction from Station 4752+80 to Station 4761+70. Eastbound work consists of milling and resurfacing as well as new construction. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems and conveyed to the proposed SMFs for treatment and attenuation. The predominant soils within the post-development basin are Basinger Fine Sand, Myakka Fine Sand, Punta Fine Sand, Smyrna Fine Sand, Valkaria Fine Sand, and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.13.3 Alternative 1

SMF 1007A is a 3.75-acre dry retention pond located on the right side of the roadway from Station 4670+91 to Station 4676+96. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4669+62 and ends at Station 4723+33 and continues along the westbound lanes from Station 4723+33 and ends at Station 4730+00. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1007A is 80.00 feet, with a proposed LEOP of 83.96 feet and a SHGWT elevation of 78.80 feet. The required attenuation volume is 7.24 acre-feet, while 7.54 acre-feet is provided. The nutrient load removal requirement is 44% for TN and 43% for TP, and the nutrient load removal provided is 48% for TN and 48% for TP.

The predominant soils at this location are Myakka Fine Sand, Smyrna Fine Sand, and Valkaria Fine Sand, which are classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a Low potential to impact protected, threatened, or endangered species, with no species mitigation cost. No wetland or conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Gas Transmission (FGT) gas pipeline is present near the site, with no potential impacts. Two parcels are affected, requiring a

partial take (P) of each one. There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,522,908.

3.13.4 Alternative 2

SMF 1007B is a 4.86-acre dry retention pond located on the left side of the roadway from Station 4680+56 to Station 4686+45. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4669+62 and ends at Station 4723+33 and continues along the westbound lanes from Station 4723+33 and ends at Station 4730+00. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1007B is 81.00 feet, with a proposed LEOP of 83.96 feet and a SHGWT elevation of 79.60 feet. The required attenuation volume is 7.23 acre-feet, while 7.52 acre-feet is provided. The nutrient load removal requirement is 43% for TN and 43% for TP, and the nutrient load removal provided is 50% for TN and 50% for TP.

The predominant soils at this location are Smyrna Fine Sand, which are classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [2200] Tree Crops. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Medium. This site has a Low potential to impact protected, threatened, or endangered species, with a species mitigation cost of $2,500. Estimated wetland impacts are 0.04 acres, with a wetland mitigation cost of $4,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Power and Light (FPL) transmission line is present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,605,022.

3.13.5 Alternative 3

SMF 1007C consists of a system of dry linear ponds located on the left and right side of the roadway from Station 4676+57 to Station 4753+80. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4676+40 and ends at Station 4754+00. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation and SHGWT elevation vary across the pond system. The proposed LEOP within the basin is 83.96 feet. The required attenuation volume is 7.24 acre-feet, while 7.28 acre-feet is provided. The nutrient load removal requirement is 46% for TN and 46% for TP, and the nutrient load removal provided is 47% for TN and 47% for TP.

The soils within the SMF footprint include Immokalee Fine Sand, Myakka Fine Sand, Punta Fine Sand, and Smyrna Fine Sand classified as Hydrologic Soil Groups A/D and B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Medium. This site has a Low potential to impact protected, threatened, or endangered species, with a species mitigation cost of $2,500. Estimated wetland impacts are 0.05 acres, with a wetland mitigation cost of $5,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Gas Transmission (FGT) gas pipeline and a Florida Power and Light (FPL) transmission line are present near the site, with no potential impacts. Some of the proposed linear ponds are located in areas with B/D soils, which necessitate additional base clearance. While the roadway profile was not raised as part of this study, the estimated cost to raise the profile in those locations has been included in the construction cost. A breakdown of these estimated costs is provided in Appendix 7 – Construction Cost Estimate. Two parcels are affected, requiring a partial take (P) of each one. There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $5,209,299.

Table 3-11 Basin 1007 SMF Alternatives

Basin Condition: One SMF is required	Roadway Basin 1007 SMF Alternatives		
	Alt. 1	Alt. 2	Alt. 3
	SMF 1007A	SMF 1007B	SMF 1007C
POND DESCRIPTION	DRY	DRY	LINEAR
LOCATION (BEGIN STATION)	4670+91.44	4680+56.65	4676+57.00
LOCATION (END STATION)	4676+95.59	4686+44.71	4753+80.00
SIDE (LT, RT)	RT	LT	LT & RT
SMF AREA (ACRES)	3.75	4.86	8.58
RIGHT-OF-WAY REQUIRED (ACRES)	5.57	6.20	5.59
EASEMENT REQUIRED (ACRES)	0.50	0.27	0.12
EST. GROUND ELEVATION (FT) @ SMF SITE	80.00	81.00	VARIES
PROPOSED LEOP WITHIN BASIN (FT)	83.96	83.96	83.96
EST. SHWL AT SITE (OUTFALL FOR LINER) (FT)	78.80	79.60	VARIES
TREATMENT VOLUME REQUIRED (ACRE-FEET)	0.47	0.47	0.47
TREATMENT VOLUME PROVIDED (ACRE-FEET)	1.35	1.51	1.34
ATTENUATION VOLUME REQUIRED (ACRE-FEET)	7.24	7.23	7.24
ATTENUATION VOLUME PROVIDED (ACRE-FEET)	7.54	7.52	7.28
SOILS NAME	[24] MYAKKA [36] SMYRNA [40] VALKARIA	[36] SMYRNA	[20] IMMOKALEE [24] MYAKKA [32] PUNTA [36] SMYRNA
HYDROLOGIC SOIL GROUP	A/D	A/D	A/D B/D
LAND USE	[2100] Cropland and Pastureland	[2200] Tree Crops	[2100] Cropland and Pastureland
FLOODPLAIN IMPACTS (ACRE-FEET)	0.00	0.00	0.00
FLOODPLAIN COMPENSATION COST	$0.00	$0.00	$0.00
RECORDED HISTORICAL STRUCTURES/RESOURCES	LOW	LOW	LOW
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	LOW	MEDIUM	MEDIUM
PROTECTED, THREATENED, & ENDANGERED SPECIES	LOW	LOW	LOW
SPECIES MITIGATION COST	$0	$2,500	$2,500
MAJOR UTILITIES PRESENT	FGT	FPL	FPL & FGT
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N
SECTION 4(F) PRESENT	N/A	N/A	N/A
SECTION 4(F) IMPACTED (Y/N)	N	N	N
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00
ESTIMATED WETLAND IMPACTS (ACRES)	0.00	0.04	0.05
WETLAND MITIGATION COST	$0.00	$4,000	$5,000
NUMBER OF PARCELS	2	1	2
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P
ESTIMATED CONSTRUCTION COST	$1,322,908	$1,243,522	$4,746,799
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$200,000	$355,000	$455,000
TOTAL ESTIMATED COSTS	**$1,522,908**	**$1,605,022**	**$5,209,299**
RECOMMENDED SMF ALTERNATIVE	**SMF 1007A**		

3.13.6 Recommended SMF Site

SMF 1007A

PROS	CONS
1. Least expensive alternative 2. No species impacts	1. Second most expensive construction cost

SMF 1007B

PROS	CONS
1. Least expensive construction cost	1. Protected species impacts 2. Wetland impacts anticipated

SMF 1007C

PROS	CONS
1. Second least expensive right-of-way cost	1. Most expensive alternative

Recommendation

SMF 1007A is the lowest-cost and most preferred SMF when evaluated independently and was considered in combination with FPC alternative, FPC 1008A. Given the importance of selecting a viable and cost-effective combination of SMF and FPC sites, all SMF and FPC pairings were evaluated. The pairing of SMF 1007A and FPC 1008A yields the lowest feasible total cost and is therefore the preferred combination for Roadway Basin 1007.

Supporting documentation, including the completed SMF comparison table and cost estimates, can be found in Appendix 7.

3.14 Basin 14

3.14.1 Pre-Development Analysis

Basin 14 is an open basin extending from Station 4708+22 to Station 4760+45 in the westbound direction and Station 4707+57 to Station 4757+88 in the westbound direction of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway, adjacent lands, and offsite areas and is conveyed by roadside ditches and swales before discharging to the existing cross drain located at Station 4724+10. The predominant soils within the basin are Myakka Fine Sand, Punta Fine Sand, Smyrna Fine Sand, and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.14.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 14. The post-development basin extends from Station 4723+33 to Station 4752+80, consisting of milling and resurfacing as well as new construction in the eastbound and westbound directions. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems. Runoff from Basin 14 will be directly discharged to the existing outfall canal south of SR 70. A preliminary evaluation of the pre vs. post treatment and discharge volumes has been performed. The total runoff volume and treatable discharge volume is decreased in the post condition and is therefore permittable. The predominant soils within the post-development basin are Myakka Fine Sand and Smyrna Fine Sand, classified as Hydrologic Soil Groups A/D.

3.15 Basin 1008

3.15.1 Pre-Development Analysis

Basin 15 is an open basin extending from Station 4760+32 to Station 4837+18 in the westbound direction and Station 4757+79 to Station 4836+93 in the eastbound direction of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway and adjacent lands and is conveyed by roadside ditches and swales before discharging to a cross drain near Station 4793+40, which connects to Cow Slough. There is one linear pond identified in ERP #33219.000 that provides both treatment and attenuation under existing conditions. Relevant excerpts from this permit can be found in Appendix 9. The predominant soils within the basin are Basinger Fine Sand, Smyrna Sand, Valkaria Sand, and Immokalee Fine Sand, which are classified as Hydrologic Soil Groups A/D and B/D.

3.15.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 1008. The post-development basin extends from Station 4761+70 to Station 4845+62, consisting of milling and resurfacing as well as new construction in the eastbound and westbound directions. The existing pond is impacted by the proposed improvements. The treatment and attenuation of the existing ponds impacted are considered in the sizing of the proposed sites. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems and conveyed to the proposed SMFs for treatment and attenuation. The predominant soils within the post-development basin are Basinger Fine Sand, Smyrna Fine Sand, Valkaria Fine Sand, and Immokalee Fine Sand, classified as Hydrologic Soil Groups A/D and B/D.

3.15.3 Alternative 1

SMF 1008A is a 5.00-acre dry retention pond located on the right side of the roadway from Station 4806+44 to Station 4812+21. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4780+00 and ends at Station 4845+62. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1008A is 83.00 feet, with a proposed LEOP of 85.52 feet and a SHGWT elevation of 82.00 feet. The required attenuation volume is 4.77 acre-feet, while 4.96 acre-feet is provided. The nutrient load removal requirement is 53% for TN and 52% for TP, and the nutrient load removal provided is 53% for TN and 53% for TP.

The predominant soils at this location are Valkaria Fine Sand, Basinger Fine Sand, and Immokalee Fine Sand, which are classified as Hydrologic Soil Group A/D and B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Medium. This site has a Low potential to impact protected, threatened, or endangered species, with a species mitigation cost of $2,500. No wetland or conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Gas Transmission (FGT) gas pipeline and a Florida Power and Light (FPL) transmission line are present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,580,671.

3.15.4 Alternative 2

SMF 1008B is a 5.74-acre dry retention pond located on the left side of the roadway from Station 4792+42 to Station 4797+77. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. The contributing drainage area encompasses the full basin. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1008B is 82.50 feet, with a proposed LEOP of 85.52 feet and a SHGWT elevation of 82.10 feet. The required attenuation volume is 4.76 acre-feet, while 5.32 acre-feet is provided. The nutrient load removal requirement is 54% for TN and 54% for TP, and the nutrient load removal provided is 54% for TN and 54% for TP.

The predominant soils at this location are Basinger Fine Sand and Valkaria Fine Sand, which are classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [2200] Tree Crops. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Medium. This site has a Low potential to impact protected, threatened, or endangered species, with

no species mitigation cost. Estimated wetland impacts are 0.15 acres, with a wetland mitigation cost of $15,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas or major utilities located near the site. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $2,579,854.

3.15.5 Alternative 3

Alternative 3 includes SMF 1008C and SMF 1008D. Runoff collected in this basin will be conveyed to a system of dry linear ponds (SMF 1008D) extending from Station 4761+80 to Station 4833+80 on the left and right side of the roadway. This alternative is sized to treat and attenuate the new impervious area; however, to meet treatment and attenuation requirements, the entire basin is routed to the pond. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4761+70 and ends at Station 4834+00. SMF 1008D provides both treatment and attenuation. Following treatment and attenuation from SMF 1008D, runoff is conveyed to SMF 1008C. SMF 1008C is a 2.88-acre wet detention pond located on the left side of the roadway from Station 4793+22 to Station 4797+77. Following attenuation at SMF 1008C, runoff is discharged to the outfall.

The estimated ground elevation and SHGWT elevation across SMF 1008D varies. The proposed LEOP within the basin is 85.52 feet. The estimated ground elevation at SMF 1008C is 82.50 feet, and the SHGWT elevation is 82.10 feet. The required attenuation volume for the alternative is 5.77 acre-feet, while 6.08 acre-feet is provided. The nutrient load removal requirement is 52% for TN and 52% for TP, and the nutrient load removal provided is 68% for TN and 74% for TP.

The predominant soils for this alternative are Basinger Fine Sand, Immokalee Fine Sand, Smyrna Fine Sand, and Valkaria Fine Sand, which are classified as Hydrologic Soil Group A/D and B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland and [2200] Tree Crops. Recorded historical resources for this alternative are rated Low. The hazardous material risk rating is Medium for this alternative. This alternative has a Low potential to impact protected, threatened, or endangered species, with no species mitigation cost. Estimated wetland impacts are 0.15 acres, with a wetland mitigation cost of $15,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas or major utilities located near the sites. Some of the proposed linear ponds are located in areas with B/D soils, which necessitate additional base clearance. While the roadway profile was not raised as part of this study, the estimated cost to raise the profile in those locations has been included in the construction cost. A breakdown of these estimated costs is provided in Appendix 7 – Construction Cost Estimate. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $7,554,725.

Table 3-12 Basin 1008 SMF Alternatives

Basin Condition: One SMF is required	Roadway Basin 1008 SMF Alternatives			
	Alt. 1	Alt. 2	Alt. 3	
	SMF 1008A	SMF 1008B	SMF 1008C	SMF 1008D
POND DESCRIPTION	DRY	DRY	WET	LINEAR
LOCATION (BEGIN STATION)	4806+44.35	4792+42.12	4793+22.12	4761+80.00
LOCATION (END STATION)	4812+20.29	4797+76.45	4797+76.45	4833+80.00
SIDE (LT, RT)	RT	LT	LT	LT & RT
SMF AREA (ACRES)	5.00	5.74	2.88	4.78
RIGHT-OF-WAY REQUIRED (ACRES)	6.34	7.54	4.23	13.30
EASEMENT REQUIRED (ACRES)	0.45	0.33	0.33	0.00
EST. GROUND ELEVATION (FT) @ SMF SITE	83.00	82.50	82.50	VARIES
PROPOSED LEOP WITHIN BASIN (FT)	85.52	85.52	85.52	85.52
EST. SHWL AT SITE (OUTFALL FOR LINER) (FT)	82.00	82.10	82.10	VARIES
TREATMENT VOLUME REQUIRED (ACRE-FEET)	0.47	0.47	0.47	
TREATMENT VOLUME PROVIDED (ACRE-FEET)	1.21	0.95	1.34	
ATTENUATION VOLUME REQUIRED (ACRE-FEET)	4.77	4.76	5.77	
ATTENUATION VOLUME PROVIDED (ACRE-FEET)	4.96	5.32	6.08	
SOILS NAME	[3] BASINGER [20] IMMOKALEE [40] VALKARIA	[3] BASINGER [40] VALKARIA	[3] BASINGER	[3] BASINGER [20] IMMOKALEE [36] SMYRNA [40] VALKARIA
HYDROLOGIC SOIL GROUP	A/D B/D	A/D	A/D	A/D B/D
LAND USE	[2100] Cropland and Pastureland	[2200] Tree Crops	[2200] Tree Crops	[2100] Cropland and Pastureland
FLOODPLAIN IMPACTS (ACRE-FEET)	0.00	0.00	0.00	
FLOODPLAIN COMPENSATION COST	$0.00	$0.00	$0.00	
RECORDED HISTORICAL STRUCTURES/RESOURCES	LOW	LOW	LOW	
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	MEDIUM	MEDIUM	MEDIUM	
PROTECTED, THREATENED, & ENDANGERED SPECIES	LOW	LOW	LOW	
SPECIES MITIGATION COST	$2,500	$0	$0	
MAJOR UTILITIES PRESENT	FPL & FGT	N/A	N/A	N/A
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N	N
SECTION 4(F) PRESENT	N/A	N/A	N/A	
SECTION 4(F) IMPACTED (Y/N)	N	N	N	
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00	
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00	
ESTIMATED WETLAND IMPACTS (ACRES)	0.00	0.15	0.15	
WETLAND MITIGATION COST	$0.00	$15,000	$15,000	
NUMBER OF PARCELS	1	1	1	0
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P	N/A
ESTIMATED CONSTRUCTION COST	$1,358,171	$2,329,854	$7,384,725	
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$220,000	$235,000	$155,000	$0.00
TOTAL ESTIMATED COSTS	**$1,580,671**	**$2,579,854**	**$7,554,725**	
RECOMMENDED SMF ALTERNATIVE	**SMF 1008A**			

3.15.6 Recommended SMF Site

SMF 1008A

PROS

1. Least expensive alternative
2. No wetland impacts

CONS

1. Most amount of species impacts

SMF 1008B

PROS

1. No species impacts

CONS

1. Wetland impacts anticipated
2. Most expensive right-of-way cost

SMF 1008C and SMF 1008D

PROS

1. No species impacts
2. Least expensive right-of-way cost

CONS

1. Most expensive alternative
2. Wetland impacts anticipated

Recommendation

Based on an evaluation of total cost, wetland impacts, species impacts, and right-of-way cost, SMF 1008A was selected as the preferred alternative for Roadway Basin 1008.

Supporting documentation, including the completed SMF comparison table and cost estimates, can be found in Appendix 7.

3.16 Basin 1009

3.16.1 Pre-Development Analysis

Basins 16 and 17 are open basins extending from Station 4837+11 to Station 4906+08 in the westbound direction and Station 4836+77 to Station 4906+08 in the eastbound direction of SR 70. Under existing conditions, stormwater runoff sheet flows off the roadway, adjacent lands, and offsite areas and is conveyed by roadside ditches and swales before discharging to a box culvert near Station 4846+40, which connects to Cow Slough. There are no linear ponds identified in existing ERPs. The predominant soils within the basin are Basinger Fine Sand, Myakka Fine Sand, Samsula Muck, Smyrna Fine Sand, Valkaria Sand, and Immokalee Fine Sand which are classified as Hydrologic Soil Groups A/D and B/D.

3.16.2 Post-Development Analysis

The proposed improvements include roadway widening of SR 70 and the addition of a shared use path within Basin 1009. The post-development basin extends from Station 4845+62 to Station 4906+08, consisting of milling and resurfacing as well as new construction in the eastbound and westbound directions. Stormwater runoff from the proposed roadway will be collected using a combination of roadside ditches and closed storm drain systems and conveyed to the proposed SMFs for treatment and attenuation. The predominant soils within the post-development basin are Basinger Fine Sand, EauGallie Fine Sand, Myakka Fine Sand, Samsula Muck, Smyrna Fine Sand, Valkaria Sand, and Immokalee Fine Sand classified as Hydrologic Soil Groups A/D and B/D.

3.16.3 Alternative 1

SMF 1009A is a 1.87-acre dry retention pond located on the left side of the roadway from Station 4856+04 to Station 4859+61. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4855+64 and ends at Station 4890+15. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1009A is 82.50 feet, with a proposed LEOP of 84.81 feet and a SHGWT elevation of 81.50 feet. The required attenuation volume is 1.07 acre-feet, while 1.11 acre-feet is provided. The nutrient load removal requirement is 39% for TN and 38% for TP, and the nutrient load removal provided is 48% for TN and 48% for TP.

The predominant soils at this location are Immokalee Fine Sand and Valkaria Fine Sand, which are classified as Hydrologic Soil Group A/D and B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Medium. This site has a Low potential to impact protected, threatened, or endangered species, with no species mitigation cost. Estimated wetland impacts are 0.08 acres, with a wetland mitigation cost of $8,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas or major utilities located near the site. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $910,944.

3.16.4 Alternative 2

SMF 1009B is a 1.43-acre dry retention pond located on the right side of the roadway from Station 4874+70 to Station 4878+79. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4855+64 and ends at Station 4890+15. Runoff will be conveyed to this SMF through roadside ditches and storm drain systems.

The estimated ground elevation at SMF 1009B is 82.50 feet, with a proposed LEOP of 84.81 feet and a SHGWT elevation of 80.90 feet. The required attenuation volume is 1.05 acre-feet, while 1.07 acre-feet is provided. The nutrient load removal requirement is 41% for TN and 41% for TP, and the nutrient load removal provided is 43% for TN and 43% for TP.

The predominant soil at this location is Myakka Fine Sand, which is classified as Hydrologic Soil Group A/D. The land use in the SMF footprint is [2100] Cropland and Pasturelands. Recorded historical resources at this location are rated Low. The hazardous material risk rating is Low. This site has a Low potential to impact protected, threatened, or endangered species, with a species mitigation cost of $10,000. Estimated wetland impacts are 0.07 acres, with a wetland mitigation cost of $7,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas located near the site. A Florida Gas Transmission (FGT) gas pipeline is present near the site, with no potential impacts. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $1,276,123.

3.16.5 Alternative 3

Alternative 3 includes SMF 1009C and SMF 1009D. Runoff collected in this basin will be conveyed to a system of dry linear ponds (SMF 1009D) extending from Station 4864+60 to Station 4890+00 on the left and right side of the roadway. This alternative is sized to treat and attenuate only the new impervious area within the basin. To ensure hydraulic feasibility, the contributing drainage area to the pond begins at Station 4855+64 and ends at Station 4890+15. SMF 1009D provides both treatment and attenuation. Following treatment and attenuation from SMF 1009D, runoff is conveyed to SMF 1009C. SMF 1009C is a 0.55-acre wet detention pond located on the left side of the roadway from Station 4856+04 to Station 4858+20. Following additional attenuation at SMF 1009C, runoff is discharged to the outfall.

The estimated ground elevation and SHGWT elevation across SMF 1009D varies. The proposed LEOP within the basin is 84.81 feet. The estimated ground elevation at SMF 1009C is 82.50 feet, and the SHGWT elevation is 81.50 feet. The required attenuation volume for the alternative is 1.13 acre-feet, while 1.69 acre-feet is provided. The nutrient load removal requirement is 39% for TN and 38% for TP, and the nutrient load removal provided is 55% for TN and 59% for TP.

The predominant soils for this alternative are Immokalee Fine Sand, Myakka Fine Sand and Samsula Muck, which are classified as Hydrologic Soil Group A/D and B/D. The land use in the SMF footprint is [2100] Cropland and Pastureland and [6410] Freshwater Marshes. Recorded historical resources for this alternative are rated Low. The hazardous material risk rating is Medium for this alternative. This alternative has a Low potential to impact protected, threatened, or endangered species, with no species mitigation cost. Estimated wetland impacts are 0.08 acres, with a wetland mitigation cost of $8,000. No conservation land impacts are anticipated with this alternative.

There are no Section 4(f) areas or major utilities located near the sites. One parcel is affected, requiring a partial take (P). There are no floodplain impacts; therefore, no compensation cost is required. Total cost is estimated to be $3,096,224.

Table 3-13 Basin 1009 SMF Alternatives

Basin Condition: One SMF is required	Roadway Basin 1009 SMF Alternatives			
	Alt. 1	Alt. 2	Alt. 3	
	SMF 1009A	SMF 1009B	SMF 1009C	SMF 1009D
POND DESCRIPTION	DRY	DRY	WET	LINEAR
LOCATION (BEGIN STATION)	4856+04.75	4874+70.77	4856+04.75	4864+60.00
LOCATION (END STATION)	4859+60.22	4878+78.79	4858+19.87	4890+00.00
SIDE (LT, RT)	LT	RT	LT	LT & RT
SMF AREA (ACRES)	1.87	1.43	0.55	2.70
RIGHT-OF-WAY REQUIRED (ACRES)	2.69	2.19	1.23	0.00
EASEMENT REQUIRED (ACRES)	0.39	0.69	0.39	0.00
EST. GROUND ELEVATION (FT) @ SMF SITE	82.50	82.50	82.50	VARIES
PROPOSED LEOP WITHIN BASIN (FT)	84.81	84.81	84.81	84.81
EST. SHWL AT SITE (OUTFALL FOR LINER) (FT)	81.50	80.90	81.50	VARIES
TREATMENT VOLUME REQUIRED (ACRE-FEET)	0.19	0.19	0.19	
TREATMENT VOLUME PROVIDED (ACRE-FEET)	0.67	0.54	0.68	
ATTENUATION VOLUME REQUIRED (ACRE-FEET)	1.07	1.05	1.13	
ATTENUATION VOLUME PROVIDED (ACRE-FEET)	1.11	1.07	1.69	
SOILS NAME	[20] IMMOKALEE [40] VALKARIA	[24] MYAKKA	[20] IMMOKALEE	[20] IMMOKALEE [24] MYAKKA [34] SAMSULA
HYDROLOGIC SOIL GROUP	A/D B/D	A/D	B/D	A/D B/D
LAND USE	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland	[2100] Cropland and Pastureland [6410] Freshwater Marshes
FLOODPLAIN IMPACTS (ACRE-FEET)	0.00	0.00	0.00	
FLOODPLAIN COMPENSATION COST	$0.00	$0.00	$0.00	
RECORDED HISTORICAL STRUCTURES/RESOURCES	LOW	LOW	LOW	
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	MEDIUM	LOW	MEDIUM	
PROTECTED, THREATENED, & ENDANGERED SPECIES	LOW	LOW	LOW	
SPECIES MITIGATION COST	$0	$10,000	$0	
MAJOR UTILITIES PRESENT	N/A	FGT	N/A	N/A
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N	N
SECTION 4(F) PRESENT	N/A	N/A	N/A	
SECTION 4(F) IMPACTED (Y/N)	N	N	N	
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00	
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00	
ESTIMATED WETLAND IMPACTS (ACRES)	0.08	0.07	0.08	
WETLAND MITIGATION COST	$8,000	$7,000	$8,000	
NUMBER OF PARCELS	1	1	1	0
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P	N/A
ESTIMATED CONSTRUCTION COST	$717,944	$1,124,123	$2,983,224	
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$185,000	$135,000	$105,000	$0.00
TOTAL ESTIMATED COSTS	**$910,944**	**$1,276,123**	**$3,096,224**	
RECOMMENDED SMF ALTERNATIVE	**SMF 1009A**			

3.16.6 Recommended SMF Site

SMF 1009A

PROS

1. Least expensive alternative
2. No species impacts

CONS

1. Most expensive right-of-way cost

SMF 1009B

PROS

1. Low hazardous material ranking

CONS

1. Most protected species impacts
2. Second most expensive construction cost

SMF 1009C and SMF 1009D

PROS

1. No species impacts

CONS

1. Most expensive alternative
2. Most expensive construction cost

Recommendation

Based on an evaluation of total cost, construction cost, species impacts, hazardous material risk rating, and right-of-way cost, SMF 1009A was selected as the preferred alternative for Roadway Basin 1009.

Supporting documentation, including the completed SMF comparison table and cost estimates, can be found in Appendix 7.

4 ALTERNATIVE FLOODPLAIN COMPENSATION (FPC) SITES

The FEMA 100-year floodplain shapes were used to determine encroachment into the floodplain. The low edge of pavement was used as the 100-year floodplain elevation for most of the project since there is no history of the roadway flooding, and the impacts are within Zone A which means that no base flood elevations have been determined. At three locations the low edge of pavement is considerably higher than the surrounding area, therefore the contour elevation that best fit the floodplain shape or the upstream culvert's crown elevation was considered to determine the 100-year floodplain elevation instead of the low edge of pavement. Where the floodplain is longitudinal along SR 70, the floodplain encroachment has been subdivided into segments based on increments of one-half a foot elevation to account for changes along the roadway profile. The project will impact nine separate floodplain areas (not including the Whidden Branch and Joshua Creek floodways as described below) crossing within the roadway's proposed right-of-way, and a total of 12 subdivided floodplain areas.

Floodplain mitigation alternatives included in this report include an analysis based on the "cup for cup" compensation methodology. Storage was based on a comparison of the total volume filled within the 100-year floodplain versus the total volume excavated for floodplain compensation. During permitting of the project, the floodplain compensation volumes will be compared with the floodplain impact volumes in one-half foot elevation increments to demonstrate equivalent storage as required by the SWFWMD. Hydrologic and hydraulic modeling will be required where equivalent storage cannot be demonstrated in one-half foot increments.

Additional modeling of the existing stages versus the post-project encroachment stages will be performed for the Whidden Branch and Joshua Creek regulatory floodways and will be presented under a separate report to demonstrate no-rise. Therefore, no FPC sites have been developed for the floodplain encroachment within the right-of-way at these two locations.

The project will impact existing floodplain compensation areas within the SR 70 right-of-way. The total permitted floodplain compensation volume being impacted is 0.60 acre-feet. The portion of the floodplain impact within the FEMA floodplain shape is already being accounted for in the floodplain encroachment calculations, therefore only the existing floodplain compensation areas outside of the FEMA floodplain shapes are listed. See Table 4-1 for a list of existing floodplain compensation areas that are being impacted.

Table 4-1 Existing Floodplain Compensation Areas Impacted

Project Begin STA	Project End STA	Permit Begin STA	Permit End STA	Permit No.	Total Existing FPC Vol. (Ac-Ft) [1]	Subdivided Existing FPC Vol. (Ac-Ft) [2]	Area outside of FEMA Floodplain (%)	Additional Required FPC Vol. (Ac-Ft) [3]
4623+16	4629+26	1421+00	1427+10	33219.000	0.60	0.402	53	0.213
4629+48	4634+16	1427+32	1431+99	33219.000				
4720+47	4723+77	1518+20	1521+50	33219.000		0.198	55	0.109
4724+40	4731+27	1522+13	1529+01	33219.000				

[1] Total permitted floodplain compensation volume being impacted.

[2] Prorated permitted floodplain compensation volume based on permitted calculations.

[3] Permitted floodplain compensation volume impacted outside of FEMA floodplain shape. (Volume inside shape already accounted for in floodplain encroachment volume calculations.)

Considered Alternatives

"Cup for Cup" Approach: Floodplain encroachment volumes from the proposed roadway section were estimated between the lowest level of encroachment (maximum of the average SHGWT elevation and lowest level of fill) and 100-year floodplain elevation using the OpenRoads Designer three-dimensional computer-aided design software. Encroachment volumes were based on the topographical survey taken within the right-of-way. Up to three alternative FPC sites were evaluated and were sized with the bottom elevation equal to the average estimated SHGWT elevations based on the geotechnical borings and surveyed biological indicators (stain lines). See Table 4-2 for list of all floodplain encroachment volumes.

Modeling: While no hydrologic and hydraulic modeling has been performed in this study, it is anticipated that modeling will be required during the permit phase of the project. Equivalent storage cannot be demonstrated at one-half foot increments for FPC sites where the SHGWT elevation is above the lowest level of encroachment by more than one-half foot. Therefore, modeling will be required on a case-by-case basis to demonstrate that floodplain impacts will not adversely affect the storage stages during the 100-year and all lesser flood events. Refer to the floodplain calculations in Appendix 4.

Furthermore, some runoff volume from the impacted areas will be redirected away from the floodplains to the stormwater management facilities. This will result in a reduction of the floodplain impact caused by the roadway fill. Therefore, modeling can be utilized to refine, reduce, or eliminate FPC sites.

Table 4-2 Floodplain Impact Summary

Floodplain Name	Floodplain Location (CL Construction)		100-year Floodplain Elevation (ft, NAVD)	Impact Volume (ac-ft)	Preferred Floodplain Compensation Site
	From Station	To Station			
FIA 1001	4299+15	4302+37	66.83	1.20	FPC 1001A
FIA 1002	4344+20	4348+78	69.65	3.86	FPC 1002-NA & FPC 1002-SB
FIA 1003	4486+79	4491+33	77.65	6.97	FPC 1003A
FIA 1004-1	4515+79	4517+41	77.50	1.84	FPC 1004B
FIA 1004-2	4517+41	4540+24	78.00	34.04	
FIA 1005	4540+24	4579+86	78.50	42.25	FPC 1005C
FIA 1006	4579+86	4602+93	79.00	17.46	FPC 1006A
FIA 1007	4626+96	4632+77	80.00	5.10	FPC 1007C
FIA 1008	4668+48	4675+40	79.87	1.84	FPC 1008A
FIA 1009	4721+21	4726+87	82.84	2.16	FPC 1009C
FIA 1010	4840+07	4891+13	84.00	48.55	FPC 1010B

4.1 FPC 1001

Floodplain 1001 is a depression near the northern canal within the proposed SR 70 right-of-way northwest of the SR 70 and NE Guynn Avenue intersection. The roadway corridor will impact 1.20 acre-feet of the 100-year floodplain. Refer to the floodplain calculations in Appendix 4 and the floodplain map in Appendix 6.

4.1.1 Alternative 1

FPC 1001A is an offsite floodplain compensation site located in a pasture northwest of the SR 70 and NE Guynn Avenue intersection. The site is directly adjacent to the SR 70 right-of-way but access from NE Guynn Avenue is recommended to avoid crossing over the canal to the north running along SR 70. A side drain will be needed under the access road to maintain the flow along the ditch on NE Guynn Avenue.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 63.40 feet. The site provides 1.30 acre-feet of floodplain compensation and will be constructed to connect directly with the depression along the canal in the floodplain. See Table 4-3 for a summary of the FPC site information.

4.1.2 Alternative 2

FPC 1001B is an offsite floodplain compensation site located in the same pasture as Alternative 1 but rotated perpendicularly. This alternative can be built in conjunction with SMF 1001C. If SMF 1001C is not selected, a drainage access easement from NE Guynn Avenue is recommended to avoid crossing over the canal to the north running along SR 70. A side drain will be needed under the access road to maintain the flow along the ditch on NE Guynn Avenue.

An average of the nearest site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 63.50 feet. The site provides 1.39 acre-feet of floodplain compensation and will be constructed to connect directly with the depression along the canal in the floodplain. See Table 4-3 for a summary of the FPC site information.

Table 4-3 FPC 1001 Alternatives

BASIN CONDITION: ONE FPC IS REQUIRED	Floodplain 1001	
	Alternative 1 FPC 1001A	Alternative 2 FPC 1001B
LOCATION (BEGIN STATION)	4298+58.24	4298+12.02
LOCATION (END STATION)	4304+10.52	4300+96.63
SIDE (LT, RT)	LT	LT
FPC AREA (ACRES)	2.66	3.09
AVE. EST. GROUND ELEVATION (FT) @ FPC SITE	64.00	64.00
AVE. EST. SHW ELEVATION (FT)	63.40	63.50
LAND USE	[2100] CROPLAND AND PASTURELAND	[2100] CROPLAND AND PASTURELAND
RECORDED HISTORICAL STRUCTURES/RESOURCES	Low	Low
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	Low	Low
PROTECTED, THREATENED, & ENDANGERED SPECIES	High	High
SPECIES MITIGATION COST	$15,000	$15,000
MAJOR UTILITIES PRESENT	N	N
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N
SECTION 4(F) PRESENT	N/A	N/A
SECTION 4(F) IMPACTED (Y/N)	N	N
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00
CONSERVATION MITIGATION COST	$0.00	$0.00
ESTIMATED WETLAND IMPACTS (ACRES)	0.78	0.54
WETLAND MITIGATION COST	$78,000.00	$54,000.00
NUMBER OF PARCELS	1	1
PARTIAL (P) OR WHOLE TAKE (WT)	P	P
ESTIMATED CONSTRUCTION COST	$173,273.99	$187,767.67
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$145,000.00	$165,000.00
TOTAL ESTIMATED COSTS	**$411,273.99**	**$421,767.67**
Recommended FPC Alternative	**FPC 1001A**	

4.1.3 Recommended FPC Site

FPC 1001A

PROS	CONS
1. Lower construction cost	1. Higher wetland impacts
2. Lower right-of-way cost	

FPC 1001B

PROS	CONS
1. Lower wetland impacts	1. Higher construction cost
	2. Higher right-of-way cost

Based on an evaluation of right-of-way impacts, construction cost, wetland impacts, conservation land impacts, species mitigation, and FPC area, FPC 1001A is the preferred alternative.

This alternative was selected due to lower construction and right-of-way costs. The cost estimates can be found above and in Appendix 7.

4.2 FPC 1002

Floodplain 1002 is a floodplain within the proposed SR 70 right-of-way east of the SR 70 and SE Turkey Hammock Road intersection. There is no cross drain at this location, and the roadway will impact both the north and south side of SR 70. Therefore, a floodplain compensation site is needed on both sides of the road. The roadway corridor will impact 2.83 acre-feet and 1.03 acre-feet of the 100-year floodplain on the north and south side of the existing road, respectively. Refer to the floodplain calculations in Appendix 4 and the floodplain map in Appendix 6.

4.2.1 Alternative 1

FPC 1002-NA is an offsite floodplain compensation site located in pasture northeast of the SR 70 and SE Turkey Hammock Road intersection. The FPC is setback approximately 125 feet from the SR 70 right-of-way and a drainage access easement will be required for this site. A culvert will be needed under the access road to maintain the flow through the canal on the north side of SR 70.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 66.60 feet. The site provides 2.89 acre-feet of floodplain compensation and will be constructed to connect directly with the east side of the floodplain. See Table 4-4 for a summary of the FPC site information.

4.2.2 Alternative 2

FPC 1002-SB is an offsite floodplain compensation site located in herbaceous land southeast of the SR 70 and SE Turkey Hammock Road intersection. A strip of private property and buried FGT line runs between the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback approximately 240 feet from the SR 70 right-of-way and a drainage access easement will be required for this site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 67.00 feet. The site provides 1.07 acre-feet of floodplain compensation and will be constructed to connect directly with the east side of the floodplain. See Table 4-4 for a summary of the FPC site information.

4.2.3 Alternative 3

FPC 1002-SC is an offsite floodplain compensation site located in open lands southeast of the SR 70 and SE Turkey Hammock Road intersection. A strip of private property and buried FGT line runs between the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback approximately 225 feet from the SR 70 right-of-way. A drainage access easement will be needed to provide access from SE Turkey Hammock Road.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 65.45 feet, but the bottom is set at 66.00 to match the lowest existing ground elevation within the floodplain. The site provides 1.07 acre-feet of floodplain compensation and will be constructed to connect directly with the west side of the floodplain. See Table 4-4 for a summary of the FPC site information.

Table 4-4 FPC 1002 Alternatives

BASIN CONDITION: ONE FPC IS REQUIRED	**Floodplain 1002**		
	Alternative 1 FPC 1002-NA	Alternative 2 FPC 1002-SB	Alternative 3 FPC 1002-SC
LOCATION (BEGIN STATION)	4345+91.03	4353+65.40	4341+00.41
LOCATION (END STATION)	4351+44.19	4358+60.80	4345+60.80
SIDE (LT, RT)	LT	RT	RT
FPC AREA (ACRES)	2.51	0.89	1.39
AVE. EST. GROUND ELEVATION (FT) @ FPC SITE	68.48	68.73	67.00
AVE. EST. SHW ELEVATION (FT)	66.60	67.00	65.45
LAND USE	[2100] CROPLAND AND PASTURELAND	[2600] HERBACEOUS	[2600] OTHER OPEN LANDS
RECORDED HISTORICAL STRUCTURES/RESOURCES	Low	Low	Low
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	Low	Low	Low
PROTECTED, THREATENED, & ENDANGERED SPECIES	Medium	High	High
SPECIES MITIGATION COST	$10,000	$15,000	$15,000
MAJOR UTILITIES PRESENT	N	FGT	FGT
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N
SECTION 4(F) PRESENT	N/A	N/A	N/A
SECTION 4(F) IMPACTED (Y/N)	N	N	N
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00
ESTIMATED WETLAND IMPACTS (ACRES)	0.04	0.45	0.03
WETLAND MITIGATION COST	$4,000.00	$45,000.00	$3,000.00
NUMBER OF PARCELS	1	2	2
PARTIAL (P) OR WHOLE TAKE (WT)	P	P/WT	P/WT
ESTIMATED CONSTRUCTION COST	$263,126.71	$82,397.10	$78,739.69
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$140,000.00	$90,000.00	$155,000.00
TOTAL ESTIMATED COSTS	**$417,126.71**	**$232,397.10**	**$251,739.69**
Recommended FPC Alternative	**FPC 1002-NA & FPC 1002-SB**		

4.2.4 Recommended FPC Site

FPC 1002-NA

PROS	CONS
1. Lower wetland impacts	1. Highest construction cost
2. Lowest T/E species cost	2. Higher right-of-way cost

FPC 1002-SB

PROS	CONS
1. Lowest right-of-way cost	1. Highest wetland impacts
2. Corner of largest parcel	

FPC 1002-SC

PROS	CONS
1. Lowest construction cost	1. Highest right-of-way cost
2. Lowest wetland impacts	

Since the proposed roadway improvements will impact the floodplain on both the north and south sides of SR 70, at least one FPC is required on each side. FPC 1002-NA is the only alternative to the north of SR 70 and therefore is the preferred alternative by default. The other two alternatives were evaluated based on right-of-way impacts, construction cost, wetland impacts, conservation land impacts, species mitigation, and FPC area, and FPC 1002-SB is the preferred alternative for the south side.

FPC 1002-SB was selected due to lowest right-of-way cost. The cost estimates can be found above and in Appendix 7.

4.3 FPC 1003

Floodplain 1003 is the Mossy Gully channel crossing within the proposed SR 70 right-of-way east of the SR 70 and NE Four Mile Grade intersection. The roadway corridor will impact 6.97 acre-feet of the 100-year floodplain. Refer to the floodplain calculations in Appendix 4 and the floodplain map in Appendix 6.

4.3.1 Alternative 1

FPC 1003A is an offsite floodplain compensation site located in a pasture southeast of the SR 70 and NE Four Mile Grade intersection. A strip of private property and buried FGT line runs between

the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback approximately 270 feet from the SR 70 right-of-way and a drainage access easement will be required for this site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 71.23 feet. The site provides 7.08 acre-feet of floodplain compensation and will be constructed to connect directly with the east side of the floodplain. See Table 4-5 for a summary of the FPC site information.

4.3.2 Alternative 2

FPC 1003B is an offsite floodplain compensation site located in a pasture southeast of the SR 70 and NE Four Mile Grade intersection. A strip of private property and buried FGT line runs between the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback approximately 270 feet from the SR 70 right-of-way and a drainage access easement will be required for this site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 71.42 feet. The site provides 7.15 acre-feet of floodplain compensation and will be constructed to connect directly with the west side of the floodplain. See Table 4-5 for a summary of the FPC site information.

Table 4-5 FPC 1003 Alternatives

BASIN CONDITION: ONE FPC IS REQUIRED	Floodplain 1003	
	Alternative 1 FPC 1003A	Alternative 2 FPC 1003B
LOCATION (BEGIN STATION)	4491+41.54	4483+94.48
LOCATION (END STATION)	4500+01.33	4494+12.14
SIDE (LT, RT)	RT	RT
FPC AREA (ACRES)	5.70	5.91
AVE. EST. GROUND ELEVATION (FT) @ FPC SITE	72.48	73.18
AVE. EST. SHW ELEVATION (FT)	71.23	71.42
LAND USE	[2100] CROPLAND AND PASTURELAND	[2100] CROPLAND AND PASTURELAND
RECORDED HISTORICAL STRUCTURES/RESOURCES	Low	Low
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	Low	Low
PROTECTED, THREATENED, & ENDANGERED SPECIES	Medium	Medium
SPECIES MITIGATION COST	$10,000	$10,000
MAJOR UTILITIES PRESENT	FGT	FGT
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N
SECTION 4(F) PRESENT	N/A	N/A
SECTION 4(F) IMPACTED (Y/N)	N	N
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00
CONSERVATION MITIGATION COST	$0.00	$0.00
ESTIMATED WETLAND IMPACTS (ACRES)	0.43	0.70
WETLAND MITIGATION COST	$43,000.00	$70,000.00
NUMBER OF PARCELS	1	1
PARTIAL (P) OR WHOLE TAKE (WT)	P	P
ESTIMATED CONSTRUCTION COST	$312,427.46	$309,545.26
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$275,000.00	$275,000.00
TOTAL ESTIMATED COSTS	**$640,427.46**	**$664,545.26**
Recommended FPC Alternative	**FPC 1003A**	

4.3.3 Recommended FPC Site

FPC 1003A

PROS	CONS
1. Lower wetland impacts	1. Higher construction cost

FPC 1003B

PROS	CONS
1. Lower construction cost	1. Higher wetland impacts

Based on an evaluation of right-of-way impacts, construction cost, wetland impacts, conservation land impacts, species mitigation, and FPC area, FPC 1003A is the preferred alternative.

This alternative was selected due to lower wetland impacts. The cost estimates can be found above and in Appendix 7.

4.4 FPC 1004

The contiguous floodplain is divided into four segments based on increments of one-half a foot as the low edge of pavement elevation drops from west to east. Floodplain 1004 is the lowest two of the four floodplain segments that runs longitudinal with the SR 70 corridor. Floodplain 1004-1 starts at the west end of the floodplain just west of the cross drain near 4 Mile Grade Road. The low edge of pavement elevation and assumed 100-year floodplain elevation of Floodplain 1004-1 is 77.50 feet. Floodplain 1004-2 starts approximately 162 feet east of the west end of the floodplain near the cross drain under SR 70 at 4 Mile Grade Road and extends approximately 2,283 feet to the east near the main entrance to the Desoto Correctional Institution. The low edge of pavement elevation and assumed 100-year floodplain elevation of Floodplain 1004-2 is 78.00 feet. The roadway corridor will impact 1.84 acre-feet and 34.04 acre-feet of the 100-year floodplain within Floodplain 1004-1 and 1004-2, respectively. The total floodplain encroachment volume into Floodplain 1004 is 35.88 acre-feet. Additionally, SMF 1005B will impact 0.39 acre-feet of the 100-year floodplain. Therefore, if SMF 1005B is selected, the total floodplain encroachment volume into Floodplain 1004 is 36.27 acre-feet. Refer to the floodplain calculations in Appendix 4 and the floodplain map in Appendix 6. The other two remaining segments will be discussed in a later section of this report.

The area surrounding the floodplain is constrained to the south by the Desoto Correctional Institution and to the northeast by Florida Power and Light Company and Desoto Recycling and Disposal Waste Management Facility.

4.4.1 Alternative 1

FPC 1004A is an offsite floodplain compensation site located in pasture southwest of the SR 70 and 4 Mile Grade Road intersection. A strip of private property and buried FGT line runs between the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback between approximately 150 to 275 feet from the SR 70 right-of-way and a drainage access easement will be required for this site. The proposed grading will avoid impacting the existing driveway passage through the property, but a temporary construction easement would be needed to access work on both sides of the driveway from SR 70. A pipe with inlets will be needed under the driveway to connect both sides of the floodplain compensation site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 71.85 feet. The site provides 38.61 acre-feet of floodplain compensation and will be constructed to connect directly with the west side of the floodplain. See Table 4-6 for a summary of the FPC site information.

4.4.2 Alternative 2

FPC 1004B is an offsite floodplain compensation site located northeast of the SR 70 and 4 Mile Grade Road intersection. The site is located on property owned by Alico, Inc., a major citrus grower in the region. The site mainly consists of tree crops associated with the citrus company. The FPC is setback approximately 880 feet from the SR 70 right-of-way and a drainage access easement for a driveway and culvert to maintain the flow through the canal will be required for this site.

Alternatively, an existing driveway access further to the west near 4520+25 could allow access to the FPC site and avoid additional impacts to the canal north of SR 70. The work will avoid impacting the existing privately owned internal driveway along the southern boundary of the site. Prior to the permitting phase, it is recommended to perform a closer review of the internal site access and coordinate with the property owner and negotiate a shared use of the existing driveway.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 74.06 feet. The site provides 38.49 acre-feet of floodplain compensation and will be constructed to connect directly with the secondary canal to the east of the site. If this site is selected, it is recommended that an evaluation of the existing conveyance between the canal north of SR 70 and the proposed FPC be performed to determine whether there is sufficient capacity as not to cause adverse flood impacts. A piped connection has been assumed to connect the site with the floodplain, but this may not be needed if the existing conveyance is sufficient. See Table 4-6 for a summary of the FPC site information.

4.4.3 Alternative 3

FPC 1004C is an offsite floodplain compensation site located northeast of the SR 70 and 4 Mile Grade Road intersection. The site is located on property owned by Alico, Inc., a major citrus

grower in the region. The southern portion mainly consists of industrial land use with offices, storage yards, and a radio tower. The northern portion of the site is mainly tree crops associated with the citrus company. For direct access from the SR 70 right-of-way, a culvert will be needed under the proposed access road to maintain the flow through the canal on the north side of SR 70.

Alternatively, an existing driveway access further to the west near 4520+25 could allow access to the FPC site and avoid additional impacts to the canal north of SR 70. The existing privately owned internal driveway will be cut-off. Prior to the permitting phase, it is recommended to perform a closer review of the internal site access and coordinate with the property owner and negotiate a shared use of the existing driveway.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 73.87 feet. The site provides 37.35 acre-feet of floodplain compensation and will be constructed to connect directly with the canal to the north of the SR 70 right-of-way. See Table 4-6 for a summary of the FPC site information.

Table 4-6 FPC 1004 Alternatives

BASIN CONDITION: ONE FPC IS REQUIRED	Floodplain 1004		
	Alternative 1 FPC 1004A	Alternative 2 FPC 1004B	Alternative 3 FPC 1004C
LOCATION (BEGIN STATION)	4496+15.01	4523+13.60	4522+11.26
LOCATION (END STATION)	4518+60.93	4546+43.13	4529+59.41
SIDE (LT, RT)	RT	LT	LT
FPC AREA (ACRES)	36.25	30.09	23.03
AVE. EST. GROUND ELEVATION (FT) @ FPC SITE	73.81	75.50	75.50
AVE. EST. SHW ELEVATION (FT)	71.85	74.06	73.87
LAND USE	[2100] CROPLAND AND PASTURELAND	[2200] TREE CROPS & [3300] MIXED RANGELAND	[2200] TREE CROPS & [1500] INDUSTRIAL
RECORDED HISTORICAL STRUCTURES/RESOURCES	Med (Adjacent to 8DE382 Dorr Airfield)	Med (Citrus crops)	Low
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	Low	Low	Medium - Within citrus grove
PROTECTED, THREATENED, & ENDANGERED SPECIES	High	High	Low
SPECIES MITIGATION COST	$25,000	$25,000	$0
MAJOR UTILITIES PRESENT	FGT	N	N
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N
SECTION 4(F) PRESENT	Dorr Airfield	N/A	N/A
SECTION 4(F) IMPACTED (Y/N)	N	N	N
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00
ESTIMATED WETLAND IMPACTS (ACRES)	5.00	0.00	1.30
WETLAND MITIGATION COST	$500,000.00	$0.00	$130,000.00
NUMBER OF PARCELS	1	1	1
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P
ESTIMATED CONSTRUCTION COST	$2,153,261.17	$1,494,169.68	$1,268,467.24
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$1,445,000.00	$1,555,000.00	$3,975,000.00
TOTAL ESTIMATED COSTS	**$4,123,261.17**	**$3,074,169.68**	**$5,373,467.24**
Recommended FPC Alternative	**FPC 1004B**		

4.4.4 Recommended FPC Site

FPC 1004A

PROS
1. Low risk for hazardous material
2. Lowest right-of-way cost

CONS
1. Highest construction cost
2. Medium archaeological potential
3. Higher T/E species cost
4. Highest wetland impacts

FPC 1004B

PROS
1. Low risk for hazardous material
2. Lowest wetland impacts
3. Lower construction cost

CONS
1. Medium archaeological potential
2. Higher T/E species cost

FPC 1004C

PROS
1. Lowest construction cost
2. Low archaeological potential
3. Lower T/E species cost

CONS
1. Medium risk for hazardous material
2. Higher wetland impacts
3. Highest right-of-way cost
4. Impacts to buildings and cell tower

Based on an evaluation of right-of-way impacts, construction cost, wetland impacts, conservation land impacts, species mitigation, and FPC area, FPC 1004B is the preferred alternative.

This alternative was selected due to the lower construction cost, lowest wetland impacts, and low risk for hazardous material. The cost estimates can be found above and in Appendix 7.

4.5 FPC 1005

The contiguous floodplain is divided into four segments based on increments of one-half a foot as the low edge of pavement elevation drops from west to east. Floodplain 1005 is the third floodplain segment that runs longitudinal with the SR 70 corridor. Floodplain 1005 starts at the end of Floodplain 1004-2 near the main entrance to the Desoto Correctional Institution and extends approximately 3,462 feet to the east before the first entrance to the Desoto Recycling and Disposal Waste Management Facility. The low edge of pavement elevation and assumed 100-year floodplain elevation of Floodplain 1005 is 78.50 feet. The roadway corridor will impact 42.25 acre-feet of the 100-year floodplain. Refer to the floodplain calculations in Appendix 4 and the

floodplain map in Appendix 6. The other remaining segment will be discussed in a later section of this report.

The area surrounding the floodplain is constrained to the south by the Desoto Correctional Institution and to the northeast by Florida Power and Light Company and Desoto Recycling and Disposal Waste Management Facility. Thus, all FPC alternatives were limited to the same property.

4.5.1 Alternative 1

FPC 1005A is an offsite floodplain compensation site located in tree crops and rangeland northeast of the SR 70 and 4 Mile Grade Road intersection. The site is located on property owned by Alico, Inc., a major citrus grower in the region.

For direct access from the SR 70 right-of-way, a culvert will be needed under the proposed access road to maintain the flow through the canal on the north side of SR 70. The existing privately owned internal driveway will be cut-off. Prior to the permitting phase, it is recommended to perform a closer review of the internal site access and coordinate with the property owner and evaluate a shared use of the proposed access road to reestablish internal passage within the property.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 74.16 feet. The site provides 50.80 acre-feet of floodplain compensation and will be constructed to connect directly with the canal to the north of the SR 70 right-of-way. See Table 4-7 for a summary of the FPC site information.

4.5.2 Alternative 2

FPC 1005B is an offsite floodplain compensation site located in nurseries, vineyards, and rangeland northeast of the SR 70 and 4 Mile Grade Road intersection. The site is located on property owned by Alico, Inc., a major citrus grower in the region.

For direct access from the SR 70 right-of-way, a culvert will be needed under the proposed access road to maintain the flow through the canal on the north side of SR 70. The existing privately owned internal driveways will be impacted and a temporary construction easement would be needed to bypass passage around the site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 73.00 feet. The site provides 46.77 acre-feet of floodplain compensation and will be constructed to connect directly with the canal to the north of the SR 70 right-of-way. See Table 4-7 for a summary of the FPC site information.

4.5.3 Alternative 3

FPC 1005C is an offsite floodplain compensation site located in tree crops northeast of the SR 70 and 4 Mile Grade Road intersection. The site is located on property owned by Alico, Inc., a major citrus grower in the region. The FPC is setback approximately 1,560 feet from the SR 70 right-of-way and a drainage access easement for a driveway and culvert to maintain the flow through the canal will be required for this site.

Alternatively, an existing driveway access further to the west near 4520+25 could allow access to the FPC site and avoid additional impacts to the canal north of SR 70. The existing privately owned internal driveways will be impacted but the site can be bypassed via the existing eastward passage south of the site. Prior to the permitting phase, it is recommended to perform a closer review of the internal site access and coordinate with the property owner to negotiate a shared use of the existing driveway.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 74.74 feet. The site provides 42.41 acre-feet of floodplain compensation and will be constructed to connect directly with the secondary canal to the east of the site. If this site is selected, it is recommended that an evaluation of the existing conveyance between the canal north of SR 70 and the proposed FPC be performed to determine whether there is sufficient capacity as not to cause adverse flood impacts. A piped connection has been assumed to connect the site with the floodplain, but this may not be needed if the existing conveyance is sufficient. See Table 4-7 for a summary of the FPC site information.

Table 4-7 FPC 1005 Alternatives

BASIN CONDITION: ONE FPC IS REQUIRED	Floodplain 1005		
	Alternative 1 FPC 1005A	Alternative 2 FPC 1005B	Alternative 3 FPC 1005C
LOCATION (BEGIN STATION)	4529+59.41	4547+95.28	4523+14.81
LOCATION (END STATION)	4545+33.43	4561+71.62	4546+56.99
SIDE (LT, RT)	LT	LT	LT
FPC AREA (ACRES)	38.11	27.43	37.88
AVE. EST. GROUND ELEVATION (FT) @ FPC SITE	75.50	75.05	76.00
AVE. EST. SHW ELEVATION (FT)	74.16	73.00	74.74
LAND USE	[2200] TREE CROPS & [3300] MIXED RANGELAND	[2400] NURSERIES AND VINEYARDS & [3300] MIXED RANGELAND	[2200] TREE CROPS & [2400] NURSERIES AND VINEYARDS
RECORDED HISTORICAL STRUCTURES/RESOURCES	Low	Low	Low
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	Medium - Within citrus grove	Medium - Within former citrus grove	Medium - Within citrus grove
PROTECTED, THREATENED, & ENDANGERED SPECIES	High	High	Low
SPECIES MITIGATION COST	$25,000	$25,000	$0
MAJOR UTILITIES PRESENT	N	N	N
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N
SECTION 4(F) PRESENT	N/A	N/A	N/A
SECTION 4(F) IMPACTED (Y/N)	N	N	N
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00
ESTIMATED WETLAND IMPACTS (ACRES)	2.85	5.40	0.12
WETLAND MITIGATION COST	$285,000.00	$540,000.00	$12,000.00
NUMBER OF PARCELS	1	1	1
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P
ESTIMATED CONSTRUCTION COST	$3,345,020.73	$3,171,660.53	$1,824,630.55
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$1,525,000.00	$815,000.00	$1,805,000.00
TOTAL ESTIMATED COSTS	**$5,180,020.73**	**$4,551,660.53**	**$3,641,630.55**
Recommended FPC Alternative	**FPC 1005C**		

4.5.4 Recommended FPC Site

FPC 1005A

PROS
1. Northern half is dry

CONS
1. Higher T/E species cost
2. Higher wetland impacts
3. Highest construction cost

FPC 1005B

PROS
1. Lowest right-of-way cost

CONS
1. Higher T/E species cost
2. Highest wetland impacts
3. Higher construction cost

FPC 1005C

PROS
1. Lowest T/E species cost
2. Lowest wetland impacts
3. Lowest construction cost

CONS
1. Highest right-of-way cost

Based on an evaluation of right-of-way impacts, construction cost, wetland impacts, conservation land impacts, species mitigation, and FPC area, FPC 1005C is the preferred alternative.

This alternative was selected due to the lowest construction cost, lowest wetland impacts, and lowest threatened and endangered species impacts. The cost estimates can be found above and in Appendix 7.

4.6 FPC 1006

The contiguous floodplain is divided into four segments based on increments of one-half a foot as the low edge of pavement elevation drops from west to east. Floodplain 1006 is the fourth floodplain segment that runs longitudinal with the SR 70 corridor. Floodplain 1006 starts at the end of Floodplain 1005 before the first entrance to the Desoto Recycling and Disposal Waste Management Facility and extends approximately 2,307 feet to the east to beyond the first entrance to the Desoto Recycling and Disposal Waste Management Facility and Desoto Correctional Institution property. The low edge of pavement elevation and assumed 100-year floodplain elevation of Floodplain 1006 is 79.00 feet. The roadway corridor will impact 17.46 acre-feet of

the 100-year floodplain. Refer to the floodplain calculations in Appendix 4 and the floodplain map in Appendix 6.

The area surrounding the floodplain is constrained to the southwest by the Desoto Correctional Institution and to the north by Florida Power and Light Company and Desoto Recycling and Disposal Waste Management Facility. Thus, only two FPC alternatives were evaluated and were limited to the same property.

4.6.1 Alternative 1

FPC 1006A is an offsite floodplain compensation site located in pasture and open lands southeast of the SR 70 and NE Four Mile Grade intersection just east of the Desoto Correctional Institution property. A strip of private property and buried FGT line runs between the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback approximately 320 feet south of the SR 70 right-of-way and a drainage access easement will be required for this site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 75.51 feet. The site provides 20.30 acre-feet of floodplain compensation and will be constructed to connect directly with the east side of the floodplain. The layout of the FPC is atypical in that the southern edge is bound by an isolated depression to avoid additional wetland impacts. See Table 4-8 for a summary of the FPC site information.

4.6.2 Alternative 2

FPC 1006B is an offsite floodplain compensation site located in a pasture southeast of the SR 70 and NE Four Mile Grade intersection just east of the Desoto Correctional Institution property. A strip of private property and buried FGT line runs between the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback approximately 1,230 feet south of the SR 70 right-of-way and a drainage access easement will be required for this site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 74.80 feet. The site provides 20.62 acre-feet of floodplain compensation and will be constructed to connect directly with the east side of the floodplain. See Table 4-8 for a summary of the FPC site information.

Table 4-8 FPC 1006 Alternatives

BASIN CONDITION: ONE FPC IS REQUIRED	Floodplain 1006	
	Alternative 1 FPC 1006A	Alternative 2 FPC 1006B
LOCATION (BEGIN STATION)	4597+50.93	4596+21.69
LOCATION (END STATION)	4612+22.31	4612+18.18
SIDE (LT, RT)	RT	RT
FPC AREA (ACRES)	17.33	17.71
AVE. EST. GROUND ELEVATION (FT) @ FPC SITE	76.80	76.00
AVE. EST. SHW ELEVATION (FT)	75.51	74.80
LAND USE	[2100] CROPLAND AND PASTURELAND & [2600] OTHER OPEN LANDS	[2100] CROPLAND AND PASTURELAND
RECORDED HISTORICAL STRUCTURES/RESOURCES	Low	Low
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	Low	Low
PROTECTED, THREATENED, & ENDANGERED SPECIES	Medium	Medium
SPECIES MITIGATION COST	$10,000	$10,000
MAJOR UTILITIES PRESENT	FGT	N
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N
SECTION 4(F) PRESENT	N/A	N/A
SECTION 4(F) IMPACTED (Y/N)	N	N
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00
CONSERVATION MITIGATION COST	$0.00	$0.00
ESTIMATED WETLAND IMPACTS (ACRES)	0.79	0.48
WETLAND MITIGATION COST	$79,000.00	$48,000.00
NUMBER OF PARCELS	1	1
PARTIAL (P) OR WHOLE TAKE (WT)	P	P
ESTIMATED CONSTRUCTION COST	$844,516.04	$929,926.86
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$530,000.00	$555,000.00
TOTAL ESTIMATED COSTS	**$1,463,516.04**	**$1,542,926.86**
Recommended FPC Alternative	**FPC 1006A**	

4.6.3 Recommended FPC Site

FPC 1006A

PROS	CONS
1. Lower construction cost	1. Odd parcel shape
2. Lower right-of-way cost	2. Higher wetland impacts

FPC 1006B

PROS	CONS
1. Standard parcel shape	1. Higher construction cost
2. Lower wetland impacts	2. Higher right-of-way cost

Based on an evaluation of right-of-way impacts, construction cost, wetland impacts, conservation land impacts, species mitigation, and FPC area, FPC 1006A is the preferred alternative.

This alternative was selected due to the lower construction and right-of-way cost. The cost estimates can be found above and in Appendix 7.

4.7 FPC 1007

Floodplain 1007 is a channel crossing within the proposed SR 70 right-of-way near the middle of the Desoto Recycling and Disposal Waste Management Facility property. The roadway corridor will impact 5.10 acre-feet of the 100-year floodplain. Additionally, the project will impact the existing floodplain compensation areas between stations 4623+16 to 4634+16 and will require an additional 0.21 acre-feet of storage for a total of 5.31 acre-feet of floodplain compensation required. Refer to the floodplain calculations in Appendix 4 and the floodplain map in Appendix 6.

4.7.1 Alternative 1

FPC 1007A is an offsite floodplain compensation site located in pasture south of SR 70 near the middle of the Desoto Recycling and Disposal Waste Management Facility property. A strip of private property and buried FGT line runs between the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback approximately 225 feet south of the SR 70 right-of-way and a drainage access easement will be required for this site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 74.85 feet. The site provides 6.14 acre-feet of floodplain compensation and will be constructed to connect directly with the east side of the floodplain. See Table 4-9 for a summary of the FPC site information.

4.7.2 Alternative 2

FPC 1007B is an offsite floodplain compensation site located in pasture south of SR 70 near the middle of the Desoto Recycling and Disposal Waste Management Facility property. A strip of private property and buried FGT line runs between the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback approximately 700 feet south of the SR 70 right-of-way and a drainage access easement will be required for this site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 75.20 feet. The site provides 5.43 acre-feet of floodplain compensation and will be constructed to connect directly with the east side of the floodplain. See Table 4-9 for a summary of the FPC site information.

4.7.3 Alternative 3

FPC 1007C is an offsite floodplain compensation site located in pasture south of SR 70 near the middle of the Desoto Recycling and Disposal Waste Management Facility property. A strip of private property and buried FGT line runs between the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback approximately 225 feet south of the SR 70 right-of-way and a drainage access easement will be required for this site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 75.13 feet. The site provides 6.30 acre-feet of floodplain compensation and will be constructed to connect directly with the west side of the floodplain. See Table 4-9 for a summary of the FPC site information.

Table 4-9 FPC 1007 Alternatives

BASIN CONDITION: ONE FPC IS REQUIRED	Floodplain 1007		
	Alternative 1 FPC 1007A	Alternative 2 FPC 1007B	Alternative 3 FPC 1007C
LOCATION (BEGIN STATION)	4629+41.80	4629+81.11	4622+61.74
LOCATION (END STATION)	4633+40.12	4636+49.94	4629+86.40
SIDE (LT, RT)	RT	RT	RT
FPC AREA (ACRES)	3.51	3.67	3.82
AVE. EST. GROUND ELEVATION (FT) @ FPC SITE	77.00	77.00	77.00
AVE. EST. SHW ELEVATION (FT)	74.85	75.20	75.13
LAND USE	[2100] CROPLAND AND PASTURELAND	[2100] CROPLAND AND PASTURELAND	[2100] CROPLAND AND PASTURELAND
RECORDED HISTORICAL STRUCTURES/RESOURCES	Low	Low	Low
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	Low	Low	Low
PROTECTED, THREATENED, & ENDANGERED SPECIES	Low	Low	Low
SPECIES MITIGATION COST	$0	$0	$0
MAJOR UTILITIES PRESENT	FGT	N	FGT
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N
SECTION 4(F) PRESENT	N/A	N/A	N/A
SECTION 4(F) IMPACTED (Y/N)	N	N	N
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00
ESTIMATED WETLAND IMPACTS (ACRES)	0.27	0.23	0.29
WETLAND MITIGATION COST	$27,000.00	$23,000.00	$29,000.00
NUMBER OF PARCELS	1	1	1
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P
ESTIMATED CONSTRUCTION COST	$240,451.33	$257,443.73	$296,744.16
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$160,000.00	$175,000.00	$190,000.00
TOTAL ESTIMATED COSTS	**$427,451.33**	**$455,443.73**	**$515,744.16**
Recommended FPC Alternative	**FPC 1007C**		

4.7.4 Recommended FPC Site

FPC 1007A

PROS	CONS
1. Lowest construction cost	1. Potential major utilities present
2. Lowest right-of-way cost	

FPC 1007B

PROS	CONS
1. Lowest wetland impacts	1. Further from SR 70

FPC 1007C

PROS	CONS
1. Corner of parcel	1. Highest wetland impacts
	2. Highest construction cost
	3. Highest right-of-way cost

The FPC sites are inherently located adjacent to the water's edge and sometimes the SMF will discharge to the same waterbody, the natural sequence means that the discharge from the SMF will traverse the FPC sites prior to reaching the outfall. Likewise, FPC 1007A and FPC 1007B are designed to be built in conjunction with SMF 1006B. FPC 1007C is designed to be built in conjunction with SMF 1006A. Therefore, instead of evaluating each site independently, an evaluation of the combined FPC and associated SMF alternative was performed. A combined evaluation of right-of-way impacts, construction cost, wetland impacts, conservation land impacts, species mitigation, and FPC and SMF area, FPC 1007C and SMF 1006A are the preferred alternatives. However, this recommendation would change if SMF 1006A becomes unpreferred.

This alternative was selected due to the lowest combined cost. The cost estimates can be found above and in Appendix 7.

4.8 FPC 1008

Floodplain 1008 is a channel crossing within the proposed SR 70 right-of-way near the eastern end of the Desoto Recycling and Disposal Waste Management Facility property. The downstream top of bank elevation is approximately 79 feet and the assumed 100-year floodplain elevation is 79.87 feet based on best fit of the floodplain shape. The roadway corridor will impact 1.84 acre-feet of the 100-year floodplain. Refer to the floodplain calculations in Appendix 4 and the floodplain map in Appendix 6.

4.8.1 Alternative 1

FPC 1008A is an offsite floodplain compensation site located in pasture south of SR 70 near the eastern end of the Desoto Recycling and Disposal Waste Management Facility property. A strip of private property and buried FGT line runs between the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback approximately 300 feet south of the SR 70 right-of-way and a drainage access easement will be required for this site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 78.50 feet. The site provides 2.36 acre-feet of floodplain compensation and will be constructed to connect directly with the east side of the floodplain. See Table 4-10 for a summary of the FPC site information.

4.8.2 Alternative 2

FPC 1008B is an offsite floodplain compensation site located in pasture south of SR 70 near the eastern end of the Desoto Recycling and Disposal Waste Management Facility property. A strip of private property and buried FGT line runs between the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback approximately 300 feet south of the SR 70 right-of-way and a drainage access easement will be required for this site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 78.03 feet. The site provides 1.93 acre-feet of floodplain compensation and will be constructed to connect directly with the west side of the floodplain. See Table 4-10 for a summary of the FPC site information.

4.8.3 Alternative 3

FPC 1008C is an offsite floodplain compensation site located in tree crops north of SR 70 and just east of the Desoto Recycling and Disposal Waste Management Facility property. Based on the property boundary obtained from Desoto County Property Appraiser, there appears to be a gap between the north side of the SR 70 right-of-way and the parcel to the north. It is recommended that a title search be performed to verify the gap and determine whether a drainage access easement will be required for this site. The FPC is setback approximately 100 feet north of the SR 70 right-of-way and a drainage access easement will be required for this site.

For direct access from the SR 70 right-of-way, a culvert will be needed under the access road to maintain the flow through the canal on the north side of SR 70. Alternatively, an existing driveway access further to the east near 4708+20 could allow access to the FPC site and avoid additional impacts to the canal north of SR 70. The existing privately owned internal driveways will be impacted and a temporary construction easement would be needed to bypass the impacted road around the site. Prior to the permitting phase, it is recommended to perform a closer review of the internal site access and coordinate with the property owner to negotiate a shared use of the driveway.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 79.05 feet. The site provides 1.96 acre-feet of floodplain compensation and will be constructed to connect directly with the east side of the floodplain. See Table 4-10 for a summary of the FPC site information.

Table 4-10 FPC 1008 Alternatives

BASIN CONDITION: ONE FPC IS REQUIRED	Floodplain 1008		
	Alternative 1 FPC 1008A	Alternative 2 FPC 1008B	Alternative 3 FPC 1008C
LOCATION (BEGIN STATION)	4666+98.83	4663+20.32	4676+56.17
LOCATION (END STATION)	4672+70.73	4668+53.71	4679+68.31
SIDE (LT, RT)	RT	RT	LT
FPC AREA (ACRES)	2.22	2.00	2.42
AVE. EST. GROUND ELEVATION (FT) @ FPC SITE	80.00	79.00	80.83
AVE. EST. SHW ELEVATION (FT)	78.50	78.03	79.05
LAND USE	[2100] CROPLAND AND PASTURELAND	[2100] CROPLAND AND PASTURELAND	[2200] TREE CROPS
RECORDED HISTORICAL STRUCTURES/RESOURCES	Low	Low	Low
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	Low	Low	Medium - Within citrus grove
PROTECTED, THREATENED, & ENDANGERED SPECIES	High	High	Low
SPECIES MITIGATION COST	$15,000	$15,000	$0
MAJOR UTILITIES PRESENT	FGT	FGT	N
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	N	N	N
SECTION 4(F) PRESENT	N/A	N/A	N/A
SECTION 4(F) IMPACTED (Y/N)	N	N	N
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00
ESTIMATED WETLAND IMPACTS (ACRES)	0.35	0.08	0.04
WETLAND MITIGATION COST	$35,000.00	$8,000.00	$4,000.00
NUMBER OF PARCELS	1	1	1
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P
ESTIMATED CONSTRUCTION COST	$179,617.33	$113,568.53	$208,106.56
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$145,000.00	$125,000.00	$1,505,000.00
TOTAL ESTIMATED COSTS	**$374,617.33**	**$261,568.53**	**$1,717,106.56**
Recommended FPC Alternative	**FPC 1008A**		

4.8.4 Recommended FPC Site

FPC 1008A

PROS	CONS
1. Low risk for hazardous material	1. Highest wetland impacts 2. Higher T/E species cost 3. Higher construction cost

FPC 1008B

PROS	CONS
1. Lowest construction cost 2. Low risk for hazardous material 3. Lowest right-of-way cost 4. Lower wetland impacts	1. Higher T/E species cost

FPC 1008C

PROS	CONS
1. Corner of parcel 2. Lowest T/E species cost 3. Lowest wetland impacts	1. Highest construction cost 2. Medium risk for hazardous material 3. Highest right-of-way cost

The FPC sites are inherently located adjacent to the water's edge and sometimes the SMF will discharge to the same waterbody, the natural sequence means that the discharge from the SMF will traverse the FPC sites prior to reaching the outfall. Likewise, FPC 1008A is designed to be built in conjunction with SMF 1007A. FPC 1008C is designed to be built in conjunction with SMF 1007B. Therefore, instead of evaluating each site independently, an evaluation of the combined FPC and associated SMF alternative was performed. A combined evaluation of right-of-way impacts, construction cost, wetland impacts, conservation land impacts, species mitigation, and FPC and SMF area, FPC 1008A and SMF 1007A are the preferred alternatives. However, this recommendation would change if SMF 1007A becomes unpreferred.

This alternative was selected due to the lowest combined cost. The cost estimates can be found above and in Appendix 7.

4.9 FPC 1009

Floodplain 1009 is a channel crossing within the proposed SR 70 right-of-way east of the SR 70 and SE Lake Browning Grade intersection. The downstream top of bank elevation is

approximately 83 feet and the assumed 100-year floodplain elevation is 82.84 feet based on best fit of the floodplain shape. The roadway corridor will impact 2.16 acre-feet of the 100-year floodplain. Additionally, the project will impact the existing floodplain compensation areas between stations 4720+47 to 4731+27 and will require an additional 0.11 acre-feet of storage for a total of 2.27 acre-feet of floodplain compensation required. Refer to the floodplain calculations in Appendix 4 and the floodplain map in Appendix 6.

4.9.1 Alternative 1

FPC 1009A is an offsite floodplain compensation site located in tree crops northeast of the SR 70 and SE Lake Browning Grade intersection. The FPC will connect directly with the canal to the south. Based on the property boundary obtained from the Desoto County Property Appraiser, there appears to be a gap between the north side of the SR 70 right-of-way and the parcel to the north. It is recommended that a title search be performed to verify ownership within the gap. The proposed FPC will impact the lateral (aligned north and south) electrical distribution poles on the eastern end of the site. Coordination with FPL will be required to relocate the electrical distribution poles. For direct access from the SR 70 right-of-way, a culvert will be needed under the access road to maintain the flow through the canal on the north side of SR 70.

Alternatively, an existing driveway access further to the west near 4708+20 could allow access to the FPC site and avoid additional impacts to the canal north of SR 70. The existing privately owned internal driveways will be impacted and a temporary construction easement would be needed to bypass passage around the site. Prior to the permitting phase, it is recommended to perform a closer review of the internal site access and coordinate with the property owner to negotiate a shared use of the existing driveway.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 81.67 feet. The site provides 2.40 acre-feet of floodplain compensation. See Table 4-11 for a summary of the FPC site information.

4.9.2 Alternative 2

FPC 1009B is an offsite floodplain compensation site located in a pasture southeast of the SR 70 and SE Lake Browning Grade intersection. A strip of private property and buried FGT line runs between the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback approximately 175 feet south of the SR 70 right-of-way and a drainage access easement will be required for this site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 81.50 feet. The site provides 2.61 acre-feet of floodplain compensation and will be constructed to connect directly with the east side of the floodplain. See Table 4-11 for a summary of the FPC site information.

4.9.3 Alternative 3

FPC 1009C is an offsite floodplain compensation site located in a pasture southeast of the SR 70 and SE Lake Browning Grade intersection. A strip of private property and buried FGT line runs between the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback approximately 175 feet south of the SR 70 right-of-way and a drainage access easement will be required for this site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 81.30 feet. The site provides 2.40 acre-feet of floodplain compensation and will be constructed to connect directly with the west side of the floodplain. See Table 4-11 for a summary of the FPC site information.

Table 4-11 FPC 1009 Alternatives

BASIN CONDITION: ONE FPC IS REQUIRED	**Floodplain 1009**		
	Alternative 1 FPC 1009A	Alternative 2 FPC 1009B	Alternative 3 FPC 1009C
LOCATION (BEGIN STATION)	4722+65.20	4724+73.06	4720+81.36
LOCATION (END STATION)	4729+90.85	4730+01.83	4725+41.42
SIDE (LT, RT)	LT	RT	RT
FPC AREA (ACRES)	5.82	2.00	1.61
AVE. EST. GROUND ELEVATION (FT) @ FPC SITE	82.09	83.00	83.00
AVE. EST. SHW ELEVATION (FT)	81.67	81.50	81.30
LAND USE	[2200] TREE CROPS	[2100] CROPLAND AND PASTURELAND	[2100] CROPLAND AND PASTURELAND
RECORDED HISTORICAL STRUCTURES/RESOURCES	Low	Low	Low
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	Medium - Within citrus grove	Medium - Within 500' of citrus grove	Medium - Within 500' of citrus grove
PROTECTED, THREATENED, & ENDANGERED SPECIES	Medium	High	High
SPECIES MITIGATION COST	$10,000	$12,500	$12,500
MAJOR UTILITIES PRESENT	FPL	FGT	FGT
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	Y	N	N
SECTION 4(F) PRESENT	N/A	N/A	N/A
SECTION 4(F) IMPACTED (Y/N)	N	N	N
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00
ESTIMATED WETLAND IMPACTS (ACRES)	0.54	0.07	0.08
WETLAND MITIGATION COST	$54,000.00	$7,000.00	$8,000.00
NUMBER OF PARCELS	1	1	1
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P
ESTIMATED CONSTRUCTION COST	$572,070.08	$130,958.20	$116,463.75
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$365,000.00	$120,000.00	$108,000.00
TOTAL ESTIMATED COSTS	**$1,001,070.08**	**$270,458.20**	**$244,963.75**
Recommended FPC Alternative	**FPC 1009C**		

4.9.4 Recommended FPC Site

FPC 1009A

PROS
1. Corner of parcel
2. Lower T/E species cost

CONS
1. Highest construction cost
2. Potential major utilities impacted
3. Highest right-of-way cost
4. Highest wetland impacts

FPC 1009B

PROS
1. Lower construction cost
2. Lower right-of-way cost
3. Lowest wetland impacts

CONS
1. Higher T/E species cost

FPC 1009C

PROS
1. Lowest construction cost
2. Lowest right-of-way cost
3. Lower wetland impacts

CONS
1. Higher T/E species cost

Based on an evaluation of right-of-way impacts, construction cost, wetland impacts, conservation land impacts, species mitigation, and FPC area, FPC 1009C is the preferred alternative.

This alternative was selected due to the lowest construction and right-of-way cost and lower wetland impacts. The cost estimates can be found above and in Appendix 7.

4.10 FPC 1010

Floodplain 1010 runs along the roadway corridor before crossing within the proposed SR 70 right-of-way west of the SR 70 and SE Highlands County Line Road intersection near station 1644+00. The floodplain shape does not follow the topographical contour lines, and the low edge of pavement elevation of 85.64 near station 1658+00 is significantly higher than the surrounding areas outside of the floodplain shape. Therefore, the floodplain elevation was based on the characteristics of the existing four side-by-side, 12-foot-wide by 7-foot-high each, box culverts crossing SR 70. The highest crown elevation of the upstream end of the box culvert is approximately 82.67 feet and the top of headwall elevation is approximately 84.95 feet. The assumed 100-year floodplain elevation is 84.00 feet and is between the upstream crown and

headwall elevation. The roadway corridor will impact 48.55 acre-feet of the 100-year floodplain. Refer to the floodplain calculations in Appendix 4 and the floodplain map in Appendix 6.

4.10.1 Alternative 1

FPC 1010A is an offsite floodplain compensation site located in open lands near a marsh northwest of the SR 70 and SE Highlands County Line Road intersection. The FPC is setback approximately 845 feet north of the SR 70 right-of-way and a drainage access easement will be required for this site. Based on the property boundary obtained from the Desoto County Property Appraiser, there appears to be a gap between the north side of the SR 70 right-of-way and the parcel to the north. It is recommended that a title search be performed to verify ownership within the gap. The proposed FPC will impact the lateral (aligned north and south) electrical distribution poles on the eastern end of the site. Coordination with FPL will be required to relocate the electrical distribution poles.

This site will impact the permitted drainage design including the existing wetland cell and ditches per Environmental Resource Permit Number 43022119.000. During the permitting phase, it is recommended to schedule a pre-application meeting with the SWFWMD to determine whether a permit modification will be required if this FPC site is selected. An existing driveway access near 4863+80 could allow access to the FPC site and avoid additional impacts to the canal north of SR 70. The existing privately owned internal driveways will be impacted but the site can be bypassed via the existing northward passage from the driveway access near 4863+80. Prior to the permitting phase, it is recommended to perform a closer review of the internal site access and coordinate with the property owner to negotiate a shared use of the driveway and confirm sufficient access is provided for the operation and maintenance of the permitted surface water management system.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 82.40 feet. The site provides 50.37 acre-feet of floodplain compensation and will be constructed to connect directly with the north side of the floodplain. See Table 4-12 for a summary of the FPC site information.

4.10.2 Alternative 2

FPC 1010B is an offsite floodplain compensation site located in a pasture southwest of the SR 70 and SE Highlands County Line Road just west of the channel crossing SR 70. A strip of private property and buried FGT line runs between the south side of the SR 70 right-of-way and proposed FPC site. The FPC is setback approximately 225 feet south of the SR 70 right-of-way and a drainage access easement will be required for this site.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 80.78 feet. The site provides 51.97 acre-feet of floodplain compensation and will be constructed to connect directly with the western side of the floodplain. See Table 4-12 for a summary of the FPC site information.

4.10.3 Alternative 3

FPC 1010C is an offsite floodplain compensation site located in open lands northwest of the SR 70 and SE Highlands County Line Road intersection just north of box culverts crossing SR 70. The FPC is setback approximately 53 feet north of the SR 70 right-of-way and a drainage access easement will be required for this site. Based on the property boundary obtained from the Desoto County Property Appraiser, there appears to be a gap between the north side of the SR 70 right-of-way and the parcel to the north. It is recommended that a title search be performed to verify ownership within the gap and determine whether a drainage access easement will be required.

This site will impact the permitted drainage design including the ditches per Environmental Resource Permit Number 43022119.000. During the permitting phase, it is recommended to schedule a pre-application meeting with the SWFWMD to determine whether a permit modification will be required if this FPC site is selected. For direct access from the SR 70 right-of-way, a culvert will be needed under the access road to maintain the flow through the canal on the north side of SR 70. Alternatively, an existing driveway access near 4863+80 could allow access to the FPC site and avoid additional impacts to the canal north of SR 70. The existing privately owned internal driveways will be impacted but the site can be bypassed via the existing northward passage from the driveway access near 4863+80. Prior to the permitting phase, it is recommended to perform a closer review of the internal site access and coordinate with the property owner to negotiate a shared use of the driveway and confirm sufficient access is provided for the operation and maintenance of the permitted surface water management system.

An average of the site-specific data provided by Tierra, Inc. estimates the SHGWT to be at elevation 80.53 feet. The site provides 50.77 acre-feet of floodplain compensation and will be constructed to connect directly with the canal to the north of SR 70. See Table 4-12 for a summary of the FPC site information.

Table 4-12 FPC 1010 Alternatives

BASIN CONDITION: ONE FPC IS REQUIRED	Floodplain 1010		
	Alternative 1 FPC 1010A	Alternative 2 FPC 1010B	Alternative 3 FPC 1010C
LOCATION (BEGIN STATION)	4864+11.57	4829+49.47	4837+64.02
LOCATION (END STATION)	4890+61.45	4848+46.84	4863+62.29
SIDE (LT, RT)	LT	RT	LT
FPC AREA (ACRES)	87.27	43.42	53.73
AVE. EST. GROUND ELEVATION (FT) @ FPC SITE	83.00	82.10	81.51
AVE. EST. SHW ELEVATION (FT)	82.40	80.78	80.53
LAND USE	[2600] OTHER OPEN LANDS & [6410] FRESHWATER MARSHES	[2100] CROPLAND AND PASTURELAND	[2600] OTHER OPEN LANDS
RECORDED HISTORICAL STRUCTURES/RESOURCES	Med (Adjacent to potential unrecorded historic canal)	Med (Adjacent to potential unrecorded historic canal)	Low
HAZARDOUS MATERIAL LEVEL I EVAL. (RISK RATING)	Medium - Within citrus grove/row crop	Medium - Within 500' of citrus grove/row crop	Medium - Within citrus grove/row crop
PROTECTED, THREATENED, & ENDANGERED SPECIES	Medium	High	Low
SPECIES MITIGATION COST	$10,000	$18,000	$5,000
MAJOR UTILITIES PRESENT	FPL	FGT	N
POTENTIAL MAJOR UTILITIES IMPACTED (Y/N)	Y	N	N
SECTION 4(F) PRESENT	N/A	N/A	N/A
SECTION 4(F) IMPACTED (Y/N)	N	N	N
CONSERVATION LANDS IMPACT AREA (ACRES)	0.00	0.00	0.00
CONSERVATION MITIGATION COST	$0.00	$0.00	$0.00
ESTIMATED WETLAND IMPACTS (ACRES)	15.30	0.65	3.60
WETLAND MITIGATION COST	$1,530,000.00	$65,000.00	$360,000.00
NUMBER OF PARCELS	1	2	1
PARTIAL (P) OR WHOLE TAKE (WT)	P	P	P
ESTIMATED CONSTRUCTION COST	$2,646,121.95	$2,073,236.59	$2,494,592.10
ROW COST ESTIMATE (INCLUDES EASEMENTS)	$4,195,000.00	$1,205,000.00	$1,555,000.00
TOTAL ESTIMATED COSTS	**$8,381,121.95**	**$3,361,236.59**	**$4,414,592.10**
Recommended FPC Alternative	**FPC 1010B**		

4.10.4 Recommended FPC Site

FPC 1010A

PROS
1. None

CONS
1. Medium archaeological potential
2. Highest wetland impacts
3. Potential major utilities impacted
4. Highest construction cost
5. Highest right-of-way cost

FPC 1010B

PROS
1. Lowest construction cost
2. Lowest wetland impacts
3. Lowest right-of-way cost

CONS
1. Medium archaeological potential
2. Highest T/E species cost
3. Multiple parcels

FPC 1010C

PROS
1. Low archaeological potential
2. Lowest T/E species cost

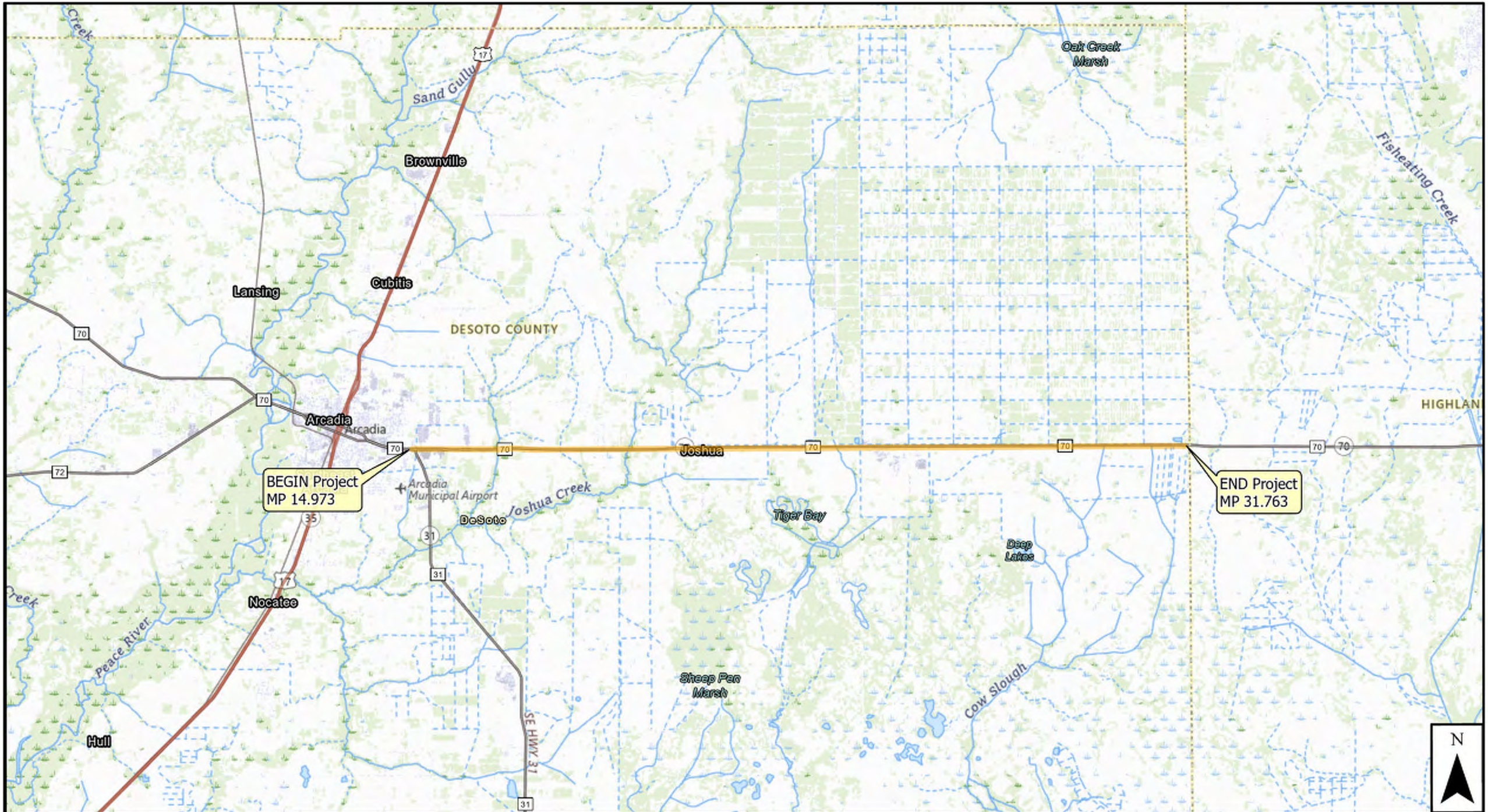
CONS
1. Higher right-of-way cost

Based on an evaluation of right-of-way impacts, construction cost, wetland impacts, conservation land impacts, species mitigation, and FPC area, FPC 1010B is the preferred alternative.

This alternative was selected due to the lowest construction and right-of-way cost and lowest wetland impacts. The cost estimates can be found above and in Appendix 7.

APPENDIX 1

FIGURES



Prepared For : D1

FDOT

Pond Siting Report

S.R. 70 from West of S.R. 31 to the Highlands County Line
(M.P. 14.973-31.763)
Desoto County, Florida
FPID: 451942-2-52-01

Legend

Project Limits

0 5,000 10,000
Feet

Figure 1

Project Location Map

STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 451942-2-52-01

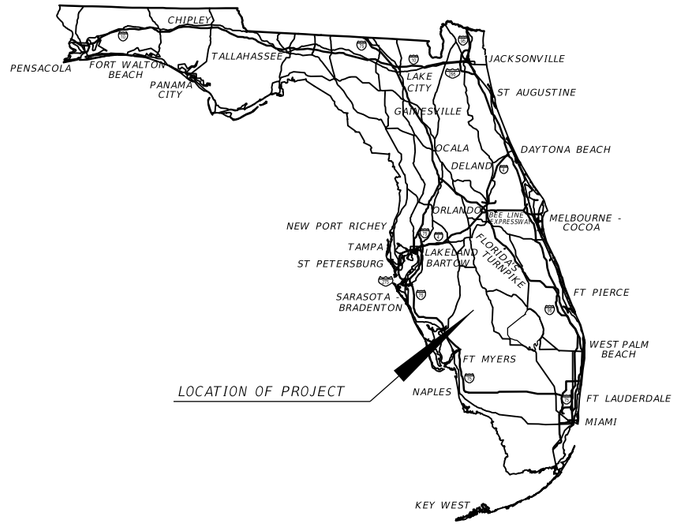
DESOTO COUNTY (04040000)

STATE ROAD NO. 70

ADD LANES AND RECONSTRUCT

FROM WEST OF SR 31 TO THE HIGHLANDS COUNTY LINE

PROJECT LOCATION URL:	https://tinyurl.com/y9623uwm https://tinyurl.com/3v7essae
PROJECT LIMITS:	BEGIN M.P. 14.973 – END M.P. 31.763
EXCEPTIONS:	NONE
BRIDGE LIMITS:	040024 – M.P. 16.896–16.919 040027 – M.P. 19.705–19.728
RAILROAD CROSSING:	NONE



FDOT DISTRICT DESIGN ENGINEER

CONCURRING WITH:
TYPICAL SECTION ELEMENTS
TARGET SPEED
DESIGN & POSTED SPEEDS

FDOT DISTRICT TRAFFIC OPERATIONS ENGINEER

CONCURRING WITH:
TARGET SPEED
DESIGN & POSTED SPEEDS

FDOT DISTRICT INTERMODAL SYSTEMS DEVELOPMENT MANAGER

CONCURRING WITH:
CONTEXT CLASSIFICATION
TARGET SPEED

FDOT DISTRICT STRUCTURES DESIGN ENGINEER

CONCURRING WITH:
TYPICAL SECTION ELEMENTS

FHWA TRANSPORTATION ENGINEER

CONCURRING WITH:
TYPICAL SECTION ELEMENTS

LOCAL TRANSPORTATION ENGINEER

CONCURRING WITH:
TYPICAL SECTION ELEMENTS

NOT USED

CONCURRING WITH:

NOT USED

CONCURRING WITH:

APPROVED BY:

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

NICOLAS LEON
LICENSE
No 78538
STATE OF FLORIDA
PROFESSIONAL ENGINEER

ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

HNTB CORPORATION
555 NORTH BROADWAY AVE
BARTOW, FL 33830
CERTIFICATE OF AUTHORIZATION: 6500
NICOLAS LEON, P.E. NO. 78538

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

INDEX OF SHEETS

SHEET NO.
1

PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
( ) C2 : RURAL
( ) C2T : RURAL TOWN
( ) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
(X) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
(X) PRINCIPAL ARTERIAL
( ) MINOR ARTERIAL
( ) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
(X) STRATEGIC INTERMODAL SYSTEM
(X) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
(X) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
(X) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

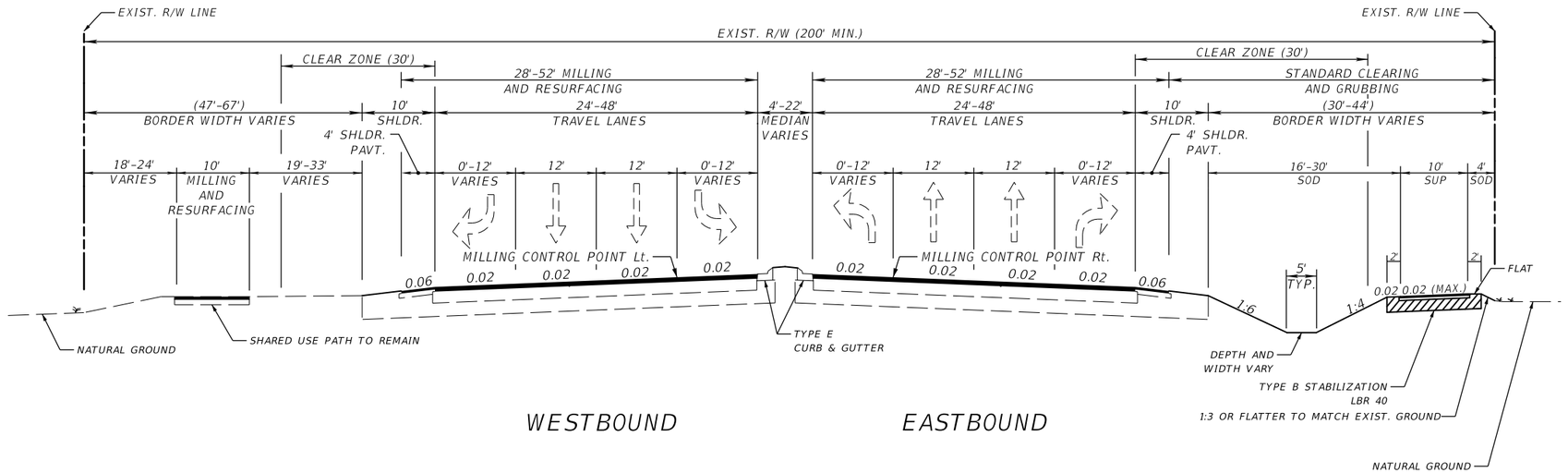
CRITERIA

(X) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

MEDIAN WIDTH VARIATION

TYPICAL SECTION No. 1



MILLING & RESURFACING

SR 70
M.P. 14.973 TO M.P. 15.748
(STA. 4006+64.47 TO STA. 4043+00.00)

NOT TO SCALE

TRAFFIC DATA

CURRENT YEAR = 2024 AADT = 13700
ESTIMATED OPENING YEAR = 2030 AADT = 14200
ESTIMATED DESIGN YEAR = 2050 AADT = 15900
K = 9% D = 54.3% T = 14.9% (24 HOUR)
DESIGN HOUR T = 7.5%
DESIGN SPEED = 55 MPH
POSTED SPEED = 45 & 55 MPH
TARGET SPEED = 45 & 55 MPH

FINANCIAL PROJECT ID	SHEET NO.
451942-2-52-01	2

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
(X) C2 : RURAL
( ) C2T : RURAL TOWN
( ) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
( ) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
(X) PRINCIPAL ARTERIAL
( ) MINOR ARTERIAL
( ) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
(X) STRATEGIC INTERMODAL SYSTEM
(X) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

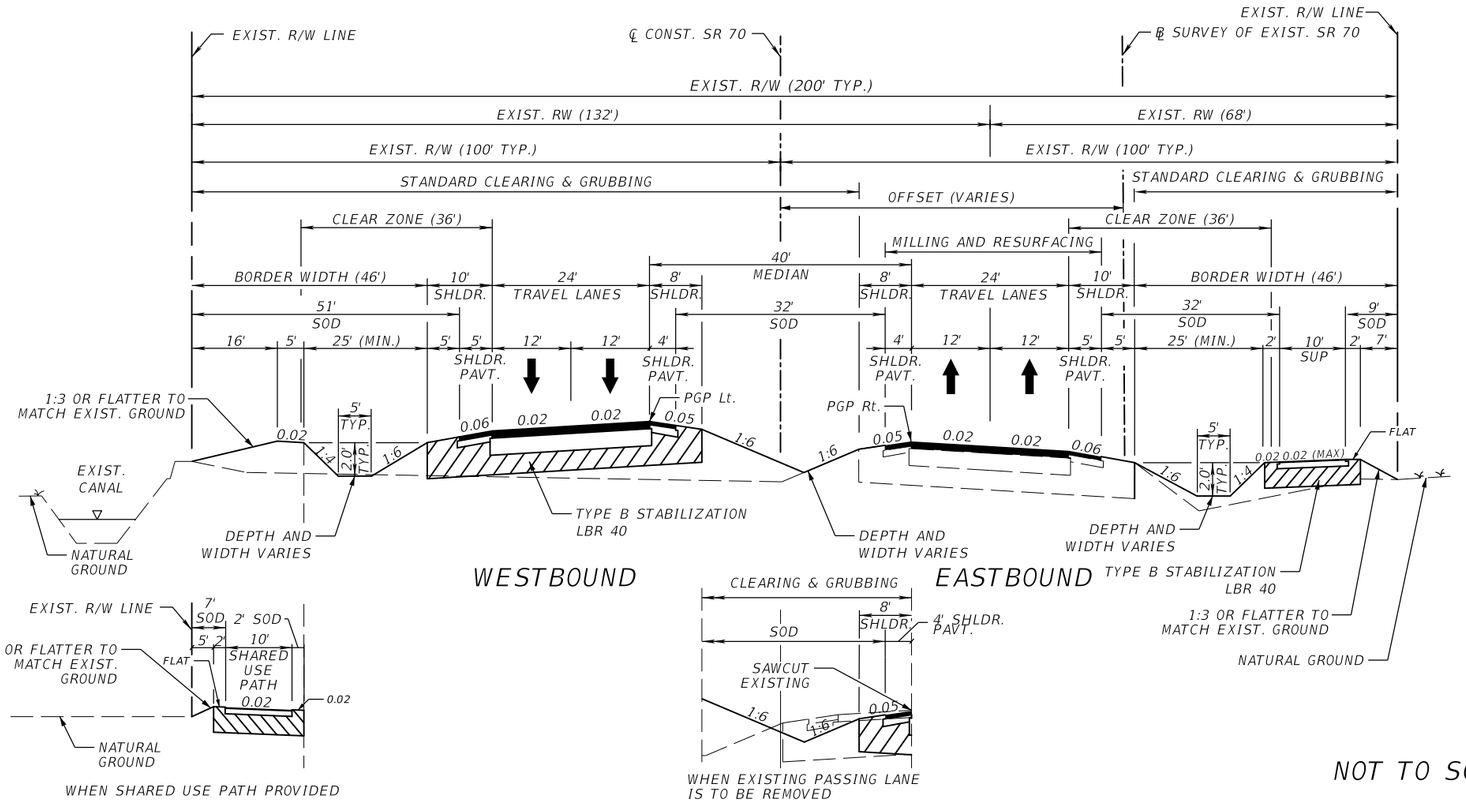
( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
(X) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

CRITERIA

(X) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

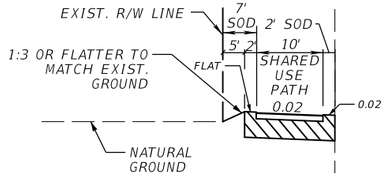
POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 2

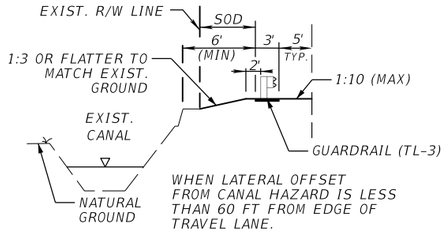


WESTBOUND

EASTBOUND



WHEN SHARED USE PATH PROVIDED



WHEN LATERAL OFFSET FROM CANAL HAZARD IS LESS THAN 60 FT FROM EDGE OF TRAVEL LANE.

WHEN EXISTING PASSING LANE IS TO BE REMOVED

NOT TO SCALE

TRAFFIC DATA

CURRENT YEAR = 2024 AADT = 13700
ESTIMATED OPENING YEAR = 2030 AADT = 14200
ESTIMATED DESIGN YEAR = 2050 AADT = 15900
K = 9% D = 54.3% T = 14.9% (24 HOUR)
DESIGN HOUR T = 7.5%
DESIGN SPEED = 65 MPH
POSTED SPEED = 65 MPH
TARGET SPEED = 65 MPH

EB MILLING & RESURFACING/ WB NEW CONSTRUCTION

SR 70
M.P. 15.748 TO M.P. 16.896
(STA. 4043+00.00 TO 4105+60.00)
M.P. 16.919 TO M.P. 19.705
(STA. 4106+80.00 TO 4253+80.00)
M.P. 19.728 TO M.P. 31.763
(STA. 4255+20.00 TO 4980+15.00)

FINANCIAL PROJECT ID	SHEET NO.
451942-2-52-01	3

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

PROJECT CONTROLS

CONTEXT CLASSIFICATION

( )	C1 : NATURAL	( )	C3C : SUBURBAN COMM.
(X)	C2 : RURAL	( )	C4 : URBAN GENERAL
( )	C2T : RURAL TOWN	( )	C5 : URBAN CENTER
( )	C3R : SUBURBAN RES.	( )	C6 : URBAN CORE
( )	N/A : L.A. FACILITY		

FUNCTIONAL CLASSIFICATION

( )	INTERSTATE	( )	MAJOR COLLECTOR
( )	FREEWAY/EXPWY.	( )	MINOR COLLECTOR
(X)	PRINCIPAL ARTERIAL	( )	LOCAL
( )	MINOR ARTERIAL		

HIGHWAY SYSTEM

( )	NATIONAL HIGHWAY SYSTEM
(X)	STRATEGIC INTERMODAL SYSTEM
(X)	STATE HIGHWAY SYSTEM
( )	OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

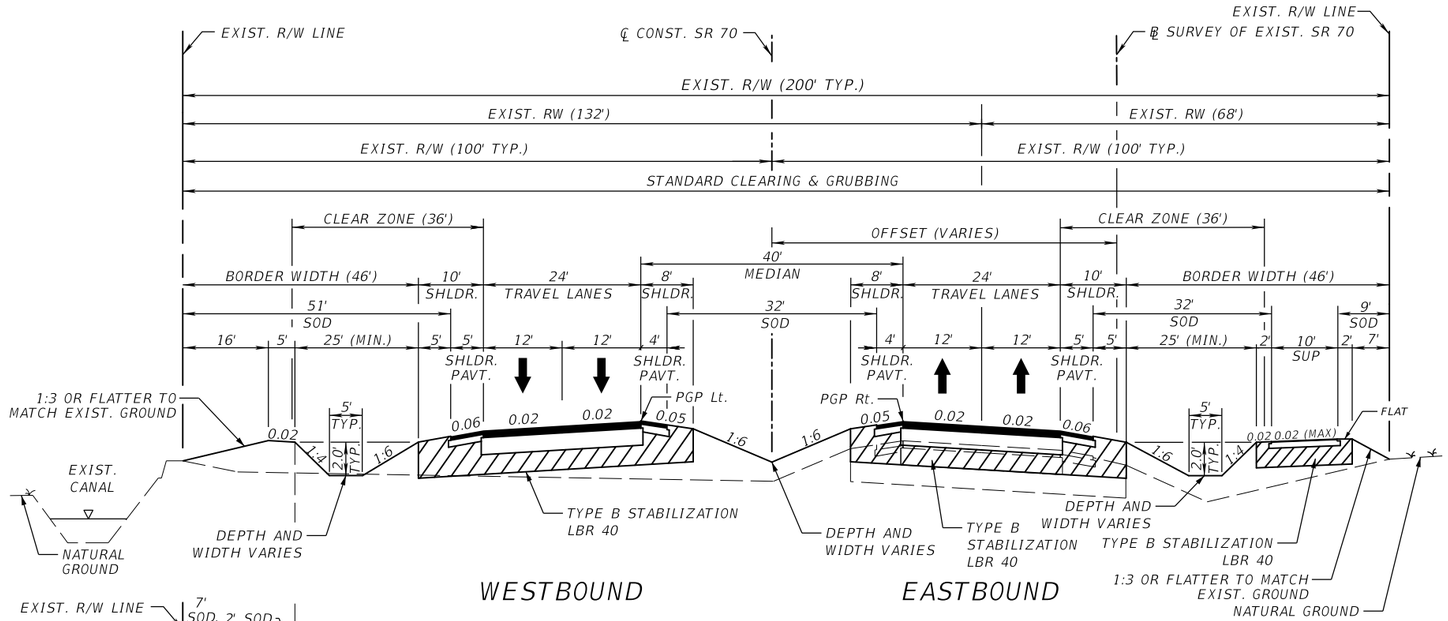
( )	1 - FREEWAY
( )	2 - RESTRICTIVE w/Service Roads
(X)	3 - RESTRICTIVE w/660 ft. Connection Spacing
( )	4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( )	5 - RESTRICTIVE w/440 ft. Connection Spacing
( )	6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( )	7 - BOTH MEDIAN TYPES

CRITERIA

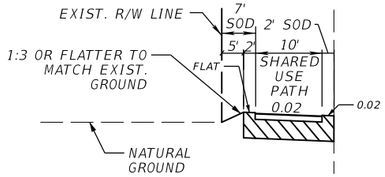
(X)	NEW CONSTRUCTION / RECONSTRUCTION
( )	RESURFACING (LA FACILITIES)
( )	RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

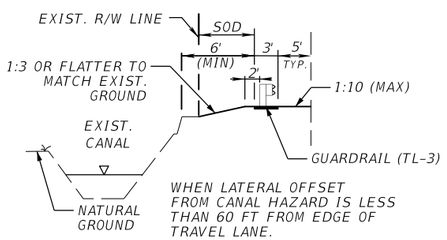
TYPICAL SECTION No. 3



NOT TO SCALE



WHEN SHARED USE PATH PROVIDED



WHEN LATERAL OFFSET FROM CANAL HAZARD IS LESS THAN 60 FT FROM EDGE OF TRAVEL LANE.

SR 70
FOR BRIDGE AND WILDLIFE CROSSING APPROACHES.
LIMITS TO BE DETERMINED

NEW CONSTRUCTION

SR 70

TRAFFIC DATA

CURRENT YEAR = 2024 AADT = 13700
ESTIMATED OPENING YEAR = 2030 AADT = 14200
ESTIMATED DESIGN YEAR = 2050 AADT = 15900
K = 9% D = 54.3% T = 14.9% (24 HOUR)
DESIGN HOUR T = 7.5%
DESIGN SPEED = 65 MPH
POSTED SPEED = 65 MPH
TARGET SPEED = 65 MPH

FINANCIAL PROJECT ID	SHEET NO.
451942-2-52-01	4

PROJECT CONTROLS

CONTEXT CLASSIFICATION

( ) C1 : NATURAL
(X) C2 : RURAL
( ) C2T : RURAL TOWN
( ) C3R : SUBURBAN RES.
( ) N/A : L.A. FACILITY
( ) C3C : SUBURBAN COMM.
( ) C4 : URBAN GENERAL
( ) C5 : URBAN CENTER
( ) C6 : URBAN CORE

FUNCTIONAL CLASSIFICATION

( ) INTERSTATE
( ) FREEWAY/EXPWY.
(X) PRINCIPAL ARTERIAL
( ) MINOR ARTERIAL
( ) MAJOR COLLECTOR
( ) MINOR COLLECTOR
( ) LOCAL

HIGHWAY SYSTEM

( ) NATIONAL HIGHWAY SYSTEM
(X) STRATEGIC INTERMODAL SYSTEM
(X) STATE HIGHWAY SYSTEM
( ) OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

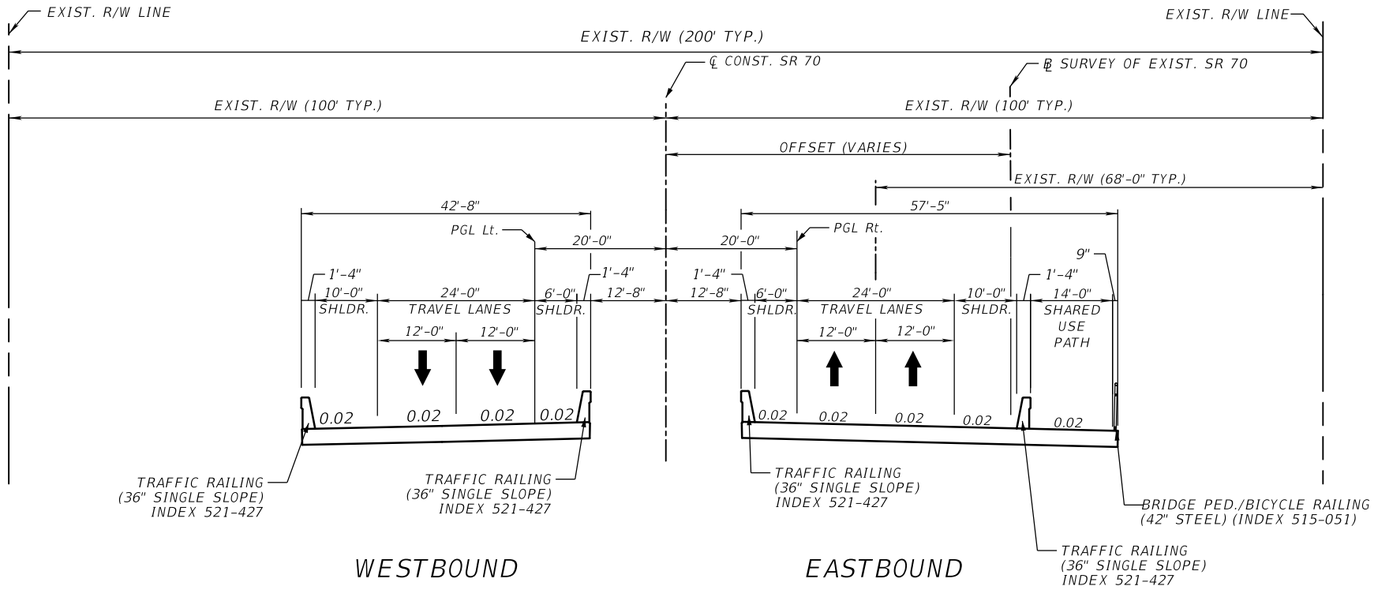
( ) 1 - FREEWAY
( ) 2 - RESTRICTIVE w/Service Roads
(X) 3 - RESTRICTIVE w/660 ft. Connection Spacing
( ) 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
( ) 5 - RESTRICTIVE w/440 ft. Connection Spacing
( ) 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
( ) 7 - BOTH MEDIAN TYPES

CRITERIA

(X) NEW CONSTRUCTION / RECONSTRUCTION
( ) RESURFACING (LA FACILITIES)
( ) RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 4



SR 70 BRIDGE OVER WHIDDEN CREEK (#0024) AND
SR 70 BRIDGE OVER JOSHUA CREEK (#0027)
M.P. 16.896 TO M.P. 16.919
(STA. 4105+40.00 TO STA. 4106+79.95)
M.P. 19.705 TO M.P. 19.728
(STA. 4253+80.00 TO STA. 4255+20.00)

NOT TO SCALE

TRAFFIC DATA

CURRENT YEAR = 2024 AADT = 13700
ESTIMATED OPENING YEAR = 2030 AADT = 14200
ESTIMATED DESIGN YEAR = 2050 AADT = 15900
K = 9% D = 54.3% T = 14.9% (24 HOUR)
DESIGN HOUR T = 7.5%
DESIGN SPEED = 65 MPH
POSTED SPEED = 65 MPH
TARGET SPEED = 65 MPH

BRIDGE NO. TBD

FINANCIAL PROJECT ID	SHEET NO.
451942-2-52-01	5

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

N

0 1,500 3,000
Feet

Prepared For : D1

FDOT

Pond Siting Report

S.R. 70 from West of S.R. 31 to the Highlands County Line
(M.P. 14.973-31.763)
Desoto County, Florida
FPID: 451942-2-52-01

Legend

Project Limits
Project Limits

SOIL

10,A/D
10,C/D
11,A/D
12,A/D
13,A/D
14,B/D
15,A/D
16,A/D
17,A/D
18,C/D
19,C/D
2,A/D
20,A/D
20,B/D
21,A/D
22,A/D
23,A/D
24,A/D
25,B/D
26,A/D
27,C/D
28,A/D
29,C/D
3,A/D
30,A
31,A/D
32,A/D
34,A/D
35,A/D
36,A/D
37,A
39,A/D
4,A/D
40,A/D
41,A/D
42,A
5,A/D
6,B/D
7,A/D
7,B/D
8,A/D
8,B/D
9,A
99,

Figure 3
Sheet 1 of 2

Soils Map

N

0 1,500 3,000
Feet

Prepared For : D1

FDOT

Pond Siting Report

S.R. 70 from West of S.R. 31 to the Highlands County Line
(M.P. 14.973-31.763)
Desoto County, Florida
FPID: 451942-2-52-01

Legend

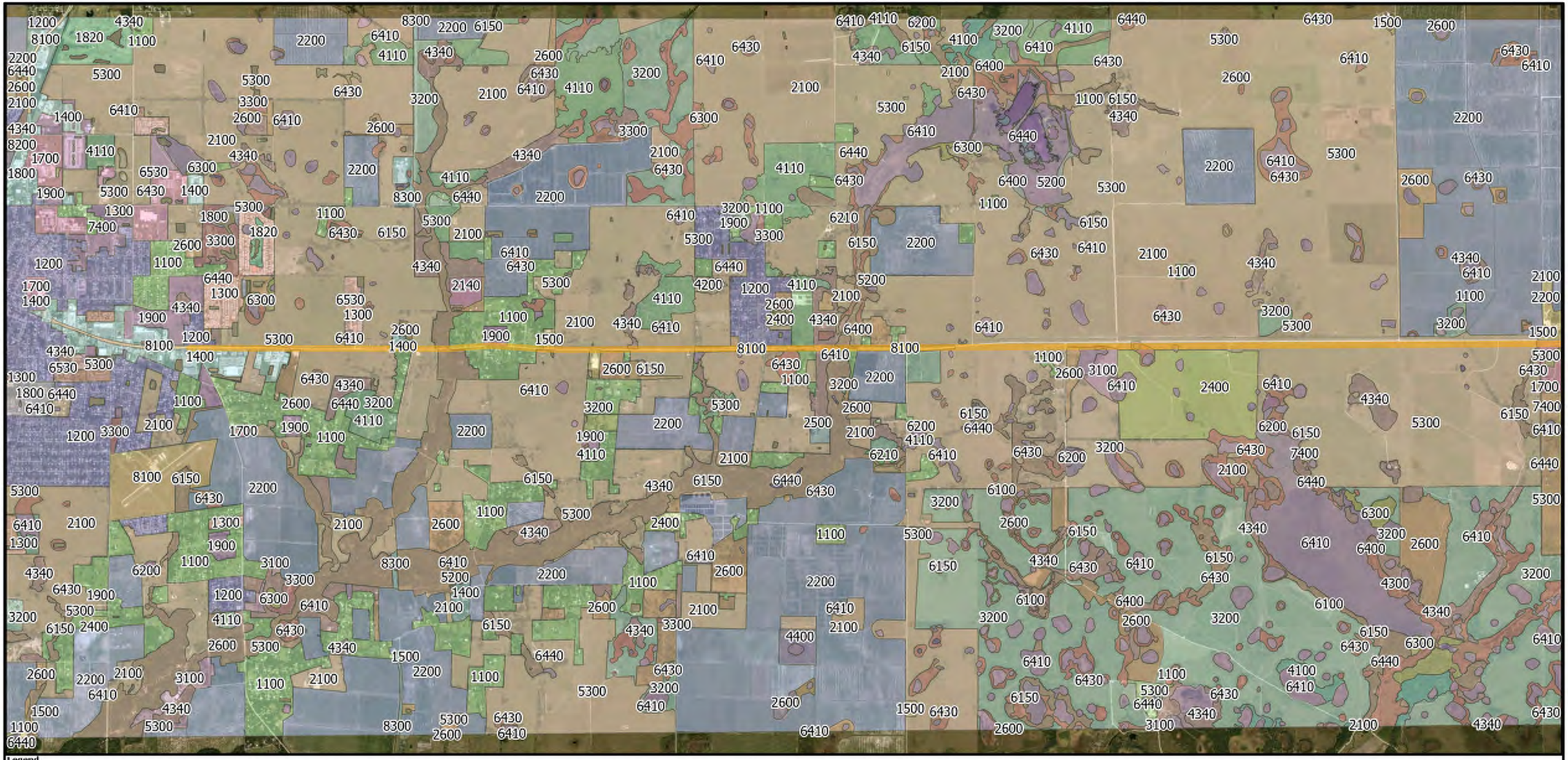
Project Limits
Project Limits

SOIL

10,A/D
10,C/D
11,A/D
12,A/D
13,A/D
14,B/D
15,A/D
16,A/D
17,A/D
18,C/D
19,C/D
2,A/D
20,A/D
20,B/D
21,A/D
22,A/D
23,A/D
24,A/D
25,B/D
26,A/D
27,C/D
28,A/D
29,C/D
3,A/D
30,A
31,A/D
32,A/D
34,A/D
35,A/D
36,A/D
37,A
39,A/D
4,A/D
40,A/D
41,A/D
42,A
5,A/D
6,B/D
7,A/D
7,B/D
8,A/D
8,B/D
9,A
99,

Figure 3
Sheet 2 of 2

Soils Map



Prepared For : D1

FDOT

Pond Siting Report

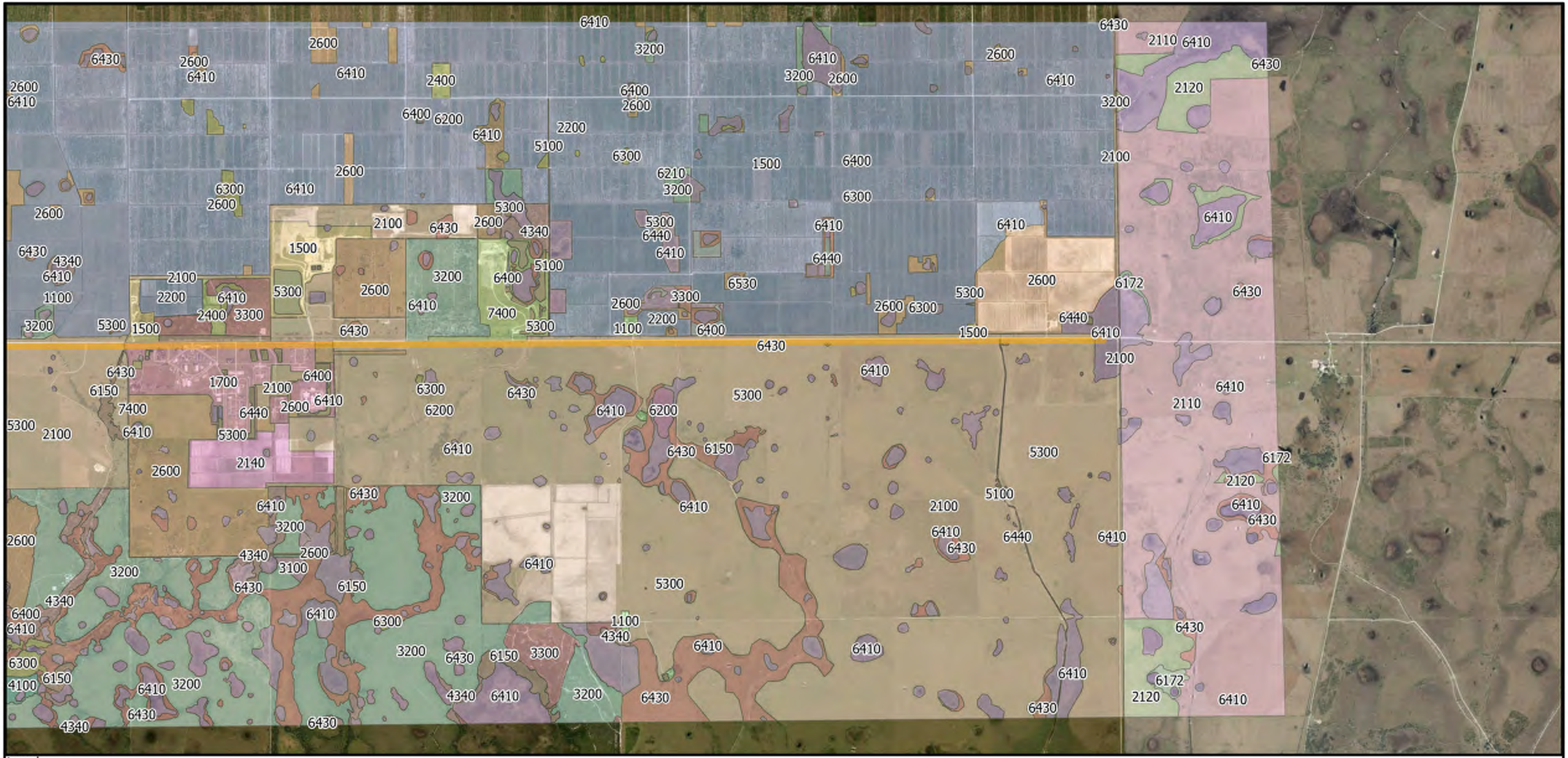
S.R. 70 from West of S.R. 31 to the Highlands County Line
(M.P. 14.973-31.763)
Desoto County, Florida
FPID: 451942-2-52-01

0 1,750 3,500
Feet

N

Figure 4
Sheet 1 of 2

Land Use Map



Prepared For : D1

FDOT

Pond Siting Report

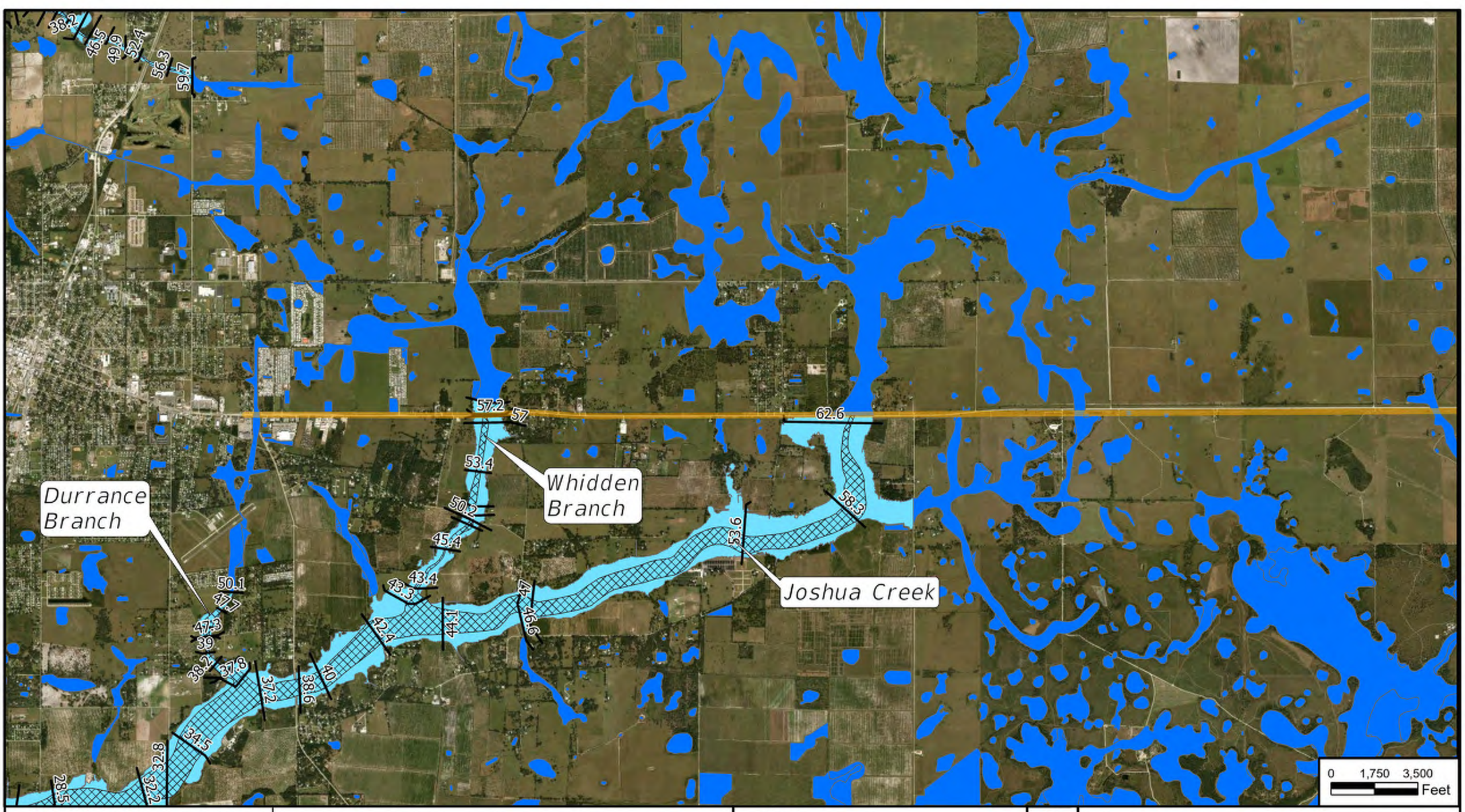
S.R. 70 from West of S.R. 31 to the Highlands County Line
(M.P. 14.973-31.763)
Desoto County, Florida
FPID: 451942-2-52-01

0 1,750 3,500 Feet

N

Figure 4
Sheet 2 of 2

Land Use Map



Prepared For : D1

FDOT

Pond Siting Report

S.R. 70 from West of S.R. 31 to the Highlands County Line
(M.P. 14.973-31.763)
Desoto County, Florida
FPID: 451942-2-52-01

Legend
- Project Limits

Flood Zone
- A
- AE
- Regulatory Floodway
- Cross Sections w/BFE

N

Figure 5
Sheet 1 of 2

FEMA Firm Map
Panels 12027C0179C, 12027C0185C, 12027C0205C,
12027C0210C, and 12027C0230C
(Effective 11-6-13)

0 1,750 3,500
Feet

Prepared For : D1

FDOT

Pond Siting Report

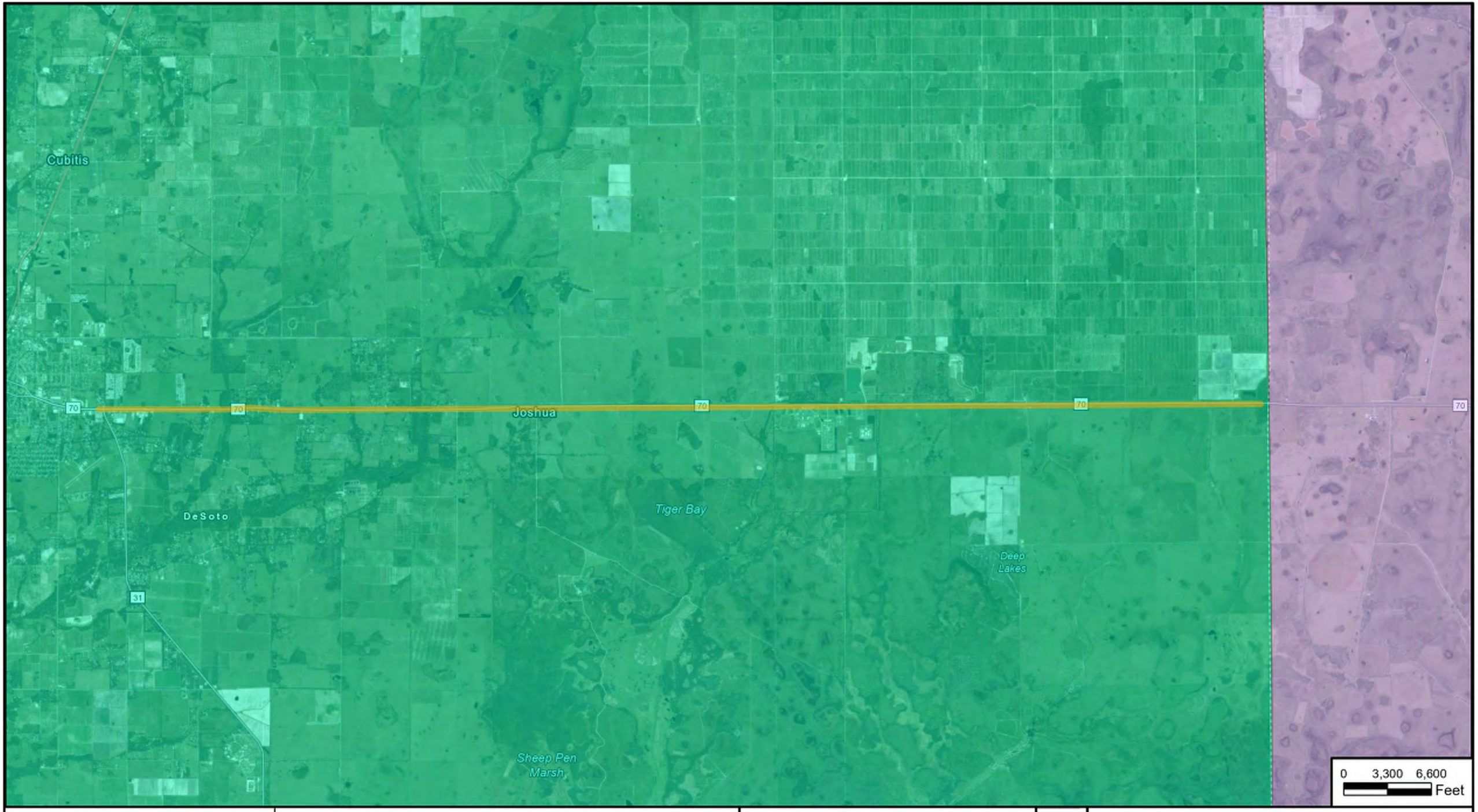
S.R. 70 from West of S.R. 31 to the Highlands County Line
(M.P. 14.973-31.763)
Desoto County, Florida
FPID: 451942-2-52-01

Legend
Project Limits
Flood Zone
A
AE

N

Figure 5
Sheet 2 of 2

FEMA Firm Map
Panels 12027C0179C, 12027C0185C, 12027C0205C,
12027C0210C, and 12027C0230C
(Effective 11-6-13)



Prepared For : D1

FDOT

Pond Siting Report

S.R. 70 from West of S.R. 31 to the Highlands County Line
(M.P. 14.973-31.763)
Desoto County, Florida
FPID: 451942-2-52-01

Legend

Project Limits

NAME

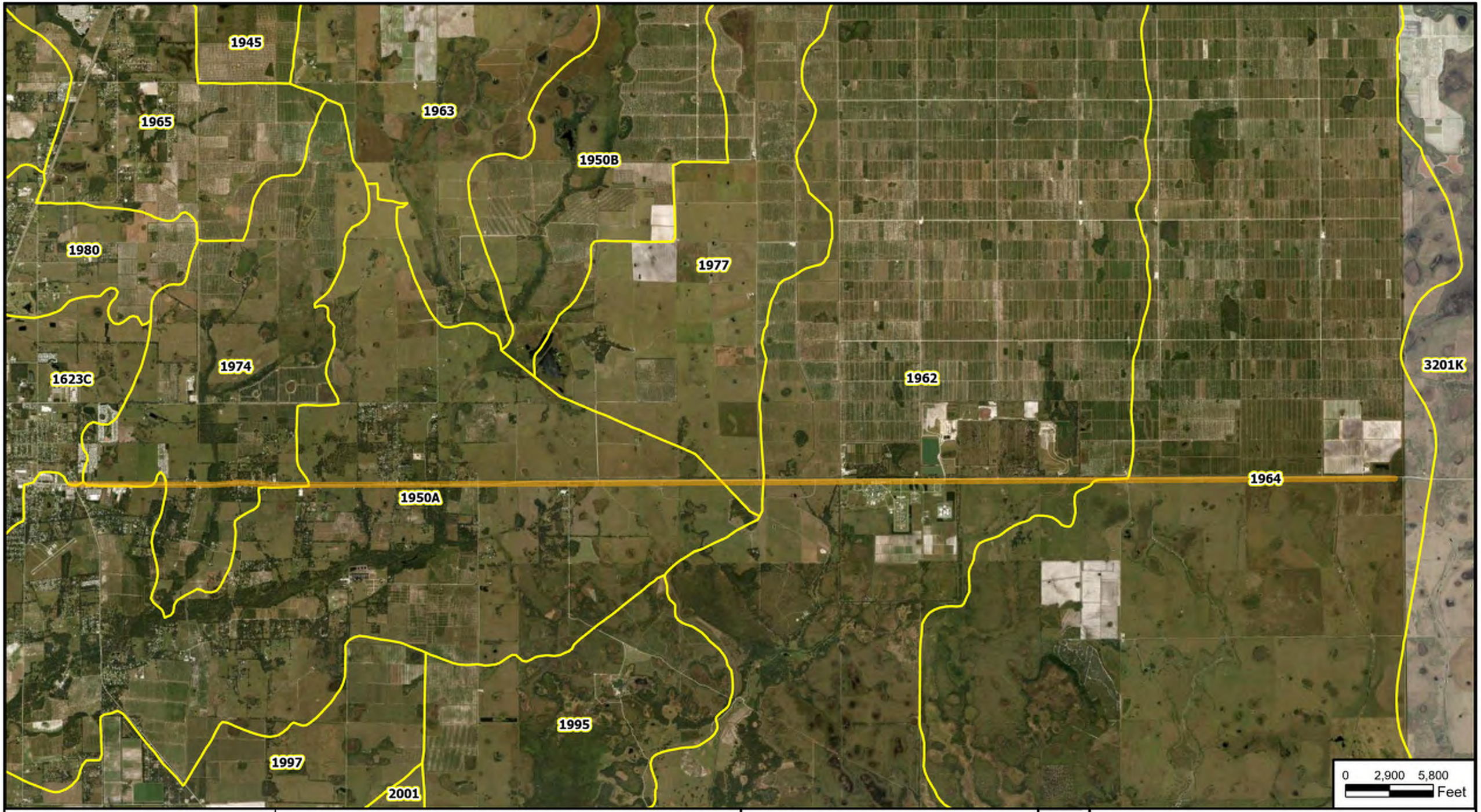
SFWMD

SWFWMD

N

Figure 6

Water Management District
Location Map



Prepared For : D1

FDOT

Pond Siting Report

S.R. 70 from West of S.R. 31 to the Highlands County Line
(M.P. 14.973-31.763)
Desoto County, Florida
FPID: 451942-2-52-01

Legend

- Project Limits
- WBIDs

N

Figure 7

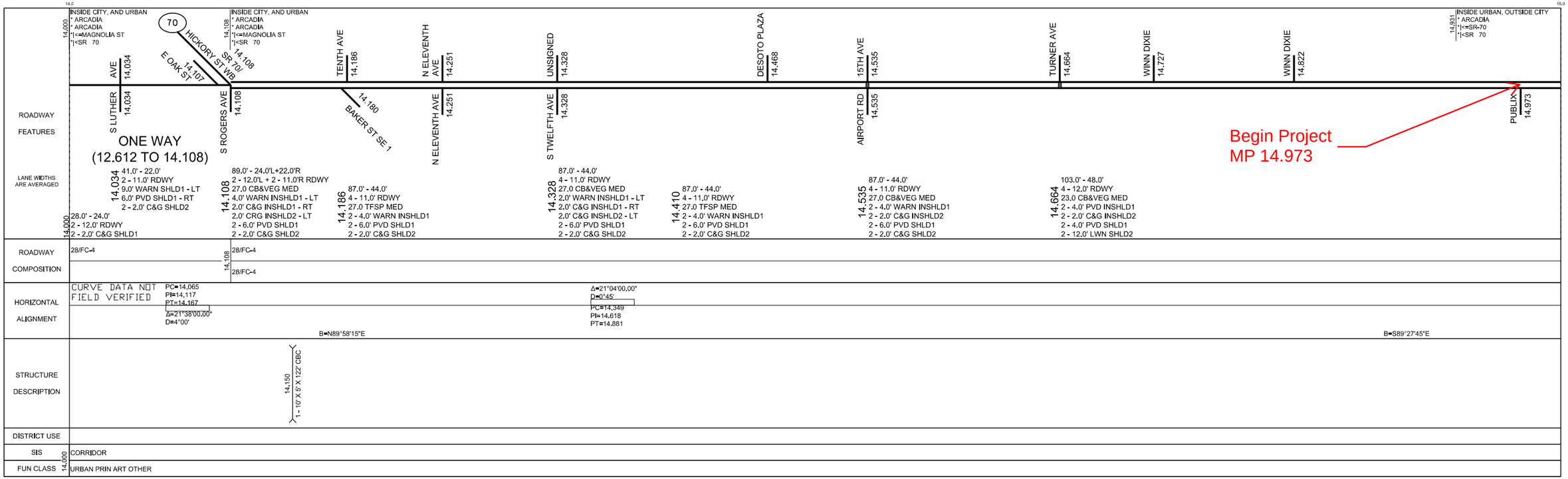
WBIDs/Watershed Map

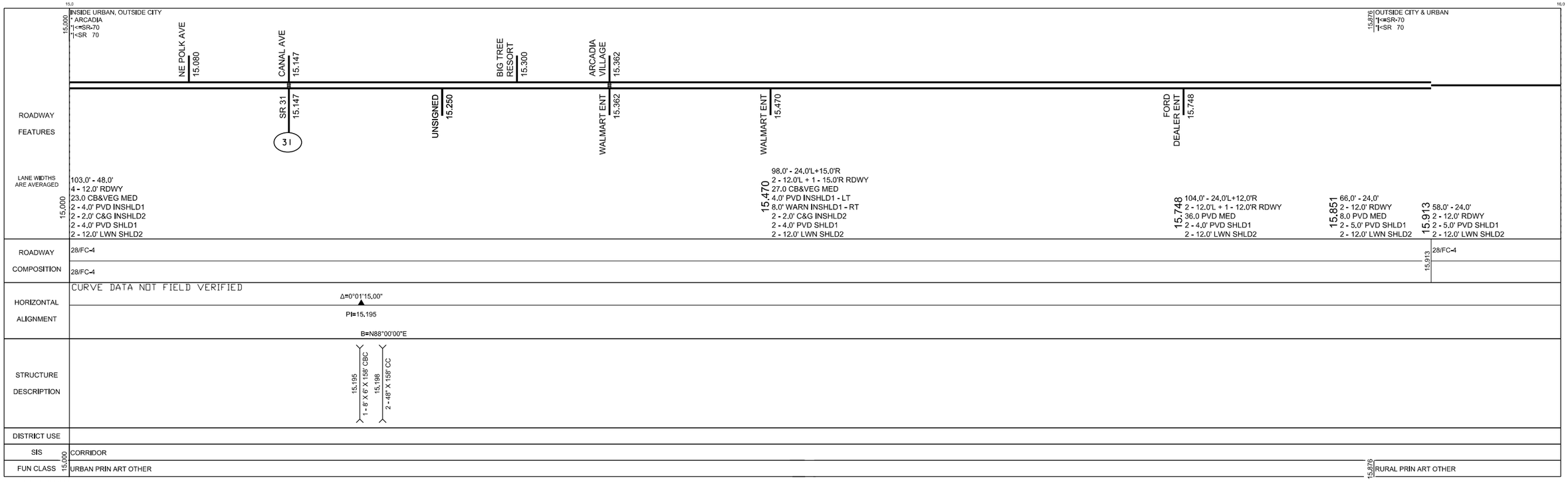
	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	02/14/2022	04/06/2022	14.685	15.470	11/15/2024	12/02/24(CONST)
BY	FTE	FTE				

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO.
02		SR 70	DESOTO	01	04040000	4 OF 8





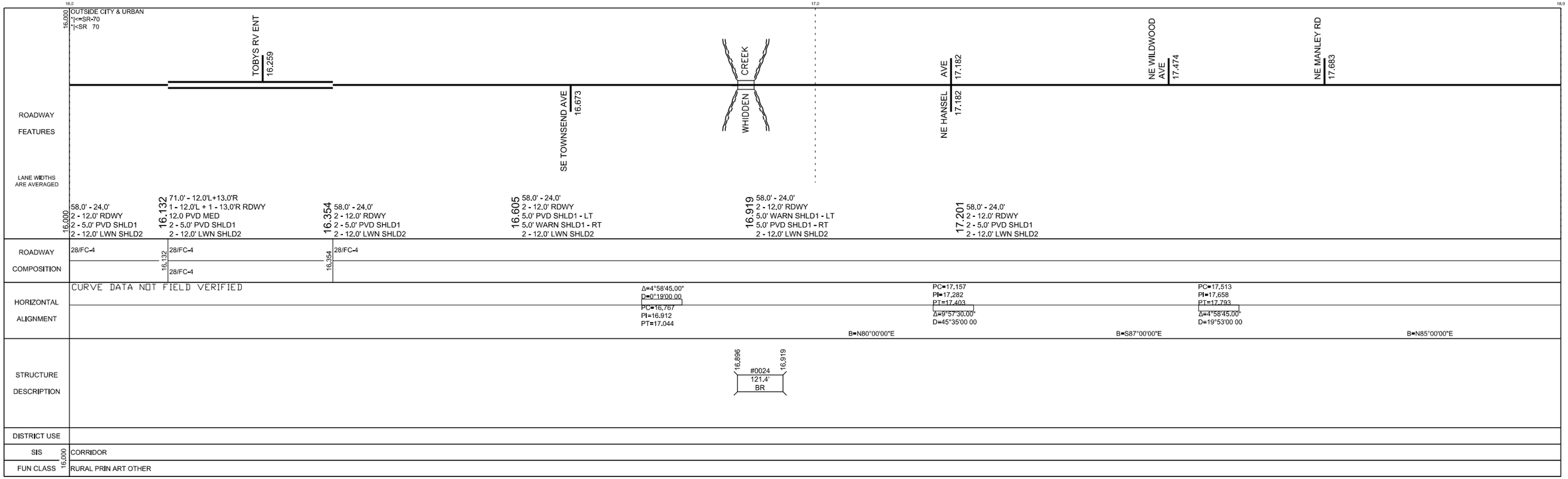
Version: 1.4.2.27 04/06/2022

	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	02/14/2022	04/06/2022				
BY	FTE	FTE				

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
02		SR 70	DESOTO	01	04040000	5 OF 8



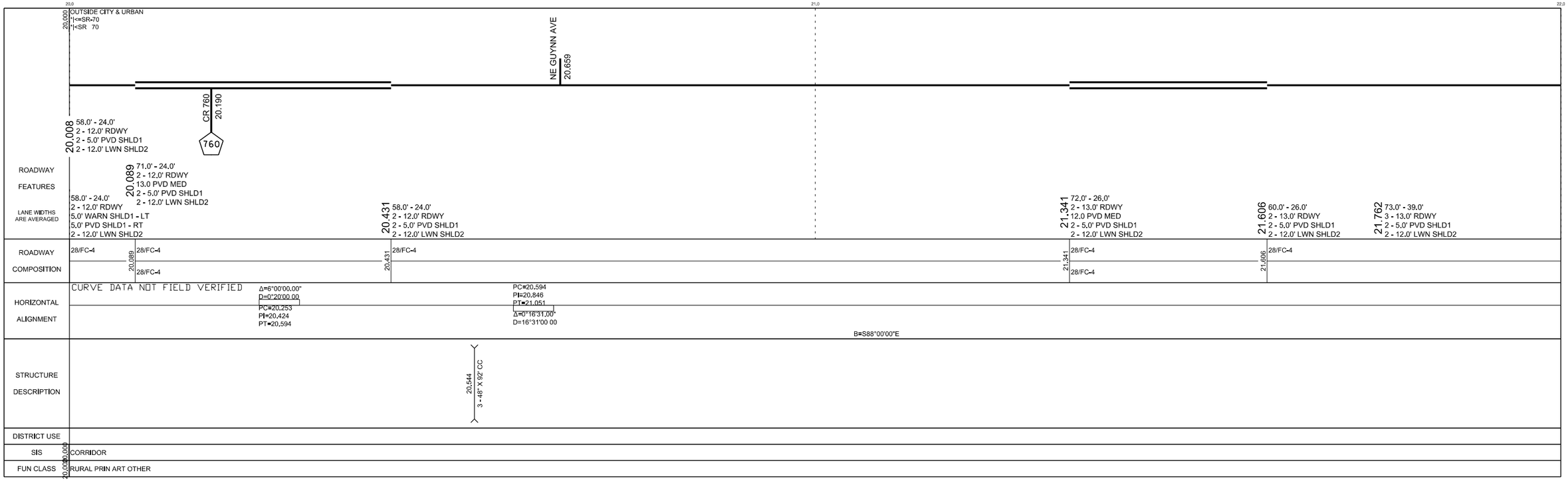
Version: 1.4.2.27 04/06/2022

	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	02/14/2022	04/06/2022				
BY	FTE	FTE				

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
02		SR 70	DESOTO	01	04040000	6 OF 8



Version: 1.4.2.27 04/06/2022

	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	02/14/2022	04/06/2022				
BY	FTE	FTE				

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
02		SR 70	DESOTO	01	04040000	7 OF 8

24,0 25,0 26,0

ROADWAY FEATURES

24,000 OUTSIDE CITY & URBAN
*|<=SR-70
*|<SR 70

GULLY
MOSSY
CANAL
DCI
ORANGE-CO ENT 24,750
DESOTO CORRECT INST 25,166
DESOTO CORRECT INST 25,347
DESOTO CORRECT INST 25,478
DESOTO WORK CAMP 25,631

LANE WIDTHS ARE AVERAGED

24,000 70.0' - 24,0'
2 - 12,0' RDWY
12,0 PVD MED
2 - 5,0' PVD SHLD1
2 - 12.0' LWN SHLD2

24,141 58.0' - 24,0'
2 - 12,0' RDWY
2 - 5,0' PVD SHLD1
2 - 12.0' LWN SHLD2

25,373 69.0' - 24,0'
2 - 12,0' RDWY
11,0 PVD MED
2 - 5,0' PVD SHLD1
2 - 12.0' LWN SHLD2

25,631 58.0' - 24,0'
2 - 12,0' RDWY
2 - 5,0' PVD SHLD1
2 - 12.0' LWN SHLD2

25,805 70.0' - 24,0'
2 - 12,0' RDWY
12,0 PVD MED
2 - 5,0' PVD SHLD1
2 - 12.0' LWN SHLD2

ROADWAY COMPOSITION

24,000 28/FC-4
28/FC-4

24,141 28/FC-4
28/FC-4

25,373 28/FC-4
28/FC-4

25,631 28/FC-4

25,805 28/FC-4
28/FC-4

HORIZONTAL ALIGNMENT

STRUCTURE DESCRIPTION

24,160 #0032 100.3' CB 24,179

24,691 #0033 26,4' CB 24,696

25,764 1 - 8' X 5' X 80' CBC

DISTRICT USE

SIS CORRIDOR

24,000 **FUN CLASS** RURAL PRIN ART OTHER

26,0 27,0 28,0

ROADWAY FEATURES

26,000 OUTSIDE CITY & URBAN
*|<=SR-70
*|<SR 70

26,016 UNSIGNED
MARSH
LONG POINT

LANE WIDTHS ARE AVERAGED

26,000 70.0' - 24,0'
2 - 12,0' RDWY
12,0 PVD MED
2 - 5,0' PVD SHLD1
2 - 12,0' LWN SHLD2

26,120 60.0' - 24,0'
2 - 12,0' RDWY
12,0 PVD MED
2 - 5,0' PVD SHLD1
2 - 7,0' LWN SHLD2

26,258 71.0' - 24,0'
2 - 12,0' RDWY
13,0 PVD MED
2 - 5,0' PVD SHLD1
2 - 12,0' LWN SHLD2

26,520 58.0' - 24,0'
2 - 12,0' RDWY
2 - 5,0' PVD SHLD1
2 - 12,0' LWN SHLD2

26,669 70.0' - 36,0'
3 - 12,0' RDWY
2 - 5,0' PVD SHLD1
2 - 12,0' LWN SHLD2

27,281 71.0' - 12,0'L+13,0'R
1 - 12,0'L + 1 - 13,0'R RDWY
12,0 PVD MED
2 - 5,0' PVD SHLD1
2 - 12,0' LWN SHLD2

27,571 58.0' - 24,0'
2 - 12,0' RDWY
2 - 5,0' PVD SHLD1
2 - 12,0' LWN SHLD2

ROADWAY COMPOSITION

26,000 28/FC-4
28/FC-4

26,520 28/FC-4

27,281 28/FC-4
28/FC-4

27,571 28/FC-4

HORIZONTAL ALIGNMENT

CURVE DATA NOT FIELD VERIFIED
PI=26,705
Δ=0°00'30,00"
B=N89°51'45"E
Δ=0°03'15,00"
PI=27,722
B=N89°48'30"E

STRUCTURE DESCRIPTION

26,201 1 - 5' X 4' X 84' CBC

26,253 1 - 8' X 4' X 85' CBC

26,846 1 - 8' X 4' X 85' CBC

27,573 #0037 47,5' CB 27,582

DISTRICT USE

SIS CORRIDOR

26,000 **FUN CLASS** RURAL PRIN ART OTHER

Version: 1,4,2,27 04/06/2022

	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	02/14/2022	04/06/2022				
BY	FTE	FTE				

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
02		SR 70	DESOTO	01	04040000	8 OF 8

28.0 29.0 30.0

ROADWAY FEATURES

28.000 OUTSIDE CITY & URBAN
*|<=SR-70
*|<SR 70

LANE WIDTHS ARE AVERAGED

28.000 58.0' - 24.0'
2 - 12.0' RDWY
2 - 5.0' PVD SHLD1
2 - 12.0' LWN SHLD2

28.473 66.0' - 24.0'
2 - 12.0' RDWY
8.0 PVD MED
2 - 5.0' PVD SHLD1
2 - 12.0' LWN SHLD2

28.594 70.0' - 36.0'
3 - 12.0' RDWY
2 - 5.0' PVD SHLD1
2 - 12.0' LWN SHLD2

29.467 58.0' - 24.0'
2 - 12.0' RDWY
2 - 5.0' PVD SHLD1
2 - 12.0' LWN SHLD2

29.632 71.0' - 24.0'
2 - 12.0' RDWY
13.0 PVD MED
2 - 5.0' PVD SHLD1
2 - 12.0' LWN SHLD2

29.975 58.0' - 24.0'
2 - 12.0' RDWY
2 - 5.0' PVD SHLD1
2 - 12.0' LWN SHLD2

29.897 51.0' - 24.0'
2 - 12.0' RDWY
2 - 5.0' PVD SHLD1
5.0' LWN SHLD2 - LT
12.0' LWN SHLD2 - RT

ROADWAY COMPOSITION

28/FC-4 | 28.473 | 28/FC-4 / 28/FC-4 | 28.594 | 28/FC-4 | 29.632 | 28/FC-4 / 28/FC-4 | 29.897 | 28/FC-4

HORIZONTAL ALIGNMENT

CURVE DATA NOT FIELD VERIFIED

Δ=0°03'00.00"
PI=28.759
B=N89°45'30"E

Δ=0°00'30.00"
PI=29.756
B=N89°45'00"E

STRUCTURE DESCRIPTION

28.638 1 - 8' X 4' X 88' CBC

29.953 1 - 8' X 4' X 86' CBC

DISTRICT USE	
SIS	CORRIDOR
FUN CLASS	RURAL PRIN ART OTHER

30.0 31.0

ROADWAY FEATURES

30.000 OUTSIDE CITY & URBAN
*|<=SR-70
*|<SR 70

PARKER CREEK

End Project
MP 31.763

SE HGHLNDS CO LN RD 31.763 HIGHLANDS CO LINE

GPS COORDINATES
LAT: 27.20968
LONG:-81.56293

LANE WIDTHS ARE AVERAGED

30.000 58.0' - 24.0'
2 - 12.0' RDWY
2 - 5.0' PVD SHLD1
2 - 12.0' LWN SHLD2

END MP: 031.770
NET ROADWAY ID LENGTH: 31.770

ROADWAY COMPOSITION

28/FC-4

HORIZONTAL ALIGNMENT

CURVE DATA NOT FIELD VERIFIED

PI=30.772
Δ=0°10'45.00"
B=N89°55'45"3

STRUCTURE DESCRIPTION

30.916 #0940 47.5' CB 30.925

DISTRICT USE			
SIS	CORRIDOR	CORRIDOR	31.770
FUN CLASS	RURAL PRIN ART OTHER		

Version: 1.4.2.27 04/06/2022

APPENDIX 2

CORRESPONDENCE

Purpose of Meeting:
SR 70 Segments 9-10 – SR 31 to DeSoto/Highlands County Line (451690-1 & 451942-1)
SR 70 Segments 12-13 – Jefferson Avenue to CR 29 (414506-3 & 414506-4)
Drainage Kickoff Meeting

Date of Meeting
May 13, 2024, 1:00pm

Location:
Microsoft Teams

Attendees:

- FDOT – Brent Setchell, Ryan Molloy
- FDOT GEC (PGA) – Joe Lauk
- HNTB – Ed Ponce, John Burton, John Fowler, Matt Dockins, Sam Chiu

Attachment: See presentation slides attached.

Agenda & Notes

1. Introductions
2. Overview
    a. Strategic Corridors – State Road (SR) 70
        i. Segments 9 and 10 (FPIDs 451690-1 and 451942-1)
            1. It is a concurrent PD&E and Concept Design
        ii. Segments 12 and 13 (FPIDs 414506-3 and 414506-4)
            1. It has a previous standalone PD&E and the current phase is Concept Design.
3. Roadway Typical Sections
    a. Segments 9 and 10
        i. Existing
            1. Two lane undivided roadway
            2. From Turkey Hammock to 1-mile west of County Line has passing lane added under FPID 420983-1
            3. There are existing path and access road on the north side that may need to be restored
                a. Joe clarified that it would be great to re-established, but not a must condition
        ii. Proposed
            1. Four lane divided roadway
            2. Two roadway alternatives being evaluated
    b. Segments 12 and 13
        i. Existing
            1. Two lane undivided roadway
        ii. Proposed
            1. PD&E divided the project into three typical sections due to the varying existing and proposed right-of-way
            2. Concept Design is refining the roadway typical sections
4. Conservation Lands
    a. Segments 9 and 10 – None directly adjacent to the project
    b. Segments 12 and 13 – Western portion within Segment 12 is bounded by the Lake Wales Ridge Wildlife and Environmental Area (LWRWEA) and Archbold Biological Station.

5. Water Management District Boundaries
    a. Segments 9 and 10 – Fully contained in Southwest Florida Water Management District (SWFWMD).
    b. Segments 12 and 13 – Mostly in SWFWMD, but the eastern end is within South Florida Water Management District (SFWMD). The Interagency Agreement executed March 24, 2018 delegated the permitting authority for the entire limits of this project to the SWFWMD.
6. Existing Permitted Ponds
    a. Segments 9 and 10
        i. About 1.2-mile of existing linear ponds were added on both sides of SR 70 for the widening under FPID 193896-1.
        ii. About 5.6-mile of existing linear ponds and 0.4-mile of existing linear floodplain compensation sites (FPCs) were added on the north side of SR 70 for the passing lane under FPID 420983-1.
    b. Segments 12 and 13
        i. Four existing linear ponds were added on the south side of SR 70 for the Georgia Pacifica Access Road project.
        ii. Four linear ponds have been added at the SR 25/SR 70 Intersection for the intersection improvement under FPID 439827-1.
            1. Brent clarified that the project is nearly completed.
        iii. Ten existing linear ponds were added on both sides of SR 70 for the intersection/turn lane improvements under FPID 194437-3.
7. Base Clearance
    a. The base clearance water elevations for both projects are ongoing; however, the preliminary results show generally high ground water table.
        i. Brent noted that there are no known issues or overtopping with the exception of the RV Parking east of US 27. HNTB will request more information on this flooding.
    b. The intent is to follow the guidance outlined in Drainage Manual 5.4.1.1.
        i. Brent concurred.
8. Stormwater Management
    a. Segments 9 and 10
        i. The intent is to evaluate both linear ponds and offsite ponds.
        ii. Sam noted that the use of linear ponds will need to evaluate in conjunction with the roadway as it has cost implication to roadway profile and roadway right-of-way.
    b. Segments 12 and 13
        i. PD&E identified 1 alternative per basins. However, PD&E did not have survey, geotechnical data, and roadway profile.
        ii. The Concept Design will perform the design level Pond Siting Analysis.
    c. Water Quality
        i. The proposed improvements will address the nutrient impaired water bodies by demonstrating net improvement and meet SWFWMD's 150% of presumptive treatment volume for direct discharge to the Placid Lakes Outstanding Florida Water (OFW).
        ii. The Project Development and Environment (PD&E) study is expected to be complete approximately Summer of 2025 and therefore, should fall under the current stormwater rules.
        iii. In the area that the existing ponds are being impacted, it will need to provide treatment to the new impervious plus offsetting the existing treatment volume.
            1. Brent concurred.

d. Water Quantity
    i. In open basins, the proposed improvements will need to demonstrate the post development peak discharge rate does not exceed the pre development using SWFWMD's 25-year 24-hour storm event.
    ii. In closed basins, the proposed improvements will need to demonstrate the post development discharge volume does not exceed the pre development using FDOT's 100-year 240-hour storm event.
e. Floodplains
    i. Part of the project is located within the Lake Placid watershed model. The project will use this watershed model as the best available information. Further evaluation may be necessary to model initial stages and the project specific seasonal high water.
    ii. In the area without the watershed model, the Federal Emergency Management Agency (FEMA) map will be utilized as the best available information. Cup-for-cup compensation is the anticipated approach for those areas.
        1. In the area with historic basin storage, but not mapped as 100-year floodplain, the project will also need to demonstrate compensation or no adverse impacts.

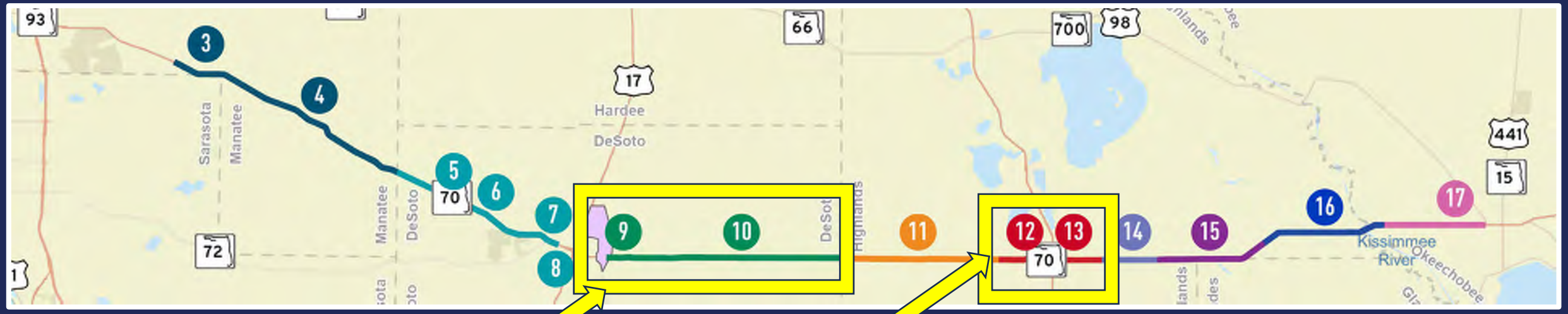
Florida Department of Transportation

STRATEGIC CORRIDORS – Segment 9-10 & 12-13

FPIDs 451690-1, 451942-1, 414506-3 & 414506-4

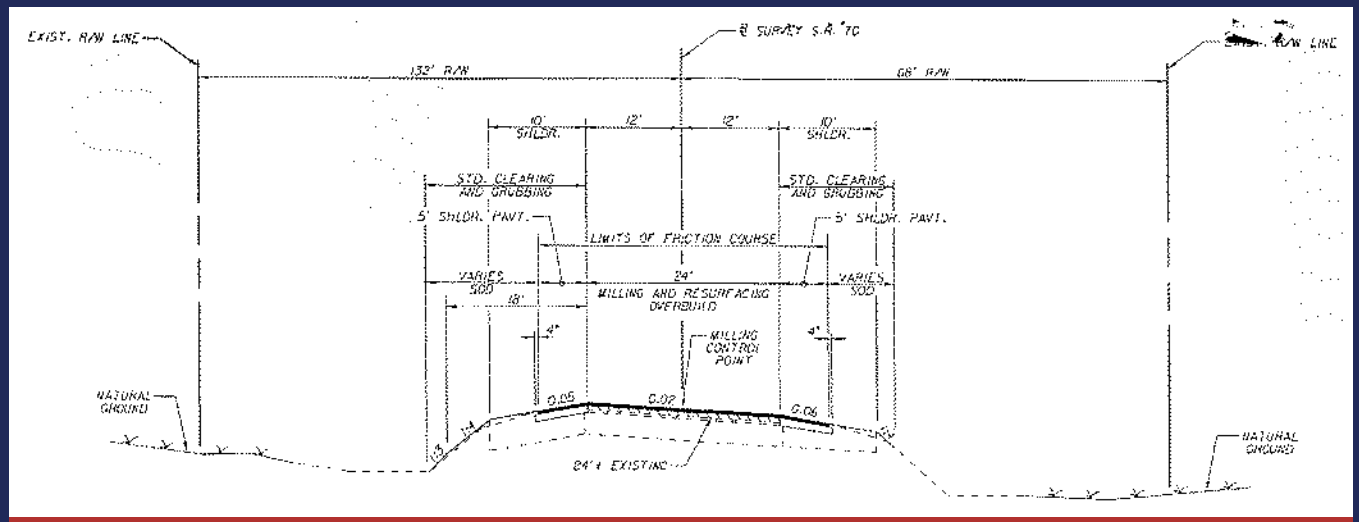
Drainage Kickoff Meeting
May 13, 2024

SR 70 Implementation Overview

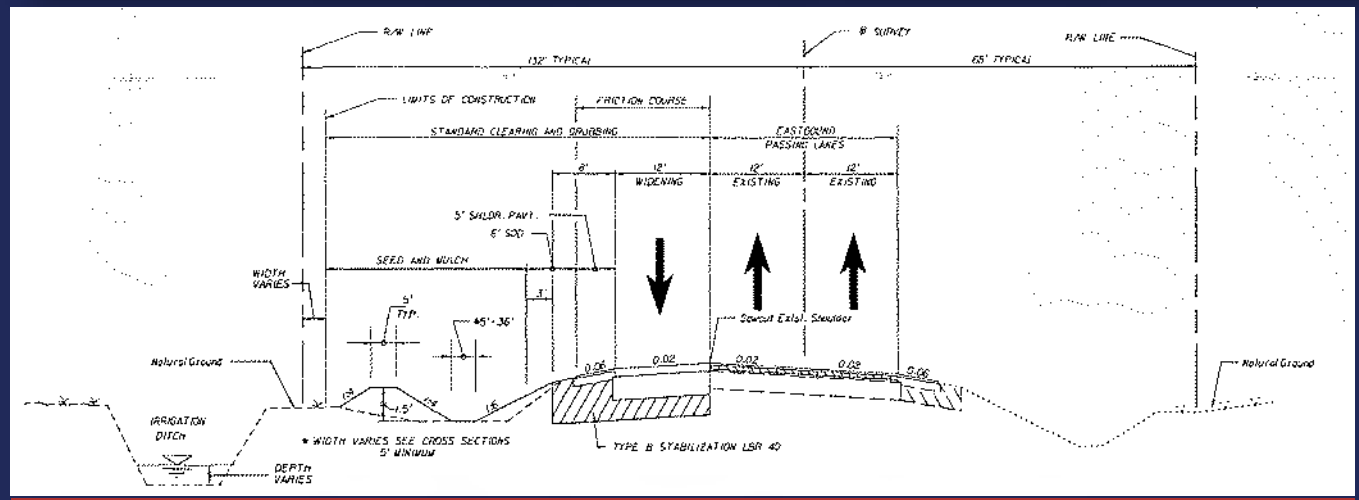


Segment 3-4	Segment 5-8	Segment 9-10	Segment 11	Segment 12-13	Segment 14	Segment 15	Segment 16	Segment 17
FPID Pending	FPID Pending	451690-1 451942-1	451649-1	414506-3 414506-4	414506-5	449851-1	450334-1	445254-1
Waterbury Rd. to Manatee Co. Line	Manatee/DeSoto Co. Line to Peace River	West of SR 31 to DeSoto/Highlands Co. Line	DeSoto/Highlands Co. Line to Jefferson Ave.	Jefferson Ave. to CR 29	CR 29 to Lonesome Island Rd.	Lonesome Island Rd. to CR 721	CR 721 to 128th Ave.	128th Ave. to US 98
Manatee Co.	DeSoto Co.	DeSoto Co.	Highlands Co.	Highlands Co.	Highlands Co.	Highlands Co.	Highlands Co.	Highlands/ Okeechobee Co.
17 Miles	12.5 Miles	16.6 Miles	10.2 Miles	7.0 Miles	4.4 Miles	7.6 Miles	8.6 Miles	7 Miles
HNTB	Kimley Horn	HNTB	Lochner	RK&K HNTB	KCA HNTB	Consor (American)	Scalar	TBD

Segment 9-10 Roadway Typical Sections

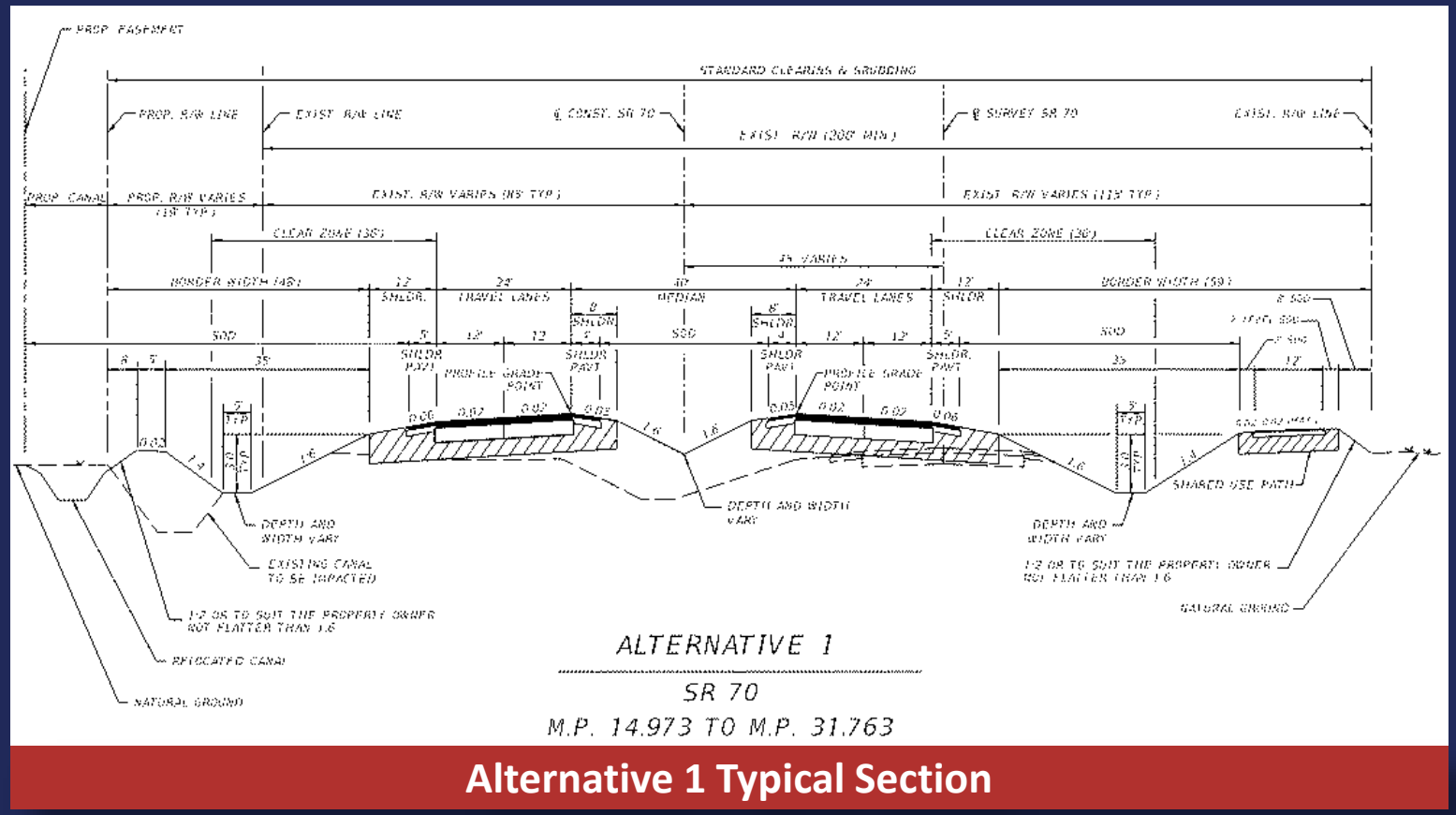


Existing Typical Section (FPID 193848-2)



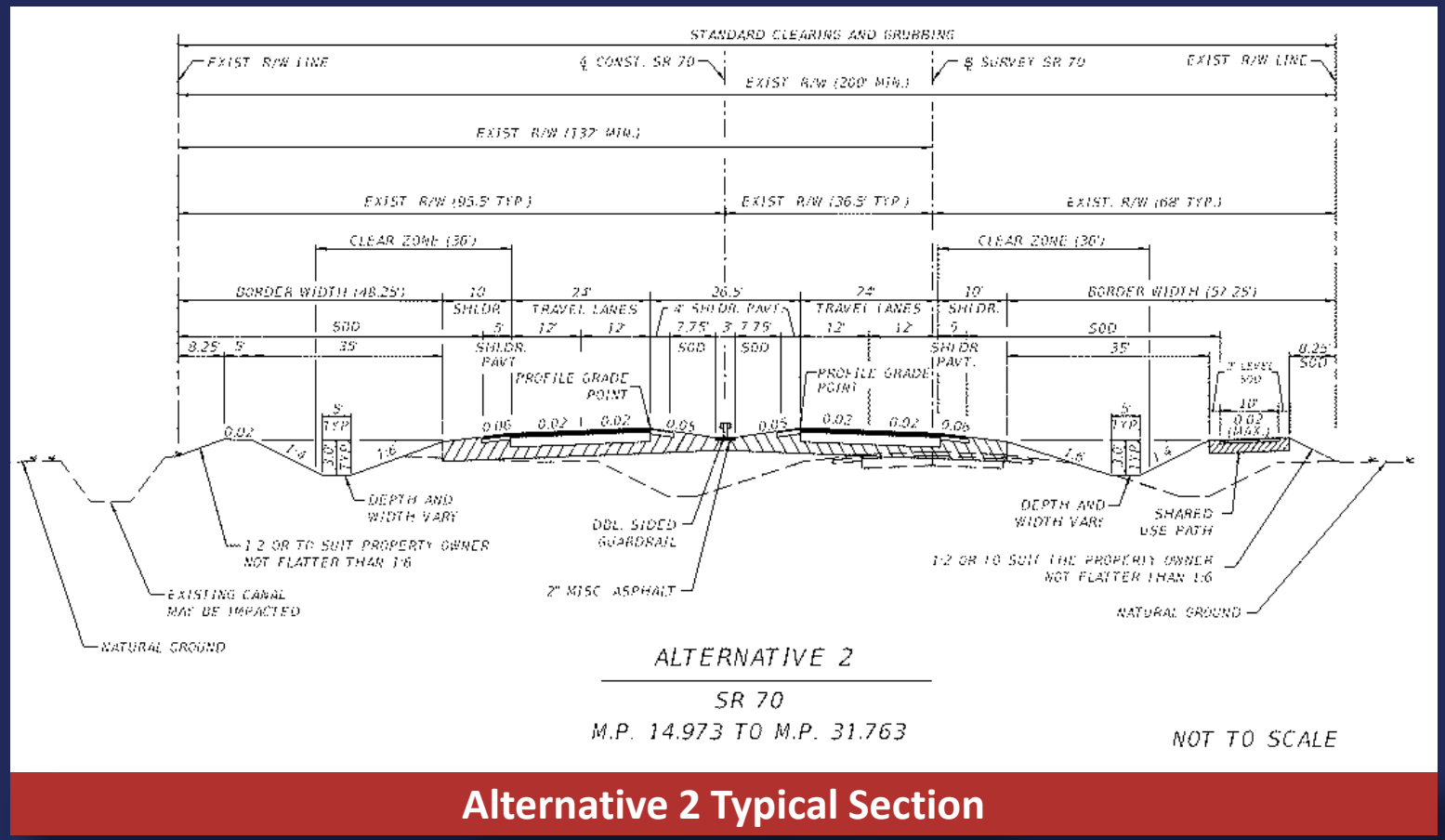
Existing Typical Section (FPID 420983-1)

Segment 9-10 Roadway Typical Sections



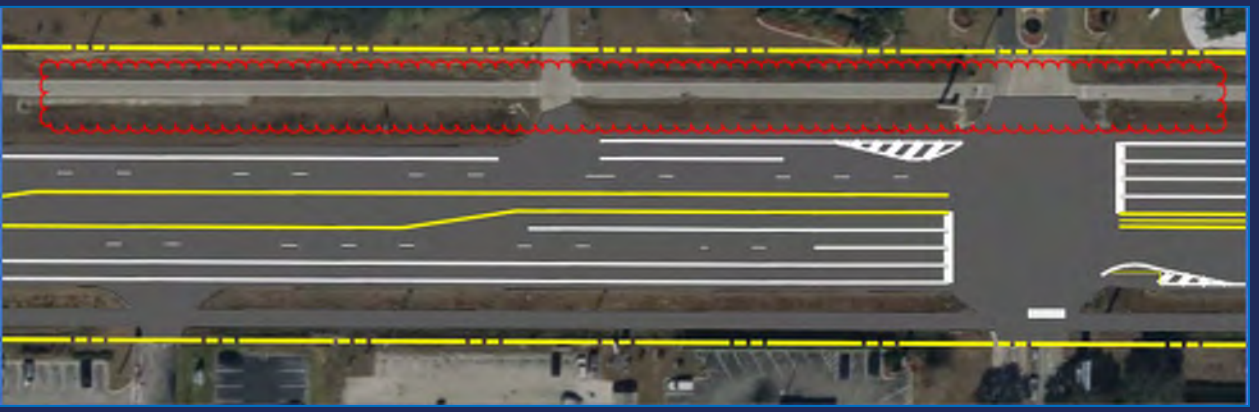
Alternative 1 Typical Section

Segment 9-10 Roadway Typical Sections



Alternative 2 Typical Section

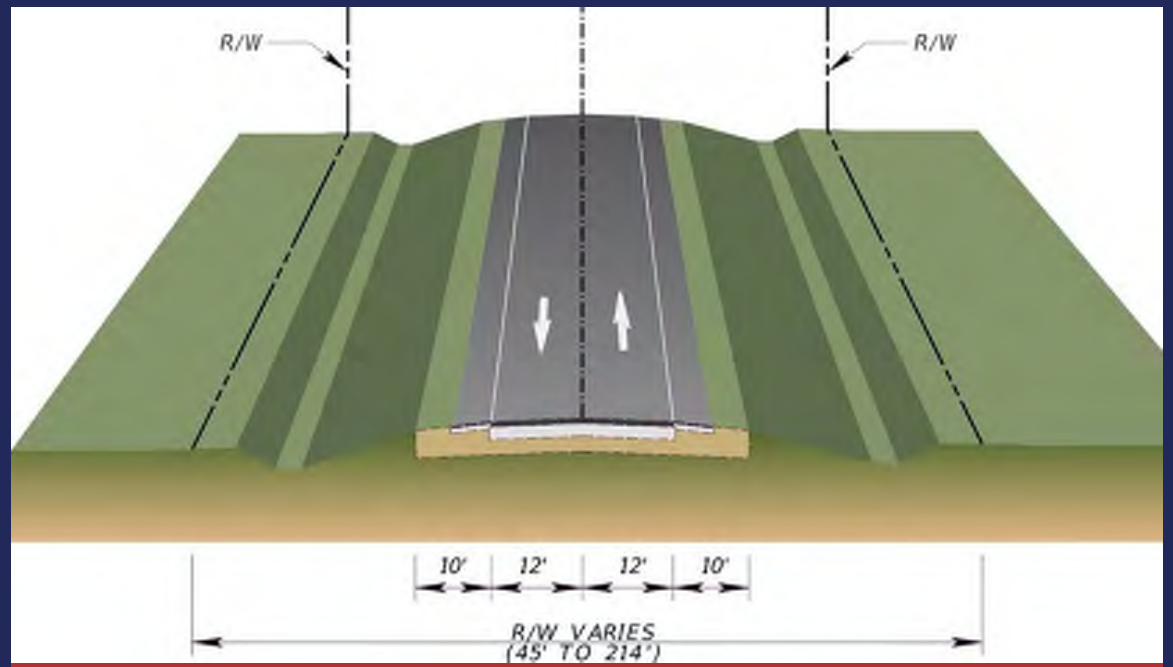
Segment 9-10 Roadway Typical Sections



Existing Path

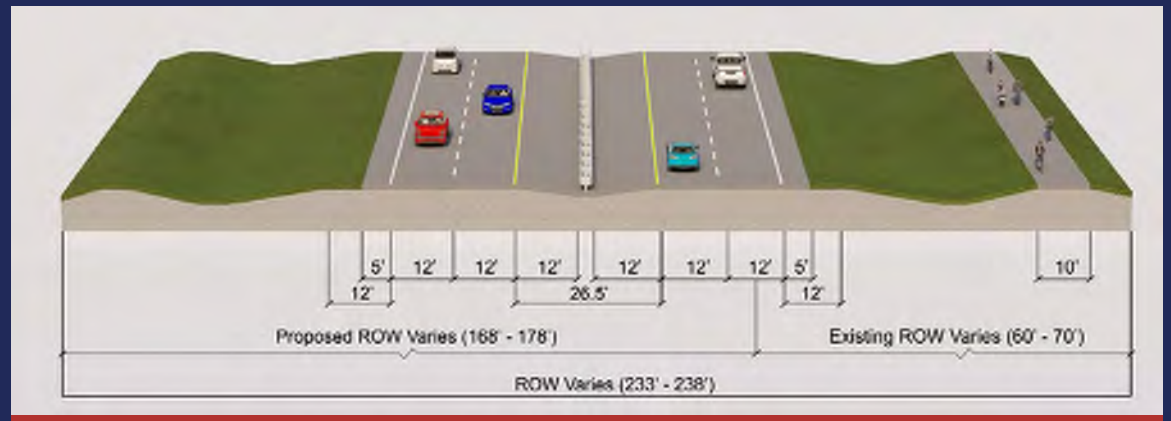
Existing Access Road

Segment 12-13 Roadway Typical Sections

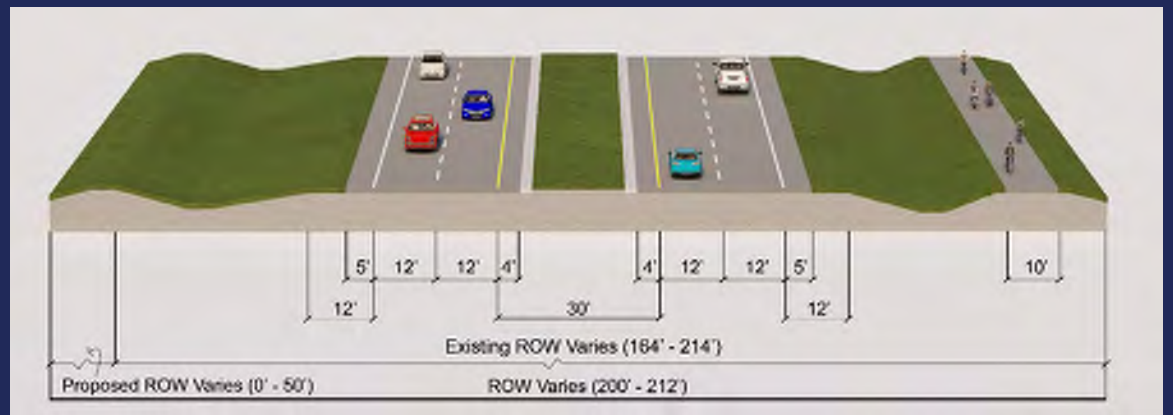


Existing Typical Section

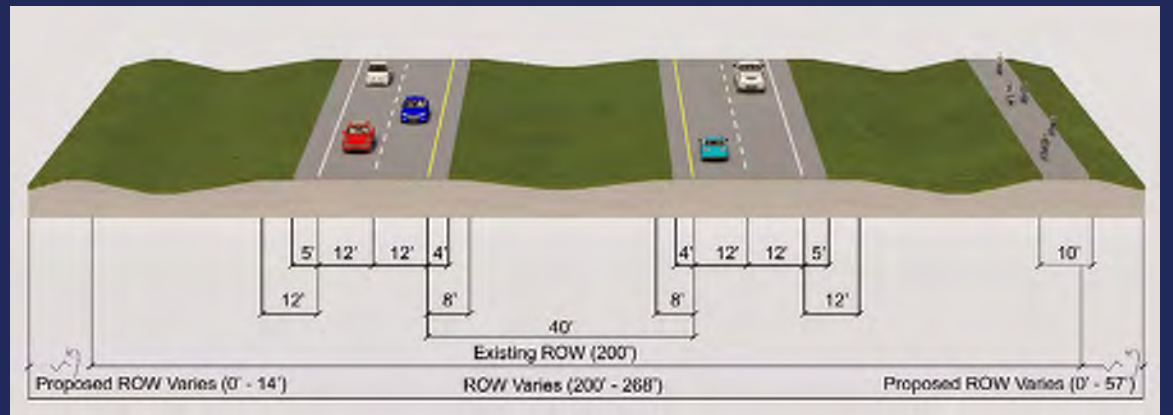
Segment 12-13 Roadway Typical Sections



PD&E Segment A Typical Section

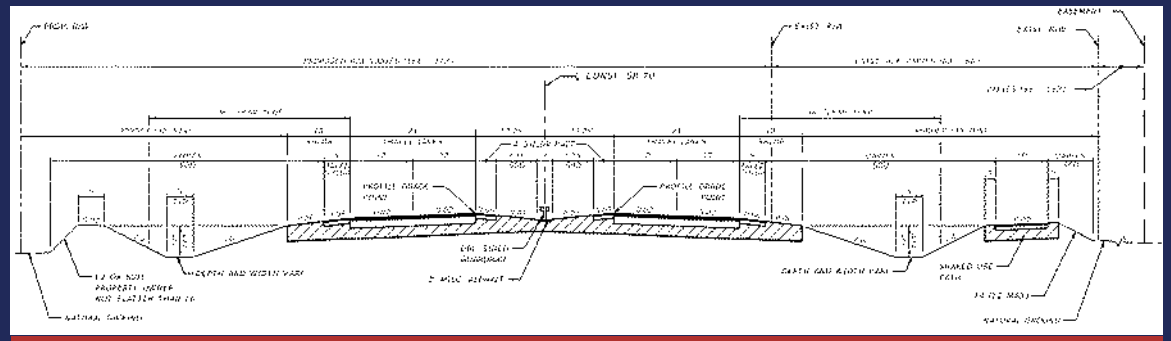


PD&E Segment B Typical Section

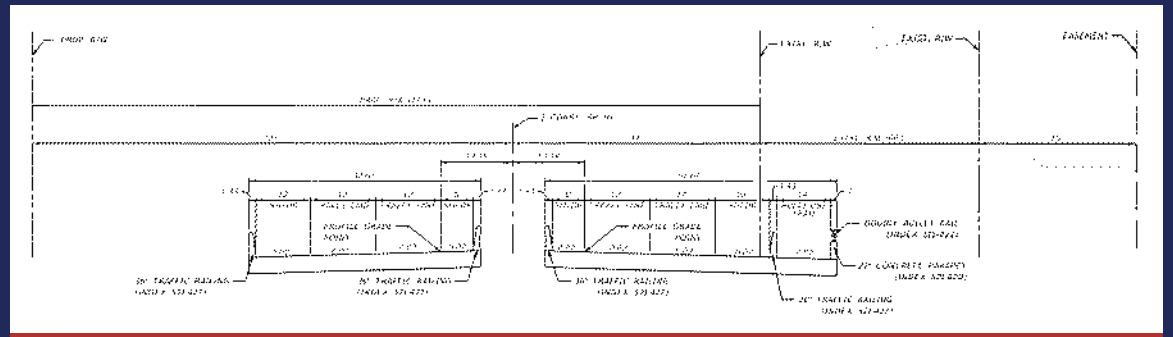


PD&E Segment C Typical Section

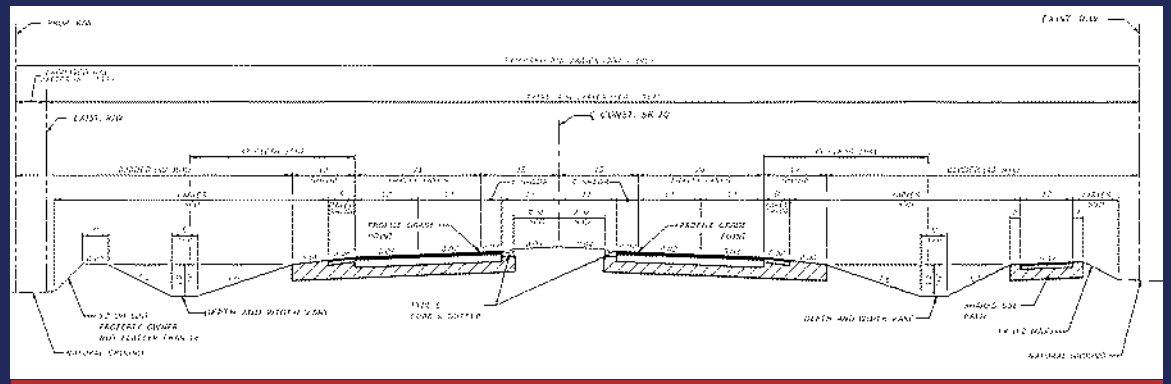
Segment 12-13 Roadway Typical Sections



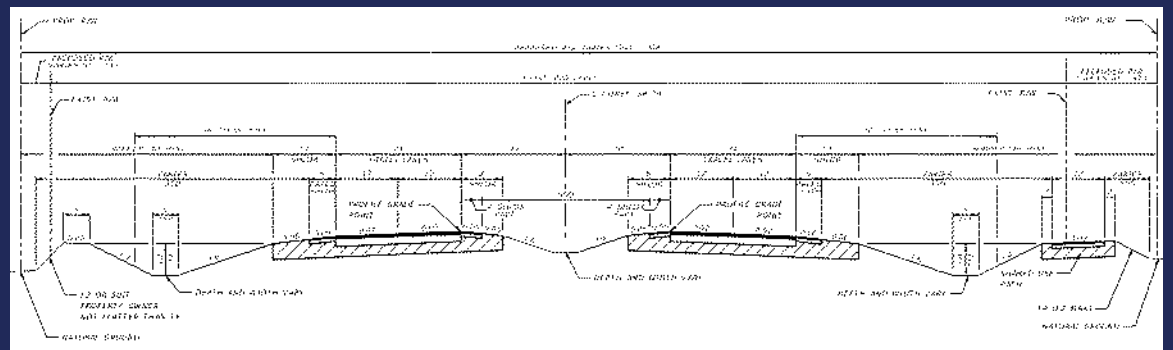
Typical Section #1



Typical Section #2



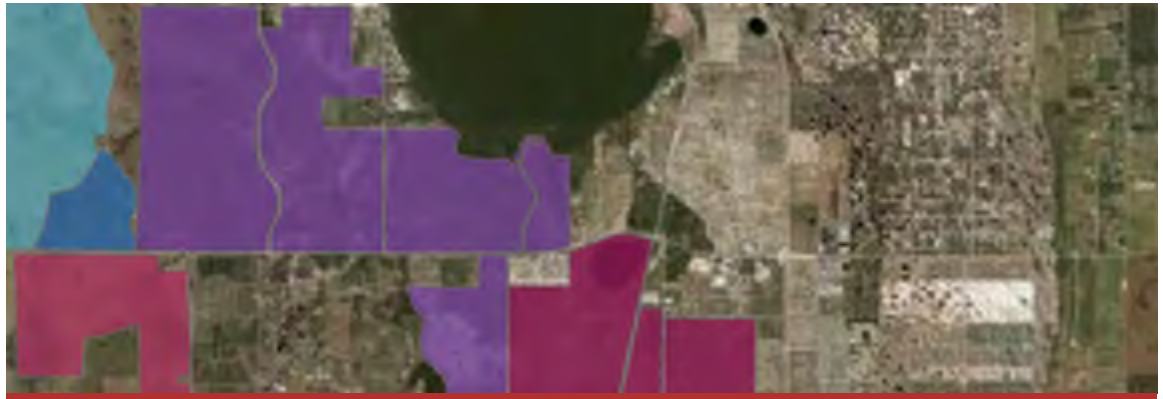
Typical Section #3



Typical Section #4

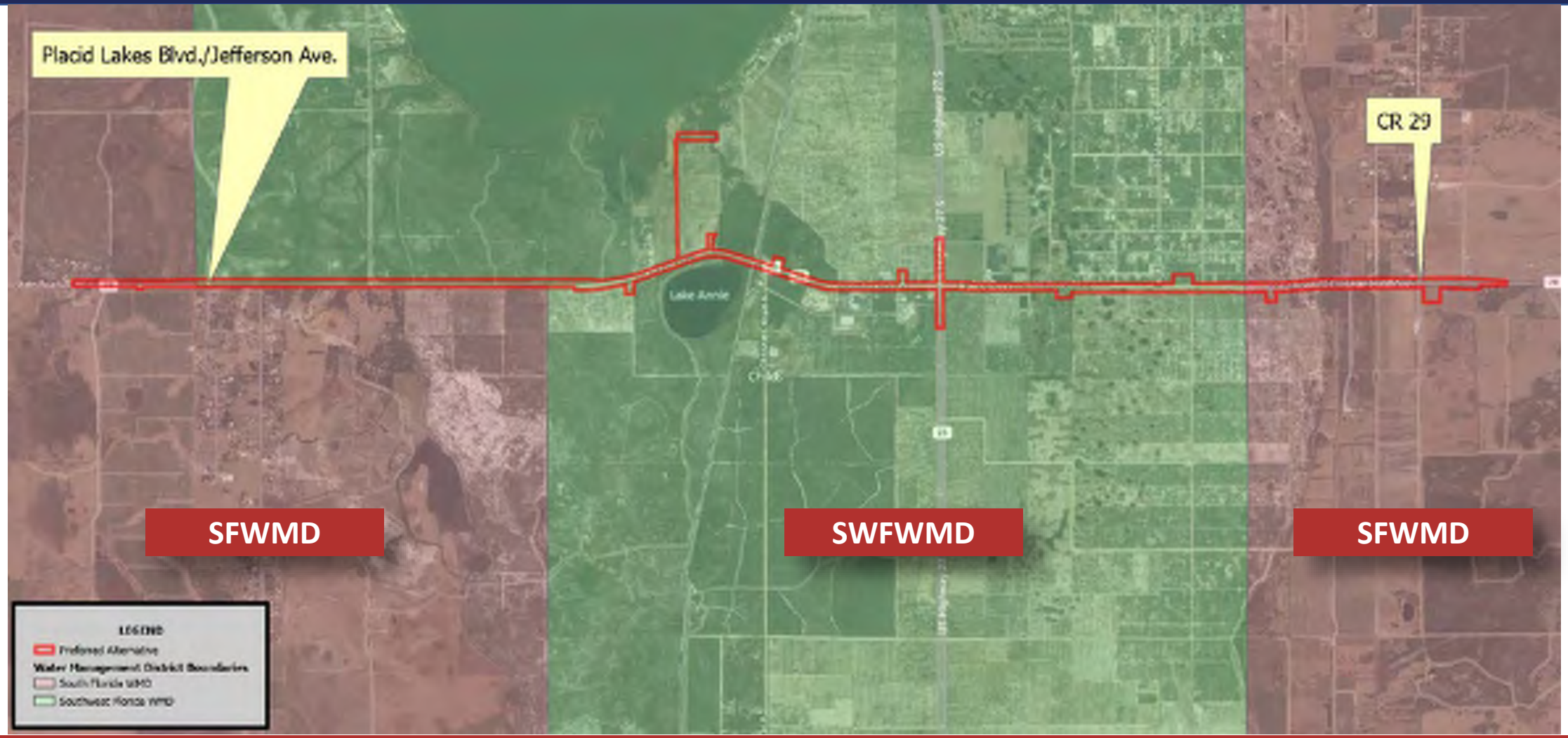
Conservation Lands

Segment 9-10

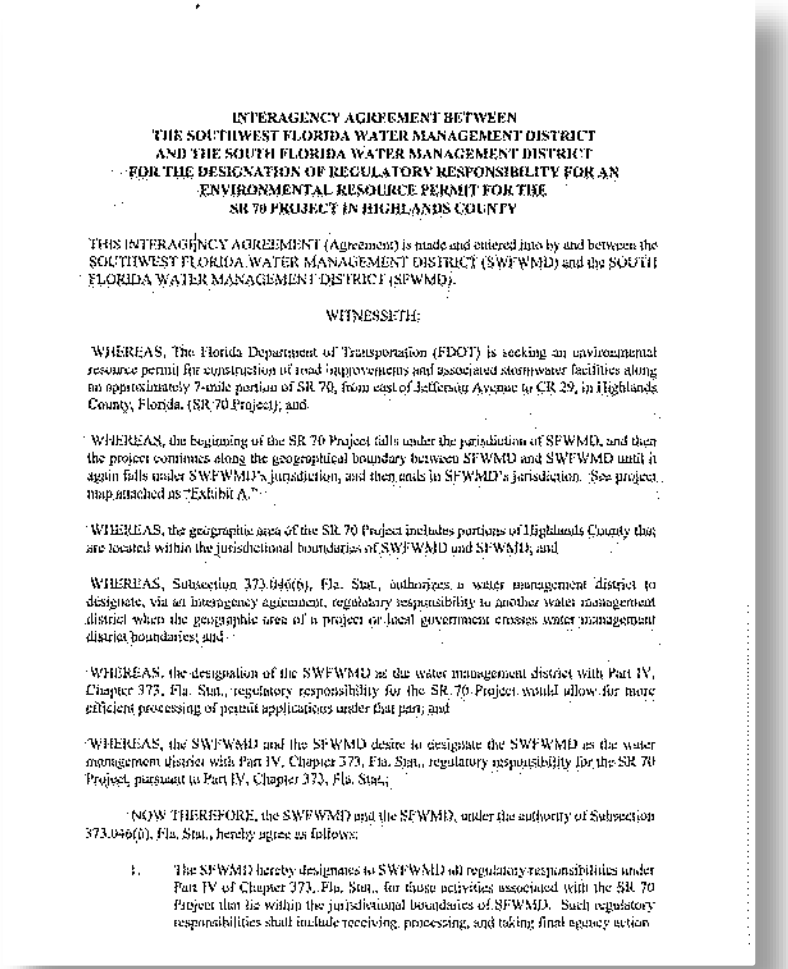


Segment 12-13

Segment 12-13 WMD Boundaries



Segment 12-13 Interagency Agreement



**INTERAGENCY AGREEMENT BETWEEN
THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
AND THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT
FOR THE DESIGNATION OF REGULATORY RESPONSIBILITY FOR AN
ENVIRONMENTAL RESOURCE PERMIT FOR THE
SR 70 PROJECT IN HIGHLANDS COUNTY**

THIS INTERAGENCY AGREEMENT (Agreement) is made and entered into by and between the SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) and the SOUTH FLORIDA WATER MANAGEMENT DISTRICT (SFWMD).

WITNESSETH:

WHEREAS, The Florida Department of Transportation (FDOT) is seeking an environmental resource permit for construction of road improvements and associated stormwater facilities along an approximately 7-mile portion of SR 70, from east of Jefferson Avenue to CR 29, in Highlands County, Florida. (SR 70 Project); and

WHEREAS, the beginning of the SR 70 Project falls under the jurisdiction of SFWMD, and then the project continues along the geographical boundary between SFWMD and SWFWMD until it again falls under SWFWMD's jurisdiction, and then ends in SFWMD's jurisdiction. See project map attached as "Exhibit A."

WHEREAS, the geographic area of the SR 70 Project includes portions of Highlands County that are located within the jurisdictional boundaries of SWFWMD and SFWMD; and

WHEREAS, Subsection 373.046(6), Fla. Stat., authorizes a water management district to designate, via an interagency agreement, regulatory responsibility to another water management district when the geographic area of a project or local government crosses water management district boundaries; and

WHEREAS, the designation of the SWFWMD as the water management district with Part IV, Chapter 373, Fla. Stat., regulatory responsibility for the SR 70 Project would allow for more efficient processing of permit applications under that part; and

WHEREAS, the SWFWMD and the SFWMD desire to designate the SWFWMD as the water management district with Part IV, Chapter 373, Fla. Stat., regulatory responsibility for the SR 70 Project, pursuant to Part IV, Chapter 373, Fla. Stat.;

NOW THEREFORE, the SWFWMD and the SFWMD, under the authority of Subsection 373.046(6), Fla. Stat., hereby agree as follows:

1. The SFWMD hereby designates to SWFWMD all regulatory responsibilities under Part IV of Chapter 373, Fla. Stat., for those activities associated with the SR 70 Project that lie within the jurisdictional boundaries of SFWMD. Such regulatory responsibilities shall include receiving, processing, and taking final agency action on all environmental resource permit applications, or modifications thereof, and taking any compliance and enforcement action with regard to such permit.

2. This Agreement will commence upon execution by all parties and will remain in effect until either party terminates such agreement for its convenience upon ninety (90) days written notice to the other party.

IN WITNESS WHEREOF, each party, or its lawful representative, has executed this Agreement on the date set forth next to their signature below.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

By: _____
Randall S. Maggard, Chair

Attest: _____
Bryan K. Beswick, Secretary
Ed Armstrong, Treasurer

Date: March 27, 2018

(Seal)

Legal Form Approved.

_____
Jodi A. Thompson
Staff Attorney

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

By: _____
Jill S. Creech, P.E.
Director, Regulation Division

Attest: _____
District Clerk/Secretary

Date: 03/16/18, 2018

(Seal)

SEAL

Legal Form Approved:

_____
Jennifer D. Brown
Senior Attorney

Segment 9-10 Existing Linear Ponds & FPCs

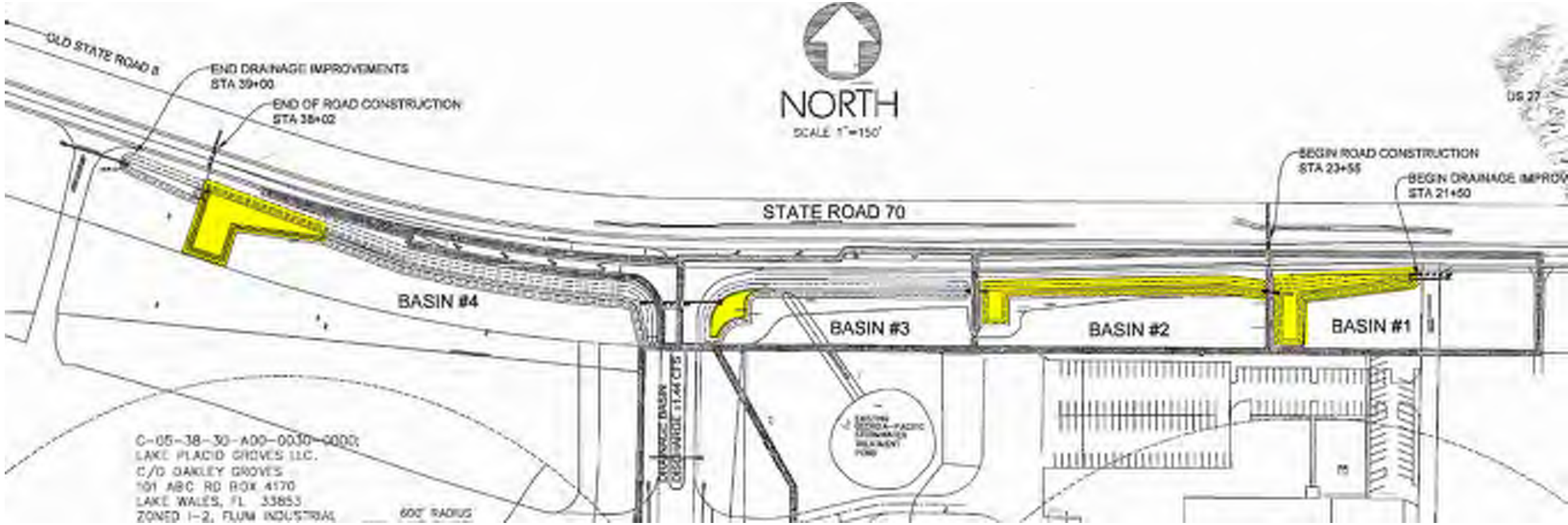
- ✓ FPID 193896-1
  - ✓ SR 70 Widening (Turner Ave to SR 31)
  - ✓ 1.2-mile of existing linear ponds (both sides)

Segment 9-10 Existing Linear Ponds & FPCs

- ✓ FPID 420983-1
  - ✓ SR 70 Passing Lanes (Turkey Hammock Rd to 1-mile west of County Line)
  - ✓ 5.6-mile of existing linear ponds (north side)
  - ✓ 0.4-mile of existing linear FPCs (north side)

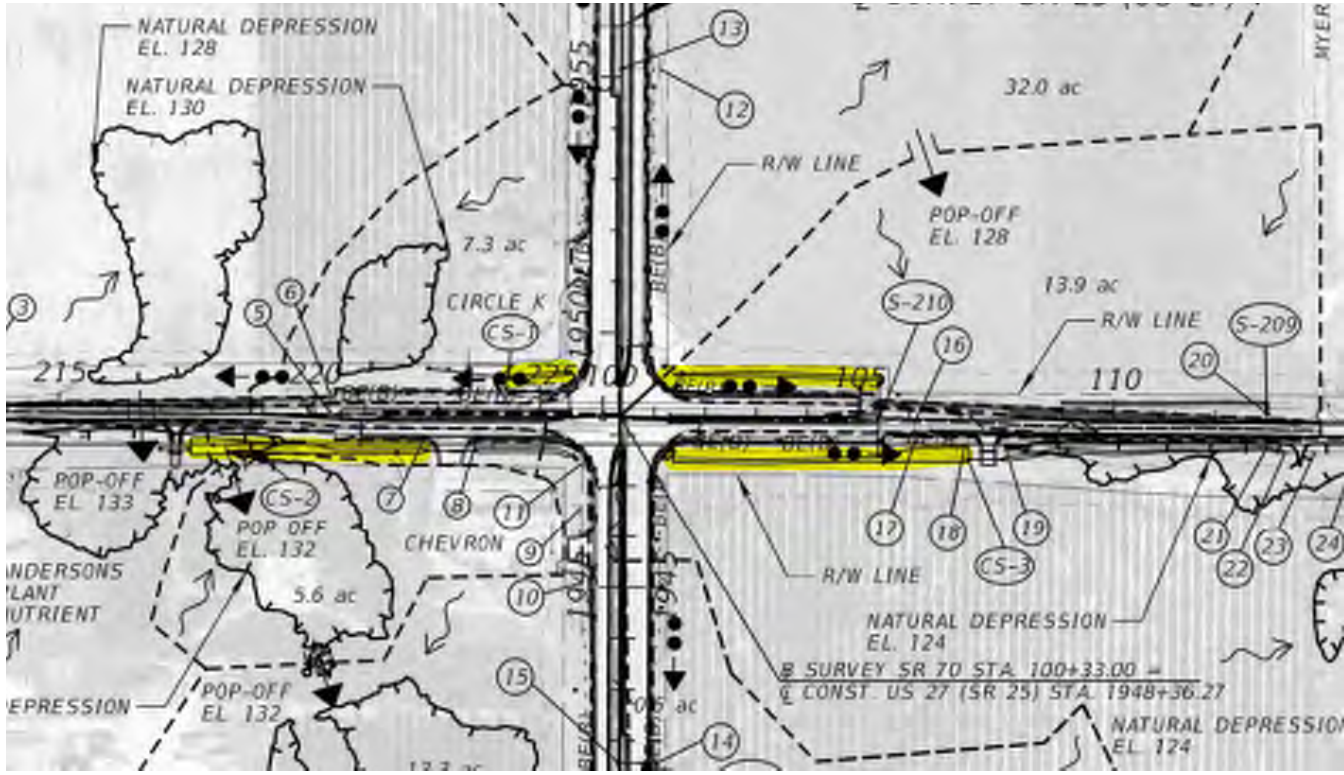
Segment 12-13 Existing Linear Ponds

- ✓ Georgia Pacific Access Rd
  - ✓ Four existing linear ponds (south side)



Segment 12-13 Existing Linear Ponds

- ✓ FPID 439827-1
  - ✓ SR 25/SR 70 Intersection Improvement
  - ✓ Four existing linear ponds (both sides)
  - ✓ Under construction



Segment 12-13 Existing Linear Ponds

- ✓ FPID 194437-3
  - ✓ Intersection/Turn Lane Improvement
  - ✓ Ten existing linear ponds (both sides)

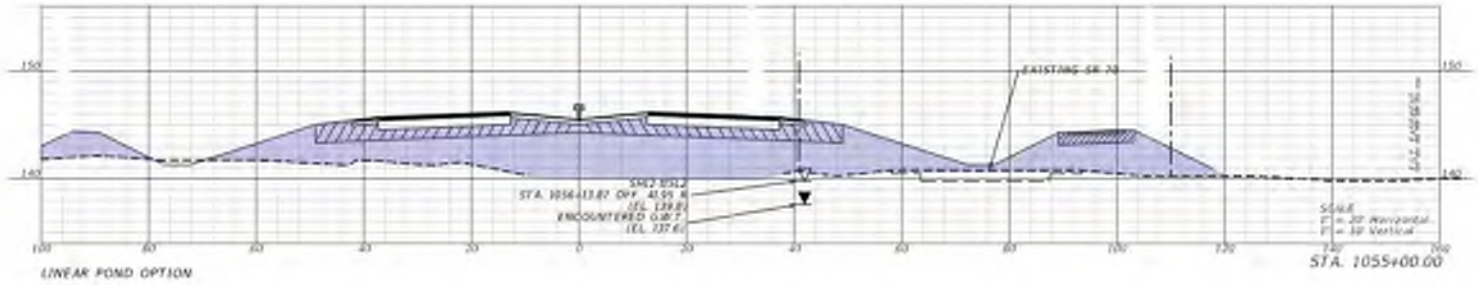
Base Clearance

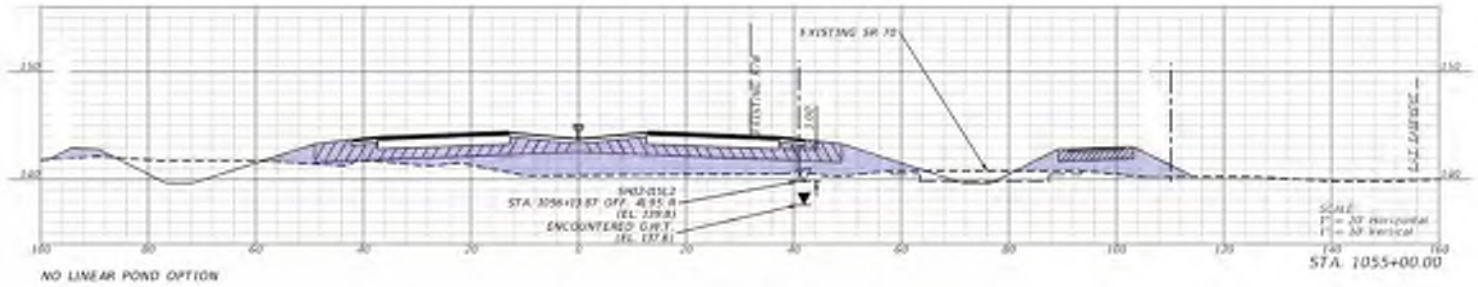
- ✓ 3’ Base Clearance
- ✓ Weir Elevation for Linear Ponds
  - ✓ Drainage Manual 5.4.1.1
- ✓ Geotech Estimated SHGWT
  - ✓ Generally high
  - ✓ Segments 9-10
    - ✓ Under Review
  - ✓ Segments 12-13
    - ✓ 15%: 0’-1’ existing base clearance
    - ✓ 20%: 1’-2’ existing base clearance
    - ✓ 15%: 2’-3’ existing base clearance
    - ✓ 50%: >3’ existing base clearance
    - ✓ Pending additional verification

Base clearance is the distance between the bottom of the roadway base and the top of the base clearance water elevation (BCWE). The BCWE is considered the long-term standing water which could negatively affect the structural integrity of the roadway base. Allowable base clearances are based on the roadway's classification and are provided in **FDM 210.10.3**.

The BCWE for roadside treatment swales should be set at the weir elevation. A lower elevation may be used if all of the following apply:

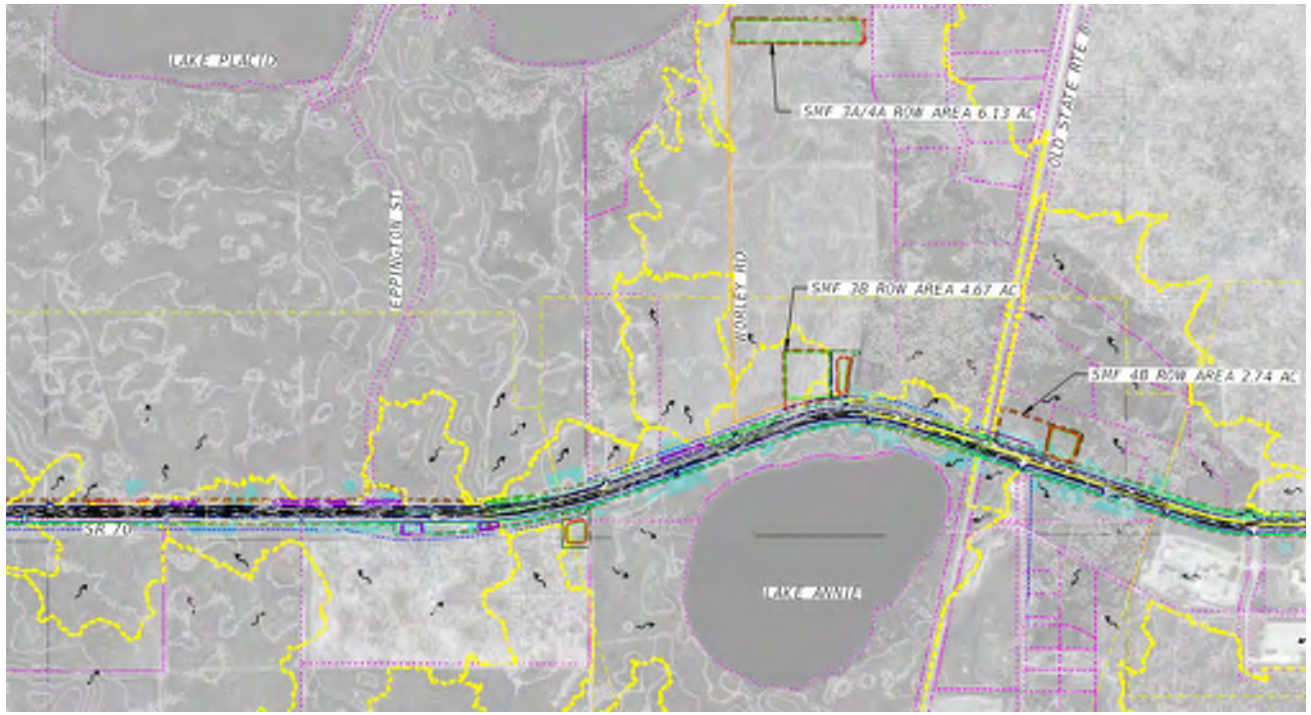
- In-situ soils are classified as Hydrologic Soil Group A,
- Geotechnical investigation reveals there is no confining layer to impede drawdown, and
- Construction activities are limited within the treatment swale to avoid compaction and tracking of silt and muck.





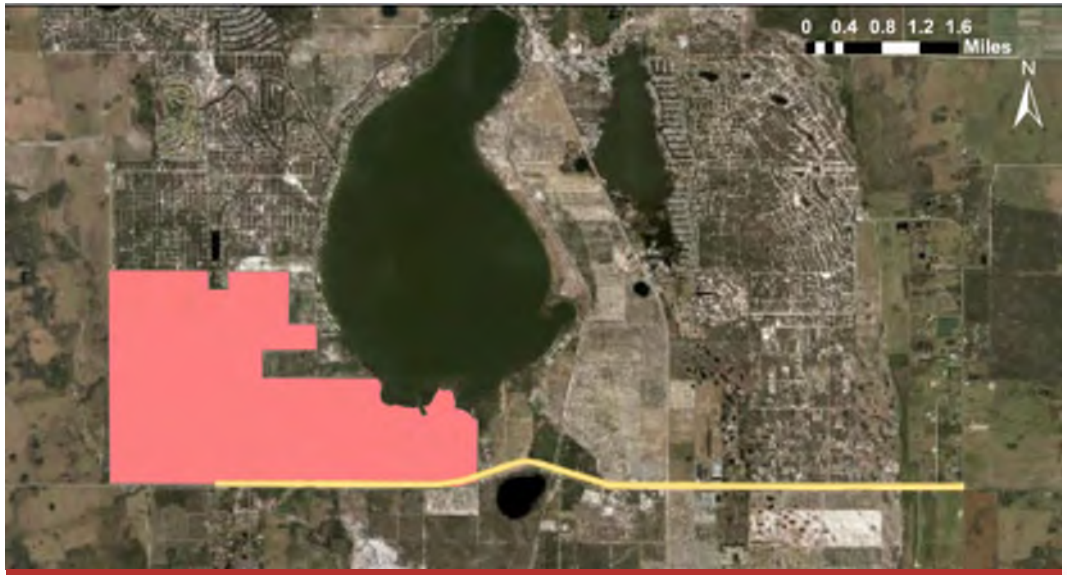
Pond Siting & Stormwater Management

- ✓ Segments 9-10
  - ✓ Linear Ponds
  - ✓ Offsite Ponds
- ✓ Segments 12-13
  - ✓ PD&E identified 1 alternative per basins
    - ✓ PD&E did not have survey and geotech
    - ✓ PD&E did not have a roadway profile
  - ✓ Utility Easements – FP&L & FGT
  - ✓ Linear Ponds in Conservation Land
  - ✓ Offsite Ponds
  - ✓ Combine Basins?



Pond Siting & Stormwater Management

- ✓ Segment 12-13
  - ✓ PD&E Pre-Application Meeting
    - ✓ December 2014 (PA 401780)
  - ✓ Concept Design Pre-Application Meeting
    - ✓ April 2024
- ✓ Water Quality
  - ✓ For Nutrient Impaired WBIDs → Net Improvement
  - ✓ For Basins Directly Discharge to OFW → 150% of Presumptive Treatment Volume
  - ✓ Equivalent New DCIA
  - ✓ Compensatory Treatment
  - ✓ Current Stormwater Rules



Placid Lakes OFW

Pond Siting & Stormwater Management

- ✓ Water Quantity (SWFWMD)
  - ✓ Open Basin →
    25-year 24-hour Pre vs. Post
    Peak Discharge Rate
  - ✓ Closed Basin →
    100-year 240-hour Pre vs. Post
    Discharge Volume

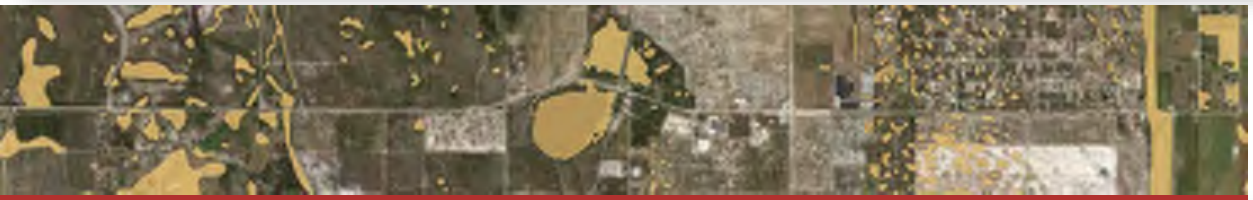
FEMA

Lake Placid Watershed Model

Pond Siting & Stormwater Management

- ✓ Floodplains
  - ✓ Lake Placid Watershed Model
  - ✓ SHGWT vs. Initial Stage

Segment 9-10 FEMA



Segment 12-13 FEMA

Lake Placid Watershed Model

Questions?

HNTB Corporation
The HNTB Companies
Infrastructure Solutions

201 N. Franklin Street
Suite 1200
Tampa, FL 33602

Telephone (813) 402-4150
hntb.com

MEETING MINUTES

Project Name
SR 70 Segments 9-10, 12-14

Date of Meeting
September 9, 2024

FPID(s)
451690-1, 451942-1, 414506-3, 414506-4, 414506-5

Location
D1 HQ, Microsoft Teams

Purpose of Meeting
Drainage Pond Siting Schedule

Time
2:00 PM – 3:00 PM

Attendees:

- **FDOT – Joe Lauk, Brent Setchell**
- **HNTB – Bill Jones, Ed Ponce, John Burton, Sam Chiu, Angela Shepard, Matt Dockins, Gordon Mullen, Dave Crombie**

Agenda & Notes

1. Introductions & Agenda
    - Pond siting is critical path for both PD&E and design. Regular check-ins will help expedite schedule and make sure we are on the right track.
    - Meeting purpose to review project schedules and identify decision points for pond siting activities.

2. Segment 9-10, 12-14 schedules:
    - Discussed draft schedule of activities for concurrent PD&E and design related to pond siting.
    - During the meeting, comments and revisions made to the draft schedule included the following:
        - Pond Siting Alternatives Analysis will include preliminary environmental desktop analysis.
        - Brent suggested having a check-in meeting to confirm alternates before starting the field work (exploratory Geotech and Environmental). This will be accomplished in Checkpoint Meeting #1
        - Brent suggested an additional check in meeting prior to submission of the Draft PSR (Meeting #2). This meeting will discuss estimated costs & impacts and identify preliminary recommendations to incorporate in the Draft PSR.
        - Full field investigation (Geotech and Topo Survey) may begin after Draft PSR.
        - Meeting #3 will be scheduled prior to Final PSR submittal to confirm final recommendations.
        - After confirmation of final pond site recommendations, preliminary right of way process activities, including title searches and mapping up to 60%, may begin. For purposes of the pond siting schedule, right of way activities will be reflected in two lines for preliminary and final effort (appraisals, etc).

- Bill displayed a graphic illustrating the Segment 14 LDCA will be achieved by December 2024 and noted that this allows for ROW acquisition and permitting package submittals in advance of the other segments.
- Bill noted some funding for right of way and/or mitigation will be available in FY 2026.
- An additional schedule line will show the anticipated Segment 14 re-evaluation timeline. Anticipated 6-month timeline should be complete by August 2025, prior to 60% plans and SFWMD permit application.
- Dates related to DB procurement are subject to change.

3. Pond siting methodology, approach, preliminary alternate sites discussion.
    - Segment 14
        - Angela reviewed the current PD&E alternates and recommendations, three alternative stormwater management facility types for 3 basins (offsite wet detention, linear ponds, regional pond), and 2 FPC sites with 2 alternates identified for each site.
            - FPC 2A (PD&E recommended) is now a planned FPL Solar Farm site. Unless it is anticipated this is still a viable site, an additional alternate site will be needed to replace FPC 2A.
            - FPC 1A (PD&E recommended) may impact adjacent wetlands with modeled SHWT. Recommendation may change to FPC 1B or third alternate (TBD).
            - Preliminary cost differences estimated for the LRE memo comparing alternative stormwater management facility types will be expanded and incorporated in the PSR.
        - Angela identified next steps for updating the ICPR floodplain model with design-level information as it becomes available. Brent had no comments on the overall approach.
            - Brent agreed that initial stage shouldn't be at canal bottom. FP model updates will incorporate the recent canal SHW/NWL determinations.
            - Angela noted upcoming Draft BHR will be based on the current PD&E FP model and will be refined in the Final BHR when FP model updates for roadway design geometry and topo survey are incorporated. Joe and Brent have concerns about the BHR rework if survey data is not available. John noted available LiDAR has been reasonably accurate compared to survey to-date. Joe inquired if the BDR/BHR is on the critical path. Angela noted the BDR/BHR schedule is aligned with the current design schedule.
            - The current FP model reflects permitted (future) conditions for some offsite wetland restoration project sites. Updates needed to replace FP model input with existing conditions data.
                - In order to update the FP model with the best available (permit) data, Angela requested approval to contact offsite property owners for ICPR data not available from SFWMD or KCA. Brent had no concern with contact.
            - Anticipated that upcoming ICPR model updates may result in increases in FP impacts and corresponding FPC site sizes.
                - If viable sites are not available, will revisit other opportunities with less favorable schedule impacts.
    - Segment 13
        - PD&E provided one alternative per basin. Updates will include 3 per basin.
        - HNTB to request flooding complaints for the RV site

- Brent alerted the team about the isolated depressions, which may have clay/organic materials to cause the impoundment. Brent also noted the odd topography in proximity to seepage slope.
- Will need model to estimate floodplain elevations in depressions.

- Segment 12
  - PD&E provided one alternative per basin. Updates will include 3 per basin. Basins 1 and 2 include linear pond options as suggested in the PD&E. Basins 3 and 4 have a regional alternative.
  - Initial stages in the watershed model will be updated to reflect recent SHWT determination. Updates may result in increases in FP impacts and corresponding FPC site sizes.
  - Discussion about the roadway realignment shift north due to FP&L.
  - Brent asked if the EB roadway is re-using the existing. HNTB indicated that is for Segment 9-10.
- Segments 9-10
  - Existing FGT and FP&L easements
  - HNTB indicated that there are owners that has multiple large parcels. Will look for opportunities to minimize impacts to owner or combine basins.
  - Basin delineation and CN calculations underway.
  - No previous sites identified. Three alternatives per basin will be provided, including linear ponds as an option. The current roadway design fit inside the existing roadway R/W. Any differences in project costs due to linear ponds will be accounted for in the PSR.
  - FPC sites will be identified offsite.
  - Potential pond sites may not be directly adjacent to roadway due to FPL and FGT easements.
  - Survey anticipated in early December. LiDAR will be used in the meantime.

4. Additional general discussion for PSR methodology:
   - Brent's preference is to locate pond sites close to R/W
   - When sizing pond, use 1.0 to 1.5 ft of treatment depth. Include consideration for impacts to roadway profile and cost benefit of expanding pond footprint.
   - If a shallow treatment depth is used (such as 0.5 ft), this will need justification if that is due to roadway profile. Should include a comparison of the larger pond vs. roadway cost (raising roadway profile that affect roadway R/W and roadway embankment)
   - Alternative cost estimates should include all costs associated with ponds, such as outfall and easements, and other differential costs (higher roadway profiles or additional corridor right of way).
     - Include consideration for pipes will connect to ponds. Potential example of combining basins that requires a deeper pipe to traverse cross drain locations.

5. Action items:
   - Update pond siting project schedules, see attached.
   - Schedule check in meetings.

HNTB Corporation
The HNTB Companies
Infrastructure Solutions

201 N. Franklin Street
Suite 1200
Tampa, FL 33602

Telephone (813) 402-4150
hntb.com

MEETING MINUTES

Project Name
SR 70 Segments 9-10

Date of Meeting
February 21, 2025

FPID(s)
451690-1 and 451942-1

Location
D1 HQ, Microsoft Teams

Purpose of Meeting
Coordination of stormwater management facilities (SMFs) and floodplain compensation (FPC) areas, review of alternative feasibility, right-of-way (R/W) considerations, environmental constraints, and exploratory borings sign-off.

Time
10:00 AM – 12:00 PM

Attendees:

- **FDOT – Brent Setchell, Kathern Cothern, Ryan Molloy**
- **HNTB – Sam Chiu, Braeden Johnson, Ed Ponce, John Burton, Nic Leon, Matt Dockins, David Crombie**

Agenda & Notes

1. Introductions & Agenda

The primary focus of this meeting was to discuss alternative evaluations for SMFs, floodplain compensation considerations, and permitting strategies. The team reviewed each basin's proposed alternatives and discussed feasibility, constraints, and next steps.

2. Segment 9 - Basin-Specific Discussions

Basin 1 SMFs

- Both alternatives involve **wet ponds**.
- Brent noted that the **property owners are the same** for the selected parcels.
- HNTB to explore an **additional alternative on the south side** with a different owner.
- Brent suggested evaluating the **two parcels west of Alternative 1** and **connecting them with an equalizer pipe**.
- Investigate whether the **existing pond west of Alternative 2** can be incorporated into the design.
- **Aesthetic Concerns:**
    - Joe raised concerns about a **"big, ugly rectangular pond."**
    - Brent suggested adding **landscaping at the frontage** to improve aesthetics.
- **Right-of-Way Coordination:**
    - Brent asked who is handling R/W coordination for different project phases.
    - Ed (HNTB) confirmed that **R/W will be a collaborative effort**.

Basin 2 SMFs

- **Outfall Location:** Whidden Creek.
- **Compensatory Treatment:**
    - Brent supports compensatory treatment as the **minimum requirement** but prefers additional treatment to **simplify permitting**.
- **Alternative Considerations:**
    - Brent suggested adding an **alternative on the west side**.

  - Sam noted that **this alternative would be over-treating** but will be investigated further.
  - Since the **property owner is the same**, Sam suggests **expanding existing sites** instead of adding a new one.
- **FPCs:** No floodplain compensation (FPCs) planned for this basin.

Basin 3 SMFs

- Brent noted that the **SMFs in Basin 3 appear smaller** than those in Basin 1.
- HNTB confirmed that **Basin 1 has a lower depth to SHWT**.
- **Liner Considerations:**
  - Brent mentioned that **SWFWMD allows liners** that add **six inches to SHWT depth**.
  - HNTB will evaluate if this is **applicable for this basin**.

Basin 4 SMFs

- No **FPCs** were performed for **Joshua Creek**.
- Brent asked where **Alternative 2 discharges**.
  - HNTB confirmed it **discharges back toward the road**.
- **Parcel Evaluation:**
  - Brent asked about the **parcel east of Alternative 1**.
  - HNTB explained that **environmental access was not granted**, so it was not evaluated.
- **Preferred Alternative:**
  - Brent thinks the **northern linear pond alternative will win out** over Alternative 2.

Basin 5 SMFs

- **Offset Consideration:** FGT constraints.
- **MOT Concerns:**
  - Additional **MOT phases** may be required if water is crossed **underneath the road**.
  - HNTB to explore **relocating the eastern alternative to the north**.
  - Reevaluate **FPC and FPL offsets** accordingly.

Basin 6 SMFs

- **Same MOT concerns as Basin 5** regarding crossing the road.
- **New Alternative:**
  - Explore a **north-side alternative**, though it would require **crossing a canal**.
  - Brent and HNTB agree that **if relocated north, it should be on the right side of the irrigation canal**.

Basin 7 SMFs

- Brent asked how **likely linear ponds would be used**.
- Sam responded that it is **case by case**, as **bridge constraints may impact feasibility**.
- **Clearing Limits:**
  - Investigate **expanding beyond 50 feet for PD&E**.
- **Utility Considerations:**
  - John asked if exhibits should include **FGT and FPL reconstruction impacts**.

Basin 8 SMFs

- **No ponds on the north side due to FPL ownership and a weir on the canal.**
- **Brent suggested using the parcel between FGT and the roadway to widen linear ponds.**

Basin 9 SMFs

- **Southside Prison & Floodplain Issues – Large floodplain in the area.**
- **Drainage to DCI Canal on the west end.**

Basin 12 SMFs

- **Cannot put anything on north side due to landfill.**
- **Brent asked why the landfill cannot be used.**

Basin 13 SMFs

- **The ponds are triangular due to floodplain constraints and FGT.**

Basin 15 SMFs

- **Brent asked if the eastern alternative could be moved north and west.**

Basin 17 SMFs

- **Large floodplains in the area.**
- **Brent suggests attempting to combine Basins 15 and 17.**

3. Floodplain Compensation Areas (FPCs) & Additional Considerations

FPC Evaluation & Adjustments

- **FIA 4 FPC:** Adjust **pond location** to accommodate FPC.
- **FIA 5 FPC:** Investigate **cross-drain feasibility vs. alternative solutions**.
- **Basin 9 FPCs:**
  - FEMA floodplain mapping indicates significant constraints.
  - Evaluate **modeling impacts to floodplain compensation sites**.

4. Environmental Considerations

- N**orthwest of Basin 2 ponds:** Shovel test results indicate **historical artifact "hits."**
- **Toby's RV site:** Additional environmental investigations may be required.LDCA has been shifted to beyond 06/28/2026. The pond siting is using the new water quality criteria.

5. Action Items & Next Steps

- **Cost Comparison for SMFs vs. Linear Ponds** – HNTB to conduct a cost evaluation.
- **Basin 1-6 Adjustments** – Evaluate alternative siting, equalizer pipes, and pond connectivity.
- **Basin 7-17 Refinements** – Incorporate floodplain constraints and optimize linear pond placement.
- **FPC Model Updates** – Confirm **required compensation storage volumes** for floodplain areas.
- **Right-of-Way & Environmental Coordination** – HNTB to follow up with FDOT on R/W acquisitions.
- **BCWE Considerations** – Sam to email Brent regarding **BCWE movement vs. SHWT** and potential **design variation**.
- **Updated KMZ File** – Sam to send an updated **KMZ file to Matt** with all meeting decisions.

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Suite 1200
Tampa, FL 33602

Telephone (813) 402-4150
hntb.com

DRAFT MEETING MINUTES

Project Name
SR 70 Segments 9-10

Date of Meeting
May 19, 2025

FPID(s)
451690-1 and 451942-1

Location
D1 HQ, Microsoft Teams

Purpose of Meeting
PSR Checkpoint 2
Coordination of ROW, Parcels, Alternate Viability, Access Conveyance Requirements, and Assessment of Aesthetic, Social, Cultural, and Environmental Impacts of Each Alternate. Discuss preliminary impacts, costs and recommended alternatives.

Time
2:30 PM – 2:00 PM

Attendees:

- **FDOT – Joe Lauk (PGA), Brent Setchell, Ryan Molloy**
- **HNTB – Gordon Mullen, John Burton, Sam Chiu, Braeden Johnson, Sammy Huey, Ed Ponce, David Crombie, Nic Leon**

Agenda & Notes

1. Introductions & Agenda

- The primary focus of this meeting was to review pond siting progress and obtain feedback FDOT on the preliminary sites.

2. Segments 9-10

- The preliminary sites were discussed with FDOT.
    - FDOT requested that cost savings from supplementing conveyance system with linear ponds instead of standard pipe conveyance system be accounted for in evaluation matrix.
    - FDOT requested to re-orientate FPC 1001A and SMF 1001C so that the SMF is located closer to the roadway.
    - FDOT inquired whether FPC 1001A was only alternative. HNTB indicated that due to the impacts location, only one site (parcel) has been identified.
    - FDOT inquired whether conveyance pipes will need to go under cross drain. HNTB indicated that some basins will need to cross under the cross drain due to combining basins; and the construction cost will be accounted.
    - FDOT requested FPC 1005C to be relocated at the orange groves (i.e. north of FPC 1005A), given the current location appears to be wet. HNTB will adjust and conduct the proper environmental assessment.
    - FDOT requested HNTB evaluate upsizing cross drain south of the Correctional Facility as an alternative to FPC 1006A and FPC 1006B.

- After the meeting, it was determined that there is a conservation easement for the Bright House Watershed. This would only be considered if the FPC becomes too big and the modeling cannot resolve the issues.

- Discussed Basins 1007 through 1009 require nutrient loading analysis to demonstrate net improvement. FDOT mentioned to account for the landuse change associated with the FPC. HNTB indicated that it has not been accounted for; but will include during permitting.

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201 N. Franklin Street
Suite 1200
Tampa, FL 33602

Telephone (813) 402-4150
hntb.com

DRAFT MEETING MINUTES

Project Name
SR 70 Segments 9-10

Date of Meeting
August 13, 2025

FPID(s)
451690-1 and 451942-1

Location
D1 HQ, Microsoft Teams

Purpose of Meeting
PSR Checkpoint 3 discussion prior to Final PSR submittal.

Time
1:00 PM – 2:00 PM

Attendees:

- **FDOT – Joe Lauk (PGA), Brent Setchell, Ryan Molloy, Brook Feagle**
- **HNTB – Gordon Mullen, John Burton, Sam Chiu, Braeden Johnson, Sammy Huey, Ed Ponce, David Crombie**

Agenda & Notes

1. Introductions & Agenda

- Confirm final pond siting recommendations.

2. Segments 9-10

- Stormwater Management
    - Basin 0901
        - An open basin.
        - Three stormwater management facility (SMF) alternatives have been identified:
            - Alternative 1 consists of SMF 0901A, an offsite wet pond.
            - Alternative 2 consists of SMF 0901B, an offsite wet pond with a liner.
            - Alternative 3 consists of SMF 0901C and SMF 0901D, which are two offsite wet ponds.
        - Alternative 1 (SMF 0901A) is the preferred alternative.
            - SMF 0901A has the lowest total cost.
            - SMF 0901B has a higher wetland mitigation cost and includes a liner.
            - SMF 0901C and SMF 0901D have significantly higher R/W costs compared to SMF 0901A.
        - FDOT indicated agreement with SMF 0901A as the preferred alternative and noted SMF 0901B is the least favorable option due to the liner requirement.
    - Basin 0902
        - An open basin.
        - Three SMF alternatives have been identified:
            - Alternative 1 consists of SMF 0902A, an offsite wet pond with a liner.
            - Alternative 2 consists of SMF 0902B, an offsite wet pond.
            - Alternative 3 consists of SMF 0902C and SMF 0902D. SMF 0902C is an offsite wet pond. SMF 0902D is a series of dry linear ponds, which would require roadway profile adjustments in order to meet the base clearance requirement.

- Alternative 1 (SMF 0902A) is the preferred alternative.
  - SMF 0902A has the lowest total cost but includes a liner.
  - SMF 0902B has a higher construction cost due to the inflow and outflow pipes.
  - SMF 0902C and SMF 0902D require roadway profile adjustments and have a higher R/W costs.
- FDOT inquired why a northern site was not considered. HNTB noted that the northern side was excluded due to historical artifact hits from a shovel test per the Checkpoint #1 meeting. FDOT concurred with not adding alternative on the north side.
- FDOT asked to confirm to the cost for SMF 0902A (pond liner) and SMF 0902B (inflow and outflow pipes).
  - Upon further evaluation after the meeting, SMF 0902A is still $904k higher than SMF 0902B.
- FDOT inquired about existing access driveway within the SMF 0902B. HNTB will adjust SMF 0902B to avoid.

- Basin 0903
  - An open basin.
  - Three SMF alternatives have been identified:
    - Alternative 1 consists of SMF 0903A, an offsite wet pond.
    - Alternative 2 consists of SMF 0903B, an offsite wet pond.
    - Alternative 3 consists of SMF 0903C, a series of dry linear ponds, which would require roadway profile adjustments in order to meet the base clearance requirement.
  - Alternative 2 (SMF 0903B) is the preferred alternative.
    - SMF 0903B has a lower total cost compared to SMF 0903A, primarily due to reduced construction costs from embankment.
    - SMF 0903C is more expensive due to the roadway profile adjustment costs.
- Basin 0904
  - An open basin.
  - Three SMF alternatives have been identified:
    - Alternative 1 consists of SMF 0904A, an offsite wet pond with a liner.
    - Alternative 2 consists of SMF 0904B, an offsite wet pond with a liner.
    - Alternative 3 consists of SMF 0904C and SMF 0904D. SMF 0904C is an offsite wet pond. SMF 0904D is a series of dry linear ponds, which would require roadway profile adjustments in order to meet the base clearance requirement.
  - Alternative 1 (SMF 0904A) is the preferred alternative.
    - FDOT inquired about the offsite in SMF 0904A and whether the pond could be shifted south. HNTB will shift SMF 0904A south closer to the right-of-way.
- Basin 1001
  - An open basin.
  - Three SMF alternatives have been identified:
    - Alternative 1 consists of SMF 1001A, an offsite wet pond.
    - Alternative 2 consists of SMF 1001B, an offsite wet pond.
    - Alternative 3 consists of SMF 1001C and SMF 1001D. SMF 1001C is an offsite wet pond. SMF 1001D is a series of dry linear ponds, which would require roadway profile adjustments in order to meet the base clearance requirement.

SMF 1001C has a higher SHW than the south side; therefore, it requires additional dry linear ponds, SMF 1001D.

- Alternative 1 (SMF 1001A) is the preferred alternative.
  - FDOT agreed with this selection.
  - Coordination will be needed with Florida Gas Transmission (FGT) for the outfall location to avoid conflicts with the gas line easement.

- Basin 1002
  - An open basin.
  - Three SMF alternatives have been identified:
    - Alternative 1 consists of SMF 1002A, an offsite wet pond that would cross the FGT line.
    - Alternative 2 consists of SMF 1002B, an offsite wet pond that would cross the canal.
    - Alternative 3 consists of SMF 1002C and SMF 1002D. SMF 1002C is an offsite wet pond. SMF 1002D is a series of dry linear ponds, which would require roadway profile adjustments in order to meet the base clearance requirement.
  - Alternative 1 (SMF 1002A) is the preferred alternative.
    - FDOT inquired whether SMF 1002A could be shifted west toward the canal and closer to the outfall channel. HNTB confirmed no issues with environmental clearance and will shift SMF 1002A closer to the outfall.
- Basin 1003
  - An open basin.
  - Three SMF alternatives have been identified:
    - Alternative 1 consists of SMF 1003A, an offsite wet pond.
    - Alternative 2 consists of SMF 1003B, an offsite wet pond.
    - Alternative 3 consists of SMF 1003C and SMF 1003D. SMF 1003C is an offsite wet pond. SMF 1003D is a series of dry linear ponds, which would require roadway profile adjustments in order to meet the base clearance requirement.
  - Alternative 2 (SMF 1003B) is the preferred alternative.
    - SMF 1003B has the lowest total cost.
    - SMF 1003C is more expensive due to roadway profile adjustment costs.
    - FDOT agreed with SMF 1003B as the preferred alternative.
- Basin 1004
  - An open basin.
  - Three stormwater management facility (SMF) alternatives have been identified:
    - Alternative 1 consists of SMF 1004A, an offsite dry pond.
    - Alternative 2 consists of SMF 1004B, an offsite dry pond.
    - Alternative 3 consists of SMF 1004C, an onsite dry linear pond within existing roadway right-of-way, which would require roadway profile adjustments in order to meet the base clearance requirement.
  - Alternative 1 (SMF 1004A) is the preferred alternative.
    - FDOT agreed with SMF 1004A as the preferred alternative.
    - FDOT requested that compensatory treatment be evaluated during a later design phase to potentially eliminate this pond. HNTB noted the basin is compensating for impacted existing linear ponds, but will review feasibility at the design stage.

- The existing FGT easement was revised by the right-of-way after the meeting and intersect with both SMF 1004A and SMF 1004B. Further adjustments were needed to SMF 1004A and SMF 1004B to avoid the FGT easement.
    - The revised SMF 1004A is located south of the FGT.
    - The revised SMF 1004B is located north of the FGT, which would require roadway profile adjustments in order to meet the base clearance requirement.
    - SMF 1004A remains the preferred alternative.

- Basin 1005
    - An open basin.
    - Three SMF alternatives have been identified:
        - Alternative 1 consists of SMF 1005A, an offsite wet pond.
        - Alternative 2 consists of SMF 1005B, an offsite dry pond.
        - Alternative 3 consists of SMF 1005C, an onsite dry linear pond within existing roadway right-of-way.
    - Alternative 3 (SMF 1005C) is the preferred alternative.
        - The existing R/W widened at the west end of the basin and allows the linear pond to fit.
        - The roadway has elevated the profile due to the bridge to the west. Given the profile is relatively flat in this area, the linear pond alternative is feasible.
        - FDOT agreed with SMF 1005C as the preferred alternative.
- Basin 1006
    - An open basin.
    - Three SMF alternatives have been identified:
        - Alternative 1 consists of SMF 1006A, an offsite wet pond.
        - Alternative 2 consists of SMF 1006B, an offsite wet pond.
        - Alternative 3 consists of SMF 1006C, a series of dry linear ponds, which would require roadway profile adjustments in order to meet the base clearance requirement.
    - Alternative 1 (SMF 1006A) is the preferred alternative.
        - FDOT asked to evaluate the SMF and FPC together. HNTB will confirm.
        - FDOT asked to shift SMF east to be closer to the FPC site. HNTB will adjust.
- Basin 1007
    - An open basin.
    - Three SMF alternatives have been identified:
        - Alternative 1 consists of SMF 1007A, an offsite dry pond crossing the FGT line.
        - Alternative 2 consists of SMF 1007B, an offsite dry pond crossing the canal.
        - Alternative 3 consists of SMF 1007C, a series of dry linear ponds, which would require roadway profile adjustments in order to meet the base clearance requirement.
    - Alternative 1 (SMF 1007A) is the preferred alternative.
        - The cost difference between SMF 1007A and SMF 1007B is minimal.
        - FDOT did not indicate a preference between crossing the FGT line or the canal.
        - FDOT asked to evaluate the SMF and FPC together. HNTB will confirm.
        - Discussed the potential needs for bubblers or sumped inflow pipes due to the presence of the FGT line or the canal. The intent is to minimize where possible.

- FDOT asked to evaluate shifting the linear ponds south of the FPL to avoid numerous small cells. HNTB confirmed no issues with environmental clearance and will shift SMF 1007A south of the FPL.

- Basin 1008
  - An open basin.
  - Three SMF alternatives have been identified:
    - Alternative 1 consists of SMF 1008A, an offsite dry pond crossing the FGT line.
    - Alternative 2 consists of SMF 1008B, an offsite dry pond crossing the canal.
    - Alternative 3 consists of SMF 1008C and SMF 1008D. SMF 1008C is an offsite wet pond. SMF 1008D is a series of dry linear ponds, which would require roadway profile adjustments in order to meet the base clearance requirement.
  - Alternative 1 (SMF 1008A) is the preferred alternative.
    - SMF 1008A has the lowest total cost.
    - FDOT agreed with SMF 1008A as the preferred alternative.
- Basin 1009
  - An open basin.
  - Three SMF alternatives have been identified:
    - Alternative 1 consists of SMF 1009A, an offsite dry pond.
    - Alternative 2 consists of SMF 1009B, an offsite dry pond.
    - Alternative 3 consists of SMF 1009C and SMF 1009D. SMF 1009C is an offsite wet pond. SMF 1009D is a series of dry linear ponds, which would require roadway profile adjustments in order to meet the base clearance requirement.
  - Alternative 1 (SMF 1009A) is the preferred alternative.
    - FDOT agreed with SMF 1009A as the preferred alternative.
    - FDOT inquired about profile adjustments; HNTB clarified that with weir elevations set, the roadway profile must be raised to meet BCWE clearance between the weir and base instead of SHWT.

- <u>Floodplain Compensation Areas</u>
  - Floodplain Impact Area (FIA) 0901
    - Due to the removal of south SUP, FIA 0901 has been eliminated.
  - Whidden Branch Floodway
    - No standalone FPC site. Will be performing bridge hydraulics analysis and no-rise.
  - Joshua Creek Floodway
    - No standalone FPC site. Will be performing bridge hydraulics analysis and no-rise.
  - FIA 1001
    - Two offsite alternatives have been identified for FIA 1001.
    - Both alternatives have similar total cost.
    - Alternative 2 (FPC 1001B) was the lower cost alternative presented during the meeting.
      - The separation between the east side of FPC 1001B and the existing parcel line is deemed acceptable.
      - New right-of-way (R/W) cost was provided by FDOT R/W after the meeting. Alternative 1 (FPC 1001A) becomes the lower cost alternative, which will be deemed as preferred in the PSR.
  - FIA 1002
    - One offsite alternative (FPC 1002-NA) has been identified for FIA 1002 northern impact.

- Two offsite alternatives (FPC 1002-SB and FPC 1002-SC) have been identified for FIA 1002 southern impact.
  - Both alternatives have similar total cost.
- FPC 1002-NA and FPC 1002-SC were the lower cost alternative presented during the meeting.
  - FDOT inquired whether the site can be accessed from the side road to the west of FPC 1002-SC. HNTB will verify if the road is public and adjust the access easement as appropriate.
  - New right-of-way (R/W) cost was provided by FDOT R/W after the meeting. FPC 1002-NA and FPC 1002-SB become the lower cost alternative, which will be deemed as preferred in the PSR.

- FIA 1003
  - Two offsite alternatives have been identified.
  - Alternative 1 (FPC 1003A) is the preferred alternative.
    - This alternative has less wetland impacts.
- FIA 1004
  - Three offsite alternatives have been identified.
  - Alternative 2 (FPC 1004B) is the preferred alternative.
    - This alternative no wetland impacts.
- FIA 1005
  - Three offsite alternatives have been identified.
  - Alternative 3 (FPC 1005C) is the preferred alternative.
    - This alternative has less wetland impacts.
- FIA 1006
  - Two offsite alternatives have been identified.
    - Both alternatives have similar total cost.
  - Alternative 1 (FPC 1006A) is the preferred alternative.
- FIA 1007
  - Three offsite alternatives have been identified.
  - Alternative 3 (FPC 1007C) is the preferred alternative.
    - This has been evaluated in-conjunction with SMF cost (SMF 1006A).
- FIA 1008
  - Three offsite alternatives have been identified.
  - Alternative 1 (FPC 1008A) is the preferred alternative.
    - This has been evaluated in-conjunction with SMF cost (SMF 1007A).
- FIA 1009
  - Three offsite alternatives have been identified.
  - Alternative 3 (FPC 1009C) is the preferred alternative.
- FIA 1010
  - Three offsite alternatives have been identified.
  - Alternative 2 (FPC 1010B) is the preferred alternative.
- Floodplain Modeling
  - Discussed performing floodplain modeling for FIA 1004 through FIA 1010 to better refine the base flood elevation (BFE) and encroachment volume; and to evaluate the effects of converting to bridges with wildlife crossing shelfs.
  - The additional efforts will be coordinated in future SA with FDOT PM.

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201 N. Franklin Street
Suite 1200
Tampa, FL 33602

Telephone (813) 402-4150
hntb.com

5. Action items:

- After the preferred site selection, coordinate with FGT when crossing their facility in conjunction with concept design.
- Coordinate with FDOT PM on the floodplain modeling.

APPENDIX 3

POND CALCULATIONS

Pond Calculations

BMP Trains

Land Use Maps for BMP Trains

Basin 0901

SMF:	SMF 0901 Alt. 1

Basin Type:	OPEN
Side of Road:	LEFT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4002+30.00	Basin 1
To STA. =	4060+18.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			12.59	98	1234
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [36] SMYRNA	19.24	49	943
	B/D	[20] IMMOKALEE, [25] ONA	5.05	69	349
	SUBTOTAL		**36.9**		**2526**
				TOTAL WEIGHTED CN =	**68.5**

PROPOSED CONDITION

From STA. =	4002+30.00	Basin 0901
To STA. =	4066+00.04	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			15.72	98	1541
SMF Bottom	WATER		5.59	100	559
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [31] POMPANO, [36] SMYRNA	12.58	49	616
	B/D	[20] IMMOKALEE, [25] ONA	5.71	69	394
	SUBTOTAL		**39.6**		**3111**
				TOTAL WEIGHTED CN =	**78.5**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in
Treatment Area	3.1	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.26**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	4.61	2.73
Runoff Depth, Q_R (in)	4.29	5.45
Runoff Volume (ac-ft)	13.18	18.00
Attenuation Volume (ac-ft)		**4.82**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.30
Existing Attenuation Volume (ac-ft)	1.72

Note: Existing Storage derived from **Permit No. 32402.000** and **Permit No. 32402.001**

SMF 0901A POND DESIGN

SHW EL.:	62.50	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[31] POMPANO [36] SMYRNA	
SHW Point(s) of Reference:	PBA-10, PBA-12, PBA-13		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	63.50	ft
Estimated DHW_{10}:	63.18							
LEOP:	64.92	ft @ 4043+00 LT						
Distance to LEOP:	1000	ft						
Clearance to LEOP:	1.24	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	62.50			5.59	0.00	0.00
Treatment Vol. EL. (Weir EL.)	62.70	0.20	0.20	5.63	1.12	1.12
Detention Vol. EL.	63.90	1.20	1.40	5.85	6.89	8.01
Bottom of Maintenance Berm (Freeboard)	64.90	1.00	2.40	6.03	5.94	13.95
Top of Maintenance Berm	65.90	1.00	3.40	6.74	6.39	
Tie Down (To Existing Ground EL.)	63.50	-2.40		7.21		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.86 ac-ft	1.12 ac-ft	GOOD
Attenuation	6.54 ac-ft	6.89 ac-ft	GOOD
TOTAL	**7.40 ac-ft**	**8.01 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD

Basin 0901

SMF:	SMF 0901 Alt. 2

Basin Type:	OPEN
Side of Road:	LEFT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4002+30.00	Basin 1
To STA. =	4060+18.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			12.59	98	1234
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [36] SMYRNA	17.93	49	878
	B/D	[20] IMMOKALEE, [25] ONA	5.05	69	349
	SUBTOTAL		**35.6**		**2461**
				TOTAL WEIGHTED CN =	**69.2**

PROPOSED CONDITION

From STA. =	4002+30.00	Basin 0901
To STA. =	4066+00.04	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			15.72	98	1541
SMF Bottom	WATER		4.62	100	462
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [36] SMYRNA	12.83	49	629
	B/D	[20] IMMOKALEE, [25] ONA	5.12	69	353
	SUBTOTAL		**38.3**		**2985**
				TOTAL WEIGHTED CN =	**77.9**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	3.1	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.26**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in — Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	4.45	2.83	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	4.37	5.38	Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft)	12.96	17.18	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**4.23**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.30
Existing Attenuation Volume (ac-ft)	4.17

Note: Existing Storage derived from **Permit No. 32402.000** and **Permit No. 32402.001**

SMF 0901B POND DESIGN

SHW EL.:	59.20	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[3] BASINGER	
SHW Point(s) of Reference:	WLPT-115-LT-3		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	63.50	ft
Estimated DHW_{10}:	62.76							
LEOP:	64.92	ft @ 4043+00 LT						
Distance to LEOP:	150	ft						
Clearance to LEOP:	2.09	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	61.80			4.62	0.00	0.00
Treatment Vol. EL. (Weir EL.)	62.00	0.20	0.20	4.65	0.93	0.93
Detention Vol. EL.	63.90	1.90	2.10	4.97	9.14	10.07
Bottom of Maintenance Berm (Freeboard)	64.90	1.00	3.10	5.14	5.05	15.12
Top of Maintenance Berm	65.90	1.00	4.10	5.79	5.46	
Tie Down (To Existing Ground EL.)	63.50	-2.40		6.23		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.86 ac-ft	0.93 ac-ft	GOOD
Attenuation	8.40 ac-ft	9.14 ac-ft	GOOD
TOTAL	**9.26 ac-ft**	**10.07 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD

Basin 0901

SMF:	SMF 0901 Alt. 3

Basin Type:	OPEN
Side of Road	LEFT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4002+30.00	Basin 1
To STA. =	4060+18.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			12.59	98	1234
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [36] SMYRNA	17.30	49	848
	B/D	[20] IMMOKALEE, [25] ONA	5.05	69	349
	SUBTOTAL		**34.9**		**2430**
				TOTAL WEIGHTED CN =	**69.5**

PROPOSED CONDITION

From STA. =	4002+30.00	Basin 0901
To STA. =	4066+00.04	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			15.72	98	1541
SMF Bottom	WATER		1.87	100	187
Pervious - 'Fair' Open Spaces	A/D	[2] ANCLOTE, [3] BASINGER, [31] POMPANO, [36] SMYRNA	14.37	49	704
	B/D	[20] IMMOKALEE, [25] ONA	5.71	69	394
	SUBTOTAL		**37.7**		**2825**
				TOTAL WEIGHTED CN =	**75.0**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in
Treatment Area	3.1	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.26**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	4.38	3.33
Runoff Depth, Q_R (in)	4.41	5.04
Runoff Volume (ac-ft)	12.85	15.83
Attenuation Volume (ac-ft)		**2.98**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.30
Existing Attenuation Volume (ac-ft)	1.72

Note: Existing Storage derived from **Permit No. 32402.000** and **Permit No. 32402.001**

SMF 0901C AND SMF 0901D POND DESIGN

SMF 0901D

SHW EL.:	61.80	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[2] ANCLOTE [36] SMYRNA	
SHW Point(s) of Reference:	PBA-5, PBA-6, PBA-7		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL ≥ 1' Clearance			Maint. Berm Slope (1:X):	FLAT				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005) ≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	64.00	ft
Estimated DHW_{10}:	62.64							
LEOP:	64.92	ft @ 4043+50 LT						
Distance to LEOP:	2000	ft						
Clearance to LEOP:	1.28	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	61.80			1.87	0.00	0.00
Treatment Vol. EL. (Weir EL.)	61.80	0.00	0.00	1.87	0.00	0.00
Detention Vol. EL.	63.90	2.10	2.10	2.12	4.18	4.18
Bottom of Maintenance Berm (Freeboard)	64.90	1.00	3.10	2.24	2.18	6.36
Top of Maintenance Berm	64.90	0.00	3.10	2.72	0.00	
Tie Down (To Existing Ground EL.)	64.00	-0.90		2.84		

SMF 0901C

SHW EL.:	61.80	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[36] SMYRNA	
SHW Point(s) of Reference:	PBA-8		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL ≥ 1' Clearance			Maint. Berm Slope (1:X):	FLAT				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005) ≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	64.00	ft
Estimated DHW_{10}:	63.08							
LEOP:	64.92	ft @ 4043+50 LT						
Distance to LEOP:	1500	ft						
Clearance to LEOP:	1.09	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	61.80			0.84	0.00	0.00
Treatment Vol. EL. (Weir EL.)	62.80	1.00	1.00	0.91	0.88	0.88
Detention Vol. EL.	63.50	0.70	1.70	0.96	0.66	1.54
Bottom of Maintenance Berm (Freeboard)	64.50	1.00	2.70	1.04	1.00	2.54
Top of Maintenance Berm	64.50	0.00	2.70	1.34	0.00	
Tie Down (To Existing Ground EL.)	64.00	-0.50		1.38		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.86 ac-ft	0.88 ac-ft	GOOD
Attenuation	4.70 ac-ft	4.84 ac-ft	GOOD
TOTAL	**5.56 ac-ft**	**5.72 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD criteria.

Basin 0902

SMF:	SMF 0902 Alt. 1

Basin Type:	OPEN
Side of Road	RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4060+18.00	Basin 2
To STA. =	4160+48.99	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			10.74	98	1053
Pervious - 'Fair' Open Spaces	A	[42] ZOLFO	2.74	49	134
	A/D	[3] BASINGER, [4] BASINGER, [13] EAUGALLIE, [21] MALABAR, [23] MALABAR, [36] SMYRNA	33.11	49	1623
	B/D	[20] IMMOKALEE, [25] ONA	8.73	69	602
	SUBTOTAL		**55.3**		**3412**
				TOTAL WEIGHTED CN =	**61.7**

PROPOSED CONDITION

From STA. =	4066+00.04	Basin 0902
To STA. =	4163+75.25	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			19.12	98	1874
SMF Bottom	WATER		1.30	100	130
Pervious - 'Fair' Open Spaces	A	[42] ZOLFO	2.26	49	111
	A/D	[3] BASINGER, [4] BASINGER, [13] EAUGALLIE, [21] MALABAR, [23] MALABAR, [36] SMYRNA	25.95	49	1271
	B/D	[14] FARMTON, [20] IMMOKALEE, [25] ONA	6.00	69	414
	SUBTOTAL		**54.6**		**3800**
				TOTAL WEIGHTED CN =	**69.6**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	8.4	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.70**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	6.22	4.38
Runoff Depth, Q_R (in)	3.52	4.41
Runoff Volume (ac-ft)	16.23	20.09
Attenuation Volume (ac-ft)		**3.87**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10

Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$

Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 0902A POND DESIGN

SHW EL.:	52.40	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[36] SMYRNA
SHW Point(s) of Reference	SH9-21, SH9-22, WLPT-206-R-L-7		Freeboard:	1.00	ft		
Treatment System:	WET		Pond Side Slope (1:X):	4			
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15			
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	59.00 ft
Estimated DHW_{10}:	57.74						
LEOP:	61.18	ft @ 4120+00 RT					
Distance to LEOP:	100	ft					
Clearance to LEOP:	3.39	ft					

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	56.00			1.30	0.00	0.00
Treatment Vol. EL. (Weir EL.)	56.70	0.70	0.70	1.37	0.93	0.93
Detention Vol. EL.	59.30	2.60	3.30	1.61	3.87	4.80
Bottom of Maintenance Berm (Freeboard)	60.30	1.00	4.30	1.71	1.66	6.46
Top of Maintenance Berm	61.30	1.00	5.30	2.10	1.91	
Tie Down (To Existing Ground EL.)	59.00	-2.30		2.36		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.70 ac-ft	0.93 ac-ft	GOOD
Attenuation	3.87 ac-ft	3.87 ac-ft	GOOD
TOTAL	**4.56 ac-ft**	**4.80 ac-ft**	

Basin 0902

SMF:	SMF 0902 Alt. 2

Basin Type:	OPEN
Side of Road:	RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4060+18.00	Basin 2
To STA. =	4160+48.99	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			10.74	98	1053
Pervious - 'Fair' Open Spaces	A	[42] ZOLFO	3.54	49	173
	A/D	[3] BASINGER, [4] BASINGER, [13] EAUGALLIE, [21] MALABAR, [23] MALABAR, [36] SMYRNA	32.89	49	1612
	B/D	[20] IMMOKALEE, [25] ONA	8.68	69	599
	SUBTOTAL		**55.8**		**3436**
				TOTAL WEIGHTED CN =	**61.5**

PROPOSED CONDITION

From STA. =	4066+00.04	Basin 0902
To STA. =	4163+75.25	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			19.12	98	1874
SMF Bottom	WATER		1.75	100	175
Pervious - 'Fair' Open Spaces	A	[42] ZOLFO	2.79	49	137
	A/D	[3] BASINGER, [4] BASINGER, [13] EAUGALLIE, [21] MALABAR, [23] MALABAR, [36] SMYRNA	25.53	49	1251
	B/D	[14] FARMTON, [20] IMMOKALEE, [25] ONA	5.94	69	410
	SUBTOTAL		**55.1**		**3847**
				TOTAL WEIGHTED CN =	**69.8**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in
Treatment Area	8.4	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.70**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	6.25	4.33
Runoff Depth, Q_R (in)	3.50	4.44
Runoff Volume (ac-ft)	16.31	20.39
Attenuation Volume (ac-ft)		**4.08**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 0902B POND DESIGN

SHW EL.:	57.50	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[3] BASINGER [36] SMYRNA [42] ZOLFO	
SHW Point(s) of Reference:	SH9-20, PBA-25, PBA-26, PBA-27		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	59.00	ft
Estimated DHW_{10}:	58.78							
LEOP:	61.17	ft @ 4120+00 RT						
Distance to LEOP:	100	ft						
Clearance to LEOP:	2.34	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	57.50			1.75	0.00	0.00
Treatment Vol. EL. (Weir EL.)	57.90	0.40	0.40	1.79	0.71	0.71
Detention Vol. EL.	60.10	2.20	2.60	2.02	4.19	4.90
Bottom of Maintenance Berm (Freeboard)	61.10	1.00	3.60	2.12	2.07	6.97
Top of Maintenance Berm	62.10	1.00	4.60	2.55	2.33	
Tie Down (To Existing Ground EL.)	59.00	-3.10		2.92		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.70 ac-ft	0.71 ac-ft	GOOD
Attenuation	4.08 ac-ft	4.19 ac-ft	GOOD
TOTAL	**4.78 ac-ft**	**4.90 ac-ft**	

Basin 0902

SMF:	SMF 0902 Alt. 3

Basin Type:	OPEN
Side of Road:	RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4060+18.00	Basin 2
To STA. =	4160+48.99	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			10.74	98	1053
Pervious - 'Fair' Open Spaces	A	[42] ZOLFO	2.74	49	134
	A/D	[3] BASINGER, [4] BASINGER, [13] EAUGALLIE, [21] MALABAR, [23] MALABAR, [36] SMYRNA	34.93	49	1712
	B/D	[20] IMMOKALEE, [25] ONA	9.86	69	681
	SUBTOTAL		**58.3**		**3579**
				TOTAL WEIGHTED CN =	**61.4**

PROPOSED CONDITION

From STA. =	4066+00.04	Basin 0902
To STA. =	4163+75.25	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			19.12	98	1874
SMF Bottom	WATER		1.63	100	163
Pervious - 'Fair' Open Spaces	A	[42] ZOLFO	2.26	49	111
	A/D	[3] BASINGER, [4] BASINGER, [13] EAUGALLIE, [21] MALABAR, [23] MALABAR, [36] SMYRNA	27.44	49	1344
	B/D	[14] FARMTON, [20] IMMOKALEE, [25] ONA	7.13	69	492
	SUBTOTAL		**57.6**		**3984**
				TOTAL WEIGHTED CN =	**69.2**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in
Treatment Area	8.4	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.35**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	6.28	4.45
Runoff Depth, Q_R (in)	3.49	4.37
Runoff Volume (ac-ft)	16.96	20.98
Attenuation Volume (ac-ft)		**4.02**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 0902C POND DESIGN

SHW EL.:	57.30	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[25] ONA [36] SMYRNA	
SHW Point(s) of Reference:	PBA-30		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	59.00	ft
Estimated DHW_{10}:	58.10							
LEOP:	61.18	ft @ 4120+00 RT						
Distance to LEOP:	400	ft						
Clearance to LEOP:	2.88	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	57.30			1.63	0.00	0.00
Treatment Vol. EL. (Weir EL.)	57.30	0.00	0.00	1.63	0.00	0.00
Detention Vol. EL.	59.30	2.00	2.00	1.85	3.48	3.48
Bottom of Maintenance Berm (Freeboard)	60.30	1.00	3.00	1.96	1.91	5.38
Top of Maintenance Berm	61.30	1.00	4.00	2.41	2.18	
Tie Down (To Existing Ground EL.)	59.00	-2.30		2.69		

SMF 0902D POND DESIGN

Linear pond dimensions based on CADD measurements of cross sections.

	SMF 0902D-1R	SMF 0902D-2R	SMF 0902D-3R	SMF 0902D-4R	SMF 0902D-5R	SMF 0902D-6R
SHW	63.25	63.25	57.60	55.90	62.00	62.30
SHW Point(s) of Reference:	PBA-22, PBA-23	PBA-22, PBA-23	SH9-20	SH9-23	SH9-30, SH9-31	PBA-36
LOW END						
STA.	4077+50.00	4079+50.00	4097+00.00	4118+90.00	4154+00.00	4157+00.00
EOS EL.	66.32	65.72	61.16	61.11	64.39	64.82
DHW	65.82	65.22	60.66	60.61	63.89	64.32
CROSS SECTIONAL AREA (sq. ft.)	133.010	59.61	18.75	18.75	49.886	66.008
POND BOTTOM EL.	64.75	64.75	59.16	59.11	63.50	63.80
HIGH END						
STA.	4074+00.00	4078+00.00	4099+40.00	4115+60.00	4156+50.00	4161+80.00
EOS EL.	67.37	66.17	61.74	62.56	64.75	65.29
DHW	65.82	65.22	60.66	60.61	63.89	64.32
CROSS SECTIONAL AREA (sq. ft.)	102.055	47.81	8.82	0.27	32.466	34.452
POND BOTTOM EL.	64.93	64.83	59.74	60.56	63.63	64.04
LENGTH OF POND (ft)	350.00	150.00	240.00	330.00	250.00	480.00
POND VOLUME (ac-ft)	0.944	0.185	0.076	0.072	0.236	0.553
TOTAL POND VOLUME (ac-ft)	**2.067**					
For Treatment	1.269					
For Attenuation (Remaining)	0.798					

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment (Dry Linear Ponds)	0.35 ac-ft	1.27 ac-ft	GOOD
Attenuation	4.02 ac-ft	4.28 ac-ft	GOOD
TOTAL	**4.37 ac-ft**	**5.55 ac-ft**	

Basin 0903

SMF:	SMF 0903 Alt. 1

Basin Type:	OPEN	SMF Location:	Same Outfall as Pre-Development
Side of Road:	RIGHT		

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4160+48.99	Basin 3 WB
To STA. =	4210+77.42	
From STA. =	4160+48.99	Basin 3 EB
To STA. =	4207+09.65	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.78	98	468
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR, [41] WABASSO, [36] SMYRNA	15.50	49	760
	B/D	[14] FARMTON	4.63	69	320
	SUBTOTAL		**24.9**		**1547**
				TOTAL WEIGHTED CN =	**62.1**

PROPOSED CONDITION

From STA. =	4163+75.25	Basin 0903
To STA. =	4210+05.13	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			8.84	98	866
SMF Bottom	WATER		0.39	100	39
Pervious - 'Fair' Open Spaces	A/D	[2] ANCLOTE, [21] MALABAR, [36] SMYRNA, [41] WABASSO	11.51	49	564
	B/D	[14] FARMTON	2.53	69	175
	SUBTOTAL		**23.3**		**1643**
				TOTAL WEIGHTED CN =	**70.6**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area Check	4.1	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.34**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in — Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	6.10	4.16	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	3.57	4.54	Runoff Depth, Q_R (in) = (P - 0.2 * S)^2 / (P + 0.8 * S)
Runoff Volume (ac-ft)	7.41	8.80	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**1.39**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 0903A POND DESIGN

SHW EL.:	59.60	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[2] ANCLOTE [21] MALABAR [36] SMYRNA	
SHW Point(s) of Reference:	PBA-39, PBA-40		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	60.00	ft
Estimated DHW_{10}:	61.86							
LEOP:	64.63	ft @ 4178+00 RT						
Distance to LEOP:	150	ft						
Clearance to LEOP:	2.69	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	59.60			0.39	0.00	0.00
Treatment Vol. EL. (Weir EL.)	60.70	1.10	1.10	0.44	0.46	0.46
Detention Vol. EL.	63.60	2.90	4.00	0.61	1.52	1.98
Bottom of Maintenance Berm (Freeboard)	64.60	1.00	5.00	0.67	0.64	2.62
Top of Maintenance Berm	65.60	1.00	6.00	0.92	0.79	
Tie Down (To Existing Ground EL.)	60.00	-5.60		1.34		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.34 ac-ft	0.46 ac-ft	GOOD
Attenuation	1.39 ac-ft	1.52 ac-ft	GOOD
TOTAL	**1.73 ac-ft**	**1.98 ac-ft**	

Basin 0903

SMF:	SMF 0903 Alt. 2

Basin Type:	OPEN
Side of Road:	LEFT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4160+48.99	Basin 3 WB
To STA. =	4210+77.42	
From STA. =	4160+48.99	Basin 3 EB
To STA. =	4207+09.65	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.78	98	468
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR, [41] WABASSO, [36] SMYRNA	16.20	49	794
	B/D	[14] FARMTON	4.63	69	320
	SUBTOTAL		**25.6**		**1581**
				TOTAL WEIGHTED CN =	**61.8**

PROPOSED CONDITION

From STA. =	4163+75.25	Basin 0903
To STA. =	4210+05.13	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			8.84	98	866
SMF Bottom	WATER		0.75	100	75
Pervious - 'Fair' Open Spaces	A/D	[21] MALABAR, [36] SMYRNA, [41] WABASSO	11.84	49	580
	B/D	[14] FARMTON	2.53	69	175
	SUBTOTAL		**24.0**		**1696**
				TOTAL WEIGHTED CN =	**70.8**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	4.1	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.34**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	6.19	4.13
Runoff Depth, Q_R (in)	3.53	4.55
Runoff Volume (ac-ft)	7.53	9.09
Attenuation Volume (ac-ft)		**1.56**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10

Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$

Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 0903B POND DESIGN

SHW EL.:	61.00	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[21] MALABAR [36] SMYRNA	
SHW Point(s) of Reference:	SH9-36, PBA-41, PBA-43		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	62.50	ft
Estimated DHW_{10}:	62.40							
LEOP:	64.63	ft @ 4178+00 RT						
Distance to LEOP:	250	ft						
Clearance to LEOP:	2.10	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	61.00			0.75	0.00	0.00
Treatment Vol. EL. (Weir EL.)	61.60	0.60	0.60	0.79	0.46	0.46
Detention Vol. EL.	63.60	2.00	2.60	0.94	1.73	2.19
Bottom of Maintenance Berm (Freeboard)	64.60	1.00	3.60	1.01	0.97	3.16
Top of Maintenance Berm	65.60	1.00	4.60	1.32	1.17	
Tie Down (To Existing Ground EL.)	62.50	-3.10		1.59		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.34 ac-ft	0.46 ac-ft	GOOD
Attenuation	1.56 ac-ft	1.73 ac-ft	GOOD
TOTAL	**1.90 ac-ft**	**2.19 ac-ft**	

Basin 0903

SMF:	SMF 0903 Alt. 3

Basin Type:	OPEN
Side of Road	RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4160+48.99	Basin 3 WB
To STA. =	4210+77.42	
From STA. =	4160+48.99	Basin 3 EB
To STA. =	4207+09.65	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.78	98	468
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR, [41] WABASSO, [36] SMYRNA	13.54	49	663
	B/D	[14] FARMTON	5.62	69	388
	SUBTOTAL		**23.9**		**1519**
				TOTAL WEIGHTED CN =	**63.5**

PROPOSED CONDITION

From STA. =	4163+75.25	Basin 0903
To STA. =	4210+05.13	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			8.84	98	866
SMF Bottom	WATER		0.00	100	0
Pervious - 'Fair' Open Spaces	A/D	[2] ANCLOTE, [13] EAUGALLIE, [21] MALABAR, [41] WABASSO, [36] SMYRNA	9.93	49	487
	B/D	[14] FARMTON	3.52	69	243
	SUBTOTAL		**22.3**		**1596**
				TOTAL WEIGHTED CN =	**71.6**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	4.1	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.17**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	5.75	3.97	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	3.72	4.65	Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft)	7.42	8.63	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**1.21**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 0903C POND DESIGN

Linear pond dimensions based on CADD measurements of cross sections.

	SMF 0903C-1R	SMF 0903C-2R	SMF 0903C-3R
SHW	61.75	60.55	61.15
SHW Point(s) of Reference:	PBA-37, PBA-38	SH9-36, SH9-37, SH9-38, PBA-39, PBA-40	SH9-39, PBA-40
LOW END			
STA.	4173+00.00	4178+40.00	4187+20.00
EOS EL.	64.59	64.05	64.65
DHW	64.09	63.55	64.15
CROSS SECTIONAL AREA (sq. ft.)	106.12	25.94	30.82
POND BOTTOM EL.	63.25	62.05	62.65
HIGH END			
STA.	4168+20.00	4186+20.00	4197+00.00
EOS EL.	64.91	64.44	65.14
DHW	64.09	63.55	64.15
CROSS SECTIONAL AREA (sq. ft.)	74.60	19.01	15.68
POND BOTTOM EL.	63.49	62.44	63.14
LENGTH OF POND (ft)	480.00	780.00	980.00
POND VOLUME (ac-ft)	0.996	0.403	0.523
TOTAL POND VOLUME (ac-ft)		**1.921**	

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.17 ac-ft	0.57 ac-ft	GOOD
Attenuation	1.21 ac-ft	1.35 ac-ft	GOOD
TOTAL	**1.38 ac-ft**	**1.92 ac-ft**	

Basin 0904

SMF:	SMF 0904 Alt. 1

Basin Type:	OPEN
Side of Road	LEFT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4210+77.42	Basin 4 WB
To STA. =	4279+56.33	
From STA. =	4207+09.65	Basin 4 EB
To STA. =	4279+56.33	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			8.19	98	803
Pervious - 'Fair' Open Spaces	A	[42] ZOLFO	2.99	49	146
	A/D	[2] ANCLOTE, [3] BASINGER, [13] EAUGALLIE, [36] SMYRNA, [41] WABASSO	22.81	49	1118
	SUBTOTAL		**34.0**		**2067**
				TOTAL WEIGHTED CN =	**60.8**

PROPOSED CONDITION

From STA. =	4210+05.13	Basin 0904
To STA. =	4279+46.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			13.46	98	1319
SMF Bottom	WATER		0.40	100	40
Pervious - 'Fair' Open Spaces	A	[42] ZOLFO	2.41	49	118
	A/D	[2] ANCLOTE, [3] BASINGER, [13] EAUGALLIE, [36] SMYRNA, [41] WABASSO	17.38	49	852
	SUBTOTAL		**33.6**		**2329**
				TOTAL WEIGHTED CN =	**69.2**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in
Treatment Area	5.3	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.44**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	6.45	4.45
Runoff Depth, Q_R (in)	3.42	4.37
Runoff Volume (ac-ft)	9.70	12.26
Attenuation Volume (ac-ft)		**2.57**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 0904A POND DESIGN

SHW EL.:	55.20	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[13] EAUGALLIE [36] SMYRNA
SHW Point(s) of Reference	SH9-51, SHW-354		Freeboard:	1.00	ft		
Treatment System:	WET		Pond Side Slope (1:X):	4			
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15			
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	63.00 ft
Estimated DHW_{10}:	60.12						
LEOP:	64.09	ft @ 4245+00 RT					
Distance to LEOP:	200	ft					
Clearance to LEOP:	3.87	ft					

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	56.70			0.40	0.00	0.00
Treatment Vol. EL. (Weir EL.)	58.20	1.50	1.50	0.48	0.66	0.66
Detention Vol. EL.	63.00	4.80	6.30	0.76	2.98	3.64
Bottom of Maintenance Berm (Freeboard)	64.00	1.00	7.30	0.83	0.79	4.43
Top of Maintenance Berm	65.00	1.00	8.30	1.09	0.96	
Tie Down (To Existing Ground EL.)	63.00	-2.00		1.25		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.44 ac-ft	0.66 ac-ft	GOOD
Attenuation	2.57 ac-ft	2.98 ac-ft	GOOD
TOTAL	**3.01 ac-ft**	**3.64 ac-ft**	

Basin 0904

SMF:	SMF 0904 Alt. 2

Basin Type:	OPEN
Side of Road:	RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4210+77.42	Basin 4 WB
To STA. =	4279+56.33	
From STA. =	4207+09.65	Basin 4 EB
To STA. =	4279+56.33	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			8.19	98	803
Pervious - 'Fair' Open Spaces	A	[42] ZOLFO	2.99	49	146
	A/D	[2] ANCLOTE, [3] BASINGER, [13] EAUGALLIE, [36] SMYRNA, [41] WABASSO	21.57	49	1057
	B/D	[20] IMMOKALEE	1.11	69	77
	SUBTOTAL		**33.9**		**2082**
				TOTAL WEIGHTED CN =	**61.5**

PROPOSED CONDITION

From STA. =	4210+05.13	Basin 0904
To STA. =	4279+46.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			13.46	98	1319
SMF Bottom	WATER		0.36	100	36
Pervious - 'Fair' Open Spaces	A	[42] ZOLFO	2.41	49	118
	A/D	[2] ANCLOTE, [3] BASINGER, [5] BASINGER, [13] EAUGALLIE, [36] SMYRNA, [41] WABASSO	16.48	49	808
	B/D	[20] IMMOKALEE	0.80	69	56
	SUBTOTAL		**33.5**		**2336**
				TOTAL WEIGHTED CN =	**69.7**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	5.3	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.44**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	6.26	4.35	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	3.50	4.43	Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft)	9.88	12.37	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**2.50**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 0904B POND DESIGN

SHW EL.:	56.70	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[3] BASINGER [20] IMMOKALEE	
SHW Point(s) of Reference:	SHW-354		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	64.30	ft
Estimated DHW_{10}:	60.12							
LEOP:	64.09	ft @ 4245+00 RT						
Distance to LEOP:	2300	ft						
Clearance to LEOP:	2.82	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	56.70			0.36	0.00	0.00
Treatment Vol. EL. (Weir EL.)	58.20	1.50	1.50	0.44	0.61	0.61
Detention Vol. EL.	63.00	4.80	6.30	0.74	2.83	3.43
Bottom of Maintenance Berm (Freeboard)	64.00	1.00	7.30	0.80	0.77	4.20
Top of Maintenance Berm	65.00	1.00	8.30	1.08	0.94	
Tie Down (To Existing Ground EL.)	64.30	-0.70		1.13		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.44 ac-ft	0.61 ac-ft	GOOD
Attenuation	2.50 ac-ft	2.83 ac-ft	GOOD
TOTAL	**2.93 ac-ft**	**3.43 ac-ft**	

Basin 0904

SMF:	SMF 0904 Alt. 3

Basin Type:	OPEN
Side of Road	RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4210+77.42	Basin 4 WB
To STA. =	4279+56.33	
From STA. =	4207+09.65	Basin 4 EB
To STA. =	4279+56.33	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			8.19	98	803
Pervious - 'Fair' Open Spaces	A	[42] ZOLFO	2.99	49	146
	A/D	[2] ANCLOTE, [3] BASINGER, [13] EAUGALLIE, [36] SMYRNA, [41] WABASSO	25.30	49	1240
	SUBTOTAL		**36.5**		**2189**
				TOTAL WEIGHTED CN =	**60.0**

PROPOSED CONDITION

From STA. =	4210+05.13	Basin 0904
To STA. =	4279+46.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			13.46	98	1319
SMF Bottom	WATER		2.59	100	259
Pervious - 'Fair' Open Spaces	A	[42] ZOLFO	2.41	49	118
	A/D	[2] ANCLOTE, [3] BASINGER, [13] EAUGALLIE, [36] SMYRNA, [41] WABASSO	17.68	49	866
	SUBTOTAL		**36.1**		**2562**
				TOTAL WEIGHTED CN =	**70.9**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in
Treatment Area	5.3	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.22**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	6.67	4.10
Runoff Depth, Q_R (in)	3.33	4.57
Runoff Volume (ac-ft)	10.13	13.76
Attenuation Volume (ac-ft)		**3.62**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 0904C POND DESIGN

SHW EL.:	55.20	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[13] EAUGALLIE [36] SMYRNA	
SHW Point(s) of Reference:	SH9-51, SHW-354		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	63.00	ft
Estimated DHW_{10}:	62.34							
LEOP:	64.09	ft @ 4245+00 RT						
Distance to LEOP:	200	ft						
Clearance to LEOP:	1.65	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	61.90			1.94	0.00	0.00
Treatment Vol. EL. (Weir EL.)	61.90	0.00	0.00	1.94	0.00	0.00
Detention Vol. EL.	63.00	1.10	1.10	2.06	2.20	2.20
Bottom of Maintenance Berm (Freeboard)	64.00	1.00	2.10	2.17	2.11	4.31
Top of Maintenance Berm	65.00	1.00	3.10	2.59	2.38	
Tie Down (To Existing Ground EL.)	63.00	-2.00		2.83		

SMF 0904D POND DESIGN

Linear pond dimensions based on CADD measurements of cross sections.

	SMF 0904D-1R	SMF 0904D-2R	SMF 0904D-3R	SMF 0904D-4R
SHW	63.10	63.90	62.20	60.90
SHW Point(s) of Reference:	PBA-44	SH9-44	SH9-47	SH9-49
LOW END				
STA.	4210+20.00	4219+90.00	4235+60.00	4243+40.00
EOS EL.	67.16	66.94	65.21	63.90
DHW	66.66	66.44	64.71	63.40
CROSS SECTIONAL AREA (sq. ft.)	226.07	18.75	18.75	18.75
POND BOTTOM EL.	64.60	64.94	63.21	61.90
HIGH END				
STA.	4213+40.00	4214+80.00	4230+10.00	4242+40.00
EOS EL.	67.31	67.33	66.16	63.99
DHW	66.66	66.44	64.71	63.40
CROSS SECTIONAL AREA (sq. ft.)	222.99	11.78	4.34	16.83
POND BOTTOM EL.	64.60	65.33	64.16	61.99
LENGTH OF POND (ft)	320.00	510.00	550.00	100.00
POND VOLUME (ac-ft)	1.649	0.179	0.146	0.041
TOTAL POND VOLUME (ac-ft)	**2.015**			
For Treatment	0.580			
For Attenuation (Remaining)	1.435			

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.22 ac-ft	0.58 ac-ft	GOOD
Attenuation	3.62 ac-ft	3.64 ac-ft	GOOD
TOTAL	**3.84 ac-ft**	**4.22 ac-ft**	

Basin 1001

SMF:	SMF 1001 Alt. 1

Basin Type:	OPEN
Side of Road:	RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4279+56.33	Basin 5 WB
To STA. =	4358+94.32	
From STA. =	4279+56.33	Basin 5 EB
To STA. =	4362+00.71	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			7.40	98	725
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [13] EAUGALLIE, [21] MALABAR, [24] MYAKKA, [36] SMYRNA	12.84	49	629
	B/D	[14] FARMTON	22.02	69	1519
	SUBTOTAL		**42.2**		**2873**
				TOTAL WEIGHTED CN =	**68.0**

PROPOSED CONDITION

From STA. =	4279+46.00	Basin 1001
To STA. =	4364+43.24	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			18.96	98	1859
SMF Bottom	WATER		1.95	100	195
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [13] EAUGALLIE, [21] MALABAR, [24] MYAKKA, [36] SMYRNA	7.04	49	345
	B/D	[14] FARMTON	16.26	69	1122
	SUBTOTAL		**44.2**		**3520**
				TOTAL WEIGHTED CN =	**79.6**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in
Treatment Area	11.6	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.96**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	4.71	2.56
Runoff Depth, Q_R (in)	4.24	5.58
Runoff Volume (ac-ft)	14.91	20.56
Attenuation Volume (ac-ft)		**5.65**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.03
Existing Attenuation Volume (ac-ft)	0.07

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1001A POND DESIGN

SHW EL.:	62.00	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[14] FARMTON	
SHW Point(s) of Reference	PBA-61, PBA-64		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005) ≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	64.00	ft
Estimated DHW_{10}:	63.88							
LEOP:	66.57	ft @ 4290+00 RT						
Distance to LEOP:	1600	ft						
Clearance to LEOP:	1.89	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	62.00			1.95	0.00	0.00
Treatment Vol. EL. (Weir EL.)	62.80	0.80	0.80	2.05	1.60	1.60
Detention Vol. EL.	65.50	2.70	3.50	2.38	5.98	7.58
Bottom of Maintenance Berm (Freeboard)	66.50	1.00	4.50	2.51	2.45	10.03
Top of Maintenance Berm	67.50	1.00	5.50	3.02	2.76	
Tie Down (To Existing Ground EL.)	64.00	-3.50		3.51		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	1.03 ac-ft	1.60 ac-ft	GOOD
Attenuation	5.72 ac-ft	5.98 ac-ft	GOOD
TOTAL	**6.76 ac-ft**	**7.58 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD criteria.

Basin 1001

SMF:	SMF 1001 Alt. 2

Basin Type:	OPEN	SMF Location:	Same Outfall as Pre-Development
Side of Road:	RIGHT		

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4279+56.33	Basin 5 WB
To STA. =	4358+94.32	
From STA. =	4279+56.33	Basin 5 EB
To STA. =	4362+00.71	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			7.40	98	725
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [13] EAUGALLIE, [21] MALABAR, [24] MYAKKA, [36] SMYRNA	12.84	49	629
	B/D	[14] FARMTON	22.67	69	1564
	SUBTOTAL		**42.9**		**2918**
				TOTAL WEIGHTED CN =	**68.0**

PROPOSED CONDITION

From STA. =	4279+46.00	Basin 1001
To STA. =	4364+43.24	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			18.96	98	1858
SMF Bottom	WATER		2.15	100	215
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [13] EAUGALLIE, [21] MALABAR, [24] MYAKKA, [36] SMYRNA	7.04	49	345
	B/D	[14] FARMTON	16.71	69	1153
	SUBTOTAL		**44.9**		**3571**
				TOTAL WEIGHTED CN =	**79.6**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	11.6	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.96**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	4.70	2.56
Runoff Depth, Q_R (in)	4.24	5.58
Runoff Volume (ac-ft)	15.15	20.86
Attenuation Volume (ac-ft)		**5.71**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10

Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$

Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.03
Existing Attenuation Volume (ac-ft)	0.07

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1001B POND DESIGN

SHW EL.:	62.20	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[14] FARMTON	
SHW Point(s) of Reference:	PBA-64, PBA-65		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	63.50	ft
Estimated DHW_{10}:	64							
LEOP:	66.57	ft @ 4290+00 RT						
Distance to LEOP:	1600	ft						
Clearance to LEOP:	1.77	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	62.20			2.15	0.00	0.00
Treatment Vol. EL. (Weir EL.)	63.00	0.80	0.80	2.24	1.76	1.76
Detention Vol. EL.	65.50	2.50	3.30	2.53	5.97	7.73
Bottom of Maintenance Berm (Freeboard)	66.50	1.00	4.30	2.65	2.59	10.32
Top of Maintenance Berm	67.50	1.00	5.30	3.12	2.89	
Tie Down (To Existing Ground EL.)	63.50	-4.00		3.66		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	1.03 ac-ft	1.76 ac-ft	GOOD
Attenuation	5.78 ac-ft	5.97 ac-ft	GOOD
TOTAL	**6.82 ac-ft**	**7.73 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD

Basin 1001

SMF:	SMF 1001 Alt. 3

Basin Type:	OPEN
Side of Road	LEFT & RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4279+56.33	Basin 5 WB
To STA. =	4358+94.32	
From STA. =	4279+56.33	Basin 5 EB
To STA. =	4362+00.71	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			7.40	98	725
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [13] EAUGALLIE, [21] MALABAR, [24] MYAKKA, [36] SMYRNA	12.84	49	629
	B/D	[14] FARMTON	22.76	69	1570
	SUBTOTAL		**43.0**		**2924**
				TOTAL WEIGHTED CN =	**68.0**

PROPOSED CONDITION

From STA. =	4279+46.00	Basin 1001
To STA. =	4364+43.24	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			18.96	98	1858
SMF Bottom	WATER		2.88	100	288
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [21] MALABAR, [24] MYAKKA, [36] SMYRNA	7.04	49	345
	B/D	[14] FARMTON	16.07	69	1109
	SUBTOTAL		**44.9**		**3600**
				TOTAL WEIGHTED CN =	**80.1**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	11.6	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.48**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	4.70	2.49	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	4.24	5.64	Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft)	15.18	21.11	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**5.93**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.03
Existing Attenuation Volume (ac-ft)	0.07

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1001C POND DESIGN

SHW EL.:	63.90	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[14] FARMTON	
SHW Point(s) of Reference:	PBA-59, PBA-60		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	64.50	ft
Estimated DHW_{10}:	64.54							
LEOP:	66.57	ft @ 4290+00 RT						
Distance to LEOP:	1600	ft						
Clearance to LEOP:	1.23	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	63.90			2.88	0.00	0.00
Treatment Vol. EL. (Weir EL.)	63.90	0.00	0.00	2.88	0.00	0.00
Detention Vol. EL.	65.50	1.60	1.60	3.11	4.79	4.79
Bottom of Maintenance Berm (Freeboard)	66.50	1.00	2.60	3.25	3.18	7.97
Top of Maintenance Berm	67.50	1.00	3.60	3.82	3.54	
Tie Down (To Existing Ground EL.)	64.50	-3.00		4.30		

SMF 1001D POND DESIGN

Linear pond dimensions based on CADD measurements of cross sections.

	SMF 1001D-1L	SMF 1001D-2L	SMF 1001D-3L	SMF 1001D-4L	SMF 1001D-5L	SMF 1001D-6L	SMF 1001D-7L	SMF 1001D-1R	SMF 1001D-2R	SMF 1001D-3R	SMF 1001D-4R
SHW	64.30	63.35	63.40	64.00	65.45	67.00	67.00	63.30	63.25	64.60	65.90
SHW Point(s) of Reference:	SH10-2	SH10-2, SH10-3, SH10-4	PBA-59	SH10-6, SH10-7, SH10-8, SH10-9, SH10-11, SH10-12	SH10-12, SH10-13, SH10-14, PBA-71	SH10-16, SH10-17, SH10-18, PBA-71	SH10-16, SH10-17, SH10-18, PBA-71	SH10-3	SH10-5, SH10-7	SH10-10	SH10-15
LOW END											
STA.	4286+00.00	4294+60.00	4298+20.00	4305+40.00	4339+60.00	4354+00.00	4359+20.00	4289+20.00	4309+60.00	4324+00.00	4343+00.00
EOS EL.	67.80	66.46	66.64	67.00	68.95	71.65	72.57	66.21	65.64	67.62	69.08
DHW	67.30	65.96	66.14	66.50	68.45	71.15	72.07	65.71	65.14	67.12	68.58
CROSS SECTIONAL AREA (sq. ft	24.70	18.75	18.75	18.75	24.55	18.75	18.75	16.55	11.12	17.72	17.88
POND BOTTOM EL.	65.80	64.46	64.64	65.00	66.90	69.65	70.57	64.35	64.25	65.68	67.13
HIGH END											
STA.	4280+20.00	4286+50.00	4304+00.00	4335+20.00	4344+90.00	4358+50.00	4364+00.00	4286+00.00	4298+60.00	4338+20.00	4349+80.00
EOS EL.	67.80	67.85	66.94	68.02	70.06	71.65	73.53	66.64	65.64	68.72	69.86
DHW	67.30	65.96	66.14	66.50	68.45	71.15	72.07	65.71	65.14	67.12	68.58
CROSS SECTIONAL AREA (sq. ft	21.66	0.63	13.37	3.59	2.69	18.48	4.16	11.09	7.95	2.48	7.04
POND BOTTOM EL.	65.80	65.85	64.93	66.02	68.06	69.66	71.53	64.64	64.25	66.76	68.07
LENGTH OF POND (ft)	580.00	810.00	580.00	2980.00	530.00	450.00	480.00	320.00	1100.00	1420.00	680.00
POND VOLUME (ac-ft)	0.309	0.180	0.214	0.764	0.166	0.192	0.126	0.102	0.241	0.329	0.195
TOTAL POND VOLUME (ac-ft)						**2.817**					
For Treatment						1.580					
For Attenuation (Remaining)						1.237					

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.52 ac-ft	1.58 ac-ft	GOOD
Attenuation	6.00 ac-ft	6.03 ac-ft	GOOD
TOTAL	**6.52 ac-ft**	**7.61 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD

Basin 1002

SMF:	SMF 1002 Alt. 1

Basin Type:	OPEN
Side of Road	RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4358+94.32	Basin 6 WB
To STA. =	4416+44.17	
From STA. =	4362+00.71	Basin 6 EB
To STA. =	4392+25.05	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.35	98	427
Pervious - 'Fair' Open Spaces	A/D	[21] MALABAR, [23] MALABAR, [40] VALKARIA	11.53	49	565
	B/D	[14] FARMTON, [20] IMMOKALEE	9.50	69	655
	SUBTOTAL		**25.4**		**1647**
				TOTAL WEIGHTED CN =	**64.9**

PROPOSED CONDITION

From STA. =	4364+43.25	Basin 1002
To STA. =	4419+00.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			10.63	98	1042
SMF Bottom	WATER		1.59	100	159
Pervious - 'Fair' Open Spaces	A/D	[21] MALABAR, [23] MALABAR, [40] VALKARIA	10.76	49	527
	B/D	[14] FARMTON, [20] IMMOKALEE	8.82	69	608
	SUBTOTAL		**31.8**		**2337**
				TOTAL WEIGHTED CN =	**73.5**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in
Treatment Area	6.3	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.52**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	5.41	3.61
Runoff Depth, Q_R (in)	3.88	4.87
Runoff Volume (ac-ft)	8.21	12.89
Attenuation Volume (ac-ft)		**4.68**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.13
Existing Attenuation Volume (ac-ft)	0.25

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1002A POND DESIGN

SHW EL.:	67.00	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[21] MALABAR	
SHW Point(s) of Reference	PBA-81		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005) ≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	69.00	ft
Estimated DHW_{10}:	68.76							
LEOP:	71.57	ft @ 4364+00 RT						
Distance to LEOP:	2200	ft						
Clearance to LEOP:	1.71	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	67.00			1.59	0.00	0.00
Treatment Vol. EL. (Weir EL.)	67.60	0.60	0.60	1.66	0.98	0.98
Detention Vol. EL.	70.50	2.90	3.50	1.95	5.24	6.21
Bottom of Maintenance Berm (Freeboard)	71.50	1.00	4.50	2.06	2.01	8.22
Top of Maintenance Berm	72.50	1.00	5.50	2.49	2.27	
Tie Down (To Existing Ground EL.)	69.00	-3.50		2.92		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.78 ac-ft	0.98 ac-ft	GOOD
Attenuation	4.93 ac-ft	5.24 ac-ft	GOOD
TOTAL	**5.71 ac-ft**	**6.21 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD criteria.

Basin 1002

SMF:	SMF 1002 Alt. 2

Basin Type:	OPEN	SMF Location:	Same Outfall as Pre-Development
Side of Road:	LEFT		

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4358+94.32	Basin 6 WB
To STA. =	4416+44.17	
From STA. =	4362+00.71	Basin 6 EB
To STA. =	4392+25.05	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.35	98	427
Pervious - 'Fair' Open Spaces	A/D	[21] MALABAR, [23] MALABAR, [40] VALKARIA	11.98	49	587
	B/D	[14] FARMTON, [20] IMMOKALEE	9.88	69	682
SUBTOTAL			**26.2**		**1696**
				TOTAL WEIGHTED CN =	**64.7**

PROPOSED CONDITION

From STA. =	4364+43.25	Basin 1002
To STA. =	4419+00.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			10.63	98	1042
SMF Bottom	WATER		2.22	100	222
Pervious - 'Fair' Open Spaces	A/D	[21] MALABAR, [23] MALABAR, [40] VALKARIA	10.59	49	519
	B/D	[14] FARMTON, [20] IMMOKALEE	9.19	69	634
SUBTOTAL			**32.6**		**2417**
				TOTAL WEIGHTED CN =	**74.1**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	6.3	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.52**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	5.46	3.50
Runoff Depth, Q_R (in)	3.86	4.93
Runoff Volume (ac-ft)	8.43	13.42
Attenuation Volume (ac-ft)		**4.99**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.13
Existing Attenuation Volume (ac-ft)	0.25

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1002B POND DESIGN

SHW EL.:	67.80	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[14] FARMTON [21] MALABAR [40] VALKARIA	
SHW Point(s) of Reference:	PBA-83, PBA-84		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	69.00	ft
Estimated DHW_{10}:	69.18							
LEOP:	71.57	ft @ 4364+00 RT						
Distance to LEOP:	2475	ft						
Clearance to LEOP:	1.15	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	67.80			2.22	0.00	0.00
Treatment Vol. EL. (Weir EL.)	68.30	0.50	0.50	2.28	1.13	1.13
Detention Vol. EL.	70.50	2.20	2.70	2.56	5.32	6.45
Bottom of Maintenance Berm (Freeboard)	71.50	1.00	3.70	2.68	2.62	9.07
Top of Maintenance Berm	72.50	1.00	4.70	3.18	2.93	
Tie Down (To Existing Ground EL.)	69.00	-3.50		3.67		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.78 ac-ft	1.13 ac-ft	GOOD
Attenuation	5.24 ac-ft	5.32 ac-ft	GOOD
TOTAL	**6.01 ac-ft**	**6.45 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD

Basin 1002

SMF:	SMF 1002 Alt. 3

Basin Type:	OPEN
Side of Road	LEFT & RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4358+94.32	Basin 6 WB
To STA. =	4416+44.17	
From STA. =	4362+00.71	Basin 6 EB
To STA. =	4392+25.05	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.35	98	427
Pervious - 'Fair' Open Spaces	A/D	[21] MALABAR, [23] MALABAR, [40] VALKARIA	11.25	49	551
	B/D	[14] FARMTON, [20] IMMOKALEE	9.50	69	655
	SUBTOTAL		**25.1**		**1633**
				TOTAL WEIGHTED CN =	**65.1**

PROPOSED CONDITION

From STA. =	4364+43.25	Basin 1002
To STA. =	4419+00.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			10.63	98	1042
SMF Bottom	WATER		1.44	100	144
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR, [23] MALABAR, [40] VALKARIA	10.63	49	521
	B/D	[14] FARMTON, [20] IMMOKALEE	8.82	69	608
	SUBTOTAL		**31.5**		**2315**
				TOTAL WEIGHTED CN =	**73.5**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in
Treatment Area	6.3	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.26**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	5.37	3.61
Runoff Depth, Q_R (in)	3.90	4.86
Runoff Volume (ac-ft)	8.16	12.77
Attenuation Volume (ac-ft)		**4.61**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.13
Existing Attenuation Volume (ac-ft)	0.25

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1002C POND DESIGN

SHW EL.:	67.40	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[21] MALABAR	
SHW Point(s) of Reference:	PBA-80, PBA-81		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	69.00	ft
Estimated DHW_{10}:	68.64							
LEOP:	71.57	ft @ 4364+00 RT						
Distance to LEOP:	2200	ft						
Clearance to LEOP:	1.83	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	67.40			1.44	0.00	0.00
Treatment Vol. EL. (Weir EL.)	67.40	0.00	0.00	1.44	0.00	0.00
Detention Vol. EL.	70.50	3.10	3.10	1.75	4.94	4.94
Bottom of Maintenance Berm (Freeboard)	71.50	1.00	4.10	1.85	1.80	6.74
Top of Maintenance Berm	72.50	1.00	5.10	2.26	2.05	
Tie Down (To Existing Ground EL.)	69.00	-3.50		2.67		

SMF 1002D POND DESIGN

Linear pond dimensions based on CADD measurements of cross sections.

	SMF 1002D-1L	SMF 1002D-2L	SMF 1002D-1R	SMF 1002D-2R
SHW	67.53	67.35	68.00	67.45
SHW Point(s) of Reference:	SH10-18, SH10-19, SH10-21, SH10-22	SH10-23, SH10-24	SH10-20	PBA-80, SH10-23
LOW END				
STA.	4382+80.00	4386+00.00	4369+80.00	4387+00.00
EOS EL.	71.63	72.82	71.12	72.02
DHW	71.13	72.32	70.62	71.52
CROSS SECTIONAL AREA (sq. ft	18.75	18.75	8.67	7.55
POND BOTTOM EL.	69.63	70.82	69.77	70.44
HIGH END				
STA.	4364+50.00	4395+50.00	4378+30.00	4396+60.00
EOS EL.	73.13	72.01	72.35	72.50
DHW	71.13	72.32	70.62	71.52
CROSS SECTIONAL AREA (sq. ft	0.00	13.79	2.01	12.75
POND BOTTOM EL.	71.13	70.01	70.35	70.50
LENGTH OF POND (ft)	1830.00	950.00	850.00	960.00
POND VOLUME (ac-ft)	0.394	0.355	0.104	0.224
TOTAL POND VOLUME (ac-ft)	**1.077**			
For Treatment	0.890			
For Attenuation (Remaining)	0.187			

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.39 ac-ft	0.89 ac-ft	GOOD
Attenuation	4.86 ac-ft	5.13 ac-ft	GOOD
TOTAL	**5.25 ac-ft**	**6.02 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD

Basin 1003

SMF:	SMF 1003 Alt. 1

Basin Type:	OPEN	SMF Location:	Same Outfall as Pre-Development
Side of Road	RIGHT		

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4416+43.61	Basin 7 WB
To STA. =	4465+04.98	
From STA. =	4392+24.35	Basin 7 EB
To STA. =	4465+70.35	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			6.43	98	630
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR, [40] VALKARIA	21.82	49	1069
	B/D	[14] FARMTON, [20] IMMOKALEE	6.84	69	472
	SUBTOTAL		**35.1**		**2171**
				TOTAL WEIGHTED CN =	**61.9**

PROPOSED CONDITION

From STA. =	4419+00.01	Basin 1003
To STA. =	4489+26.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			13.36	98	1309
SMF Bottom	WATER		2.49	100	249
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR	20.09	49	984
	B/D	[14] FARMTON, [20] IMMOKALEE	2.57	69	177
	SUBTOTAL		**38.5**		**2720**
				TOTAL WEIGHTED CN =	**70.6**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	6.9	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.58**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	6.16	4.16	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	3.54	4.54	Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft)	10.36	14.56	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**4.20**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.10
Existing Attenuation Volume (ac-ft)	0.19

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1003A POND DESIGN

SHW EL.:	72.10	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[13] EAUGALLIE	
SHW Point(s) of Reference	PBA-88		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005) ≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	74.00	ft
Estimated DHW_{10}:	73.28							
LEOP:	75.91	ft @ 4428+00 RT						
Distance to LEOP:	1300	ft						
Clearance to LEOP:	1.98	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	72.10			2.49	0.00	0.00
Treatment Vol. EL. (Weir EL.)	72.60	0.50	0.50	2.55	1.26	1.26
Detention Vol. EL.	74.30	1.70	2.20	2.77	4.52	5.78
Bottom of Maintenance Berm (Freeboard)	75.30	1.00	3.20	2.89	2.83	8.61
Top of Maintenance Berm	76.30	1.00	4.20	3.39	3.14	
Tie Down (To Existing Ground EL.)	74.00	-2.30		3.71		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.77 ac-ft	1.26 ac-ft	GOOD
Attenuation	4.40 ac-ft	4.52 ac-ft	GOOD
TOTAL	**5.17 ac-ft**	**5.78 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD criteria.

Basin 1003

SMF:	SMF 1003 Alt. 2

Basin Type:	OPEN
Side of Road:	LEFT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4416+43.61	Basin 7 WB
To STA. =	4465+04.98	
From STA. =	4392+24.35	Basin 7 EB
To STA. =	4465+70.35	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			6.43	98	630
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR, [40] VALKARIA	19.43	49	952
	B/D	[14] FARMTON, [20] IMMOKALEE	8.61	69	594
	SUBTOTAL		**34.5**		**2176**
				TOTAL WEIGHTED CN =	**63.1**

PROPOSED CONDITION

From STA. =	4419+00.01	Basin 1003
To STA. =	4489+26.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			13.36	98	1309
SMF Bottom	WATER		1.97	100	197
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR	19.38	49	949
	B/D	[14] FARMTON, [20] IMMOKALEE	3.19	69	220
	SUBTOTAL		**37.9**		**2675**
				TOTAL WEIGHTED CN =	**70.6**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in
Treatment Area	6.9	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.58**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	5.84	4.16
Runoff Depth, Q_R (in)	3.68	4.53
Runoff Volume (ac-ft)	10.58	14.32
Attenuation Volume (ac-ft)		**3.74**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.10
Existing Attenuation Volume (ac-ft)	0.19

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1003B POND DESIGN

SHW EL.:	71.70	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[13] EAUGALLIE [14] FARMTON	
SHW Point(s) of Reference:	PBA-86		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	74.00	ft
Estimated DHW_{10}:	73.10							
LEOP:	75.91	ft @ 4428+00 RT						
Distance to LEOP:	1350	ft						
Clearance to LEOP:	2.14	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	71.70			1.97	0.00	0.00
Treatment Vol. EL. (Weir EL.)	72.30	0.60	0.60	2.05	1.21	1.21
Detention Vol. EL.	74.30	2.00	2.60	2.27	4.31	5.52
Bottom of Maintenance Berm (Freeboard)	75.30	1.00	3.60	2.38	2.32	7.84
Top of Maintenance Berm	76.30	1.00	4.60	2.84	2.61	
Tie Down (To Existing Ground EL.)	74.00	-2.30		3.14		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.77 ac-ft	1.21 ac-ft	GOOD
Attenuation	3.93 ac-ft	4.31 ac-ft	GOOD
TOTAL	**4.70 ac-ft**	**5.52 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD

Basin 1003

SMF:	SMF 1003 Alt. 3

Basin Type:	OPEN
Side of Road:	LEFT & RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4416+43.61	Basin 7 WB
To STA. =	4465+04.98	
From STA. =	4392+24.35	Basin 7 EB
To STA. =	4465+70.35	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			6.43	98	630
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR, [40] VALKARIA	18.75	49	919
	B/D	[14] FARMTON, [20] IMMOKALEE	7.55	69	521
	SUBTOTAL		**32.7**		**2070**
				TOTAL WEIGHTED CN =	**63.2**

PROPOSED CONDITION

From STA. =	4419+00.01	Basin 1003
To STA. =	4489+26.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			13.36	98	1309
SMF Bottom	WATER		0.83	100	83
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR	18.69	49	916
	B/D	[14] FARMTON, [20] IMMOKALEE	3.28	69	226
	SUBTOTAL		**36.2**		**2534**
				TOTAL WEIGHTED CN =	**70.1**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in
Treatment Area	6.9	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.29**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	5.81	4.27
Runoff Depth, Q_R (in)	3.70	4.47
Runoff Volume (ac-ft)	10.08	13.48
Attenuation Volume (ac-ft)		**3.40**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.10
Existing Attenuation Volume (ac-ft)	0.19

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1003C POND DESIGN

SHW EL.:	71.70	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[13] EAUGALLIE [14] FARMTON	
SHW Point(s) of Reference:	PBA-86		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	74.00	ft
Estimated DHW_{10}:	72.74							
LEOP:	75.91	ft @ 4429+00 RT						
Distance to LEOP:	1350	ft						
Clearance to LEOP:	2.50	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	71.70			0.83	0.00	0.00
Treatment Vol. EL. (Weir EL.)	71.70	0.00	0.00	0.83	0.00	0.00
Detention Vol. EL.	74.30	2.60	2.60	1.02	2.40	2.40
Bottom of Maintenance Berm (Freeboard)	75.30	1.00	3.60	1.10	1.06	3.46
Top of Maintenance Berm	76.30	1.00	4.60	1.40	1.25	
Tie Down (To Existing Ground EL.)	74.00	-2.30		1.61		

SMF 1003D POND DESIGN

Linear pond dimensions based on CADD measurements of cross sections.

	SMF 1003D-1L	SMF 1003D-2L	SMF 1003D-3L	SMF 1003D-1R	SMF 1003D-2R	SMF 1003D-3R
SHW	71.10	72.62	72.37	71.55	73.40	72.80
SHW Point(s) of Reference:	SH10-32	SH10-33, SH10-34, SH10-35, SH10-36, SH10-37	SH10-39, SH10-41, SH10-42	PBA-89, SH10-30	SH10-37, SH10-38	SH10-40
LOW END						
STA.	4439+50.00	4461+50.00	4465+50.00	4432+00.00	4464+20.00	4476+40.00
EOS EL.	74.60	76.49	75.85	75.44	76.97	76.87
DHW	74.10	75.99	75.35	74.94	76.47	76.37
CROSS SECTIONAL AREA (sq. ft.	18.75	26.86	20.75	17.33	19.70	12.31
POND BOTTOM EL.	72.60	74.12	73.87	73.46	74.90	75.35
HIGH END						
STA.	4430+70.00	4440+50.00	4476+90.00	4436+00.00	4461+50.00	4469+30.00
EOS EL.	75.21	76.66	75.83	75.79	77.03	77.22
DHW	74.10	75.99	75.35	74.94	76.47	76.37
CROSS SECTIONAL AREA (sq. ft.	7.94	26.86	22.05	11.25	19.31	12.24
POND BOTTOM EL.	73.24	74.12	73.87	73.83	74.90	75.23
LENGTH OF POND (ft)	880.00	2100.00	1140.00	400.00	270.00	710.00
POND VOLUME (ac-ft)	0.270	1.295	0.560	0.131	0.121	0.200
TOTAL POND VOLUME (ac-ft)	**2.577**					
For Treatment	1.140					
For Attenuation (Remaining)	1.437					

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.39 ac-ft	1.14 ac-ft	GOOD
Attenuation	3.60 ac-ft	3.84 ac-ft	GOOD
TOTAL	**3.98 ac-ft**	**4.98 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD

Basin 1004

SMF:	SMF 1004 Alt. 1

Basin Type:	OPEN
Side of Road	RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4465+04.98	Basin 8 WB
To STA. =	4501+53.94	
From STA. =	4465+70.35	Basin 8 EB
To STA. =	4511+67.40	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.07	98	398
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR	16.24	49	796
	B/D	[14] FARMTON	0.51	69	35
	SUBTOTAL		**20.8**		**1229**
				TOTAL WEIGHTED CN =	**59.1**

PROPOSED CONDITION

From STA. =	4489+26.00	Basin 1004
To STA. =	4516+91.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.99	98	489
SMF Bottom	WATER		0.00	100	0
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR	6.64	49	325
	B/D	[14] FARMTON	3.32	69	229
	SUBTOTAL		**15.0**		**1044**
				TOTAL WEIGHTED CN =	**69.8**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	0.9	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.04**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in — Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	6.93	4.33	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	3.23	4.44	Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft)	5.60	5.53	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**-0.07**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.05
Existing Attenuation Volume (ac-ft)	0.10

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1004A POND DESIGN

SHW EL.:	71.50	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[21] MALABAR	
SHW Point(s) of Reference	PBA-98		Freeboard:	1.00	ft			
Treatment System:	DRY		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL ≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005) ≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	72.50	ft
Estimated DHW_{10}:	73.88							
LEOP:	77.28	ft @ 4499+00 RT						
Distance to LEOP:	250	ft						
Clearance to LEOP:	3.27	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
Pond Bottom (Dry Pond)	72.50			0.04	0.00	0.00
Treatment Vol. EL. (Weir EL.)	73.80	1.30	1.30	0.19	0.15	0.15
Detention Vol. EL.	74.00	0.20	1.50	0.21	0.04	0.19
Bottom of Maintenance Berm (Freeboard)	75.00	1.00	2.50	0.33	0.27	0.46
Top of Maintenance Berm	76.00	1.00	3.50	0.80	0.57	
Tie Down (To Existing Ground EL.)	72.50	-3.50		1.27		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.09 ac-ft	0.15 ac-ft	GOOD
Attenuation	0.03 ac-ft	0.04 ac-ft	GOOD
TOTAL	**0.11 ac-ft**	**0.19 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements.

Basin 1004

SMF:	SMF 1004 Alt. 2

Basin Type:	OPEN
Side of Road:	RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4465+04.98	Basin 8 WB
To STA. =	4501+53.94	
From STA. =	4465+70.35	Basin 8 EB
To STA. =	4511+67.40	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.07	98	398
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR	16.30	49	799
	B/D	[14] FARMTON	0.51	69	35
	SUBTOTAL		**20.9**		**1232**
				TOTAL WEIGHTED CN =	**59.0**

PROPOSED CONDITION

From STA. =	4489+26.00	Basin 1004
To STA. =	4516+91.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.99	98	489
SMF Bottom	WATER		0.00	100	0
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR	6.70	49	328
	B/D	[14] FARMTON	3.32	69	229
	SUBTOTAL		**15.0**		**1047**
				TOTAL WEIGHTED CN =	**69.7**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in
Treatment Area	0.9	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.04**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	6.94	4.35
Runoff Depth, Q_R (in)	3.23	4.43
Runoff Volume (ac-ft)	5.61	5.54
Attenuation Volume (ac-ft)		**-0.07**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.05
Existing Attenuation Volume (ac-ft)	0.10

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1004B POND DESIGN

SHW EL.:	71.50	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[21] MALABAR	
SHW Point(s) of Reference:	PBA-98		Freeboard:	1.00	ft			
Treatment System:	DRY		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	72.50	ft
Estimated DHW_{10}:	74.54							
LEOP:	77.28	ft @ 4499+00 RT						
Distance to LEOP:	600	ft						
Clearance to LEOP:	2.44	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
Pond Bottom (Dry Pond)	72.50			0.07	0.00	0.00
Treatment Vol. EL. (Weir EL.)	74.24	1.74	1.74	0.09	0.13	0.13
Detention Vol. EL.	75.00	0.76	2.50	0.12	0.08	0.21
Bottom of Maintenance Berm (Freeboard)	76.00	1.00	3.50	0.17	0.14	0.36
Top of Maintenance Berm	77.00	1.00	4.50	0.36	0.26	
Tie Down (To Existing Ground EL.)	72.50	-4.50		0.63		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.09 ac-ft	0.13 ac-ft	GOOD
Attenuation	0.03 ac-ft	0.08 ac-ft	GOOD
TOTAL	**0.11 ac-ft**	**0.21 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improveme

Basin 1004

SMF:	SMF 1004 Alt. 3

Basin Type:	OPEN
Side of Road	LEFT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4465+04.98	Basin 8 WB
To STA. =	4501+53.94	
From STA. =	4465+70.35	Basin 8 EB
To STA. =	4511+67.40	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.07	98	398
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR	15.11	49	740
	B/D	[14] FARMTON	0.51	69	35
SUBTOTAL			**19.7**		**1174**
				TOTAL WEIGHTED CN =	**59.6**

PROPOSED CONDITION

From STA. =	4489+26.00	Basin 1004
To STA. =	4516+91.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.99	98	489
SMF Bottom	WATER		0.00	100	0
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR	5.51	49	270
	B/D	[14] FARMTON	3.32	69	229
SUBTOTAL			**13.8**		**988**
				TOTAL WEIGHTED CN =	**71.5**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	0.9	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.04**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	6.77	3.99	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	3.29	4.64	Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft)	5.40	5.34	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**-0.06**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.05
Existing Attenuation Volume (ac-ft)	0.10

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1004C POND DESIGN

Linear pond dimensions based on CADD measurements of cross sections.

	SMF 1004C-1L
SHW	71.53
SHW Point(s) of Reference:	SH10-45, SH10-46, SH10-47
LOW END	
STA.	4507+00.00
EOS EL.	75.03
DHW	74.53
CROSS SECTIONAL AREA (sq. ft.)	18.75
POND BOTTOM EL.	73.03
HIGH END	
STA.	4501+00.00
EOS EL.	75.05
DHW	74.53
CROSS SECTIONAL AREA (sq. ft.)	18.35
POND BOTTOM EL.	73.05
LENGTH OF POND (ft)	600.00
TOTAL POND VOLUME (ac-ft)	0.256

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.09 ac-ft	0.21 ac-ft	GOOD
Attenuation	0.03 ac-ft	0.05 ac-ft	GOOD
TOTAL	**0.12 ac-ft**	**0.26 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements.

Basin 1005

SMF:	SMF 1005 Alt. 1

Basin Type:	OPEN
Side of Road:	LEFT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4501+53.94	Basin 9, Basin 10 WB
To STA. =	4623+01.59	
From STA. =	4511+67.40	Basin 9, Basin 10 EB
To STA. =	4595+04.67	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			10.78	98	1056
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR, [22] MALABAR, [24] MYAKKA, [26] PINEDA-PINEDA, [40] VALKARIA	34.89	49	1710
	B/D	[14] FARMTON	13.99	69	965
	SUBTOTAL		**59.7**		**3731**
				TOTAL WEIGHTED CN =	**62.5**

PROPOSED CONDITION

From STA. =	4516+91.00	Basin 1005 WB
To STA. =	4615+32.17	
From STA. =	4516+91.00	Basin 1005 EB
To STA. =	4594+88.09	
From STA. =	4608+39.82	Basin 1005 EB
To STA. =	4615+32.17	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			19.30	98	1892
SMF Bottom	WATER		1.11	100	111
Pervious - 'Fair' Open Spaces	A/D	[21] MALABAR, [22] MALABAR, [24] MYAKKA, [26] PINEDA-PINEDA, [40] VALKARIA	23.45	49	1149
	B/D	[14] FARMTON, [20] IMMOKALEE	7.16	69	494
	SUBTOTAL		**51.0**		**3645**
				TOTAL WEIGHTED CN =	**71.5**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in
Treatment Area	8.5	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.71**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	5.99	4.00
Runoff Depth, Q_R (in)	3.62	4.63
Runoff Volume (ac-ft)	17.98	19.69
Attenuation Volume (ac-ft)		**1.71**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.44
Existing Attenuation Volume (ac-ft)	0.22

Note: Existing Storage derived from **Permit No. 33219.000** and **Permit No. 8749.008**

SMF 1005A POND DESIGN

SHW EL.:	73.40	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[22] MALABAR [26] PINEDA-PINEDA	
SHW Point(s) of Reference	PBA-123, PBA-125		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL ≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005) ≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	75.00	ft
Estimated DHW_{10}:	75.44							
LEOP:	77.47	ft @ 4534+00 LT						
Distance to LEOP:	1500	ft						
Clearance to LEOP:	1.28	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	73.40			1.11	0.00	0.00
Treatment Vol. EL. (Weir EL.)	74.80	1.40	1.40	1.23	1.64	1.64
Detention Vol. EL.	76.40	1.60	3.00	1.38	2.08	3.72
Bottom of Maintenance Berm (Freeboard)	77.40	1.00	4.00	1.47	1.42	5.14
Top of Maintenance Berm	78.40	1.00	5.00	1.84	1.66	
Tie Down (To Existing Ground EL.)	75.00	-3.40		2.21		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	1.59 ac-ft	1.64 ac-ft	GOOD
Attenuation	1.93 ac-ft	2.08 ac-ft	GOOD
TOTAL	**3.51 ac-ft**	**3.72 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD criteria.

Basin 1005

SMF:	SMF 1005 Alt. 2

Basin Type:	OPEN	SMF Location:	Same Outfall as Pre-Development
Side of Road:	LEFT		

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4501+53.94	Basin 9, Basin 10 WB
To STA. =	4623+01.59	
From STA. =	4511+67.40	Basin 9, Basin 10 EB
To STA. =	4595+04.67	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			10.78	98	1056
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR, [22] MALABAR, [24] MYAKKA, [26] PINEDA-PINEDA, [40] VALKARIA	32.03	49	1570
	B/D	[14] FARMTON	16.54	69	1141
	SUBTOTAL		**59.4**		**3767**
				TOTAL WEIGHTED CN =	**63.5**

PROPOSED CONDITION

From STA. =	4516+91.00	Basin 1005 WB
To STA. =	4615+32.17	
From STA. =	4516+91.00	Basin 1005 EB
To STA. =	4594+88.09	
From STA. =	4608+39.82	Basin 1005 EB
To STA. =	4615+32.17	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			19.30	98	1892
SMF Bottom	WATER		0.00	100	0
Pervious - 'Fair' Open Spaces	A/D	[21] MALABAR, [22] MALABAR, [24] MYAKKA, [26] PINEDA-PINEDA, [40] VALKARIA	21.70	49	1063
	B/D	[14] FARMTON, [20] IMMOKALEE	9.71	69	670
	SUBTOTAL		**50.7**		**3625**
				TOTAL WEIGHTED CN =	**71.5**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	8.5	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.36**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	5.75	3.99	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	3.72	4.63	Runoff Depth, Q_R (in) = (P - 0.2 * S)^2 / (P + 0.8 * S)
Runoff Volume (ac-ft)	18.41	19.59	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**1.18**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.44
Existing Attenuation Volume (ac-ft)	0.22

Note: Existing Storage derived from **Permit No. 33219.000** and **Permit No. 8749.008**

SMF 1005B POND DESIGN

SHW EL.:	72.70	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[14] FARMTON	
SHW Point(s) of Reference:	PBA-116, PBA-117		Freeboard:	1.00	ft			
Treatment System:	DRY		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	75.00	ft
Estimated DHW_{10}:	75.44							
LEOP:	77.47	ft @ 4534+00 LT						
Distance to LEOP:	250	ft						
Clearance to LEOP:	1.91	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
Pond Bottom (Dry Pond)	73.70			0.75	0.00	0.00
Treatment Vol. EL. (Weir EL.)	74.80	1.10	1.10	0.85	0.88	0.88
Detention Vol. EL.	76.40	1.60	2.70	1.01	1.48	2.36
Bottom of Maintenance Berm (Freeboard)	77.40	1.00	3.70	1.11	1.06	3.42
Top of Maintenance Berm	78.40	1.00	4.70	1.49	1.30	
Tie Down (To Existing Ground EL.)	75.00	-3.40		1.87		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.79 ac-ft	0.88 ac-ft	GOOD
Attenuation	1.40 ac-ft	1.48 ac-ft	GOOD
TOTAL	**2.19 ac-ft**	**2.36 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improveme

Basin 1005

SMF:	SMF 1005 Alt. 3

Basin Type:	OPEN
Side of Road	LEFT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4501+53.94	Basin 9, Basin 10 WB
To STA. =	4623+01.59	
From STA. =	4511+67.40	Basin 9, Basin 10 EB
To STA. =	4595+04.67	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			10.78	98	1056
Pervious - 'Fair' Open Spaces	A/D	[13] EAUGALLIE, [21] MALABAR, [22] MALABAR, [24] MYAKKA, [26] PINEDA-PINEDA, [40] VALKARIA	32.00	49	1568
	B/D	[14] FARMTON	13.99	69	965
	SUBTOTAL		**56.8**		**3589**
				TOTAL WEIGHTED CN =	**63.2**

PROPOSED CONDITION

From STA. =	4516+91.00	Basin 1005 WB
To STA. =	4615+32.17	
From STA. =	4516+91.00	Basin 1005 EB
To STA. =	4594+88.09	
From STA. =	4608+39.82	Basin 1005 EB
To STA. =	4615+32.17	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			19.30	98	1892
SMF Bottom	WATER		0.00	100	0
Pervious - 'Fair' Open Spaces	A/D	[21] MALABAR, [22] MALABAR, [24] MYAKKA, [26] PINEDA-PINEDA, [40] VALKARIA	21.67	49	1062
	B/D	[14] FARMTON, [20] IMMOKALEE	7.16	69	494
	SUBTOTAL		**48.1**		**3447**
				TOTAL WEIGHTED CN =	**71.6**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	8.5	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.36**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	5.82	3.96	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	3.69	4.65	Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft)	17.48	18.66	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**1.18**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.44
Existing Attenuation Volume (ac-ft)	0.22

Note: Existing Storage derived from **Permit No. 33219.000** and **Permit No. 8749.008**

SMF 1005C POND DESIGN

Linear pond dimensions based on CADD measurements of cross sections.

	SMF 1005C-1L
SHW	72.50
SHW Point(s) of Reference:	SH10-49, SH10-51
LOW END	
STA.	4528+00.00
EOS EL.	76.97
DHW	76.47
CROSS SECTIONAL AREA (sq. ft.	194.64
POND BOTTOM EL.	74.00
HIGH END	
STA.	4522+00.00
EOS EL.	79.10
DHW	76.47
CROSS SECTIONAL AREA (sq. ft.	137.46
POND BOTTOM EL.	74.00
LENGTH OF POND (ft)	600.00
POND VOLUME (ac-ft)	2.287
TOTAL POND VOLUME (ac-ft)	**2.287**

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.79 ac-ft	0.82 ac-ft	GOOD
Attenuation	1.40 ac-ft	1.46 ac-ft	GOOD
TOTAL	**2.19 ac-ft**	**2.29 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements.

Basin 11a - Direct Discharge

SMF:	N/A

Basin Type:	OPEN
Side of Road	RIGHT

SMF Location:	Direct Discharge

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4595+05.00	Basin 11a EB
To STA. =	4596+21.21	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			0.06	98	6
Pervious - 'Fair' Open Spaces	A/D	[24] MYAKKA	0.05	49	2
	B/D	[20] IMMOKALEE	0.09	69	6
	SUBTOTAL		**0.2**		**15**
				TOTAL WEIGHTED CN =	**72.7**

PROPOSED CONDITION

From STA. =	4594+88.09	Basin 11a Post
To STA. =	4595+88.09	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			0.02	98	2
Pervious - 'Fair' Open Spaces	A/D	[24] MYAKKA	0.07	49	4
	B/D	[20] IMMOKALEE	0.02	69	1
	SUBTOTAL		**0.1**		**7**
				TOTAL WEIGHTED CN =	**62.1**

PRE POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	0.1	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.003**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

POST POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	0.0	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.001**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in — Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	3.76	6.10	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	4.77	3.57	Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft)	0.08	0.03	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**-0.05**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

Treatment System:	DRY

PRE VS. POST TREATMENT & ATTENUATION VOLUME

	PRE	POST	Delta (ac-ft)	CHECK
Untreated Volume (ac-ft)	0.003 ac-ft	0.001 ac-ft	0.002	GOOD
Runoff Volume (ac-ft)	0.08 ac-ft	0.03 ac-ft	0.05	GOOD

Basin 11b - Direct Discharge

SMF:	N/A

Basin Type:	OPEN
Side of Road	RIGHT

SMF Location:	Direct Discharge

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4596+21.21	Basin 11b EB
To STA. =	4622+48.64	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			1.25	98	122
Pervious - 'Fair' Open Spaces	A/D	[24] MYAKKA	2.46	49	121
	B/D	[20] IMMOKALEE	0.68	69	47
	SUBTOTAL		**4.4**		**289**
				TOTAL WEIGHTED CN =	**66.0**

PROPOSED CONDITION

From STA. =	4595+88.09	Basin 11b Post
To STA. =	4608+39.82	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			1.24	98	121
Pervious - 'Fair' Open Spaces	A/D	[24] MYAKKA	2.04	49	100
	B/D	[20] IMMOKALEE	0.05	69	4
	SUBTOTAL		**3.3**		**225**
				TOTAL WEIGHTED CN =	**67.5**

PRE POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	1.2	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.05**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

POST POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	1.2	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.05**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in — Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	5.15	4.81	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	4.01	4.18	Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft)	1.46	1.16	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**-0.30**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

Treatment System:	DRY

PRE VS. POST TREATMENT & ATTENUATION VOLUME

	PRE	POST	Delta (ac-ft)	CHECK
Untreated Volume (ac-ft)	0.05 ac-ft	0.05 ac-ft	0.00	GOOD
Runoff Volume (ac-ft)	1.46 ac-ft	1.16 ac-ft	0.30	GOOD

Basin 1006

SMF:	SMF 1006 Alt. 1

Basin Type:	OPEN
Side of Road	RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4622+83.39	Basin 12 WB
To STA. =	4662+90.58	
From STA. =	4622+48.51	Basin 12 EB
To STA. =	4650+88.53	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			3.41	98	334
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [21] MALABAR, [24] MYAKKA	5.87	49	288
	B/D	[20] IMMOKALEE	11.64	69	803
	SUBTOTAL		**20.9**		**1425**
				TOTAL WEIGHTED CN =	**68.1**

PROPOSED CONDITION

From STA. =	4615+32.17	Basin 1006
To STA. =	4669+62.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			10.88	98	1066
SMF Bottom	WATER		1.95	100	195
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [21] MALABAR, [24] MYAKKA, [40] VALKARIA	7.81	49	383
	B/D	[20] IMMOKALEE	9.28	69	641
	SUBTOTAL		**29.9**		**2285**
				TOTAL WEIGHTED CN =	**76.3**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in
Treatment Area	7.5	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.62**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	4.68	3.10
Runoff Depth, Q_R (in)	4.25	5.20
Runoff Volume (ac-ft)	7.40	12.96
Attenuation Volume (ac-ft)		**5.56**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.10
Existing Attenuation Volume (ac-ft)	0.16

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1006A POND DESIGN

SHW EL.:	75.50	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[20] IMMOKALEE	
SHW Point(s) of Reference	PBA-142, PBA-143, PBA-144, PBA-145, PBA-146		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005) ≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	76.50	ft
Estimated DHW_{10}:	77.08							
LEOP:	79.78	ft @ 4618+00 LT						
Distance to LEOP:	300	ft						
Clearance to LEOP:	2.55	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	75.50			1.95	0.00	0.00
Treatment Vol. EL. (Weir EL.)	76.00	0.50	0.50	2.01	0.99	0.99
Detention Vol. EL.	78.70	2.70	3.20	2.32	5.85	6.84
Bottom of Maintenance Berm (Freeboard)	79.70	1.00	4.20	2.44	2.38	9.22
Top of Maintenance Berm	80.70	1.00	5.20	2.91	2.68	
Tie Down (To Existing Ground EL.)	76.50	-4.20		3.48		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.82 ac-ft	0.99 ac-ft	GOOD
Attenuation	5.71 ac-ft	5.85 ac-ft	GOOD
TOTAL	**6.53 ac-ft**	**6.84 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD criteria.

Basin 1006

SMF:	SMF 1006 Alt. 2

Basin Type:	OPEN	SMF Location:	Same Outfall as Pre-Development
Side of Road:	RIGHT		

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4622+83.39	Basin 12 WB
To STA. =	4662+90.58	
From STA. =	4622+48.51	Basin 12 EB
To STA. =	4650+88.53	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			3.41	98	334
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [21] MALABAR, [24] MYAKKA	5.91	49	289
	B/D	[20] IMMOKALEE	12.26	69	846
	SUBTOTAL		**21.6**		**1470**
				TOTAL WEIGHTED CN =	**68.1**

PROPOSED CONDITION

From STA. =	4615+32.17	Basin 1006
To STA. =	4669+62.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			10.88	98	1066
SMF Bottom	WATER		2.78	100	278
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [21] MALABAR, [24] MYAKKA, [40] VALKARIA	7.54	49	369
	B/D	[20] IMMOKALEE	9.39	69	648
	SUBTOTAL		**30.6**		**2362**
				TOTAL WEIGHTED CN =	**77.2**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	1.0	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	7.5	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.62**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	4.68	2.95
Runoff Depth, Q_R (in)	4.25	5.30
Runoff Volume (ac-ft)	7.64	13.51
Attenuation Volume (ac-ft)		**5.87**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.10
Existing Attenuation Volume (ac-ft)	0.16

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1006B POND DESIGN

SHW EL.:	76.20	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[20] IMMOKALEE	
SHW Point(s) of Reference:	PBA-153		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	78.00	ft
Estimated DHW_{10}:	77.44							
LEOP:	79.78	ft @ 4618+00 LT						
Distance to LEOP:	1600	ft						
Clearance to LEOP:	1.54	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	76.20			2.78	0.00	0.00
Treatment Vol. EL. (Weir EL.)	76.60	0.40	0.40	2.83	1.12	1.12
Detention Vol. EL.	78.70	2.10	2.50	3.11	6.24	7.36
Bottom of Maintenance Berm (Freeboard)	79.70	1.00	3.50	3.24	3.17	10.53
Top of Maintenance Berm	80.70	1.00	4.50	3.77	3.50	
Tie Down (To Existing Ground EL.)	78.00	-2.70		4.16		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.82 ac-ft	1.12 ac-ft	GOOD
Attenuation	6.02 ac-ft	6.24 ac-ft	GOOD
TOTAL	**6.84 ac-ft**	**7.36 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD

Basin 1006

SMF:	SMF 1006 Alt. 3

Basin Type:	OPEN
Side of Road	LEFT & RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4622+83.39	Basin 12 WB
To STA. =	4662+90.58	
From STA. =	4622+48.51	Basin 12 EB
To STA. =	4650+88.53	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			3.41	98	334
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [21] MALABAR, [24] MYAKKA	6.79	49	333
	B/D	[20] IMMOKALEE	8.49	69	586
	SUBTOTAL		**18.7**		**1252**
				TOTAL WEIGHTED CN =	**67.0**

PROPOSED CONDITION

From STA. =	4615+32.17	Basin 1006
To STA. =	4669+62.00	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			10.88	98	1066
SMF Bottom	WATER		0.00	100	0
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [21] MALABAR, [24] MYAKKA	8.73	49	428
	B/D	[20] IMMOKALEE	8.09	69	558
	SUBTOTAL		**27.7**		**2052**
				TOTAL WEIGHTED CN =	**74.1**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in
Treatment Area	7.5	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.31**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	4.92	3.50
Runoff Depth, Q_R (in)	4.12	4.94
Runoff Volume (ac-ft)	6.42	11.39
Attenuation Volume (ac-ft)		**4.97**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.10
Existing Attenuation Volume (ac-ft)	0.16

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1006C POND DESIGN

Linear pond dimensions based on CADD measurements of cross sections.

	SMF 1006C-1R	SMF 1006C-2R	SMF 1006C-3R	SMF 1006C-4R	SMF 1006C-5R	SMF 1006C-6R	SMF 1006C-7R	SMF 1006C-8R
SHW	75.40	75.40	76.00	75.80	75.80	76.80	76.90	78.40
SHW Point(s) of Reference:	PBA-146	PBA-146	SH10-70PBA-146	PBA-151	PBA-151	PBA-156	SH10-76	PBA-157
LOW END								
STA.	4619+00.00	4622+27.00	4624+30.00	4631+40.00	4634+80.00	4638+20.00	4651+94.00	4655+60.00
EOS EL.	79.17	78.11	79.34	79.62	80.22	80.50	81.09	81.68
DHW	78.67	77.61	78.84	79.12	79.72	80.00	80.59	81.18
CROSS SECTIONAL AREA (sq. ft.)	237.02	127.62	195.93	214.32	277.09	18.06	270.11	188.57
POND BOTTOM EL.	76.40	76.40	77.00	76.80	76.80	78.54	77.90	79.40
HIGH END								
STA.	4617+00.00	4620+53.00	4626+05.00	4632+80.00	4636+10.00	4650+00.00	4654+09.00	4657+53.00
EOS EL.	79.10	79.22	79.41	79.68	80.31	80.64	81.52	81.83
DHW	78.67	77.61	78.84	79.12	79.72	80.00	80.59	81.18
CROSS SECTIONAL AREA (sq. ft.)	237.24	121.96	194.68	213.28	275.90	6.77	258.44	186.08
POND BOTTOM EL.	76.40	76.40	77.00	76.80	76.80	79.24	77.90	79.40
LENGTH OF POND (ft)	200.00	174.00	175.00	140.00	130.00	1180.00	215.00	193.00
POND VOLUME (ac-ft)	1.089	0.498	0.785	0.687	0.825	0.336	1.304	0.830
TOTAL POND VOLUME (ac-ft)	**6.355**							

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.41 ac-ft	0.49 ac-ft	GOOD
Attenuation	5.13 ac-ft	5.87 ac-ft	GOOD
TOTAL	**5.53 ac-ft**	**6.35 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements.

Basin 1007

SMF:	SMF 1007 All. 1

Basin Type:	OPEN
Side of Road:	RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4662+40.19	Basin 13 WB
To STA. =	4708+28.30	
From STA. =	4650+77.01	Basin 13 EB
To STA. =	4707+63.99	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.38	98	430
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [24] MYAKKA, [36] SMYRNA, [40] VALKARIA	20.54	49	1006
	B/D	[20] IMMOKALEE	4.71	69	325
	SUBTOTAL		**29.6**		**1761**
				TOTAL WEIGHTED CN =	**59.4**

PROPOSED CONDITION

From STA. =	4669+62.01	Basin 1007 WB
To STA. =	4761+69.95	
From STA. =	4669+62.01	Basin 1007 EB
To STA. =	4723+33.18	
From STA. =	4752+79.30	Basin 1007 EB
To STA. =	4761+69.95	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			15.56	98	1524
SMF Bottom	WATER		0.00	100	0
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [24] MYAKKA, [32] PUNTA, [36] SMYRNA, [40] VALKARIA	20.64	49	1011
	B/D	[20] IMMOKALEE	5.04	69	348
	SUBTOTAL		**41.2**		**2884**
				TOTAL WEIGHTED CN =	**69.9**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in
Treatment Area	11.2	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.47**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	6.83	4.30
Runoff Depth, Q_R (in)	3.27	4.46
Runoff Volume (ac-ft)	8.07	15.31
Attenuation Volume (ac-ft)		**7.24**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 1007A POND DESIGN

SHW EL.:	78.80	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[24] MYAKKA [36] SMYRNA [40] VALKARIA	
SHW Point(s) of Reference	PBA-166		Freeboard:	1.00	ft			
Treatment System:	DRY		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL ≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005) ≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	80.00	ft
Estimated DHW_{10}:	81.34							
LEOP:	83.96	ft @ 4681+00 RT						
Distance to LEOP:	700	ft						
Clearance to LEOP:	2.27	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
Pond Bottom (Dry Pond)	79.80			2.66	0.00	0.00
Treatment Vol. EL. (Weir EL.)	80.30	0.50	0.50	2.73	1.35	1.35
Detention Vol. EL.	82.90	2.60	3.10	3.07	7.54	8.89
Bottom of Maintenance Berm (Freeboard)	83.90	1.00	4.10	3.21	3.14	12.03
Top of Maintenance Berm	84.90	1.00	5.10	3.75	3.48	
Tie Down (To Existing Ground EL.)	80.00	-4.90		4.52		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.47 ac-ft	1.35 ac-ft	GOOD
Attenuation	7.24 ac-ft	7.54 ac-ft	GOOD
TOTAL	**7.70 ac-ft**	**8.89 ac-ft**	

Basin 1007

SMF:	SMF 1007 Alt. 2

Basin Type:	OPEN	SMF Location:	Same Outfall as Pre-Development
Side of Road:	LEFT		

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4662+40.19	Basin 13 WB
To STA. =	4708+28.30	
From STA. =	4650+77.01	Basin 13 EB
To STA. =	4707+63.99	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.38	98	430
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [24] MYAKKA, [36] SMYRNA, [40] VALKARIA	21.52	49	1055
	B/D	[20] IMMOKALEE	4.71	69	325
	SUBTOTAL		**30.6**		**1809**
				TOTAL WEIGHTED CN =	**59.1**

PROPOSED CONDITION

From STA. =	4669+62.01	Basin 1007 WB
To STA. =	4761+69.95	
From STA. =	4669+62.01	Basin 1007 EB
To STA. =	4723+33.18	
From STA. =	4752+79.30	Basin 1007 EB
To STA. =	4761+69.95	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			15.56	98	1524
SMF Bottom	WATER		0.00	100	0
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [24] MYAKKA, [32] PUNTA, [36] SMYRNA, [40] VALKARIA	21.63	49	1060
	B/D	[20] IMMOKALEE	5.04	69	348
	SUBTOTAL		**42.2**		**2932**
				TOTAL WEIGHTED CN =	**69.4**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	11.2	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.47**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	6.92	4.40	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	3.23	4.40	Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft)	8.25	15.48	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**7.23**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 1007B POND DESIGN

SHW EL.:	79.60	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[36] SMYRNA	
SHW Point(s) of Reference:	PBA-172, PBA-174, PBA-175		Freeboard:	1.00	ft			
Treatment System:	DRY		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	81.00	ft
Estimated DHW_{10}:	81.76							
LEOP:	83.96	ft @ 4681+00 RT						
Distance to LEOP:	250	ft						
Clearance to LEOP:	2.07	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
Pond Bottom (Dry Pond)	80.60			3.75	0.00	0.00
Treatment Vol. EL. (Weir EL.)	81.00	0.40	0.40	3.81	1.51	1.51
Detention Vol. EL.	82.90	1.90	2.30	4.10	7.52	9.03
Bottom of Maintenance Berm (Freeboard)	83.90	1.00	3.30	4.26	4.18	13.21
Top of Maintenance Berm	84.90	1.00	4.30	4.86	4.56	
Tie Down (To Existing Ground EL.)	81.00	-3.90		5.52		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.47 ac-ft	1.51 ac-ft	GOOD
Attenuation	7.23 ac-ft	7.52 ac-ft	GOOD
TOTAL	**7.70 ac-ft**	**9.03 ac-ft**	

Basin 1007

SMF:	SMF 1007 Alt. 3

Basin Type:	OPEN
Side of Road	LEFT & RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4662+40.19	Basin 13 WB
To STA. =	4708+28.30	
From STA. =	4650+77.01	Basin 13 EB
To STA. =	4707+63.99	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.38	98	430
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [24] MYAKKA, [32] PUNTA, [36] SMYRNA, [40] VALKARIA	20.43	49	1001
	B/D	[20] IMMOKALEE	8.26	69	570
	SUBTOTAL		**33.1**		**2000**
				TOTAL WEIGHTED CN =	**60.5**

PROPOSED CONDITION

From STA. =	4669+62.01	Basin 1007 WB
To STA. =	4761+69.95	
From STA. =	4669+62.01	Basin 1007 EB
To STA. =	4723+33.18	
From STA. =	4752+79.30	Basin 1007 EB
To STA. =	4761+69.95	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			15.56	98	1524
SMF Bottom	WATER		0.00	100	0
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [24] MYAKKA, [32] PUNTA, [36] SMYRNA, [40] VALKARIA	20.53	49	1006
	B/D	[20] IMMOKALEE	8.59	69	593
	SUBTOTAL		**44.7**		**3123**
				TOTAL WEIGHTED CN =	**69.9**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	11.2	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.47**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	6.53	4.30	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	3.39	4.45	Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft)	9.34	16.58	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**7.24**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 1007C POND DESIGN

Linear pond dimensions based on CADD measurements of cross sections.

	SMF 1007C-1L	SMF 1007C-2L	SMF 1007C-3L	SMF 1007C-4L	SMF 1007C-5L	SMF 1007C-6L	SMF 1007C-7L	SMF 1007C-8L	SMF 1007C-1R	SMF 1007C-2R	SMF 1007C-3R
SHW	79.70	80.20	80.20	81.00	82.30	81.50	82.30	82.20	78.90	80.10	81.30
SHW Point(s) of Reference:	SH10-82	SH10-84	SH10-84	SH10-86	SH10-88	SH10-90	SH10-92, SH10-94	SH10-96	PBA-165, PBA-167	PBA-167, PBA-168, PBA-176	PBA-177, PBA-178
LOW END											
STA.	4680+00.00	4685+30.00	4698+00.00	4698+50.00	4709+20.00	4723+60.00	4724+60.00	4753+80.00	4681+14.00	4682+12.00	4712+50.00
EOS EL.	83.44	83.73	84.05	84.10	85.45	85.58	85.61	86.20	83.70	83.75	84.97
DHW	82.94	83.23	83.55	83.60	84.95	85.08	85.11	85.70	83.20	83.25	84.47
CROSS SECTIONAL AREA (sq. ft.)	18.75	18.75	18.75	15.94	16.38	31.94	17.62	18.75	166.74	64.48	65.58
POND BOTTOM EL.	81.44	81.73	82.05	82.50	83.80	83.00	83.80	84.20	80.40	81.60	82.80
HIGH END											
STA.	4684+80.00	4693+00.00	4693+50.00	4705+00.00	4713+50.00	4714+00.00	4748+20.00	4748+70.00	4676+57.00	4705+81.00	4722+40.00
EOS EL.	83.68	84.29	84.27	85.03	86.07	86.02	86.48	86.45	84.01	84.78	85.56
DHW	82.94	83.23	83.55	83.60	84.95	85.08	85.11	85.70	83.20	83.25	84.47
CROSS SECTIONAL AREA (sq. ft.)	14.24	9.06	14.50	4.46	8.97	26.88	5.24	13.98	160.70	51.30	57.66
POND BOTTOM EL.	81.68	82.29	82.27	83.03	84.02	83.22	84.48	84.45	80.40	81.60	82.80
LENGTH OF POND (ft)	480.00	770.00	450.00	650.00	430.00	960.00	2360.00	510.00	457.00	2369.00	990.00
POND VOLUME (ac-ft)	0.182	0.246	0.172	0.152	0.125	0.648	0.619	0.192	1.718	3.149	1.400
TOTAL POND VOLUME (ac-ft)						**8.602**					

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.47 ac-ft	1.34 ac-ft	GOOD
Attenuation	7.24 ac-ft	7.27 ac-ft	GOOD
TOTAL	**7.71 ac-ft**	**8.60 ac-ft**	

Note: Additional treatment volume is provided, in excess of required pollution abatement volume, in order to provide net improvement of TN and TP. The remainder of available linear pond volume reflected as attenuation volume. Refer to supporting BMPTrains calculations for additional details.

Basin 14 - Direct Discharge

SMF:	N/A

Basin Type:	OPEN
Side of Road	LEFT & RIGHT

SMF Location:	Direct Discharge

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4708+22.55	Basin 14 WB
To STA. =	4760+44.73	
From STA. =	4707+57.98	Basin 14 EB
To STA. =	4757+87.75	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			4.97	98	487
Pervious - 'Fair' Open Spaces	A/D	[24] MYAKKA, [32] PUNTA, [36] SMYRNA	17.50	49	858
	B/D	[20] IMMOKALEE	3.01	69	207
	SUBTOTAL		**25.5**		**1552**
				TOTAL WEIGHTED CN =	**60.9**

PROPOSED CONDITION

From STA. =	4723+33.18	Basin 14 Post
To STA. =	4752+79.30	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			2.91	98	285
Pervious - 'Fair' Open Spaces	A/D	[24] MYAKKA, [36] SMYRNA	6.44	49	315
	B/D	[20] IMMOKALEE	0.00	69	0
	SUBTOTAL		**9.3**		**600**
				TOTAL WEIGHTED CN =	**64.3**

PRE POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	5.0	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.21**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

POST POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	2.9	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.12**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	6.42	5.56	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	3.44	3.81	Runoff Depth, Q_R (in) = (P - 0.2 * S)^2 / (P + 0.8 * S)
Runoff Volume (ac-ft)	7.29	2.97	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**-4.33**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES	
Existing Treatment Volume (ac-ft)	0.08	ERP 33219.000
Existing Attenuation Volume (ac-ft)	0.18	ERP 33219.000

Treatment System:	DRY

PRE VS. POST TREATMENT & ATTENUATION VOLUME

	PRE	POST	Delta (ac-ft)	CHECK
Untreated Volume (ac-ft)	0.21 ac-ft	0.20 ac-ft	0.00	GOOD
Runoff Volume (ac-ft)	7.29 ac-ft	3.14 ac-ft	4.15	GOOD

Basin 1008

SMF:	SMF 1008 Alt. 1

Basin Type:	OPEN
Side of Road:	RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4760+31.88	Basin 15 WB
To STA. =	4837+17.91	
From STA. =	4757+79.48	Basin 15 EB
To STA. =	4836+92.55	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			6.65	98	652
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [36] SMYRNA, [40] VALKARIA	28.32	49	1388
	B/D	[20] IMMOKALEE	7.84	69	541
	SUBTOTAL		**42.8**		**2580**
				TOTAL WEIGHTED CN =	**60.3**

PROPOSED CONDITION

From STA. =	4761+69.95	Basin 1008
To STA. =	4845+62.30	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			16.21	98	1588
SMF Bottom	WATER		0.00	100	0
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [36] SMYRNA, [40] VALKARIA	23.23	49	1138
	B/D	[20] IMMOKALEE	6.26	69	432
	SUBTOTAL		**45.7**		**3159**
				TOTAL WEIGHTED CN =	**69.1**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in
Treatment Area	9.6	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.40**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	6.59	4.47
Runoff Depth, Q_R (in)	3.36	4.36
Runoff Volume (ac-ft)	12.00	16.62
Attenuation Volume (ac-ft)		**4.62**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.07
Existing Attenuation Volume (ac-ft)	0.15

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1008A POND DESIGN

SHW EL.:	82.00	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[3] BASINGER [20] IMMOKALEE [40] VALKARIA	
SHW Point(s) of Reference	PBA-190, PBA-191		Freeboard:	1.00	ft			
Treatment System:	DRY		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL ≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005) ≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	83.00	ft
Estimated DHW_{10}:	83.78							
LEOP:	85.52	ft @ 4814+00 LT						
Distance to LEOP:	400	ft						
Clearance to LEOP:	1.54	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
Pond Bottom (Dry Pond)	83.00			4.00	0.00	0.00
Treatment Vol. EL. (Weir EL.)	83.30	0.30	0.30	4.04	1.21	1.21
Detention Vol. EL.	84.50	1.20	1.50	4.23	4.96	6.17
Bottom of Maintenance Berm (Freeboard)	85.50	1.00	2.50	4.39	4.31	10.48
Top of Maintenance Berm	86.50	1.00	3.50	5.00	4.69	
Tie Down (To Existing Ground EL.)	83.00	-3.50		5.59		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.47 ac-ft	1.21 ac-ft	GOOD
Attenuation	4.77 ac-ft	4.96 ac-ft	GOOD
TOTAL	**5.24 ac-ft**	**6.17 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements.

Basin 1008

SMF:	SMF 1008 Alt. 2

Basin Type:	OPEN	SMF Location:	Same Outfall as Pre-Development
Side of Road:	LEFT		

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4760+31.88	Basin 15 WB
To STA. =	4837+17.91	
From STA. =	4757+79.48	Basin 15 EB
To STA. =	4836+92.55	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			6.65	98	652
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [36] SMYRNA, [40] VALKARIA	31.11	49	1524
	B/D	[20] IMMOKALEE	5.77	69	398
	SUBTOTAL		**43.5**		**2574**
				TOTAL WEIGHTED CN =	**59.1**

PROPOSED CONDITION

From STA. =	4761+69.95	Basin 1008
To STA. =	4845+62.30	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			16.21	98	1588
SMF Bottom	WATER		0.00	100	0
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [36] SMYRNA, [40] VALKARIA	26.01	49	1275
	B/D	[20] IMMOKALEE	4.20	69	290
	SUBTOTAL		**46.4**		**3153**
				TOTAL WEIGHTED CN =	**67.9**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	9.6	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.40**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	6.91	4.72
Runoff Depth, Q_R (in)	3.24	4.23
Runoff Volume (ac-ft)	11.74	16.35
Attenuation Volume (ac-ft)		**4.60**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.07
Existing Attenuation Volume (ac-ft)	0.15

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1008B POND DESIGN

SHW EL.:	82.10	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[3] BASINGER [40] VALKARIA	
SHW Point(s) of Reference:	PBA-186, PBA-187, PBA-189		Freeboard:	1.00	ft			
Treatment System:	DRY		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	82.50	ft
Estimated DHW_{10}:	83.74							
LEOP:	85.52	ft @ 4814+00 LT						
Distance to LEOP:	1450	ft						
Clearance to LEOP:	1.06	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
Pond Bottom (Dry Pond)	83.10			4.71	0.00	0.00
Treatment Vol. EL. (Weir EL.)	83.30	0.20	0.20	4.74	0.95	0.95
Detention Vol. EL.	84.40	1.10	1.30	4.93	5.32	6.26
Bottom of Maintenance Berm (Freeboard)	85.40	1.00	2.30	5.09	5.01	11.27
Top of Maintenance Berm	86.40	1.00	3.30	5.74	5.42	
Tie Down (To Existing Ground EL.)	82.50	-3.90		6.45		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.47 ac-ft	0.95 ac-ft	GOOD
Attenuation	4.76 ac-ft	5.32 ac-ft	GOOD
TOTAL	**5.23 ac-ft**	**6.26 ac-ft**	

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improveme

Basin 1008

SMF:	SMF 1008 ALT. 3

Basin Type:	OPEN
Side of Road	LEFT & RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4760+31.88	Basin 15 WB
To STA. =	4837+17.91	
From STA. =	4757+79.48	Basin 15 EB
To STA. =	4836+92.55	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			6.65	98	652
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [36] SMYRNA, [40] VALKARIA	27.80	49	1362
	B/D	[20] IMMOKALEE	5.77	69	398
	SUBTOTAL		**40.2**		**2412**
				TOTAL WEIGHTED CN =	**60.0**

PROPOSED CONDITION

From STA. =	4761+69.96	Basin 1008
To STA. =	4845+62.30	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			16.21	98	1588
SMF Bottom	WATER		2.04	100	204
Pervious - 'Fair' Open Spaces	A/D	[3] BASINGER, [36] SMYRNA, [40] VALKARIA	20.67	49	1013
	B/D	[20] IMMOKALEE	4.20	69	290
	SUBTOTAL		**43.1**		**3094**
				TOTAL WEIGHTED CN =	**71.8**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in
Treatment Area	9.6	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.40**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	6.67	3.93
Runoff Depth, Q_R (in)	3.33	4.67
Runoff Volume (ac-ft)	11.16	16.77
Attenuation Volume (ac-ft)		**5.61**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	YES
Existing Treatment Volume (ac-ft)	0.07
Existing Attenuation Volume (ac-ft)	0.15

Note: Existing Storage derived from **Permit No. 33219.000**

SMF 1008C POND DESIGN

SHW EL.:	82.10	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[3] BASINGER	
SHW Point(s) of Reference:	PBA-186, PBA-187, PBA-189		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL ≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005) ≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	82.50	ft
Estimated DHW_{10}:	83.06							
LEOP:	85.52	ft @ 4814+00 LT						
Distance to LEOP:	1450	ft						
Clearance to LEOP:	1.74	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	82.10			2.04	0.00	0.00
Treatment Vol. EL. (Weir EL.)	82.10	0.00	0.00	2.04	0.00	0.00
Detention Vol. EL.	84.50	2.40	2.40	2.31	5.21	5.21
Bottom of Maintenance Berm (Freeboard)	85.50	1.00	3.40	2.42	2.36	7.57
Top of Maintenance Berm	86.50	1.00	4.40	2.88	2.65	
Tie Down (To Existing Ground EL.)	82.50	-4.00		3.40		

SMF 1008D POND DESIGN

Linear pond dimensions based on CADD measurements of cross sections.

	SMF 1008D-1L	SMF 1008D-2L	SMF 1008D-3L	SMF 1008D-4L	SMF 1008D-1R
SHW	83.10	82.17	81.70	81.50	81.60
SHW Point(s) of Reference:	SH10-97, SH10-98, SH10-99	SH10-100, SH10-101, SH10-102, SH10-103, SH10-104	SH10-106	SH10-108, SH10-110, SH10-112	SH10-106, SH10-107, SH10-108, SH10-109
LOW END					
STA.	4767+50.00	4793+00.00	4812+60.00	4813+10.00	4812+60.00
EOS EL.	86.71	86.10	85.21	85.22	83.99
DHW	86.21	85.60	84.71	84.72	83.49
CROSS SECTIONAL AREA (sq. ft.)	18.75	18.75	18.75	18.75	4.48
POND BOTTOM EL.	84.71	84.10	83.21	83.22	83.10
HIGH END					
STA.	4761+80.00	4768+00.00	4794+00.00	4833+80.00	4798+20.00
EOS EL.	87.00	86.69	86.10	85.59	84.59
DHW	86.21	85.60	84.71	84.72	83.49
CROSS SECTIONAL AREA (sq. ft.)	13.46	8.75	4.87	6.35	2.08
POND BOTTOM EL.	85.00	84.69	84.10	84.09	83.10
LENGTH OF POND (ft)	570.00	2500.00	1860.00	2070.00	1440.00
POND VOLUME (ac-ft)	0.211	0.789	0.504	0.596	0.109
TOTAL POND VOLUME (ac-ft)			**2.209**		
For Treatment			1.340		
For Attenuation (Remaining)			0.869		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.47 ac-ft	1.34 ac-ft	GOOD
Attenuation	5.77 ac-ft	6.08 ac-ft	GOOD
TOTAL	**6.24 ac-ft**	**7.42 ac-ft**	

Note: Additional treatment volume is provided, in excess of required pollution abatement volume, in order to provide net improvement of TN and TP. The remainder of available linear pond volume reflected as attenuation volume. Refer to supporting BMPTrains calculations for additional details.

Note: Additional volume is provided to replace the loss of existing dry retention linear ponds removed as part of the proposed improvements. As the proposed SMF is a wet detention pond, the required treatment volume is doubled (1.0 inch vs. 0.5 inch of runoff) per SWFWMD

Basin 1009

SMF:	SMF 1009 ALT. 1

Basin Type:	OPEN
Side of Road:	LEFT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4837+11.31	Basin 16, Basin 17 WB
To STA. =	4906+08.46	
From STA. =	4836+76.98	Basin 16, Basin 17 EB
To STA. =	4906+08.46	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			5.42	98	531
Pervious - 'Fair' Open Spaces	A/D	[12] BASINGER, [24] MYAKKA, [34] SAMSULA, [39] SMYRNA, [40] VALKARIA	24.69	49	1210
	B/D	[20] IMMOKALEE	6.83	69	471
	SUBTOTAL		**36.9**		**2212**
				TOTAL WEIGHTED CN =	**59.9**

PROPOSED CONDITION

From STA. =	4845+62.30	Basin 1009
To STA. =	4906+08.46	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			9.97	98	977
SMF Bottom	WATER		0.00	100	0
Pervious - 'Fair' Open Spaces	A/D	[12] BASINGER, [24] MYAKKA, [34] SAMSULA, [39] SMYRNA, [40] VALKARIA	17.97	49	881
	B/D	[20] IMMOKALEE	5.04	69	347
	SUBTOTAL		**33.0**		**2205**
				TOTAL WEIGHTED CN =	**66.9**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in
Treatment Area	4.6	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.19**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	6.70	4.95
Runoff Depth, Q_R (in)	3.32	4.11
Runoff Volume (ac-ft)	10.22	11.29
Attenuation Volume (ac-ft)		**1.07**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 1009A POND DESIGN

SHW EL.:	81.50	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[20] IMMOKALEE [40] VALKARIA	
SHW Point(s) of Reference	PBA-201		Freeboard:	1.00	ft			
Treatment System:	DRY		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL ≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005) ≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	82.50	ft
Estimated DHW_{10}:	83.32							
LEOP:	84.81	ft @ 4861+00 LT						
Distance to LEOP:	200	ft						
Clearance to LEOP:	1.39	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
Pond Bottom (Dry Pond)	82.50			1.31	0.00	0.00
Treatment Vol. EL. (Weir EL.)	83.00	0.50	0.50	1.35	0.67	0.67
Detention Vol. EL.	83.80	0.80	1.30	1.42	1.11	1.78
Bottom of Maintenance Berm (Freeboard)	84.80	1.00	2.30	1.51	1.47	3.25
Top of Maintenance Berm	85.80	1.00	3.30	1.87	1.69	
Tie Down (To Existing Ground EL.)	82.50	-3.30		2.21		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.19 ac-ft	0.67 ac-ft	GOOD
Attenuation	1.07 ac-ft	1.11 ac-ft	GOOD
TOTAL	**1.26 ac-ft**	**1.78 ac-ft**	

Basin 1009

SMF:	SMF 1009 Alt. 2

Basin Type:	OPEN	SMF Location:	Same Outfall as Pre-Development
Side of Road:	RIGHT		

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4837+11.31	Basin 16, Basin 17 WB
To STA. =	4906+08.46	
From STA. =	4836+76.98	Basin 16, Basin 17 EB
To STA. =	4906+08.46	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			5.42	98	531
Pervious - 'Fair' Open Spaces	A/D	[12] BASINGER, [24] MYAKKA, [34] SAMSULA, [39] SMYRNA, [40] VALKARIA	26.88	49	1317
	B/D	[20] IMMOKALEE	4.10	69	283
	SUBTOTAL		**36.4**		**2131**
				TOTAL WEIGHTED CN =	**58.5**

PROPOSED CONDITION

From STA. =	4845+62.30	Basin 1009
To STA. =	4906+08.46	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			9.97	98	977
SMF Bottom	WATER		0.00	100	0
Pervious - 'Fair' Open Spaces	A/D	[12] BASINGER, [13] EAUGALLIE, [24] MYAKKA, [34] SAMSULA, [39] SMYRNA, [40] VALKARIA	20.16	49	988
	B/D	[20] IMMOKALEE	2.31	69	159
	SUBTOTAL		**32.4**		**2124**
				TOTAL WEIGHTED CN =	**65.5**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in	Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Treatment Area	4.6	ac	Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
IN OFW?	NO		In OFW, value increased 50%
Pollution Abatement Vol.	**0.19**	**ac-ft**	Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST	
Maximum Retention, S	7.08	5.27	Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in)	3.17	3.95	Runoff Depth, Q_R (in) = (P - 0.2 * S)^2 / (P + 0.8 * S)
Runoff Volume (ac-ft)	9.62	10.68	Runoff Volume (ac-ft) = Q_R * Drainage Area
Attenuation Volume (ac-ft)		**1.05**	

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 1009B POND DESIGN

SHW EL.:	80.90	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[24] MYAKKA	
SHW Point(s) of Reference:	PBA-203		Freeboard:	1.00	ft			
Treatment System:	DRY		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	82.50	ft
Estimated DHW_{10}:	82.94							
LEOP:	84.81	ft @ 4861+00 LT						
Distance to LEOP:	1700	ft						
Clearance to LEOP:	1.02	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
Pond Bottom (Dry Pond)	81.90			0.88	0.00	0.00
Treatment Vol. EL. (Weir EL.)	82.50	0.60	0.60	0.93	0.54	0.54
Detention Vol. EL.	83.60	1.10	1.70	1.02	1.07	1.62
Bottom of Maintenance Berm (Freeboard)	84.60	1.00	2.70	1.10	1.06	2.68
Top of Maintenance Berm	85.60	1.00	3.70	1.43	1.27	
Tie Down (To Existing Ground EL.)	82.50	-3.10		1.74		

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.19 ac-ft	0.54 ac-ft	GOOD
Attenuation	1.05 ac-ft	1.07 ac-ft	GOOD
TOTAL	**1.24 ac-ft**	**1.62 ac-ft**	

Basin 1009

SMF:	SMF 1009 Alt. 3

Basin Type:	OPEN
Side of Road:	LEFT & RIGHT

SMF Location:	Same Outfall as Pre-Development

WEIGHTED CN CALCULATIONS

EXISTING CONDITION

From STA. =	4837+11.31	Basin 16, Basin 17 WB
To STA. =	4906+08.46	
From STA. =	4836+76.98	Basin 16, Basin 17 EB
To STA. =	4906+08.46	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			5.42	98	531
Pervious - 'Fair' Open Spaces	A/D	[12] BASINGER, [24] MYAKKA, [34] SAMSULA, [39] SMYRNA, [40] VALKARIA	24.52	49	1201
	B/D	[20] IMMOKALEE	5.30	69	366
	SUBTOTAL		**35.2**		**2098**
				TOTAL WEIGHTED CN =	**59.5**

PROPOSED CONDITION

From STA. =	4845+62.30	Basin 1009
To STA. =	4906+08.46	

LAND USE	SOILS	SOIL NAME	AREA (ac)	CN	PRODUCT
Impervious -			9.97	98	977
SMF Bottom	WATER		0.24	100	24
Pervious - 'Fair' Open Spaces	A/D	[12] BASINGER, [13] EAUGALLIE, [24] MYAKKA, [34] SAMSULA, [39] SMYRNA, [40] VALKARIA	17.80	49	872
	B/D	[20] IMMOKALEE	3.27	69	226
	SUBTOTAL		**31.3**		**2099**
				TOTAL WEIGHTED CN =	**67.1**

REQUIRED POLLUTION ABATEMENT VOLUME

Runoff Criteria	0.5	in
Treatment Area	4.6	ac
IN OFW?	NO	
Pollution Abatement Vol.	**0.19**	**ac-ft**

Dry Retention Treatment criteria is **1/2"** over DCIA || Wet Detention Treatment criteria is **1"** over DCIA
Proposed Treatment Area = DCIA Contributing to SMF || Assume only New Impervious Area Contributing to SMF
In OFW, value increased 50%
Pollution Abatement Volume (ac-ft) = Runoff Criteria (in) x Treatment Area (ac) / 12

ESTIMATE OF PEAK ATTENUATION VOLUME

Rainfall Depth (P) 8.00 in

Open Basin: SWFWMD's 25-YR/24-HR Storm Event || Closed Basin: FDOT's 100-YR/240-HR Storm Event

	PRE	POST
Maximum Retention, S	6.79	4.90
Runoff Depth, Q_R (in)	3.28	4.13
Runoff Volume (ac-ft)	9.64	10.77
Attenuation Volume (ac-ft)		**1.13**

Maximum Retention / Soil Storage, S (in) = (1000 / CN) - 10
Runoff Depth, Q_R (in) = $(P - 0.2 * S)^2 / (P + 0.8 * S)$
Runoff Volume (ac-ft) = Q_R * Drainage Area

EXISTING STORAGE CHECK

Existing Storage in Basin Impacted?	NO
Existing Treatment Volume (ac-ft)	0.00
Existing Attenuation Volume (ac-ft)	0.00

SMF 1009C POND DESIGN

SHW EL.:	81.50	ft	Maint. Berm Width:	15.00	ft	Soil Present at SMF:	[20] IMMOKALEE	
SHW Point(s) of Reference:	PBA-201		Freeboard:	1.00	ft			
Treatment System:	WET		Pond Side Slope (1:X):	4				
Hydraulic Feasibility = LEOP - HGL≥ 1' Clearance			Maint. Berm Slope (1:X):	15				
LEOP - (Estimated DHW_{10} + Distance to LEOP × 0.0005)≥ 1			Tie-Down Slope (1:X):	4		Avg. Exist Ground in SMF:	82.50	ft
Estimated DHW_{10}:	82.42							
LEOP:	84.81	ft @ 4861+00 LT						
Distance to LEOP:	200	ft						
Clearance to LEOP:	2.29	ft						

	Stage (ft)	Inc. Depth (ft)	Total Depth (ft)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
SHW EL. (Wet Pond)	81.50			0.24	0.00	0.00
Treatment Vol. EL. (Weir EL.)	81.50	0.00	0.00	0.24	0.00	0.00
Detention Vol. EL.	83.80	2.30	2.30	0.33	0.66	0.66
Bottom of Maintenance Berm (Freeboard)	84.80	1.00	3.30	0.37	0.35	1.01
Top of Maintenance Berm	85.80	1.00	4.30	0.55	0.46	
Tie Down (To Existing Ground EL.)	82.50	-3.30		0.75		

SMF 1009D POND DESIGN

Linear pond dimensions based on CADD measurements of cross sections.

	SMF 1009D-1L	SMF 1009D-1R
SHW	80.50	80.78
SHW Point(s) of Reference:	SH10-121, SH10-122	SH10-119, SH10-121, SH10-123, SH10-124
LOW END		
STA.	4864+60.00	4867+80.00
EOS EL.	84.00	85.33
DHW	83.50	84.83
CROSS SECTIONAL AREA (sq. ft.	18.75	18.36
POND BOTTOM EL.	82.00	83.33
HIGH END		
STA.	4890+00.00	4884+10.00
EOS EL.	84.00	85.36
DHW	83.50	84.83
CROSS SECTIONAL AREA (sq. ft.	18.75	15.03
POND BOTTOM EL.	82.00	83.59
LENGTH OF POND (ft)	2540.00	1630.00
POND VOLUME (ac-ft)	1.093	0.625
TOTAL POND VOLUME (ac-ft)	**1.718**	
For Treatment	0.680	
For Attenuation (Remaining)	1.038	

TOTAL DETENTION (TREATMENT + ATTENUATION) VOLUME

	REQUIRED	PROVIDED	CHECK
Treatment	0.19 ac-ft	0.68 ac-ft	GOOD
Attenuation	1.13 ac-ft	1.69 ac-ft	GOOD
TOTAL	**1.32 ac-ft**	**2.37 ac-ft**	

Note: Additional treatment volume is provided, in excess of required pollution abatement volume, in order to provide net improvement of TN and TP. The remainder of available linear pond volume reflected as attenuation volume. Refer to supporting BMPTrains calculations for additional details.

Nutrient Removal for Basin Area									
	SMF 1007A	**SMF 1007B**	**SMF 1007C**	**SMF 1008A**	**SMF 1008B**	**SMF 1008C/D**	**SMF 1009A**	**SMF 1009B**	**SMF 1009C/D**
Required TN Removal	44%	43%	46%	53%	54%	52%	39%	41%	39%
Required TP Removal	43%	43%	46%	52%	54%	52%	38%	41%	38%
Provided TN Removal	48%	50%	47%	53%	54%	68%	48%	43%	55%
Provided TP Removal	48%	50%	47%	53%	54%	74%	48%	43%	59%

Complete Report (not including cost) Ver 4.3.5

Project: 75614 Segment 10 SMF 1007A
Date: 9/3/2025 10:57:11 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Transportation (DD)	Transportation (To Pond)	Agricultural (DD)	Agricultural (To Pond)
Rainfall Zone	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2
Annual Mean Rainfall	50.00	50.00	50.00	50.00

Pre-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487
Area (acres)	44.44	4.29	6.05	0.00
Rational Coefficient (0-1)	0.16	0.27	0.02	0.00
Non DCIA Curve Number	53.74	55.05	53.74	55.05
DCIA Percent (0-100)	18.00	31.50	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487
Runoff Volume (ac-ft/yr)	30.004	4.827	0.510	0.000
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	44.024	7.083	1.761	0.000
Phosphorus Loading (kg/yr)	5.734	0.923	0.306	0.000

Post-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487
Area (acres)	17.87	30.09	0.00	2.63
Rational Coefficient (0-1)	0.33	0.31	0.01	0.02
Non DCIA Curve Number	49.00	57.01	49.00	52.91
DCIA Percent (0-100)	39.45	36.46	0.00	0.00
Wet Pond Area (ac)	0.00	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487
Runoff Volume (ac-ft/yr)	24.422	39.042	0.000	0.209
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	35.834	57.284	0.000	0.722
Phosphorus Loading (kg/yr)	4.667	7.461	0.000	0.126

Catchment Number: 1 Name: Transportation (DD)

Project: 75614 Segment 10 SMF 1007A
Date: 9/3/2025

None Design

Watershed Characteristics

Note: Includes Basin 14 to account for direct discharge in this area.

Catchment Area (acres)	17.87
Contributing Area (acres)	17.870
Non-DCIA Curve Number	49.00
DCIA Percent	39.45
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

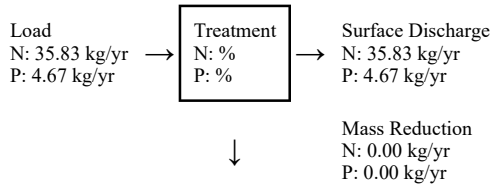
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

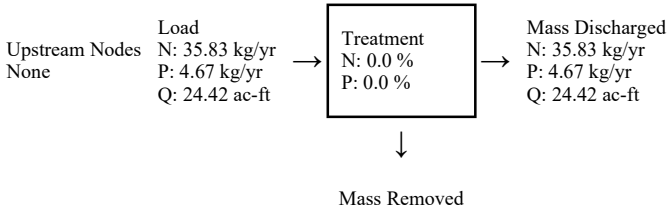
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



N: 0.00 kg/yr
P: 0.00 kg/yr

Catchment Number: 2 Name: Transportation (To Pond)

Project: 75614 Segment 10 SMF 1007A
Date: 9/3/2025

Retention Design

Retention Depth (in)	0.537
Retention Volume (ac-ft)	1.347

Watershed Characteristics

Catchment Area (acres)	30.09
Contributing Area (acres)	30.090
Non-DCIA Curve Number	57.01
DCIA Percent	36.46
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	88
Provided TN Treatment Efficiency (%)	76
Required TP Treatment Efficiency (%)	88
Provided TP Treatment Efficiency (%)	76

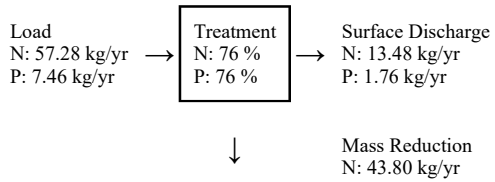
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

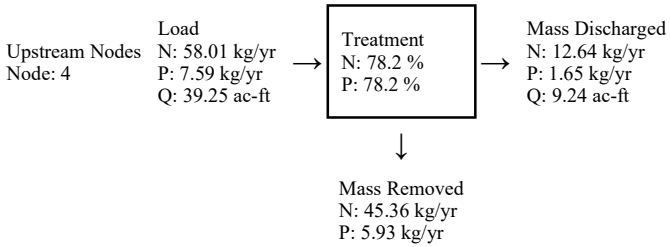
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	43.800
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	5.705
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



P: 5.71 kg/yr

Load Diagram for Retention (As Used In Routing)



Catchment Number: 3 Name: Agricultural (DD)

Project: 75614 Segment 10 SMF 1007A
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.00
Contributing Area (acres)	0.000
Non-DCIA Curve Number	49.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

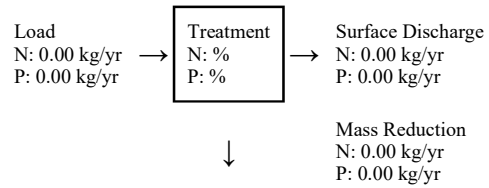
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

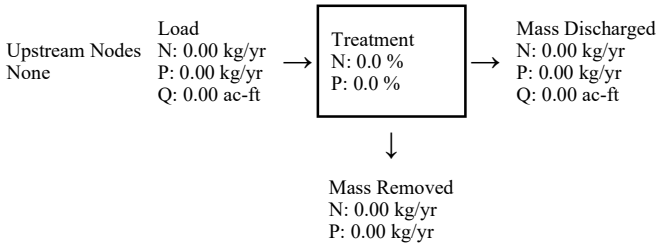
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Catchment Number: 4 Name: Agricultural (To Pond)

Project: 75614 Segment 10 SMF 1007A
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	2.63
Contributing Area (acres)	2.630
Non-DCIA Curve Number	52.91
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	100
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	100
Provided TP Treatment Efficiency (%)	

Media Mix Information

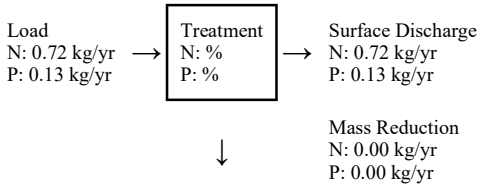
Type of Media Mix	Not Specified
Media N Reduction (%)	0.000

Media P Reduction (%)	0.000

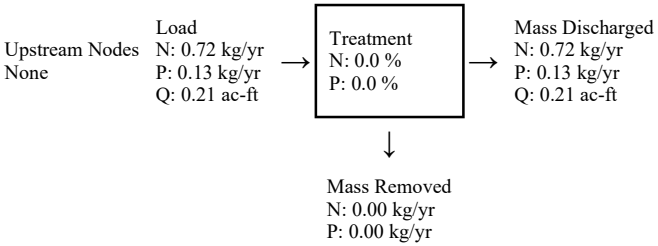
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: 75614 Segment 10 SMF 1007A

Date:9/3/2025

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Transportation (DD)) None
Catchment 2 - (Transportation (To Pond)) Retention
Catchment 3 - (Agricultural (DD)) None
Catchment 4 - (Agricultural (To Pond)) None

Based on % removal values to the nearest percent

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Routing Summary

Catchment 1 Routed to Outlet
Catchment 2 Routed to Outlet
Catchment 3 Routed to Outlet
Catchment 4 Routed to Catchment 2

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	52.87 kg/yr	
Total N post load	93.84 kg/yr	
Target N load reduction	44 %	
Target N discharge load	52.87 kg/yr	
Percent N load reduction	48 %	
Provided N discharge load	48.48 kg/yr	106.89 lb/yr
Provided N load removed	45.36 kg/yr	100.02 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	6.963 kg/yr	
Total P post load	12.254 kg/yr	
Target P load reduction	43 %	
Target P discharge load	6.963 kg/yr	
Percent P load reduction	48 %	
Provided P discharge load	6.321 kg/yr	13.94 lb/yr
Provided P load removed	5.933 kg/yr	13.083 lb/yr

Nutrient Removal for Basin Area

Required Removal

TN: 44%

TP: 43%

Provided Removal

TN: 48%

TP: 48%

Complete Report (not including cost) Ver 4.3.5

Project: 75614 Segment 10 SMF 1007B
Date: 9/3/2025 11:02:07 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Transportation (DD)	Transportation (To Pond)	Agricultural (DD)	Agricultural (To Pond)
Rainfall Zone	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2
Annual Mean Rainfall	50.00	50.00	50.00	50.00

Pre-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487
Area (acres)	44.44	4.29	6.68	0.00
Rational Coefficient (0-1)	0.16	0.27	0.02	0.00
Non DCIA Curve Number	55.76	55.81	51.35	49.00
DCIA Percent (0-100)	18.00	31.50	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487
Runoff Volume (ac-ft/yr)	30.453	4.843	0.470	0.000
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	44.683	7.106	1.623	0.000
Phosphorus Loading (kg/yr)	5.820	0.926	0.282	0.000

Post-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487
Area (acres)	17.87	31.20	0.00	2.51
Rational Coefficient (0-1)	0.33	0.30	0.01	0.02
Non DCIA Curve Number	49.00	56.96	49.00	52.43
DCIA Percent (0-100)	39.45	35.16	0.00	0.00
Wet Pond Area (ac)	0.00	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487
Runoff Volume (ac-ft/yr)	24.422	39.157	0.000	0.192
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	35.834	57.454	0.000	0.664
Phosphorus Loading (kg/yr	4.667	7.483	0.000	0.116

Note: Includes Basin 14 to account for direct discharge in this area.

Catchment Number: 1 Name: Transportation (DD)

Project: 75614 Segment 10 SMF 1007B
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	17.87
Contributing Area (acres)	17.870
Non-DCIA Curve Number	49.00
DCIA Percent	39.45
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

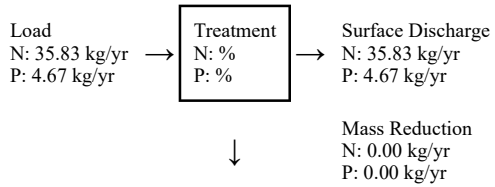
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

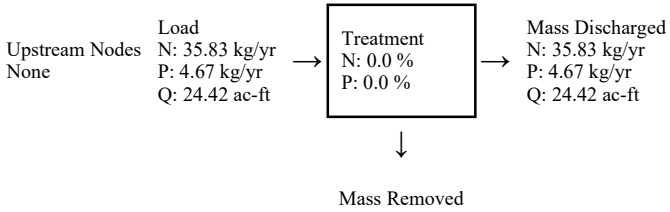
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



N: 0.00 kg/yr
P: 0.00 kg/yr

Catchment Number: 2 Name: Transportation (To Pond)

Project: 75614 Segment 10 SMF 1007B
Date: 9/3/2025

Retention Design

Retention Depth (in)	0.582
Retention Volume (ac-ft)	1.513

Watershed Characteristics

Catchment Area (acres)	31.20
Contributing Area (acres)	31.200
Non-DCIA Curve Number	56.96
DCIA Percent	35.16
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	88
Provided TN Treatment Efficiency (%)	79
Required TP Treatment Efficiency (%)	88
Provided TP Treatment Efficiency (%)	79

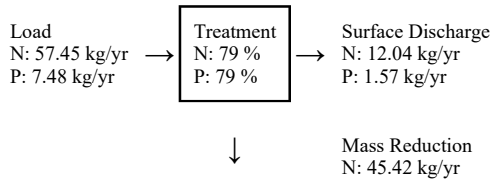
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

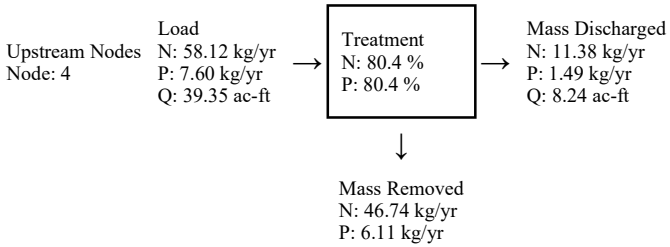
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	45.416
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	5.915
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



P: 5.92 kg/yr

Load Diagram for Retention (As Used In Routing)



Catchment Number: 3 Name: Agricultural (DD)

Project: 75614 Segment 10 SMF 1007B
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.00
Contributing Area (acres)	0.000
Non-DCIA Curve Number	49.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

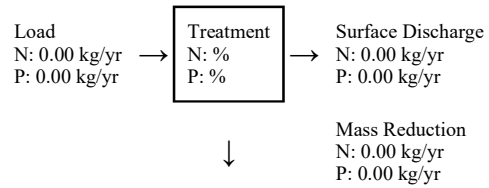
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

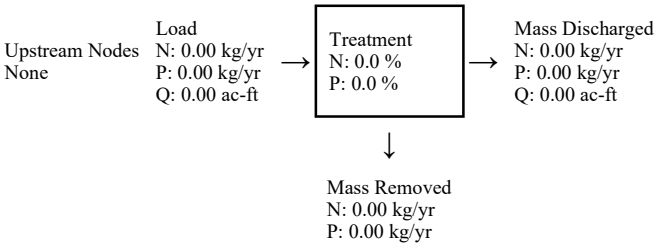
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Catchment Number: 4 Name: Agricultural (To Pond)

Project: 75614 Segment 10 SMF 1007B
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	2.51
Contributing Area (acres)	2.510
Non-DCIA Curve Number	52.43
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	100
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	100
Provided TP Treatment Efficiency (%)	

Media Mix Information

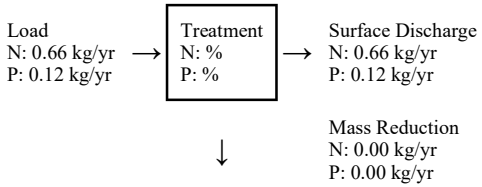
Type of Media Mix	Not Specified
Media N Reduction (%)	0.000

Media P Reduction (%)	0.000

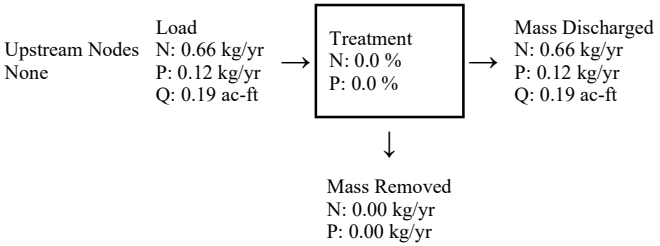
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: 75614 Segment 10 SMF 1007B

Date:9/3/2025

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Transportation (DD)) None
Catchment 2 - (Transportation (To Pond)) Retention
Catchment 3 - (Agricultural (DD)) None
Catchment 4 - (Agricultural (To Pond)) None

Based on % removal values to the nearest percent

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Routing Summary

Catchment 1 Routed to Outlet
Catchment 2 Routed to Outlet
Catchment 3 Routed to Outlet
Catchment 4 Routed to Catchment 2

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	53.41 kg/yr	
Total N post load	93.95 kg/yr	
Target N load reduction	43 %	
Target N discharge load	53.41 kg/yr	
Percent N load reduction	50 %	
Provided N discharge load	47.21 kg/yr	104.1 lb/yr
Provided N load removed	46.74 kg/yr	103.06 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	7.028 kg/yr	
Total P post load	12.267 kg/yr	
Target P load reduction	43 %	
Target P discharge load	7.028 kg/yr	
Percent P load reduction	50 %	
Provided P discharge load	6.155 kg/yr	13.57 lb/yr
Provided P load removed	6.111 kg/yr	13.475 lb/yr

Nutrient Removal for Basin Area

Required Removal

TN: 43%

TP: 43%

Provided Removal

TN: 50%

TP: 50%

Complete Report (not including cost) Ver 4.3.5

Project: 75614 Segment 10 SMF 1007C
Date: 9/3/2025 11:45:10 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Transportation (DD)	Transportation (To Pond)	Agricultural (DD)	Agricultural (To Pond)
Rainfall Zone	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2
Annual Mean Rainfall	50.00	50.00	50.00	50.00

Pre-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487
Area (acres)	44.44	4.29	0.48	0.00
Rational Coefficient (0-1)	0.16	0.27	0.05	0.00
Non DCIA Curve Number	55.80	55.80	69.00	49.00
DCIA Percent (0-100)	18.00	31.50	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487
Runoff Volume (ac-ft/yr)	30.464	4.843	0.108	0.000
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	44.698	7.105	0.373	0.000
Phosphorus Loading (kg/yr)	5.822	0.925	0.065	0.000

Post-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487
Area (acres)	16.27	37.33	0.00	0.42
Rational Coefficient (0-1)	0.33	0.28	0.01	0.05
Non DCIA Curve Number	49.00	58.00	49.00	69.00
DCIA Percent (0-100)	39.49	32.25	0.00	0.00
Wet Pond Area (ac)	0.00	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487
Runoff Volume (ac-ft/yr)	22.257	43.447	0.000	0.095
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	32.658	63.749	0.000	0.326
Phosphorus Loading (kg/yr	4.254	8.303	0.000	0.057

Note: Includes Basin 14 to account for direct discharge in this area.

Catchment Number: 1 Name: Transportation (DD)

Project: 75614 Segment 10 SMF 1007C
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	16.27
Contributing Area (acres)	16.270
Non-DCIA Curve Number	49.00
DCIA Percent	39.49
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

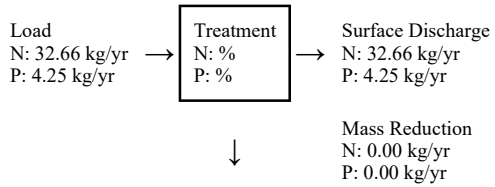
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

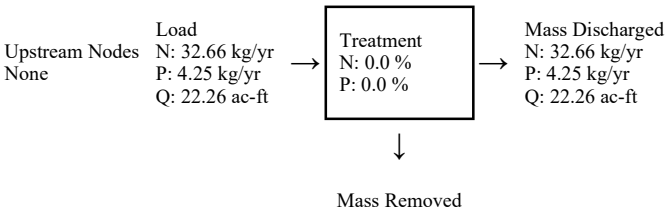
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



N: 0.00 kg/yr
P: 0.00 kg/yr

Catchment Number: 2 Name: Transportation (To Pond)

Project: 75614 Segment 10 SMF 1007C
Date: 9/3/2025

Retention Design

Retention Depth (in)	0.429
Retention Volume (ac-ft)	1.335

Watershed Characteristics

Catchment Area (acres)	37.33
Contributing Area (acres)	37.330
Non-DCIA Curve Number	58.00
DCIA Percent	32.25
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	89
Provided TN Treatment Efficiency (%)	71
Required TP Treatment Efficiency (%)	89
Provided TP Treatment Efficiency (%)	71

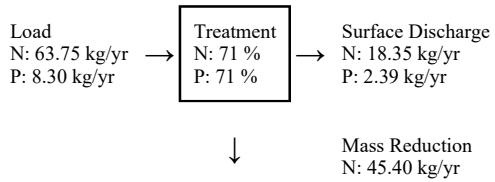
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

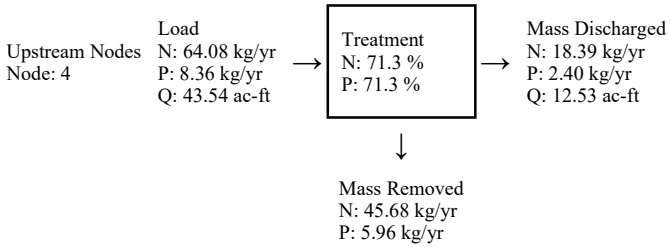
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	45.399
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	5.913
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



P: 5.91 kg/yr

Load Diagram for Retention (As Used In Routing)



Catchment Number: 3 Name: Agricultural (DD)

Project: 75614 Segment 10 SMF 1007C
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.00
Contributing Area (acres)	0.000
Non-DCIA Curve Number	49.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

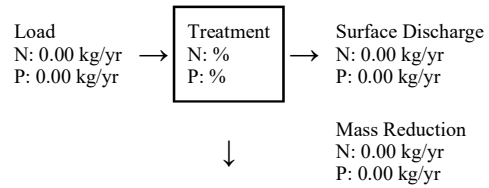
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

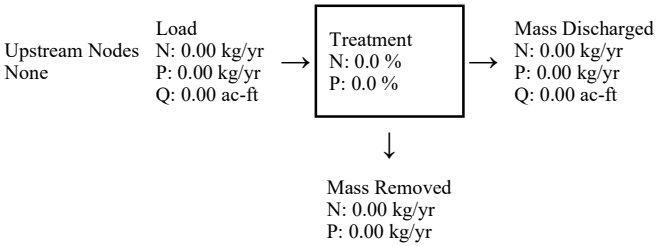
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Catchment Number: 4 Name: Agricultural (To Pond)

Project: 75614 Segment 10 SMF 1007C
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.42
Contributing Area (acres)	0.420
Non-DCIA Curve Number	69.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	100
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	100
Provided TP Treatment Efficiency (%)	

Media Mix Information

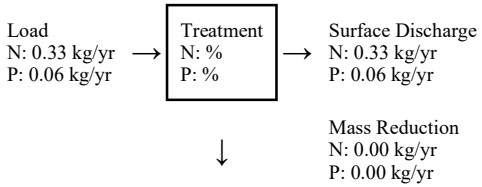
Type of Media Mix	Not Specified
Media N Reduction (%)	0.000

Media P Reduction (%)	0.000

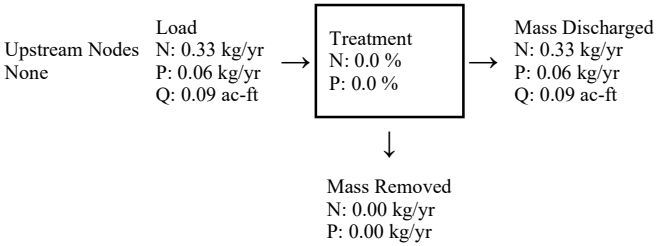
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: 75614 Segment 10 SMF 1007C

Date:9/3/2025

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Transportation (DD)) None
Catchment 2 - (Transportation (To Pond)) Retention
Catchment 3 - (Agricultural (DD)) None
Catchment 4 - (Agricultural (To Pond)) None

Based on % removal values to the nearest percent

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Routing Summary

Catchment 1 Routed to Outlet
Catchment 2 Routed to Outlet
Catchment 3 Routed to Outlet
Catchment 4 Routed to Catchment 2

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	52.18 kg/yr	
Total N post load	96.73 kg/yr	
Target N load reduction	46 %	
Target N discharge load	52.18 kg/yr	
Percent N load reduction	47 %	
Provided N discharge load	51.05 kg/yr	112.56 lb/yr
Provided N load removed	45.68 kg/yr	100.73 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	6.812 kg/yr	
Total P post load	12.614 kg/yr	
Target P load reduction	46 %	
Target P discharge load	6.812 kg/yr	
Percent P load reduction	47 %	
Provided P discharge load	6.653 kg/yr	14.67 lb/yr
Provided P load removed	5.961 kg/yr	13.143 lb/yr

Nutrient Removal for Basin Area

Required Removal

TN: 46%

TP: 46%

Provided Removal

TN: 47%

TP: 47%

Complete Report (not including cost) Ver 4.3.5

Project: 75614 Segment 10 SMF 1008A
Date: 9/3/2025 10:59:47 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Transportation (DD)	Transportation (To Pond)	Agricultural (DD)	Agricultural (To Pond)	Wetlands (DD)	Wetlands (To Pond)
Rainfall Zone	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2
Annual Mean Rainfall	50.00	50.00	50.00	50.00	50.00	50.00

Pre-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487	Undeveloped - Wet Prairie: TN=1.095 TP=0.015	Undeveloped - Wet Prairie: TN=1.095 TP=0.015
Area (acres)	32.39	3.61	6.82	0.00	0.00	0.00
Rational Coefficient (0-1)	0.16	0.26	0.03	0.00	0.00	0.00
Non DCIA Curve Number	55.25	55.25	57.57	49.00	98.00	98.00
DCIA Percent (0-100)	17.10	30.80	0.00	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800	1.095	1.095
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487	0.015	0.015
Runoff Volume (ac-ft/yr)	21.152	3.981	0.742	0.000	0.000	0.000
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	31.036	5.842	2.562	0.000	0.000	0.000
Phosphorus Loading (kg/yr)	4.042	0.761	0.446	0.000	0.000	0.000

Post-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487	Undeveloped - Wet Prairie: TN=1.095 TP=0.015	Undeveloped - Wet Prairie: TN=1.095 TP=0.015
Area (acres)	8.40	35.47	0.00	1.34	0.00	0.00
Rational Coefficient (0-1)	0.34	0.30	0.01	0.03	0.60	0.60
Non DCIA Curve Number	49.00	55.74	49.00	57.49	98.00	98.00
DCIA Percent (0-100)	41.23	35.74	0.00	0.00	0.00	0.00
Wet Pond Area (ac)	0.00	0.00	0.00	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800	1.095	1.095
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487	0.015	0.015
Runoff Volume (ac-ft/yr)	11.978	45.004	0.000	0.145	0.000	0.000

Groundwater N (kg/yr)	0.000	0.000	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	17.576	66.034	0.000	0.501	0.000	0.000
Phosphorus Loading (kg/yr)	2.289	8.601	0.000	0.087	0.000	0.000

Catchment Number: 1 Name: Transportation (DD)

Project: 75614 Segment 10 SMF 1008A
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	8.40
Contributing Area (acres)	8.400
Non-DCIA Curve Number	49.00
DCIA Percent	41.23
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

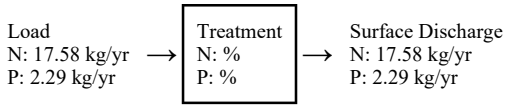
Media Mix Information

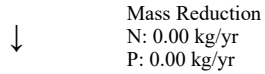
Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

Groundwater Discharge (Stand-Alone)

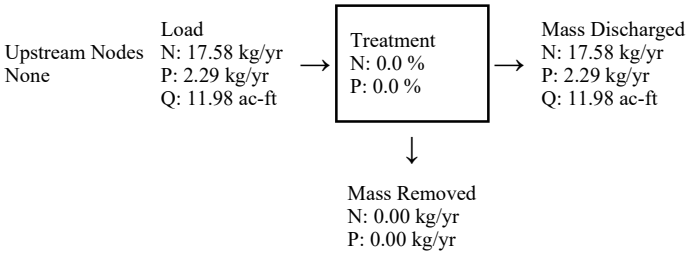
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)





Load Diagram for None (As Used In Routing)



Catchment Number: 2 Name: Transportation (To Pond)

Project: 75614 Segment 10 SMF 1008A
Date: 9/3/2025

Retention Design

Retention Depth (in)	0.408
Retention Volume (ac-ft)	1.206

Watershed Characteristics

Catchment Area (acres)	35.47
Contributing Area (acres)	35.470
Non-DCIA Curve Number	55.74
DCIA Percent	35.74
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	91
Provided TN Treatment Efficiency (%)	68
Required TP Treatment Efficiency (%)	91
Provided TP Treatment Efficiency (%)	68

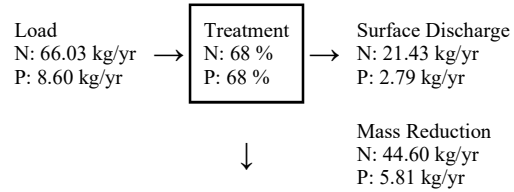
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

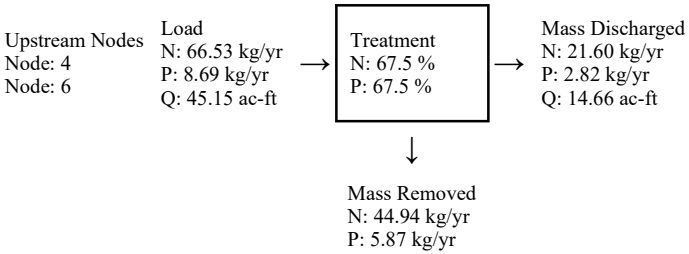
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	44.599
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	5.809
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Load Diagram for Retention (As Used In Routing)



Catchment Number: 3 Name: Agricultural (DD)

Project: 75614 Segment 10 SMF 1008A
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.00
Contributing Area (acres)	0.000
Non-DCIA Curve Number	49.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge
Required TN Treatment Efficiency (%)

Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

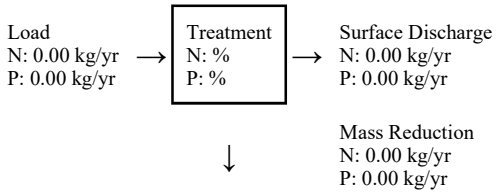
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

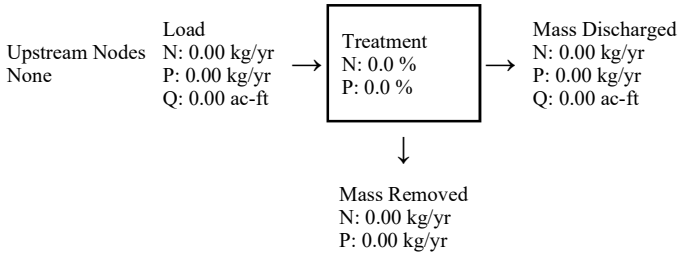
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Catchment Number: 4 Name: Agricultural (To Pond)

Project: 75614 Segment 10 SMF 1008A
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	1.34
Contributing Area (acres)	1.340
Non-DCIA Curve Number	57.49
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	100
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	100
Provided TP Treatment Efficiency (%)	

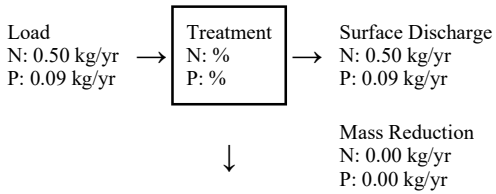
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

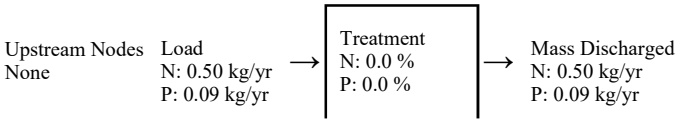
Groundwater Discharge (Stand-Alone)

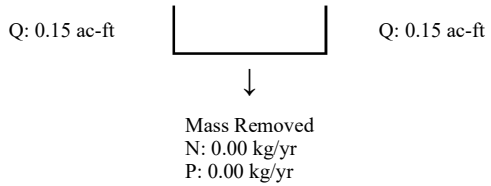
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)





Catchment Number: 5 Name: Wetlands (DD)

Project: 75614 Segment 10 SMF 1008A
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.00
Contributing Area (acres)	0.000
Non-DCIA Curve Number	98.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	00
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	00
Provided TP Treatment Efficiency (%)	

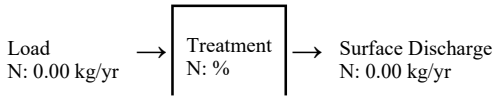
Media Mix Information

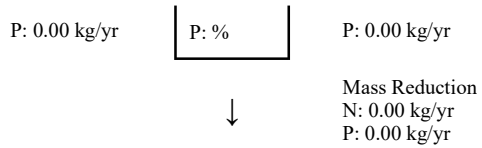
Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

Groundwater Discharge (Stand-Alone)

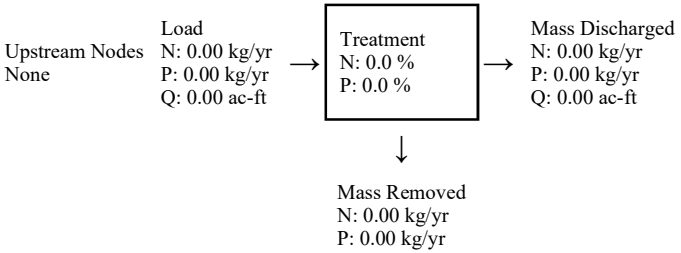
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)





Load Diagram for None (As Used In Routing)



Catchment Number: 6 Name: Wetlands (To Pond)

Project: 75614 Segment 10 SMF 1008A
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.00
Contributing Area (acres)	0.000
Non-DCIA Curve Number	98.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	00
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	00
Provided TP Treatment Efficiency (%)	

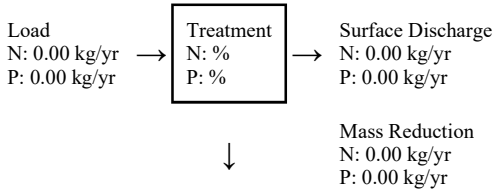
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

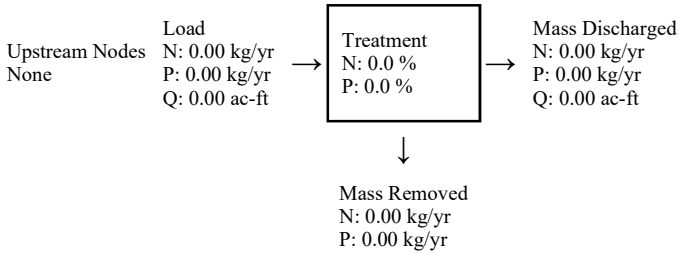
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: 75614 Segment 10 SMF 1008A

Date:9/3/2025

Analysis Type: Net Improvement
BMP Types:
Catchment 1 - (Transportation (DD)) None
Catchment 2 - (Transportation (To Pond)) Retention
Catchment 3 - (Agricultural (DD)) None
Catchment 4 - (Agricultural (To Pond)) None
Catchment 5 - (Wetlands (DD)) None
Catchment 6 - (Wetlands (To Pond)) None
Based on % removal values to the nearest percent
Total nitrogen target removal met? **Yes**
Total phosphorus target removal met? **Yes**

Routing Summary
Catchment 1 Routed to Outlet
Catchment 2 Routed to Outlet
Catchment 3 Routed to Outlet
Catchment 4 Routed to Catchment 2
Catchment 5 Routed to Outlet
Catchment 6 Routed to Catchment 2

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	39.44 kg/yr	
Total N post load	84.11 kg/yr	
Target N load reduction	53 %	
Target N discharge load	39.44 kg/yr	
Percent N load reduction	53 %	
Provided N discharge load	39.17 kg/yr	86.38 lb/yr
Provided N load removed	44.94 kg/yr	99.09 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	5.249 kg/yr	
Total P post load	10.977 kg/yr	
Target P load reduction	52 %	
Target P discharge load	5.249 kg/yr	
Percent P load reduction	53 %	
Provided P discharge load	5.109 kg/yr	11.27 lb/yr
Provided P load removed	5.868 kg/yr	12.939 lb/yr

Nutrient Removal for Basin Area

Required Removal

TN: 53%

TP: 52%

Provided Removal

TN: 53%

TP: 53%

Complete Report (not including cost) Ver 4.3.5

Project: 75614 Segment 10 SMF 1008B
Date: 9/3/2025 11:03:17 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Transportation (DD)	Transportation (To Pond)	Agricultural (DD)	Agricultural (To Pond)	Wetlands (DD)	Wetlands (To Pond)
Rainfall Zone	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2
Annual Mean Rainfall	50.00	50.00	50.00	50.00	50.00	50.00

Pre-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487	Undeveloped - Wet Prairie: TN=1.095 TP=0.015	Undeveloped - Wet Prairie: TN=1.095 TP=0.015
Area (acres)	32.39	3.61	7.54	0.00	0.00	0.00
Rational Coefficient (0-1)	0.16	0.26	0.01	0.00	0.00	0.00
Non DCIA Curve Number	55.25	55.25	49.00	49.00	98.00	98.00
DCIA Percent (0-100)	17.10	30.80	0.00	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800	1.095	1.095
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487	0.015	0.015
Runoff Volume (ac-ft/yr)	21.152	3.981	0.440	0.000	0.000	0.000
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	31.036	5.842	1.518	0.000	0.000	0.000
Phosphorus Loading (kg/yr)	4.042	0.761	0.264	0.000	0.000	0.000

Post-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487	Undeveloped - Wet Prairie: TN=1.095 TP=0.015	Undeveloped - Wet Prairie: TN=1.095 TP=0.015
Area (acres)	0.00	44.68	0.00	1.80	0.00	0.00
Rational Coefficient (0-1)	0.01	0.31	0.01	0.01	0.60	0.60
Non DCIA Curve Number	49.00	54.33	49.00	49.00	98.00	98.00
DCIA Percent (0-100)	0.00	36.25	0.00	0.00	0.00	0.00
Wet Pond Area (ac)	0.00	0.00	0.00	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800	1.095	1.095
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487	0.015	0.015
Runoff Volume (ac-ft/yr)	0.000	57.174	0.000	0.105	0.000	0.000

Groundwater N (kg/yr)	0.000	0.000	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	0.000	83.890	0.000	0.363	0.000	0.000
Phosphorus Loading (kg/yr)	0.000	10.927	0.000	0.063	0.000	0.000

Catchment Number: 1 Name: Transportation (DD)

Project: 75614 Segment 10 SMF 1008B
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.00
Contributing Area (acres)	0.000
Non-DCIA Curve Number	49.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

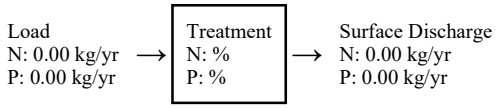
Media Mix Information

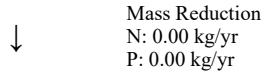
Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

Groundwater Discharge (Stand-Alone)

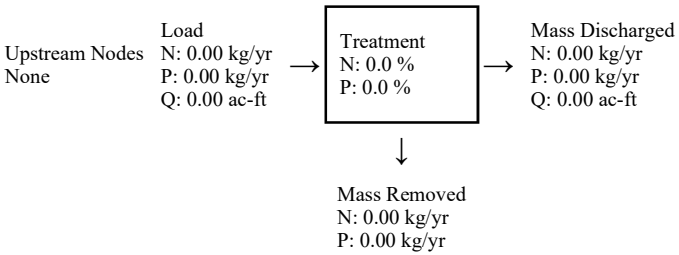
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)





Load Diagram for None (As Used In Routing)



Catchment Number: 2 Name: Transportation (To Pond)

Project: 75614 Segment 10 SMF 1008B
Date: 9/3/2025

Retention Design

Retention Depth (in)	0.254
Retention Volume (ac-ft)	0.946

Watershed Characteristics

Catchment Area (acres)	44.68
Contributing Area (acres)	44.680
Non-DCIA Curve Number	54.33
DCIA Percent	36.25
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	93
Provided TN Treatment Efficiency (%)	54
Required TP Treatment Efficiency (%)	93
Provided TP Treatment Efficiency (%)	54

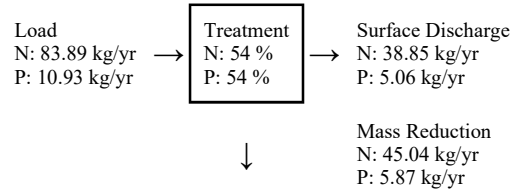
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

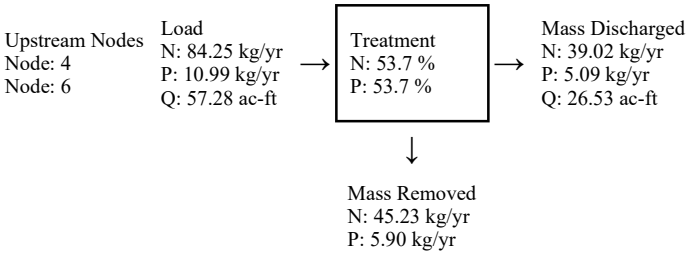
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	45.035
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	5.866
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Load Diagram for Retention (As Used In Routing)



Catchment Number: 3 Name: Agricultural (DD)

Project: 75614 Segment 10 SMF 1008B
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.00
Contributing Area (acres)	0.000
Non-DCIA Curve Number	49.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge
Required TN Treatment Efficiency (%)

Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

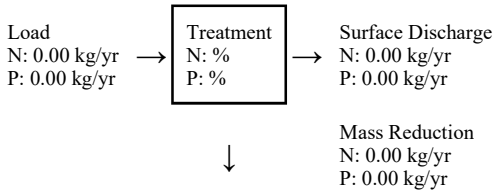
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

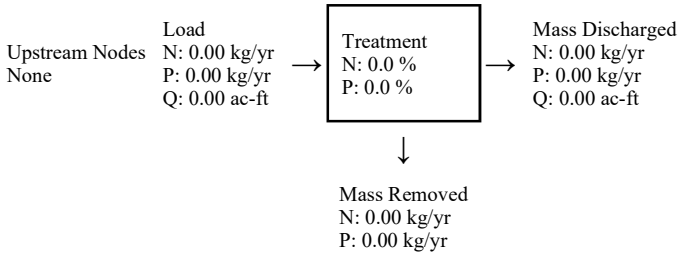
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Catchment Number: 4 Name: Agricultural (To Pond)

Project: 75614 Segment 10 SMF 1008B
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	1.80
Contributing Area (acres)	1.800
Non-DCIA Curve Number	49.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	100
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	100
Provided TP Treatment Efficiency (%)	

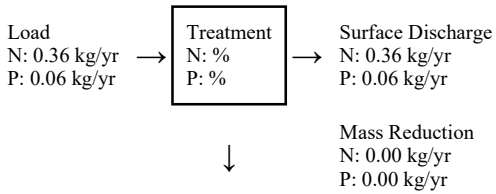
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

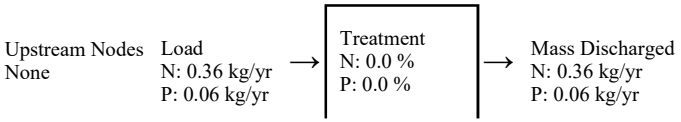
Groundwater Discharge (Stand-Alone)

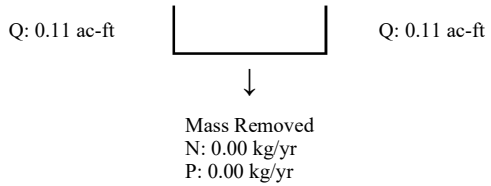
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)





Catchment Number: 5 Name: Wetlands (DD)

Project: 75614 Segment 10 SMF 1008B
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.00
Contributing Area (acres)	0.000
Non-DCIA Curve Number	98.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	00
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	00
Provided TP Treatment Efficiency (%)	

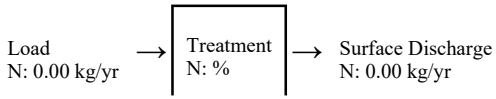
Media Mix Information

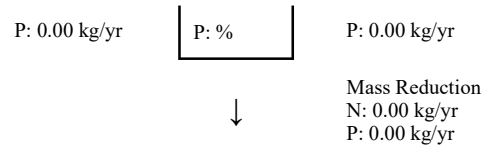
Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

Groundwater Discharge (Stand-Alone)

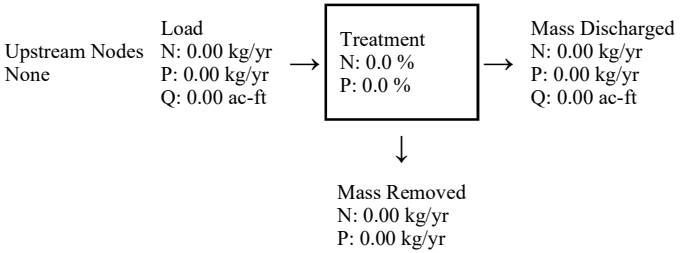
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)





Load Diagram for None (As Used In Routing)



Catchment Number: 6 Name: Wetlands (To Pond)

Project: 75614 Segment 10 SMF 1008B
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.00
Contributing Area (acres)	0.000
Non-DCIA Curve Number	98.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	00
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	00
Provided TP Treatment Efficiency (%)	

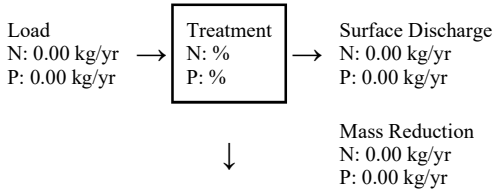
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

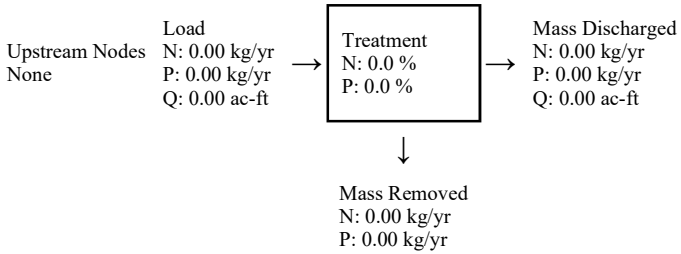
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: 75614 Segment 10 SMF 1008B

Date:9/3/2025

Analysis Type: Net Improvement
BMP Types:
Catchment 1 - (Transportation (DD)) None
Catchment 2 - (Transportation (To Pond)) Retention
Catchment 3 - (Agricultural (DD)) None
Catchment 4 - (Agricultural (To Pond)) None
Catchment 5 - (Wetlands (DD)) None
Catchment 6 - (Wetlands (To Pond)) None
Based on % removal values to the nearest percent
Total nitrogen target removal met? **Yes**
Total phosphorus target removal met? **Yes**

Routing Summary
Catchment 1 Routed to Outlet
Catchment 2 Routed to Outlet
Catchment 3 Routed to Outlet
Catchment 4 Routed to Catchment 2
Catchment 5 Routed to Outlet
Catchment 6 Routed to Catchment 2

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	38.4 kg/yr	
Total N post load	84.25 kg/yr	
Target N load reduction	54 %	
Target N discharge load	38.4 kg/yr	
Percent N load reduction	54 %	
Provided N discharge load	39.02 kg/yr	86.05 lb/yr
Provided N load removed	45.23 kg/yr	99.73 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	5.067 kg/yr	
Total P post load	10.99 kg/yr	
Target P load reduction	54 %	
Target P discharge load	5.067 kg/yr	
Percent P load reduction	54 %	
Provided P discharge load	5.09 kg/yr	11.22 lb/yr
Provided P load removed	5.9 kg/yr	13.009 lb/yr

Nutrient Removal for Basin Area

Required Removal

TN: 54%

TP: 54%

Provided Removal

TN: 54%

TP: 54%

Complete Report (not including cost) Ver 4.3.5

Project: 75614 Segment 10 SMF 1008C/D
Date: 9/3/2025 11:45:54 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Transportation (DD)	Transportation (To Pond)	Agricultural (DD)	Agricultural (To Pond)	Wetlands (DD)	Wetlands (To Pond)
Rainfall Zone	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2
Annual Mean Rainfall	50.00	50.00	50.00	50.00	50.00	50.00

Pre-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487	Undeveloped - Wet Prairie: TN=1.095 TP=0.015	Undeveloped - Wet Prairie: TN=1.095 TP=0.015
Area (acres)	32.39	3.61	4.23	0.00	0.00	0.00
Rational Coefficient (0-1)	0.16	0.26	0.01	0.00	0.00	0.00
Non DCIA Curve Number	55.25	55.25	49.00	49.00	98.00	98.00
DCIA Percent (0-100)	17.10	30.80	0.00	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800	1.095	1.095
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487	0.015	0.015
Runoff Volume (ac-ft/yr)	21.152	3.981	0.247	0.000	0.000	0.000
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	31.036	5.842	0.852	0.000	0.000	0.000
Phosphorus Loading (kg/yr)	4.042	0.761	0.148	0.000	0.000	0.000

Post-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487	Undeveloped - Wet Prairie: TN=1.095 TP=0.015	Undeveloped - Wet Prairie: TN=1.095 TP=0.015
Area (acres)	5.34	36.42	0.00	1.35	0.00	0.00
Rational Coefficient (0-1)	0.45	0.31	0.01	0.01	0.60	0.60
Non DCIA Curve Number	49.00	55.23	49.00	49.00	98.00	98.00
DCIA Percent (0-100)	54.52	36.49	0.00	0.00	0.00	0.00
Wet Pond Area (ac)	0.00	2.88	0.00	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800	1.095	1.095
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487	0.015	0.015
Runoff Volume (ac-ft/yr)	9.963	43.302	0.000	0.079	0.000	0.000

Groundwater N (kg/yr)	0.000	0.000	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	14.618	63.535	0.000	0.272	0.000	0.000
Phosphorus Loading (kg/yr)	1.904	8.276	0.000	0.047	0.000	0.000

Catchment Number: 1 Name: Transportation (DD)

Project: 75614 Segment 10 SMF 1008C/D
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	5.34
Contributing Area (acres)	5.340
Non-DCIA Curve Number	49.00
DCIA Percent	54.52
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

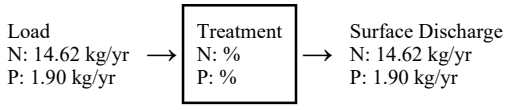
Media Mix Information

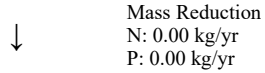
Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

Groundwater Discharge (Stand-Alone)

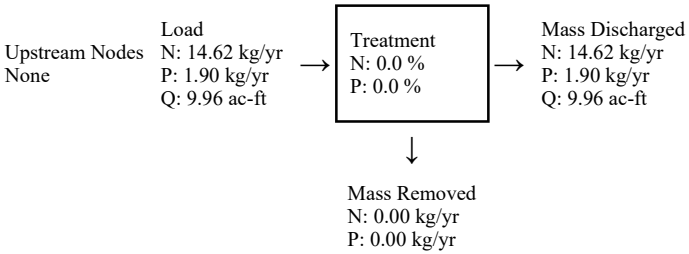
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)





Load Diagram for None (As Used In Routing)



Catchment Number: 2 Name: Transportation (To Pond)

Project: 75614 Segment 10 SMF 1008C/D
Date: 9/3/2025

Multiple BMP in Series Design Parameters

BMP in Series Number: 1
BMP Type: Retention

Retention Depth (in)	0.479
Retention Volume (ac-ft)	1.339

BMP in Series Number: 2
BMP Type: Wet Detention

Permanent Pool Volume (ac-ft)	11.223
Permanent Pool Volume (ac-ft) for 31 days residence	3.678
Annual Residence Time (days)	95
Littoral Zone Efficiency Credit	10
Wetland Efficiency Credit	

BMP in Series Number: 3
BMP Type: None

BMP in Series Number: 4
BMP Type: None

Watershed Characteristics

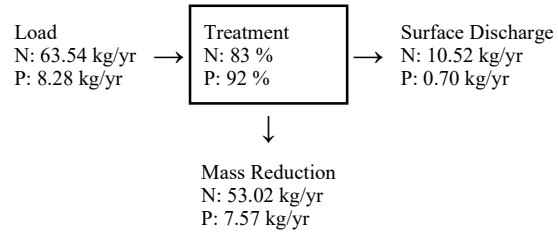
Catchment Area (acres)	36.42
Contributing Area (acres)	33.540
Non-DCIA Curve Number	55.23
DCIA Percent	36.49
Rainfall Zone	Florida Zone 2

Rainfall (in)	50.00

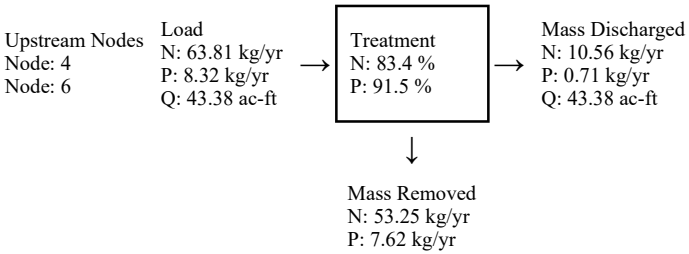
Surface Water Discharge

Required TN Treatment Efficiency (%)	91
Provided TN Treatment Efficiency (%)	83
Required TP Treatment Efficiency (%)	91
Provided TP Treatment Efficiency (%)	92

Load for Multiple BMP in Series



Load Diagram for Multiple BMP (As Used In Routing)



Catchment Number: 3 Name: Agricultural (DD)

Project: 75614 Segment 10 SMF 1008C/D
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.00
Contributing Area (acres)	0.000
Non-DCIA Curve Number	49.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

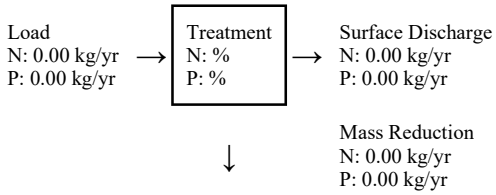
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

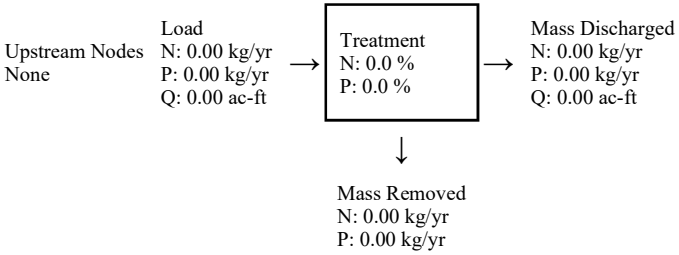
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Catchment Number: 4 Name: Agricultural (To Pond)

Project: 75614 Segment 10 SMF 1008C/D
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	1.35
Contributing Area (acres)	1.350
Non-DCIA Curve Number	49.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	100
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	100
Provided TP Treatment Efficiency (%)	

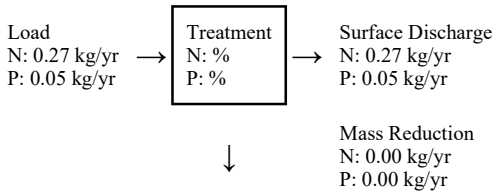
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

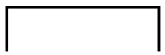
Groundwater Discharge (Stand-Alone)

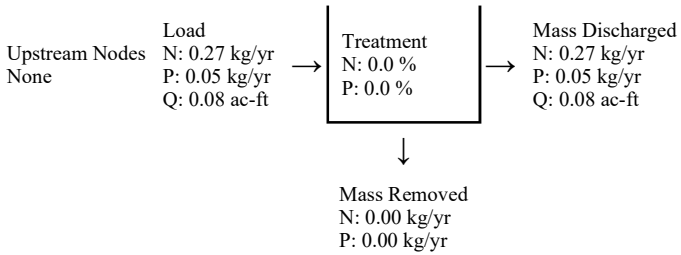
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)





Catchment Number: 5 Name: Wetlands (DD)

Project: 75614 Segment 10 SMF 1008C/D
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.00
Contributing Area (acres)	0.000
Non-DCIA Curve Number	98.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	00
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	00
Provided TP Treatment Efficiency (%)	

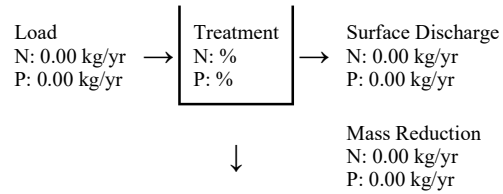
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

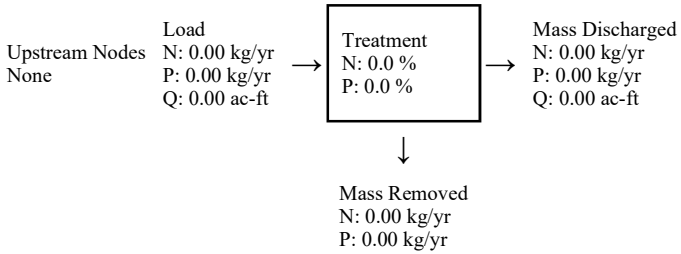
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Catchment Number: 6 Name: Wetlands (To Pond)

Project: 75614 Segment 10 SMF 1008C/D
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.00
Contributing Area (acres)	0.000
Non-DCIA Curve Number	98.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	00
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	00
Provided TP Treatment Efficiency (%)	

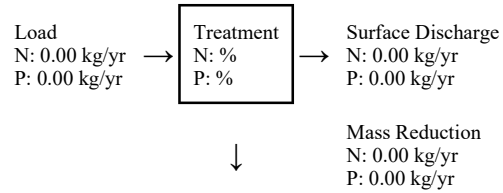
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

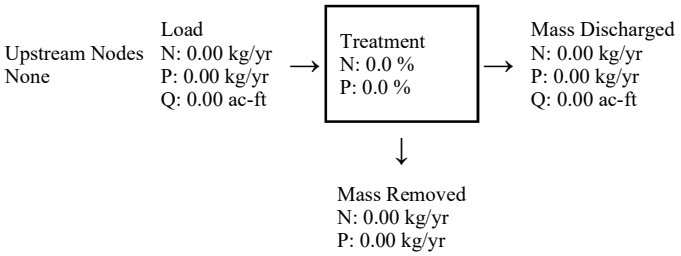
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: 75614 Segment 10 SMF 1008C/D

Date:9/3/2025

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Transportation (DD)) None
Catchment 2 - (Transportation (To Pond)) Multiple BMP
Catchment 3 - (Agricultural (DD)) None
Catchment 4 - (Agricultural (To Pond)) None
Catchment 5 - (Wetlands (DD)) None
Catchment 6 - (Wetlands (To Pond)) None

Based on % removal values to the nearest percent

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Routing Summary

Catchment 1 Routed to Outlet
Catchment 2 Routed to Outlet
Catchment 3 Routed to Outlet
Catchment 4 Routed to Catchment 2
Catchment 5 Routed to Outlet
Catchment 6 Routed to Catchment 2

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	37.73 kg/yr	
Total N post load	78.43 kg/yr	
Target N load reduction	52 %	
Target N discharge load	37.73 kg/yr	
Percent N load reduction	68 %	
Provided N discharge load	25.18 kg/yr	55.52 lb/yr
Provided N load removed	53.25 kg/yr	117.41 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	4.952 kg/yr	
Total P post load	10.227 kg/yr	
Target P load reduction	52 %	
Target P discharge load	4.952 kg/yr	
Percent P load reduction	74 %	
Provided P discharge load	2.61 kg/yr	5.76 lb/yr
Provided P load removed	7.617 kg/yr	16.795 lb/yr

Nutrient Removal for Basin Area

Required Removal

TN: 52%

TP: 52%

Provided Removal

TN: 68%

TP: 74%

Complete Report (not including cost) Ver 4.3.5

Project: 75614 Segment 10 SMF 1009A
Date: 9/3/2025 11:01:02 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Transportation (DD)	Transportation (To Pond)	Agricultural (DD)	Agricultural (To Pond)
Rainfall Zone	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2
Annual Mean Rainfall	50.00	50.00	50.00	50.00

Pre-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487
Area (acres)	33.99	0.00	2.73	0.00
Rational Coefficient (0-1)	0.15	0.00	0.05	0.00
Non DCIA Curve Number	53.48	49.00	68.32	49.00
DCIA Percent (0-100)	15.98	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487
Runoff Volume (ac-ft/yr)	20.660	0.000	0.591	0.000
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	30.314	0.000	2.041	0.000
Phosphorus Loading (kg/yr)	3.948	0.000	0.355	0.000

Post-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487
Area (acres)	14.21	17.71	0.04	1.03
Rational Coefficient (0-1)	0.19	0.33	0.01	0.05
Non DCIA Curve Number	49.31	56.37	49.00	68.22
DCIA Percent (0-100)	22.40	38.34	0.00	0.00
Wet Pond Area (ac)	0.00	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487
Runoff Volume (ac-ft/yr)	11.406	24.013	0.002	0.222
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	16.736	35.234	0.008	0.765
Phosphorus Loading (kg/yr)	2.180	4.589	0.001	0.133

Catchment Number: 1 Name: Transportation (DD)

Project: 75614 Segment 10 SMF 1009A
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	14.21
Contributing Area (acres)	14.210
Non-DCIA Curve Number	49.31
DCIA Percent	22.40
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

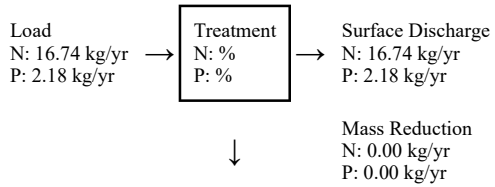
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

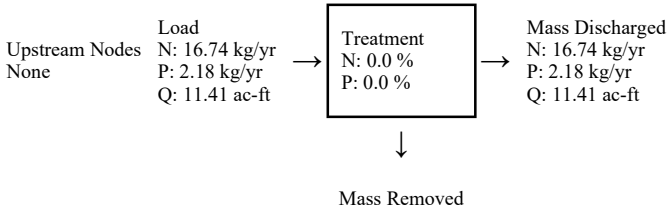
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



N: 0.00 kg/yr
P: 0.00 kg/yr

Catchment Number: 2 Name: Transportation (To Pond)

Project: 75614 Segment 10 SMF 1009A
Date: 9/3/2025

Retention Design

Retention Depth (in)	0.452
Retention Volume (ac-ft)	0.667

Watershed Characteristics

Catchment Area (acres)	17.71
Contributing Area (acres)	17.710
Non-DCIA Curve Number	56.37
DCIA Percent	38.34
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	100
Provided TN Treatment Efficiency (%)	70
Required TP Treatment Efficiency (%)	100
Provided TP Treatment Efficiency (%)	70

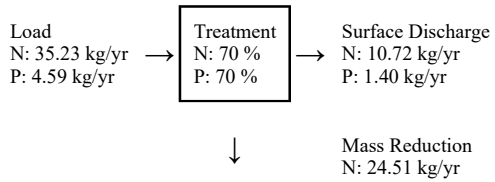
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

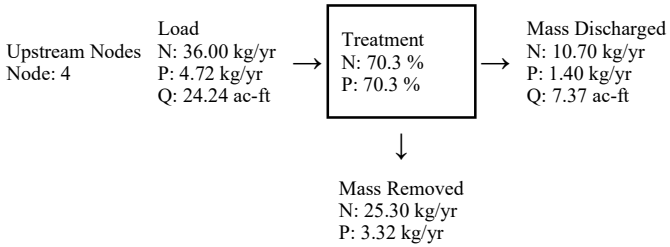
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	24.513
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	3.193
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



P: 3.19 kg/yr

Load Diagram for Retention (As Used In Routing)



Catchment Number: 3 Name: Agricultural (DD)

Project: 75614 Segment 10 SMF 1009A
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.04
Contributing Area (acres)	0.040
Non-DCIA Curve Number	49.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

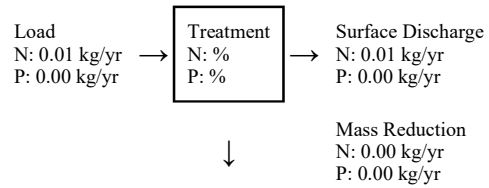
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

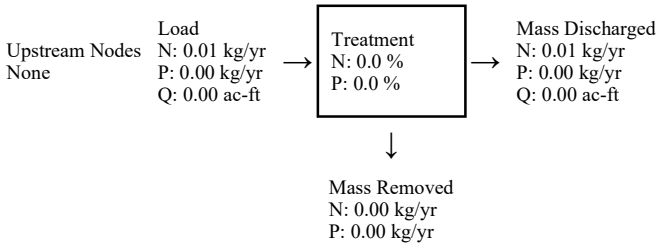
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Catchment Number: 4 Name: Agricultural (To Pond)

Project: 75614 Segment 10 SMF 1009A
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	1.03
Contributing Area (acres)	1.030
Non-DCIA Curve Number	68.22
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	100
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	100
Provided TP Treatment Efficiency (%)	

Media Mix Information

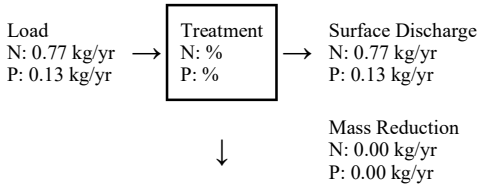
Type of Media Mix	Not Specified
Media N Reduction (%)	0.000

Media P Reduction (%)	0.000

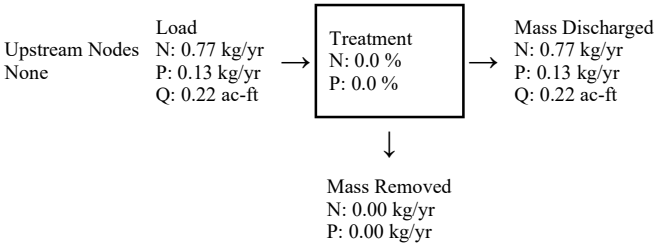
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: 75614 Segment 10 SMF 1009A

Date:9/3/2025

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Transportation (DD)) None
Catchment 2 - (Transportation (To Pond)) Retention
Catchment 3 - (Agricultural (DD)) None
Catchment 4 - (Agricultural (To Pond)) None

Based on % removal values to the nearest percent

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Routing Summary

Catchment 1 Routed to Outlet
Catchment 2 Routed to Outlet
Catchment 3 Routed to Outlet
Catchment 4 Routed to Catchment 2

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	32.35 kg/yr	
Total N post load	52.74 kg/yr	
Target N load reduction	39 %	
Target N discharge load	32.35 kg/yr	
Percent N load reduction	48 %	
Provided N discharge load	27.44 kg/yr	60.51 lb/yr
Provided N load removed	25.3 kg/yr	55.79 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	4.303 kg/yr	
Total P post load	6.904 kg/yr	
Target P load reduction	38 %	
Target P discharge load	4.303 kg/yr	
Percent P load reduction	48 %	
Provided P discharge load	3.585 kg/yr	7.9 lb/yr
Provided P load removed	3.319 kg/yr	7.319 lb/yr

Nutrient Removal for Basin Area

Required Removal

TN: 39%

TP: 38%

Provided Removal

TN: 48%

TP: 48%

Complete Report (not including cost) Ver 4.3.5

Project: 75614 Segment 10 SMF 1009B
Date: 9/3/2025 11:04:17 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Transportation (DD)	Transportation (To Pond)	Agricultural (DD)	Agricultural (To Pond)
Rainfall Zone	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2
Annual Mean Rainfall	50.00	50.00	50.00	50.00

Pre-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487
Area (acres)	33.99	0.00	2.22	0.00
Rational Coefficient (0-1)	0.15	0.00	0.01	0.00
Non DCIA Curve Number	53.48	49.00	49.00	49.00
DCIA Percent (0-100)	15.98	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487
Runoff Volume (ac-ft/yr)	20.660	0.000	0.130	0.000
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	30.314	0.000	0.447	0.000
Phosphorus Loading (kg/yr)	3.948	0.000	0.078	0.000

Post-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487
Area (acres)	14.21	17.27	0.04	0.93
Rational Coefficient (0-1)	0.19	0.33	0.01	0.01
Non DCIA Curve Number	49.32	56.25	49.00	49.00
DCIA Percent (0-100)	22.40	39.32	0.00	0.00
Wet Pond Area (ac)	0.00	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487
Runoff Volume (ac-ft/yr)	11.407	23.958	0.002	0.054
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	16.737	35.153	0.008	0.187
Phosphorus Loading (kg/yr)	2.180	4.579	0.001	0.033

Catchment Number: 1 Name: Transportation (DD)

Project: 75614 Segment 10 SMF 1009B
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	14.21
Contributing Area (acres)	14.210
Non-DCIA Curve Number	49.32
DCIA Percent	22.40
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

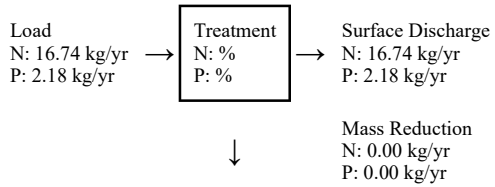
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

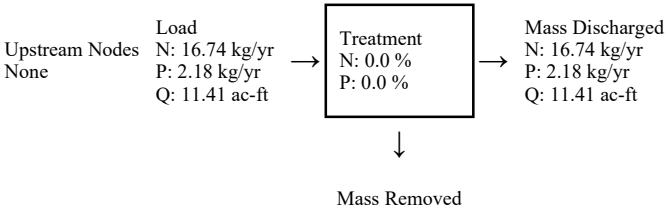
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



N: 0.00 kg/yr
P: 0.00 kg/yr

Catchment Number: 2 Name: Transportation (To Pond)

Project: 75614 Segment 10 SMF 1009B
Date: 9/3/2025

Retention Design

Retention Depth (in)	0.379
Retention Volume (ac-ft)	0.545

Watershed Characteristics

Catchment Area (acres)	17.27
Contributing Area (acres)	17.270
Non-DCIA Curve Number	56.25
DCIA Percent	39.32
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	100
Provided TN Treatment Efficiency (%)	62
Required TP Treatment Efficiency (%)	100
Provided TP Treatment Efficiency (%)	62

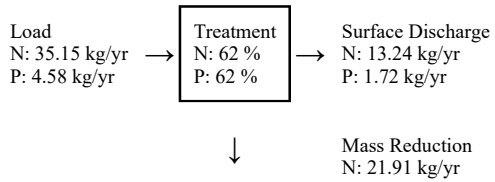
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

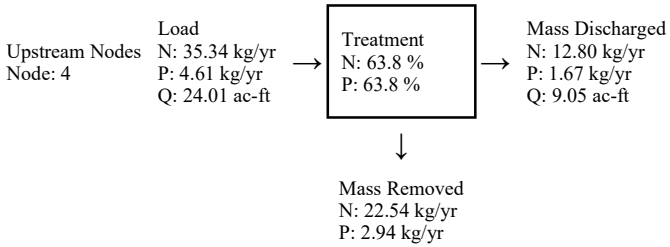
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	21.911
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	2.854
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



P: 2.85 kg/yr

Load Diagram for Retention (As Used In Routing)



Catchment Number: 3 Name: Agricultural (DD)

Project: 75614 Segment 10 SMF 1009B
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.04
Contributing Area (acres)	0.040
Non-DCIA Curve Number	49.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

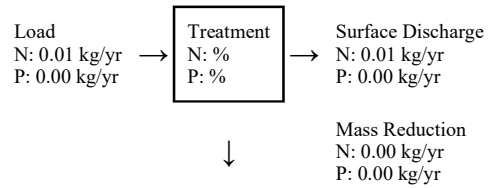
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

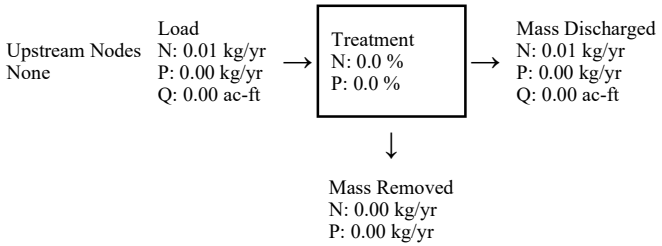
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Catchment Number: 4 Name: Agricultural (To Pond)

Project: 75614 Segment 10 SMF 1009B
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.93
Contributing Area (acres)	0.930
Non-DCIA Curve Number	49.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	100
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	100
Provided TP Treatment Efficiency (%)	

Media Mix Information

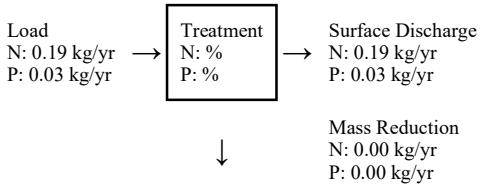
Type of Media Mix	Not Specified
Media N Reduction (%)	0.000

Media P Reduction (%)	0.000

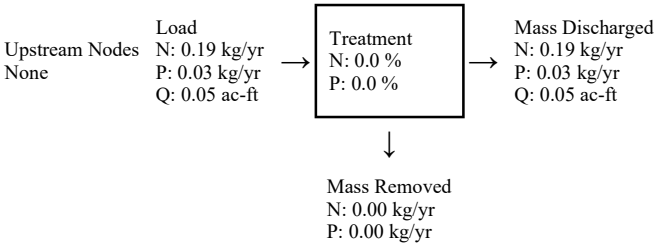
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: 75614 Segment 10 SMF 1009B

Date:9/3/2025

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Transportation (DD)) None
Catchment 2 - (Transportation (To Pond)) Retention
Catchment 3 - (Agricultural (DD)) None
Catchment 4 - (Agricultural (To Pond)) None

Based on % removal values to the nearest percent

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Routing Summary

Catchment 1 Routed to Outlet
Catchment 2 Routed to Outlet
Catchment 3 Routed to Outlet
Catchment 4 Routed to Catchment 2

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	30.76 kg/yr	
Total N post load	52.09 kg/yr	
Target N load reduction	41 %	
Target N discharge load	30.76 kg/yr	
Percent N load reduction	43 %	
Provided N discharge load	29.54 kg/yr	65.14 lb/yr
Provided N load removed	22.54 kg/yr	49.71 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	4.026 kg/yr	
Total P post load	6.793 kg/yr	
Target P load reduction	41 %	
Target P discharge load	4.026 kg/yr	
Percent P load reduction	43 %	
Provided P discharge load	3.851 kg/yr	8.49 lb/yr
Provided P load removed	2.942 kg/yr	6.486 lb/yr

Nutrient Removal for Basin Area

Required Removal

TN: 41%

TP: 41%

Provided Removal

TN: 43%

TP: 43%

Complete Report (not including cost) Ver 4.3.5

Project: 75614 Segment 10 SMF 1009C/D
Date: 9/3/2025 11:46:49 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Transportation (DD)	Transportation (To Pond)	Agricultural (DD)	Agricultural (To Pond)
Rainfall Zone	Florida Zone 2	Florida Zone 2	Florida Zone 2	Florida Zone 2
Annual Mean Rainfall	50.00	50.00	50.00	50.00

Pre-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487
Area (acres)	33.99	0.00	1.23	0.00
Rational Coefficient (0-1)	0.15	0.00	0.05	0.00
Non DCIA Curve Number	53.48	49.00	68.62	49.00
DCIA Percent (0-100)	15.98	0.00	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487
Runoff Volume (ac-ft/yr)	20.660	0.000	0.271	0.000
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	30.314	0.000	0.935	0.000
Phosphorus Loading (kg/yr)	3.948	0.000	0.163	0.000

Post-Condition Landuse Information

Landuse	User Defined Values	User Defined Values	Agricultural - General: TN=2.800 TP=0.487	Agricultural - General: TN=2.800 TP=0.487
Area (acres)	14.21	16.39	0.04	0.65
Rational Coefficient (0-1)	0.19	0.35	0.01	0.05
Non DCIA Curve Number	49.31	56.12	49.00	69.00
DCIA Percent (0-100)	22.40	41.42	0.00	0.00
Wet Pond Area (ac)	0.00	0.55	0.00	0.00
Nitrogen EMC (mg/l)	1.190	1.190	2.800	2.800
Phosphorus EMC (mg/l)	0.155	0.155	0.487	0.487
Runoff Volume (ac-ft/yr)	11.406	23.047	0.002	0.146
Groundwater N (kg/yr)	0.000	0.000	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000	0.000	0.000
Nitrogen Loading (kg/yr)	16.736	33.816	0.008	0.505
Phosphorus Loading (kg/yr)	2.180	4.405	0.001	0.088

Catchment Number: 1 Name: Transportation (DD)

Project: 75614 Segment 10 SMF 1009C/D
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	14.21
Contributing Area (acres)	14.210
Non-DCIA Curve Number	49.31
DCIA Percent	22.40
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

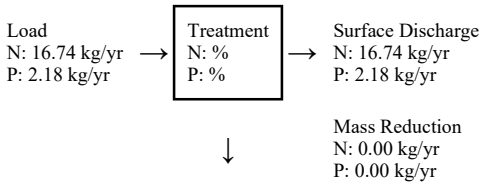
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

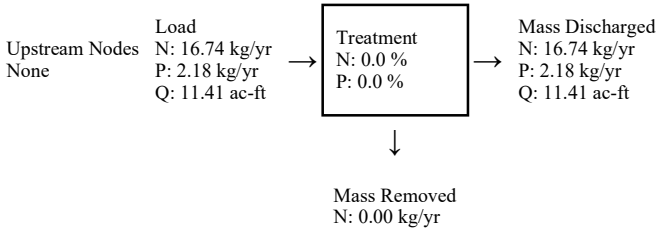
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



P: 0.00 kg/yr

Catchment Number: 2 Name: Transportation (To Pond)

Project: 75614 Segment 10 SMF 1009C/D
Date: 9/3/2025

Multiple BMP in Series Design Parameters

BMP in Series Number: 1
BMP Type: Retention

Retention Depth (in)	0.515
Retention Volume (ac-ft)	0.680

BMP in Series Number: 2
BMP Type: Wet Detention

Permanent Pool Volume (ac-ft)	0.822
Permanent Pool Volume (ac-ft) for 31 days residence	1.957
Annual Residence Time (days)	13
Littoral Zone Efficiency Credit	10
Wetland Efficiency Credit	

BMP in Series Number: 3
BMP Type: None

BMP in Series Number: 4
BMP Type: None

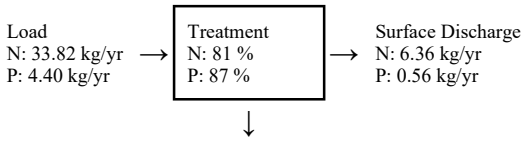
Watershed Characteristics

Catchment Area (acres)	16.39
Contributing Area (acres)	15.840
Non-DCIA Curve Number	56.12
DCIA Percent	41.42
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

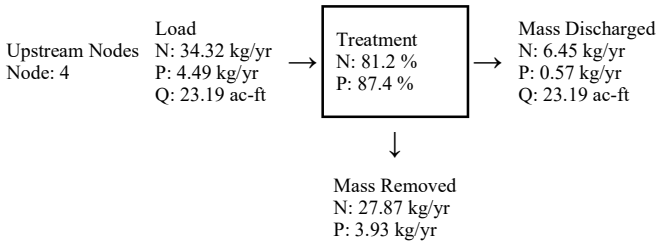
Required TN Treatment Efficiency (%)	100
Provided TN Treatment Efficiency (%)	81
Required TP Treatment Efficiency (%)	100
Provided TP Treatment Efficiency (%)	87

Load for Multiple BMP in Series



Mass Reduction
N: 27.46 kg/yr
P: 3.85 kg/yr

Load Diagram for Multiple BMP (As Used In Routing)



Catchment Number: 3 Name: Agricultural (DD)

Project: 75614 Segment 10 SMF 1009C/D
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.04
Contributing Area (acres)	0.040
Non-DCIA Curve Number	49.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	
Provided TP Treatment Efficiency (%)	

Media Mix Information

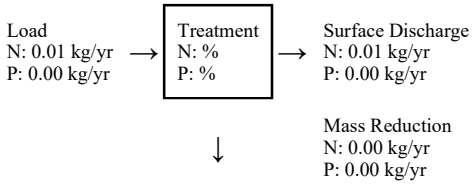
Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

Groundwater Discharge (Stand-Alone)

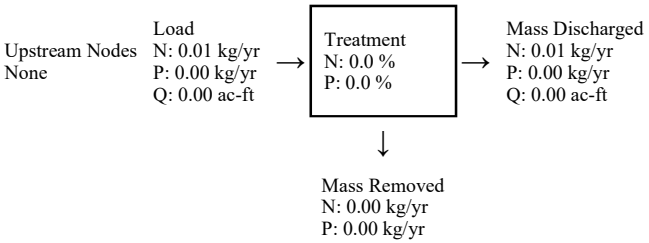
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000

TP Concentration (mg/L) 0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Catchment Number: 4 Name: Agricultural (To Pond)

Project: 75614 Segment 10 SMF 1009C/D
Date: 9/3/2025

None Design

Watershed Characteristics

Catchment Area (acres)	0.65
Contributing Area (acres)	0.650
Non-DCIA Curve Number	69.00
DCIA Percent	0.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	100
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	100
Provided TP Treatment Efficiency (%)	

Media Mix Information

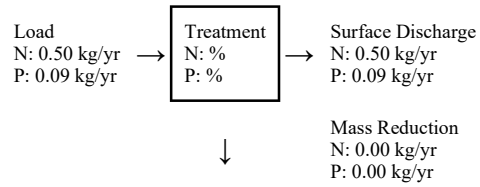
Type of Media Mix	Not Specified

Media N Reduction (%) 0.000
Media P Reduction (%) 0.000

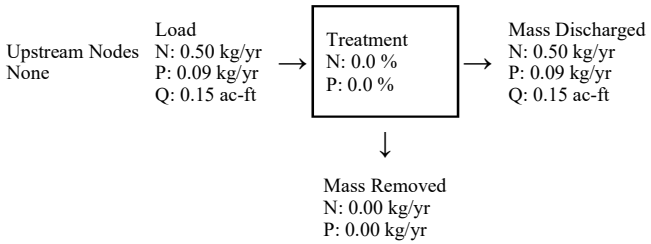
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: 75614 Segment 10 SMF 1009C/D

Date:9/3/2025

Analysis Type: Net Improvement
BMP Types:
Catchment 1 - (Transportation (DD)) None
Catchment 2 - (Transportation (To Pond)) Multiple BMP
Catchment 3 - (Agricultural (DD)) None
Catchment 4 - (Agricultural (To Pond)) None
Based on % removal values to the nearest percent
Total nitrogen target removal met? **Yes**
Total phosphorus target removal met? **Yes**

Routing Summary
Catchment 1 Routed to Outlet
Catchment 2 Routed to Outlet
Catchment 3 Routed to Outlet
Catchment 4 Routed to Catchment 2

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	31.25 kg/yr	
Total N post load	51.07 kg/yr	
Target N load reduction	39 %	
Target N discharge load	31.25 kg/yr	
Percent N load reduction	55 %	
Provided N discharge load	23.2 kg/yr	51.15 lb/yr
Provided N load removed	27.87 kg/yr	61.45 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	4.111 kg/yr	
Total P post load	6.674 kg/yr	
Target P load reduction	38 %	
Target P discharge load	4.111 kg/yr	
Percent P load reduction	59 %	
Provided P discharge load	2.748 kg/yr	6.06 lb/yr
Provided P load removed	3.926 kg/yr	8.657 lb/yr

Nutrient Removal for Basin Area

Required Removal

TN: 39%

TP: 38%

Provided Removal

TN: 55%

TP: 59%

Permanent Pool Volume Calculations for Nutrient Loading

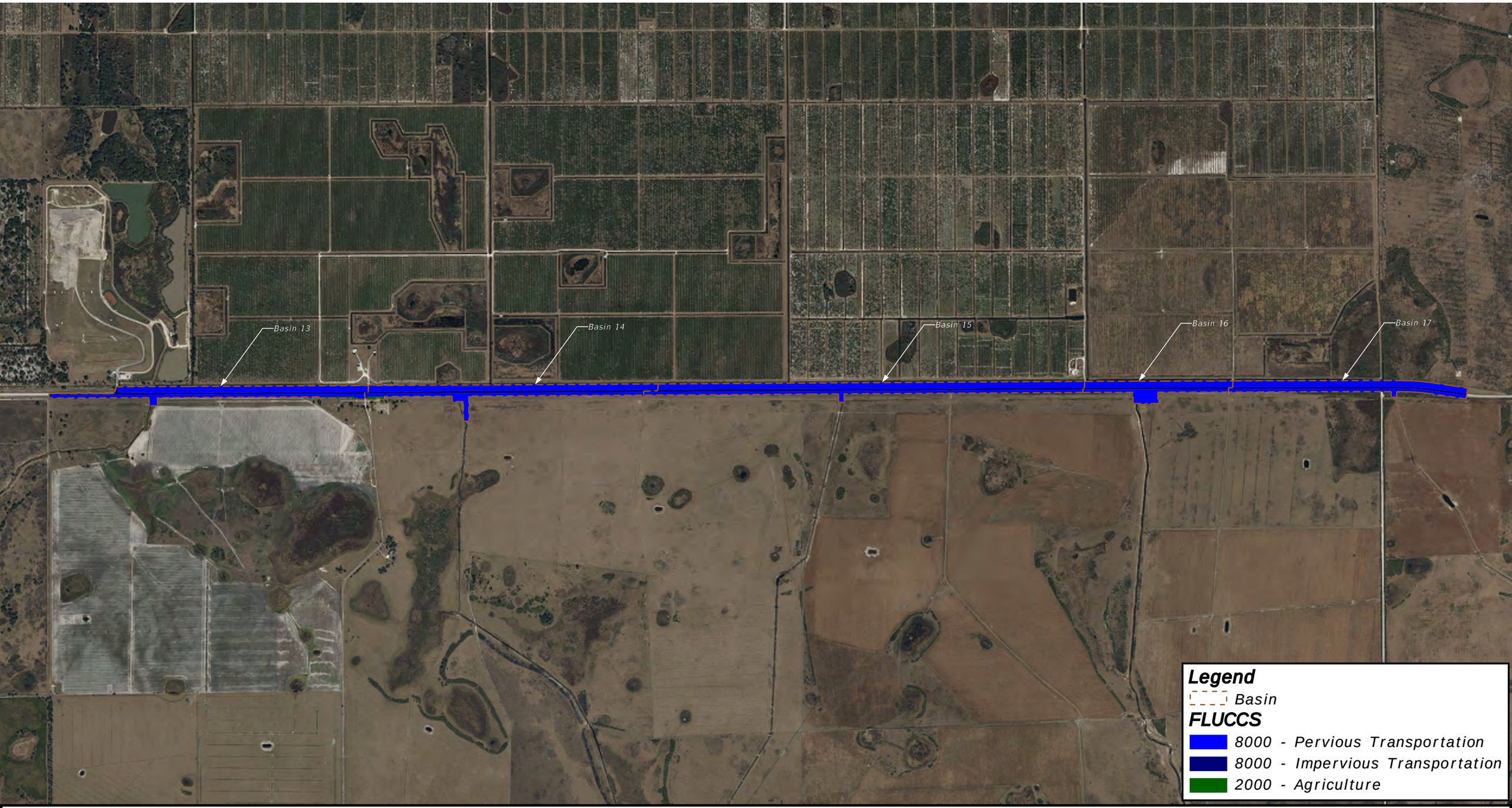
SMF 1008C

Wet Detention (SMF)	
Area at SHW (ac)	2.035
Area at Littoral Zone 1 (ac)	1.823
Depth between Control and LZ1 (ft)	2
Volume from Control to LZ1 (ac-ft)	3.858
Area at Littoral Zone 2 (ac)	0.993
Area at Bottom (ac)	0.849
Depth between LZ2 and Bottom (ft)	8
Volume from LZ2 to Bottom (ft)	7.365
Permanent Pool Volume (ac-ft)	**11.223**

SMF 1009C

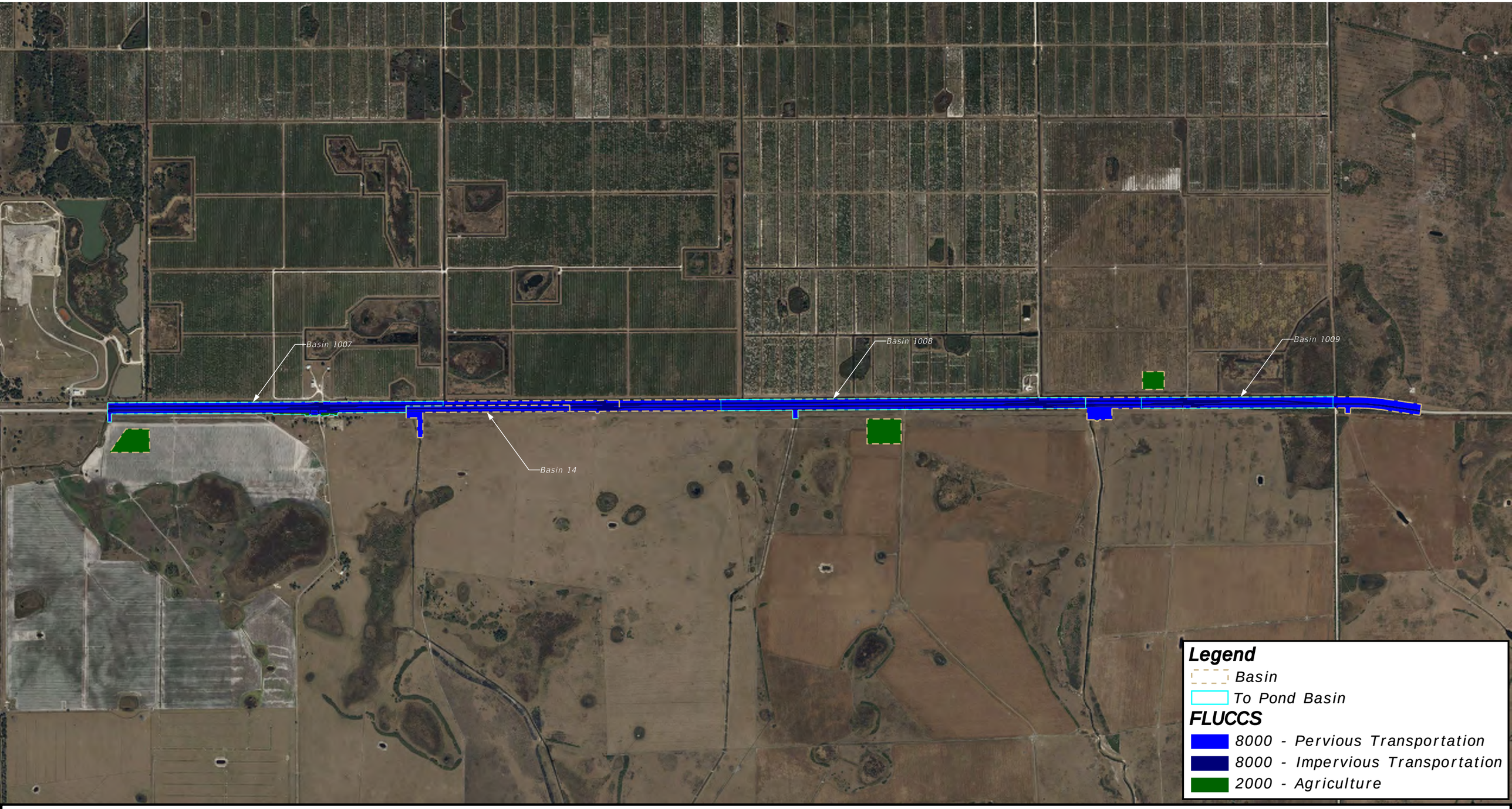
Wet Detention (SMF)	
Area at SHW (ac)	0.238
Area at Littoral Zone 1 (ac)	0.168
Depth between Control and LZ1 (ft)	2
Volume from Control to LZ1 (ac-ft)	0.407
Area at Littoral Zone 2 (ac)	0.068
Area at Bottom (ac)	0.036
Depth between LZ2 and Bottom (ft)	8
Volume from LZ2 to Bottom (ft)	0.415
Permanent Pool Volume (ac-ft)	**0.822**

Note: While being the same elevation, Littoral Zone 1 includes the area of the littoral shelf, whereas, Littoral Zone 2 does not include the littoral shelf area.



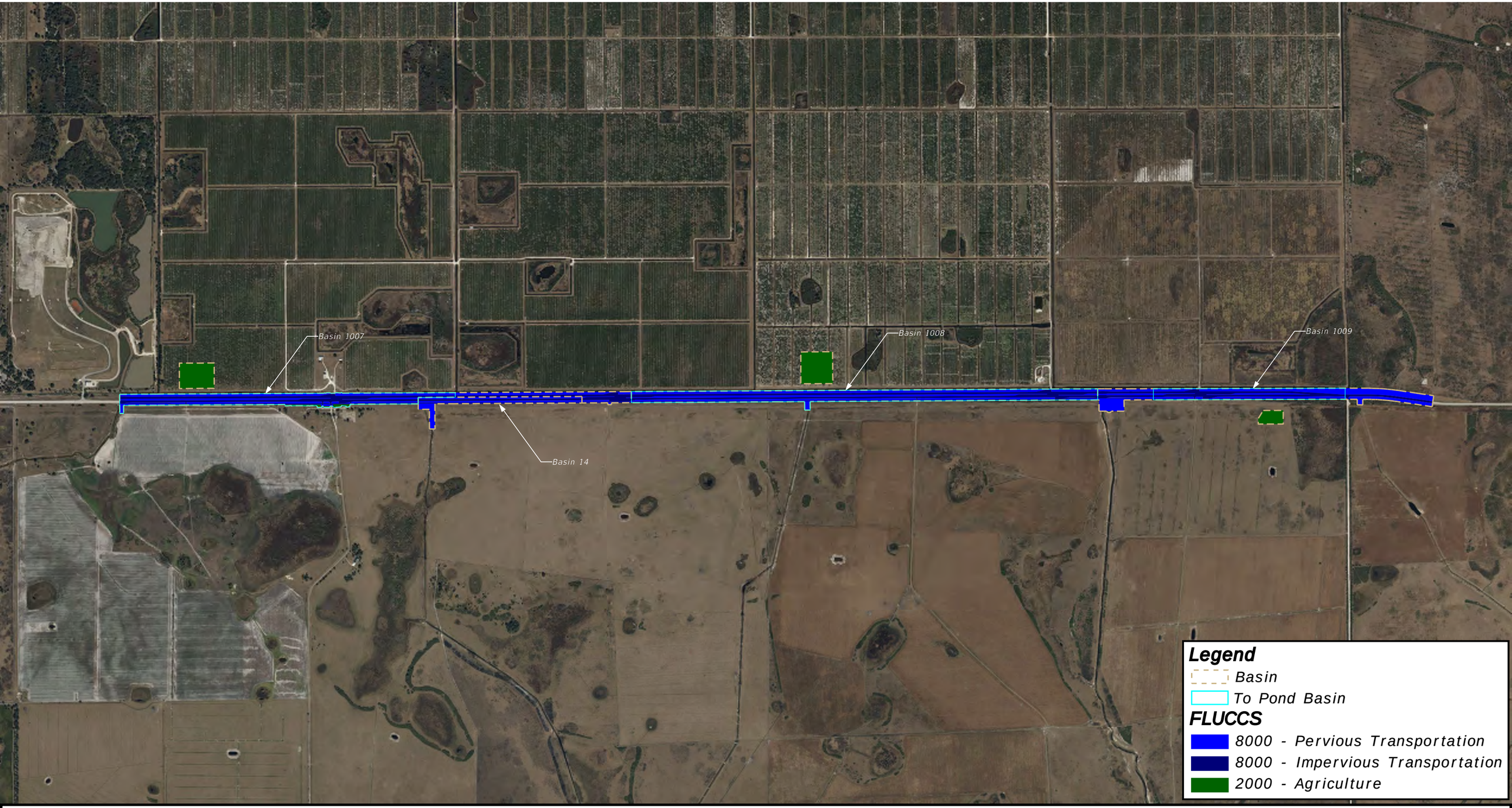
Land Use and Existing Impervious Area

State Road 70 Segment 10 Basins 13-17
FPID #451942-2-52-01



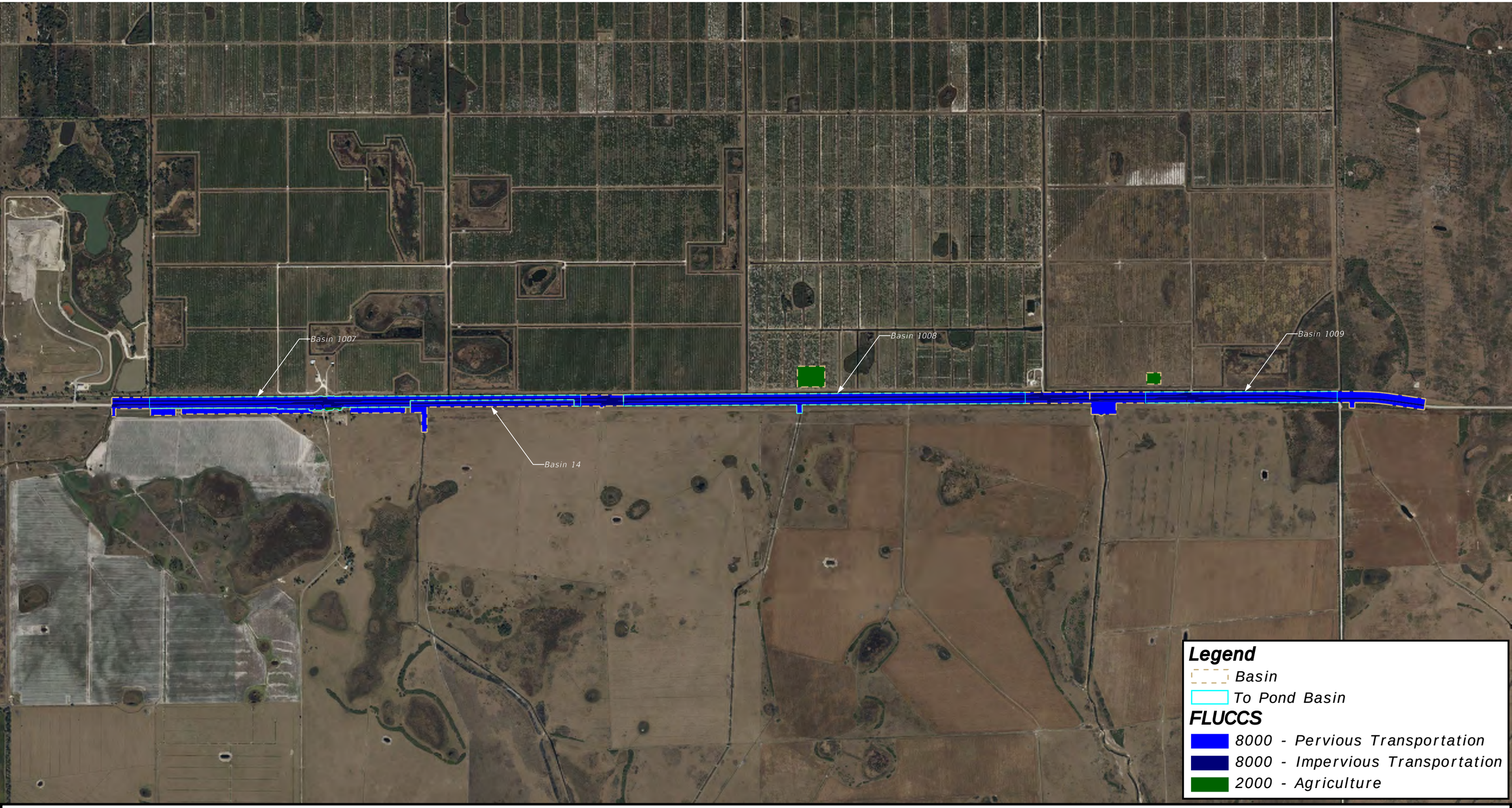
Land Use and Proposed Impervious Area

State Road 70 Segment 10 Alternative 1 Basins 1007-1009
FPID #451942-2-52-01



Land Use and Proposed Impervious Area

State Road 70 Segment 10 Alternative 2 Basins 1007-1009
FPID #451942-2-52-01



0 800 1600 3200 6400 Feet

N

Land Use and Proposed Impervious Area

State Road 70 Segment 10 Alternative 3 Basins 1007-1009
FPID #451942-2-52-01

APPENDIX 4

FLOODPLAIN CALCULATIONS

Floodplain Encroachment Calculations for Proposed Roadway Improvements

FIA #	Start STA.	End STA.	Side EB	100 Yr Elevation (feet, NAVD 88)	Borehole Name/ SHW	Borehole SHWL EL. (feet, NAVD 88)	Avg SHWL (ft)	Impacted Volume (Fill) 100 Yr-stage (acre-ft)	Impacted Volume (Fill) SHWL (acre-ft)	FPC Required (acre-ft)
FIA 1001	4299+15	4302+37	LT	66.83	SH10-5	62.50	62.50	1.21	0.01	**1.20**
FIA 1002-N	4344+20	4348+78	LT	69.65	SH10-14 SH10-15	65.50 65.90	65.70	2.83	0.00	**2.83**
FIA 1002-S	4344+20	4348+78	RT	69.65	SH10-14 SH10-15	65.50 65.90	65.70	1.03	0.00	**1.03**
FIA 1003	4486+79	4491+33	LT/RT	77.65	SH10-43 WLPT-596-R-3 SHW 3 WLPT-584-R-15	71.30 72.30 68.80 73.00	71.35	7.84	0.86	**6.97**
FIA 1004-1	4515+79	4517+41	LT/RT	77.50	SH10-48 SH10-49	72.00 72.30	72.15	3.42	1.31	**1.84**
FIA 1004-2	4517+41	4540+24	LT/RT	78.00	SH10-48 SH10-49 SH10-50 SH10-51 SH10-52 SH10-53	72.00 72.30 72.40 72.40 71.50 72.10	72.12	35.35	1.31	**34.04**
FIA 1005	4540+24	4579+86	LT/RT	78.50	SH10-54 SH10-55 SH10-56 SH10-57 SH10-58 SH10-59 SH10-60 SH10-61	71.90 72.00 71.20 72.80 72.00 73.30 73.20 73.50	72.49	43.03	0.78	**42.25**
FIA 1006	4579+86	4602+93	LT/RT	79.00	SH10-62 SH10-63 SH10-64 SH10-65 SH10-66	73.20 73.90 74.60 75.10 74.60	74.28	17.61	0.14	**17.46**
FIA 1007	4626+96	4632+77	LT/RT	80.00	SH10-71	75.80	75.80	5.42	0.33	**5.10**
FIA 1008	4668+48	4675+40	LT/RT	79.87	SH10-79 SH10-80	78.20 79.10	78.65	2.58	0.74	**1.84**
FIA 1009	4721+21	4726+87	LT/RT	82.84	SH10-90 SHW-824 SHW 6 POND 10-AB-35	81.50 80.60 78.00 79.40	79.88	3.06	0.89	**2.16**
FIA 1010	4840+07	4891+13	LT/RT	84.00	SH10-104 SH10-114 SH10-115 SH10-116 SH10-117 SH10-118 SH10-119 SH10-120 SH10-121 SH10-122 SH10-123 SH10-124	81.80 80.6 80.3 80.3 80.5 80.8 80.9 81.3 81.3 79.7 79.6 80	80.65	59.22	10.66	**48.55**
SMF 1005B	4531+46	4535+24	LT	78.00	Note [1]	Note [1]	72.12	0.38	0.00	**0.38**
Exist. FPC 1	4623+16	4629+26	LT	N/A	N/A	N/A	N/A	N/A	N/A	**0.402**
Exist. FPC 2	4629+48	4634+16	LT	N/A	N/A	N/A	N/A	N/A	N/A	
Exist. FPC 3	4720+47	4723+77	LT	N/A	N/A	N/A	N/A	N/A	N/A	**0.198**
Exist. FPC 4	4724+40	4731+27	LT	N/A	N/A	N/A	N/A	N/A	N/A	

Note:

[1] SHWL based on borings from FIA 1004-2

Floodplain Compensation Calculations														
FIA						Alternative # 1								
FPC Name	Avg SHWL @ FIA (ft)	Lowest Level of Fill (ft)	100-YR Floodplain EL. (ft)	FIA (acre-ft)	FPC Required (acre-ft) [1]	Bottom Elevation (ft)	Avg SHWL Elevation (ft)	Top Elevation (ft)	Avg Exist. Ground Elevation (ft)	Depth (ft)	Bottom Area (acre)	Top Area (acre)	Average Area (acre)	FPC Provided (acre-ft)
FPC 1001	62.50	62.30	66.83	1.20	1.20	63.40	63.40	64.00	64.00	0.60	2.66	1.66	2.16	1.30
FPC 1002-N	65.70	65.47	69.65	2.83	2.83	66.60	66.60	68.48	68.48	1.88	2.51	0.56	1.54	2.89
FPC 1002-S	65.70	65.83	69.65	1.03	1.03	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
FPC 1003	71.35	65.99	77.65	6.97	6.97	71.23	71.23	72.48	72.48	1.25	5.66	5.70	5.68	7.08
FPC 1004	72.15	62.34	77.50	1.84	35.88	71.85	71.85	73.81	73.81	1.96	36.25	3.20	19.72	38.61
FPC 1005	72.49	71.18	78.50	42.25	42.25	74.16	74.16	75.50	75.50	1.34	37.45	38.11	37.78	50.80
FPC 1006	74.28	70.51	79.00	17.46	17.46	75.51	75.51	76.80	76.80	1.29	17.33	14.14	15.74	20.30
FPC 1007	75.80	71.15	80.00	5.10	5.31	74.85	74.85	77.00	77.00	2.15	3.51	2.21	2.86	6.14
FPC 1008	78.65	71.29	79.87	1.84	1.84	78.50	78.50	79.87	80.00	1.37	2.22	1.22	1.72	2.36
FPC 1009	79.88	73.14	82.84	2.16	2.27	81.67	81.67	82.09	82.09	0.42	5.75	5.82	5.78	2.40
FPC 1010	80.65	72.77	84.00	48.55	48.55	82.40	82.40	83.00	83.00	0.60	87.27	80.62	83.95	50.37

Note:

[1] FPC 1007 and FPC 1009 include additional required compensation volume of 0.213 ac-ft and 0.109 ac-ft, respectively to mitigate impacts to existing FPC areas.

Floodplain Compensation Calculations

FIA	Alternative # 2									Alternative # 3								
FPC Name	Bottom Elevation (ft)	Avg SHWL Elevation (ft)	Top Elevation (ft)	Avg Exist. Ground Elevation (ft)	Depth (ft)	Bottom Area (acre)	Top Area (acre)	Average Area (acre)	FPC Provided (acre-ft)	Bottom Elevation (ft)	Avg SHWL Elevation (ft)	Top Elevation (ft)	Avg Exist. Ground Elevation (ft)	Depth (ft)	Bottom Area (acre)	Top Area (acre)	Average Area (acre)	FPC Provided (acre-ft)
FPC 1001	63.50	63.50	64.00	64.00	0.50	3.09	2.48	2.79	1.39	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
FPC 1002-N	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
FPC 1002-SB	67.00	67.00	68.73	68.73	1.73	0.89	0.35	0.62	1.07	66.00	65.45	67.00	67.00	1.00	1.39	0.74	1.07	1.07
FPC 1003	71.42	71.42	73.18	73.18	1.76	5.91	2.21	4.06	7.15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
FPC 1004	74.06	74.06	75.50	75.50	1.44	30.09	23.38	26.73	38.49	73.87	73.87	75.50	75.50	1.63	22.80	23.03	22.91	37.35
FPC 1005	73.00	73.00	75.05	75.05	2.05	27.43	18.20	22.82	46.77	74.74	74.74	76.00	76.00	1.26	37.88	29.44	33.66	42.41
FPC 1006	74.80	74.80	76.00	76.00	1.20	17.71	16.67	17.19	20.62	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
FPC 1007	75.20	75.20	77.00	77.00	1.80	3.67	2.37	3.02	5.43	75.13	75.13	77.00	77.00	1.87	3.82	2.92	3.37	6.30
FPC 1008	78.03	78.03	79.00	79.00	0.97	2.00	1.98	1.99	1.93	79.05	79.05	79.87	80.83	0.82	2.37	2.42	2.39	1.96
FPC 1009	81.50	81.50	82.84	83.00	1.34	1.90	2.00	1.95	2.61	81.30	81.30	82.84	83.00	1.54	1.51	1.61	1.56	2.40
FPC 1010	80.78	80.78	82.10	82.10	1.32	43.42	35.32	39.37	51.97	80.53	80.53	81.51	81.51	0.98	53.73	49.88	51.80	50.77

Site Specific Estimated Seasonal High Water Level - Elevations

ALT 1

FPC	boring 1	boring 2	boring 3	boring 4	boring 5	boring 6	boring 7	boring 8	boring 9	AVG SHWL EL
FPC 1001A	63.40									**63.40**
FPC 1002-NA	66.10	66.60	67.10							**66.60**
FPC 1003A	71.10	71.00	71.60							**71.23**
FPC 1004A	71.80	71.90	71.60	71.60	72.00	72.20				**71.85**
FPC 1005A	74.90	75.20	75.10	74.90	73.30	73.90	72.90	73.40	73.80	**74.16**
FPC 1006A	75.50	75.00	76.20	75.70	75.00	75.60	75.50	75.60		**75.51**
FPC 1007A	74.80	74.90								**74.85**
FPC 1008A	78.50									**78.50**
FPC 1009A	81.80	81.70	81.50							**81.67**
FPC 1010A	82.10	82.70	82.40							**82.40**

ALT 2

FPC	boring 1	boring 2	boring 3	boring 4	boring 5	boring 6	boring 7	boring 8	boring 9	boring 10	boring 11	boring 12	AVG SHWL EL
FPC 1001B	63.50	63.60	63.40										**63.50**
FPC 1002-SB	66.50	67.50											**67.00**
FPC 1003B	71.70	71.10	71.60	71.00	71.60	71.50							**71.42**
FPC 1004B	74.00	74.10	73.20	73.10	73.80	75.00	72.70	72.70	74.90	75.10	75.20	74.9	**74.06**
FPC 1005B	73.30	73.90	72.90	73.80	73.40	73.20	73.40	71.20	71.90				**73.00**
FPC 1006B	74.70	74.90											**74.80**
FPC 1007B	74.90	75.90	74.80										**75.20**
FPC 1008B	78.10	77.30	78.40	78.30									**78.03**
FPC 1009B	81.70	81.30											**81.50**
FPC 1010B	79.60	81.10	81.20	80.40	81.30	81.10							**80.78**

ALT 3

FPC	boring 1	boring 2	boring 3	boring 4	boring 5	boring 6	boring 7	boring 8	boring 9	AVG SHWL EL
n/a	n/a									n/a
FPC 1002-SC	64.90	66.00	66.10							**65.45**
n/a	n/a									n/a
FPC 1004C	73.10	73.20	73.80	74.00	75.00	74.10				**73.87**
FPC 1005C	74.10	75.00	74.90	75.20	74.90	75.10	74.00			**74.74**
n/a	n/a									n/a
FPC 1007C	75.40	74.90	75.10							**75.13**
FPC 1008C	78.80	79.30								**79.05**
FPC 1009C	81.30									**81.30**
FPC 1010C	80.50	80.60	81.00	80.60	80.30	80.30	80.50	80.40		**80.53**

Site Specific Estimated Seasonal High Water Level - Borings

ALT 1

FPC	boring 1	boring 2	boring 3	boring 4	boring 5	boring 6	boring 7	boring 8	boring 9
FPC 1001A	PBA-59								
FPC 1002-NA	PBA-70	PBA-71	PBA-72						
FPC 1003A	PBA-95	PBA-97	PBA-96						
FPC 1004A	PBA-105	PBA-103	PBA-106	PBA-108	PBA-101	PBA-99			
FPC 1005A	PBA-118	PBA-120	PBA-119	PBA-121	PBA-122	PBA-124	PBA-126	PBA-125	PBA-114
FPC 1006A	PBA-141	PBA-135	PBA-137	PBA-139	PBA-138	PBA-142	PBA-143	PBA-144	
FPC 1007A	PBA-150	PBA-149							
FPC 1008A	PBA-162								
FPC 1009A	PBA-180	PBA-182	PBA-181						
FPC 1010A	PBA-206	PBA-205	PBA-207						

ALT 2

FPC	boring 1	boring 2	boring 3	boring 4	boring 5	boring 6	boring 7	boring 8	boring 9	boring 10	boring 11	boring 12
FPC 1001B	PBA-56	PBA-57	PBA-59									
FPC 1002-SB	PBA-73	PBA-74										
FPC 1003B	SHW-589	PBA-95	PBA-94	PBA-97	PBA-96	PBA-93						
FPC 1004B	PBA-110	PBA-111	PBA-112	PBA-113	PBA-114	PBA-115	PBA-116	PBA-117	PBA-118	PBA-119	PBA-120	PBA-121
FPC 1005B	PBA-123	PBA-124	PBA-126	PBA-129	PBA-128	PBA-127	PBA-125	SH10-56	SH10-54			
FPC 1006B	PBA-136	PBA-140										
FPC 1007B	PBA-149	PBA-152	PBA-150									
FPC 1008B	PBA-158	PBA-160	PBA-157	PBA-159								
FPC 1009B	PBA-179	PBA-178										
FPC 1010B	PBA-197	PBA-195	PBA-193	PBA-196	PBA-192	PBA-194						

ALT 3

FPC	boring 1	boring 2	boring 3	boring 4	boring 5	boring 6	boring 7	boring 8	boring 9
n/a	n/a								
FPC 1002-SC	PBA-67	PBA-68	PBA-69						
n/a	n/a								
FPC 1004C	PBA-113	PBA-112	PBA-114	PBA-110	PBA-115	PBA-111			
FPC 1005C	PBA-111	PBA-115	PBA-118	PBA-120	PBA-121	PBA-119	PBA-110		
n/a	n/a								
FPC 1007C	PBA-146	PBA-147	PBA-148						
FPC 1008C	PBA-170	PBA-172							
FPC 1009C	PBA-178								
FPC 1010C	PBA-199	PBA-198	PBA-200	SH10-114	SH10-115	SH10-116	SH10-117	PBA-196	

APPENDIX 5

DESOTO COUNTY SOIL SURVEY AND GEOTECHNICAL REPORTS

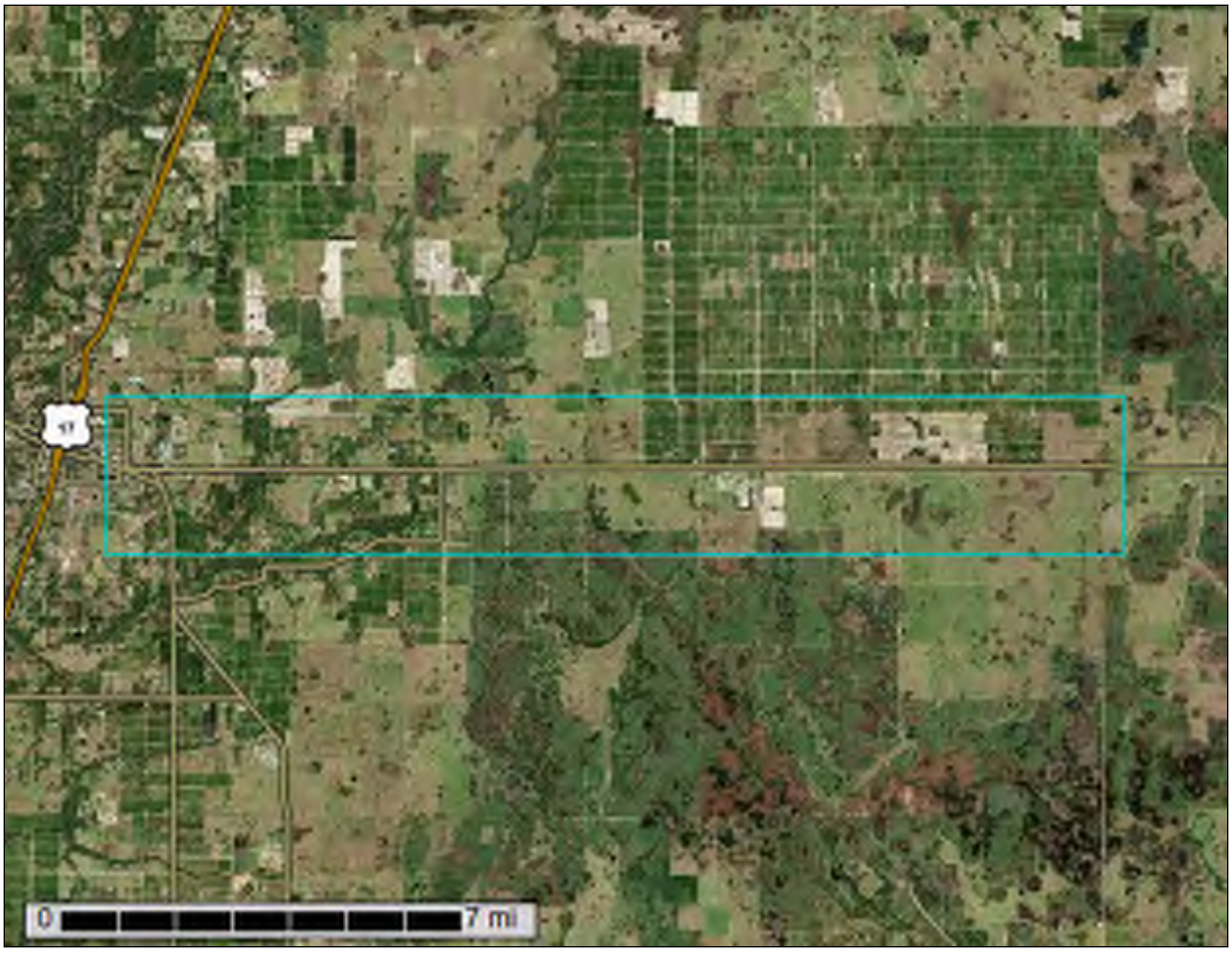
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for De Soto County, Florida, and Highlands County, Florida



May 15, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

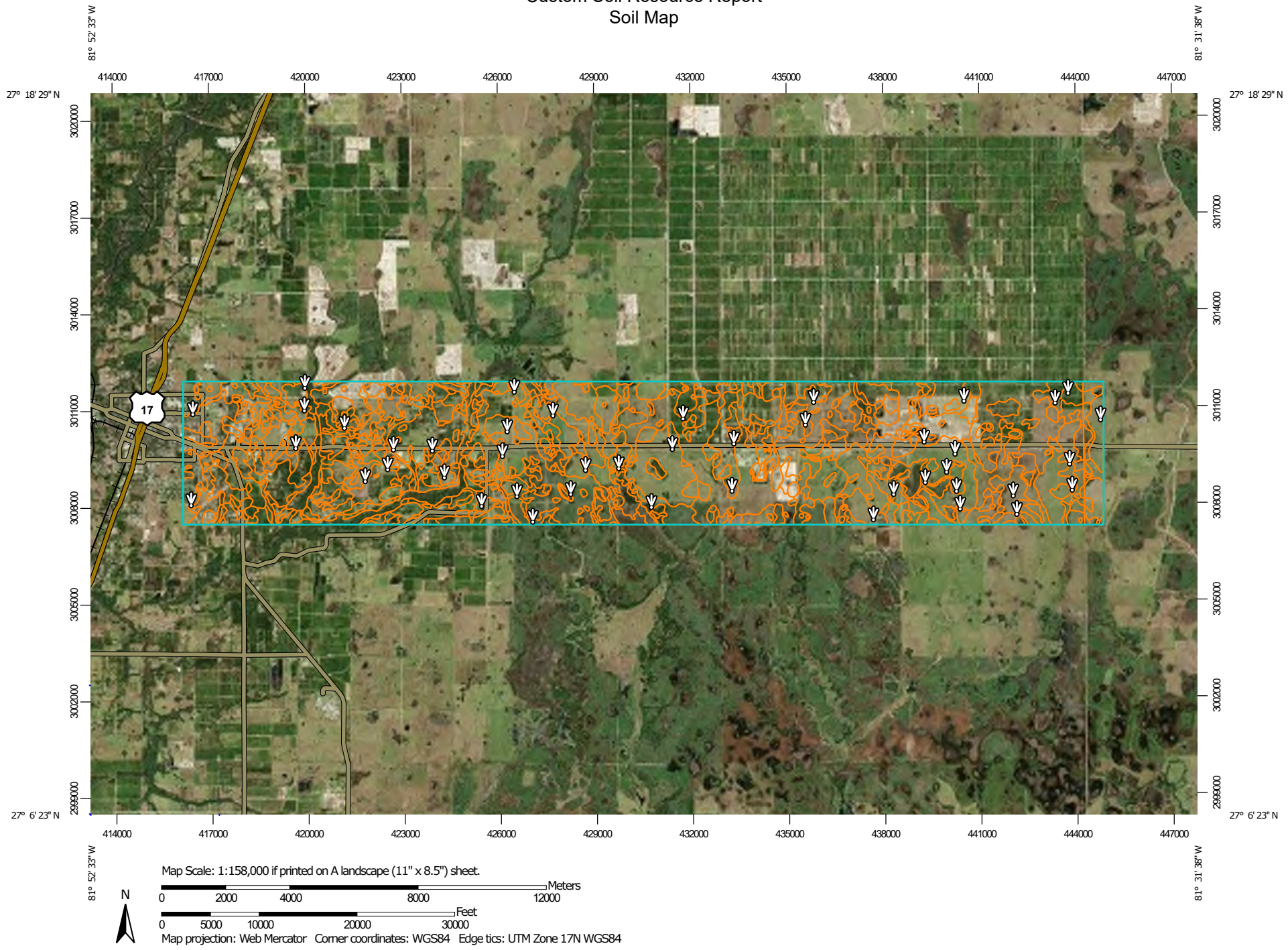
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: De Soto County, Florida
Survey Area Data: Version 21, Aug 21, 2024

Soil Survey Area: Highlands County, Florida
Survey Area Data: Version 24, Aug 21, 2024

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 30, 2022—Mar 2, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2	Anclote mucky fine sand, frequently ponded, 0 to 1 percent slopes	626.9	2.0%
3	Basinger fine sand, 0 to 2 percent slopes	2,289.1	7.2%
4	Basinger fine sand, frequently flooded	517.7	1.6%
5	Basinger fine sand, frequently ponded, 0 to 1 percent slopes	479.8	1.5%
6	Bradenton fine sand, 0 to 2 percent slopes	79.8	0.3%
10	Chobee muck, frequently ponded, 0 to 1 percent slopes	41.4	0.1%
11	Delray mucky fine sand, depressional	230.3	0.7%
13	EauGallie fine sand, 0 to 2 percent slopes	2,036.7	6.4%
14	Farmton fine sand, 0 to 2 percent slopes	3,325.9	10.5%
15	Felda fine sand, 0 to 2 percent slopes	201.2	0.6%
16	Felda fine sand, 0 to 2 percent slopes, frequently flooded	35.7	0.1%
17	Felda fine sand, frequently ponded, 0 to 1 percent slopes	55.9	0.2%
18	Floridana mucky fine sand, frequently ponded, 0 to 1 percent slopes	91.3	0.3%
19	Gator muck, frequently ponded, 0 to 1 percent slopes	83.4	0.3%
20	Immokalee fine sand, 0 to 2 percent slopes	3,565.6	11.3%
21	Malabar fine sand, 0 to 2 percent slopes	3,025.2	9.6%
22	Malabar fine sand, high, 0 to 2 percent slopes	216.5	0.7%
23	Malabar fine sand, frequently ponded, 0 to 1 percent slopes	158.2	0.5%
24	Myakka fine sand, 0 to 2 percent slopes	3,377.7	10.7%
25	Ona fine sand, 0 to 2 percent slopes	1,349.1	4.3%
26	Pineda-Pineda, wet, fine sand, 0 to 2 percent slopes	562.6	1.8%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
27	Pineda fine sand, frequently flooded	25.2	0.1%
28	Pineda fine sand, frequently ponded, 0 to 1 percent slopes	31.9	0.1%
29	Pineda-Pinellas fine sands	78.8	0.2%
30	Pomello fine sand, 0 to 2 percent slopes	8.7	0.0%
31	Pompano fine sand, 0 to 2 percent slopes	198.1	0.6%
32	Punta fine sand, 0 to 2 percent slopes	52.8	0.2%
34	Samsula muck, frequently ponded, 0 to 1 percent slopes	327.0	1.0%
36	Smyrna fine sand, 0 to 2 percent slopes	4,611.7	14.6%
37	Tavares fine sand, 0 to 5 percent slopes	175.9	0.6%
40	Valkaria fine sand, 0 to 2 percent slopes	2,097.0	6.6%
41	Wabasso fine sand, 0 to 2 percent slopes	162.9	0.5%
42	Zolfo fine sand, 0 to 2 percent slopes	666.1	2.1%
99	Water	94.2	0.3%
Subtotals for Soil Survey Area		**30,879.9**	**97.7%**
Totals for Area of Interest		**31,597.0**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7	Placid fine sand, frequently ponded, 0 to 1 percent slopes	35.1	0.1%
8	Immokalee sand, 0 to 2 percent slopes	49.5	0.2%
10	Myakka fine sand, 0 to 2 percent slopes	199.4	0.6%
12	Basinger fine sand, 0 to 2 percent slopes	100.3	0.3%
16	Valkaria fine sand, 0 to 2 percent slopes	50.9	0.2%
20	Samsula muck, frequently ponded, 0 to 1 percent slopes	31.9	0.1%
39	Smyrna sand, 0 to 2 percent slopes	210.7	0.7%
Subtotals for Soil Survey Area		**677.8**	**2.1%**
Totals for Area of Interest		**31,597.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas

shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

De Soto County, Florida

2—Anclote mucky fine sand, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2svzk
Elevation: 0 to 130 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Anclote and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Anclote

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Parent material: Sandy marine deposits

Typical profile

A1 - 0 to 10 inches: mucky fine sand
A2 - 10 to 14 inches: fine sand
Ckg1 - 14 to 35 inches: fine sand
Ckg2 - 35 to 65 inches: fine sand
Ckg3 - 65 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps

Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Minor Components

Floridana
Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Basinger
Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Samsula
Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

Valkaria
Percent of map unit: 2 percent
Landform: Drainageways on flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

3—Basinger fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2svym
Elevation: 0 to 100 feet
Mean annual precipitation: 42 to 63 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Basinger and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Basinger

Setting

Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, convex
Across-slope shape: Linear, concave
Parent material: Sandy marine deposits

Typical profile

Ag - 0 to 2 inches: fine sand
Eg - 2 to 18 inches: fine sand
Bh/E - 18 to 36 inches: fine sand
Cg - 36 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks

Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Minor Components

Myakka

Percent of map unit: 6 percent
Landform: Flatwoods on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Immokalee

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Placid

Percent of map unit: 4 percent
Landform: Depressions on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Pompano

Percent of map unit: 4 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Felda

Percent of map unit: 1 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf

Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Anclote

Percent of map unit: 1 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

4—Basinger fine sand, frequently flooded

Map Unit Setting

National map unit symbol: 1hk5n
Elevation: 0 to 100 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 312 to 342 days
Farmland classification: Not prime farmland

Map Unit Composition

Basinger, frequently flooded, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Basinger, Frequently Flooded

Setting

Landform: Flood plains on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
Eg - 4 to 16 inches: fine sand
Bh/Eg - 16 to 36 inches: fine sand
Cg - 36 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 39.96 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Ecological site: R155XY030FL - Sandy Freshwater Floodplain Marshes and Swamps
Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Minor Components

Malabar

Percent of map unit: 5 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Valkaria

Percent of map unit: 5 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Pompano

Percent of map unit: 5 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

5—Basinger fine sand, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2v16v
Elevation: 0 to 70 feet
Mean annual precipitation: 43 to 55 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Basinger and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Basinger

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 14 inches: fine sand
Bh/E - 14 to 36 inches: fine sand
Cg - 36 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Minor Components

Smyrna

Percent of map unit: 5 percent
Landform: — error in exists on —
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear, convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Samsula

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Organic soils in depressions and on flood plains (G155XB645FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Floridana

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

6—Bradenton fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2svzf
Elevation: 0 to 130 feet
Mean annual precipitation: 45 to 63 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Bradenton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bradenton

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
E - 4 to 10 inches: fine sand
Btg - 10 to 19 inches: fine sandy loam
Btkg - 19 to 26 inches: fine sandy loam
Ckg - 26 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D

Ecological site: F155XY140FL - Loamy and Clayey Flats and Hammocks
Forage suitability group: Loamy and clayey soils on flats of hydric or mesic lowlands (G155XB341FL)
Other vegetative classification: Wetland Hardwood Hammock (R155XY012FL), Loamy and clayey soils on flats of hydric or mesic lowlands (G155XB341FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

Minor Components

Felda
Percent of map unit: 5 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Malabar
Percent of map unit: 4 percent
Landform: — error in exists on —
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Floridana
Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Wabasso
Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Pineda

Percent of map unit: 1 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

10—Chobee muck, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tzwf
Elevation: 0 to 80 feet
Mean annual precipitation: 46 to 56 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Chobee and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chobee

Setting

Landform: Depressions on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Loamy alluvium

Typical profile

Oa - 0 to 4 inches: muck
A - 4 to 16 inches: loamy sand
Btg1 - 16 to 28 inches: fine sandy loam
Btg2 - 28 to 42 inches: sandy clay loam
Btg3 - 42 to 53 inches: fine sandy loam
Cg - 53 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 7 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: C/D
Ecological site: R155XY090FL - Loamy and Clayey Freshwater Isolated Marshes and Swamps
Forage suitability group: Organic soils in depressions and on flood plains (G155XB645FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

Minor Components

Floridana

Percent of map unit: 4 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Delray

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Gator

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps

Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

11—Delray mucky fine sand, depressional

Map Unit Setting

National map unit symbol: 1hk5w
Elevation: 0 to 80 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 312 to 342 days
Farmland classification: Not prime farmland

Map Unit Composition

Delray and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Delray

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 23 inches: mucky fine sand
Eg - 23 to 65 inches: fine sand
Btg - 65 to 75 inches: fine sandy loam
Cg - 75 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: A/D
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Minor Components

Anclote
Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Samsula
Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

Gator
Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

13—EauGallie fine sand, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 2svz1

Elevation: 10 to 130 feet
Mean annual precipitation: 42 to 68 inches
Mean annual air temperature: 66 to 77 degrees F
Frost-free period: 335 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Eaugallie and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eaugallie

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 23 inches: fine sand
Bh - 23 to 47 inches: fine sand
Bw - 47 to 55 inches: fine sand
Btg - 55 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Minor Components

Myakka

Percent of map unit: 5 percent
Landform: Drainageways on flatwoods on marine terraces

Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Immokalee

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Farmton

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear, convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Malabar

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 1 percent
Landform: Drainageways on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

14—Farmton fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tzvx
Elevation: 0 to 190 feet
Mean annual precipitation: 44 to 55 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Farmton and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Farmton

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
E - 4 to 34 inches: fine sand
Bh - 34 to 48 inches: fine sand
Btg - 48 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks

Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Minor Components

Malabar
Percent of map unit: 4 percent
Landform: — error in exists on —
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Wauchula
Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: No

Eaugallie
Percent of map unit: 4 percent
Landform: — error in exists on —
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

15—Felda fine sand, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 2tzvy
Elevation: 0 to 180 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Felda and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Felda

Setting

Landform: Drainageways on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
Eg - 4 to 35 inches: fine sand
Btg - 35 to 43 inches: fine sandy loam
Cg - 43 to 80 inches: extremely paragravelly fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Minor Components

Wabasso

Percent of map unit: 6 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks

Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Oldsmar

Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Valkaria

Percent of map unit: 4 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

16—Felda fine sand, 0 to 2 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2tzxc
Elevation: 10 to 130 feet
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Felda, frequently flooded, and similar soils: 83 percent
Minor components: 17 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Felda, Frequently Flooded

Setting

Landform: Flood plains on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
Eg - 4 to 35 inches: fine sand
Btg - 35 to 43 inches: fine sandy loam
Cg - 43 to 80 inches: extremely paragravelly fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Ecological site: R155XY040FL - Sandy over Loamy Freshwater Floodplain Marshes and Swamps
Forage suitability group: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Minor Components

Basinger

Percent of map unit: 7 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Floridana

Percent of map unit: 6 percent
Landform: Depressions on drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps

Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Pineda

Percent of map unit: 4 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

17—Felda fine sand, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tzxb
Elevation: 0 to 150 feet
Mean annual precipitation: 46 to 63 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 335 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Felda and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Felda

Setting

Landform: Depressions on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 7 inches: fine sand
Eg - 7 to 24 inches: fine sand
Btg - 24 to 36 inches: fine sandy loam
Cg - 36 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained

Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Minor Components

Floridana

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Winder

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear

Ecological site: R155XY090FL - Loamy and Clayey Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Loamy and clayey soils on stream terraces, flood plains, or in depressions (G155XB345FL)
Hydric soil rating: Yes

Eaton

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: F154XA012FL - Wet Rich Forests And Woodlands
Other vegetative classification: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G154XB345FL), Freshwater Marshes and Ponds (R154XY010FL)
Hydric soil rating: Yes

Kaliga

Percent of map unit: 1 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

Myakka

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Sanibel

Percent of map unit: 1 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

18—Floridana mucky fine sand, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2sm4y
Elevation: 0 to 90 feet
Mean annual precipitation: 45 to 63 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 335 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Floridana and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Floridana

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Sandy and loamy marine deposits

Typical profile

A1 - 0 to 4 inches: mucky fine sand
A2 - 4 to 15 inches: fine sand
Eg - 15 to 32 inches: fine sand
Btg - 32 to 44 inches: sandy clay loam
BCg - 44 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: C/D
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Minor Components

Holopaw
Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Felda
Percent of map unit: 4 percent
Landform: Flats on marine terraces, depressions on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Gator
Percent of map unit: 4 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

Placid
Percent of map unit: 2 percent
Landform: Depressions on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps

Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

19—Gator muck, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tzwz
Elevation: 0 to 100 feet
Mean annual precipitation: 42 to 56 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Gator and similar soils: 83 percent
Minor components: 17 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gator

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous organic material over sandy and loamy marine deposits

Typical profile

Oa - 0 to 18 inches: muck
Cg1 - 18 to 36 inches: sandy clay loam
Cg2 - 36 to 55 inches: fine sandy loam
Cg3 - 55 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very high (about 13.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Forage suitability group: Organic soils in depressions and on flood plains (G155XB645FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

Minor Components

Terra ceia

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

Chobee

Percent of map unit: 4 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY090FL - Loamy and Clayey Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Loamy and clayey soils on stream terraces, flood plains, or in depressions (G155XB345FL)
Hydric soil rating: Yes

Tequesta

Percent of map unit: 4 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R156BY010FL), Organic soils in depressions and on flood plains (G156AC645FL)
Hydric soil rating: Yes

Felda

Percent of map unit: 3 percent
Landform: Drainageways on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear

Across-slope shape: Concave, linear
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Pompano

Percent of map unit: 1 percent
Landform: Drainageways on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

20—Immokalee fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2s3lk
Elevation: 0 to 130 feet
Mean annual precipitation: 42 to 68 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Immokalee and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Immokalee

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 35 inches: fine sand
Bh - 35 to 54 inches: fine sand
BC - 54 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained

Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Minor Components

Basinger

Percent of map unit: 4 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Pomello

Percent of map unit: 2 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G155XB131FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Wabasso

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear, convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)

Hydric soil rating: No

Placid

Percent of map unit: 1 percent
Landform: Depressions on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Jenada

Percent of map unit: 1 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

21—Malabar fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2svz3
Elevation: 10 to 140 feet
Mean annual precipitation: 42 to 63 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Malabar and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Malabar

Setting

Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand

E - 5 to 17 inches: fine sand
Bw - 17 to 42 inches: fine sand
Btg - 42 to 59 inches: fine sandy loam
Cg - 59 to 80 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Minor Components

Valkaria

Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Oldsmar

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Pineda

Percent of map unit: 4 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

22—Malabar fine sand, high, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2svz4
Elevation: 0 to 80 feet
Mean annual precipitation: 42 to 64 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 355 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Malabar, high, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Malabar, High

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 17 inches: fine sand

Bw - 17 to 42 inches: fine sand
Bt - 42 to 59 inches: fine sandy loam
Cg - 59 to 80 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Minor Components

Oldsmar

Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Pineda

Percent of map unit: 4 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Felda

Percent of map unit: 4 percent
Landform: Drainageways on marine terraces, flatwoods on marine terraces

Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

23—Malabar fine sand, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2svz5
Elevation: 10 to 90 feet
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Malabar and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Malabar

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 17 inches: fine sand
Bw - 17 to 42 inches: fine sand
Btg - 42 to 59 inches: fine sandy loam
Cg - 59 to 80 inches: loamy fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Minor Components

Valkaria

Percent of map unit: 3 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Pineda

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Felda

Percent of map unit: 3 percent
Landform: Flats on marine terraces, depressions on marine terraces

Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Delray

Percent of map unit: 1 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

24—Myakka fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2s3lg
Elevation: 0 to 130 feet
Mean annual precipitation: 42 to 56 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Myakka and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Myakka

Setting

Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 20 inches: fine sand
Bh - 20 to 36 inches: fine sand
C - 36 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Minor Components

Basinger

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Wabasso

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Cassia

Percent of map unit: 3 percent
Landform: Rises on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear

Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sand Pine Scrub (R155XY001FL), Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Hydric soil rating: No

Immokalee

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Satellite

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces, rises on marine terraces
Landform position (three-dimensional): Tread, talf, rise
Down-slope shape: Linear, convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sand Pine Scrub (R155XY001FL), Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Hydric soil rating: No

25—Ona fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2w4gy
Elevation: 10 to 130 feet
Mean annual precipitation: 44 to 63 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Ona and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ona

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear

Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
Bh - 4 to 22 inches: fine sand
C - 22 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Minor Components

Basinger

Percent of map unit: 5 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Immokalee

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Myakka

Percent of map unit: 3 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Pomello

Percent of map unit: 2 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sand Pine Scrub (R155XY001FL), Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Hydric soil rating: No

Eaugallie

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

26—Pineda-Pineda, wet, fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2svyp
Elevation: 0 to 100 feet
Mean annual precipitation: 42 to 63 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Pineda and similar soils: 45 percent
Pineda, wet, and similar soils: 40 percent
Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pineda

Setting

Landform: Drainageways on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 1 inches: fine sand
E - 1 to 5 inches: fine sand
Bw - 5 to 36 inches: fine sand
Btg/E - 36 to 54 inches: fine sandy loam
Cg - 54 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: No

Description of Pineda, Wet

Setting

Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 1 inches: fine sand
E - 1 to 5 inches: fine sand
Bw - 5 to 36 inches: fine sand

Btg/E - 36 to 54 inches: fine sandy loam
Cg - 54 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Minor Components

Felda

Percent of map unit: 6 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Wabasso

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Valkaria

Percent of map unit: 2 percent

Landform: Drainageways on flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Cypress lake

Percent of map unit: 2 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Brynwood

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

27—Pineda fine sand, frequently flooded

Map Unit Setting

National map unit symbol: 1hk6d
Elevation: 10 to 100 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 312 to 342 days
Farmland classification: Not prime farmland

Map Unit Composition

Pineda, frequently flooded, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pineda, Frequently Flooded

Setting

Landform: Flood plains on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E/Bw - 5 to 24 inches: fine sand
Btg - 24 to 37 inches: fine sandy loam
Cg - 37 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Ecological site: R155XY040FL - Sandy over Loamy Freshwater Floodplain Marshes and Swamps
Forage suitability group: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Minor Components

Felda, frequently flooded

Percent of map unit: 5 percent
Landform: Flood plains on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R155XY040FL - Sandy over Loamy Freshwater Floodplain Marshes and Swamps
Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Basinger, frequently flooded

Percent of map unit: 5 percent
Landform: Flood plains on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R155XY030FL - Sandy Freshwater Floodplain Marshes and Swamps
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Pompano

Percent of map unit: 5 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

28—Pineda fine sand, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2svz7
Elevation: 0 to 90 feet
Mean annual precipitation: 46 to 60 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 355 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Pineda and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pineda

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 3 inches: fine sand
E - 3 to 12 inches: fine sand

Bw - 12 to 31 inches: fine sand
Btg/E - 31 to 39 inches: fine sandy loam
Btg - 39 to 55 inches: fine sandy loam
Cg - 55 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Minor Components

Malabar

Percent of map unit: 4 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Valkaria

Percent of map unit: 2 percent
Landform: Drainageways on flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Floridana

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Cypress lake

Percent of map unit: 2 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

29—Pineda-Pinellas fine sands

Map Unit Setting

National map unit symbol: 1hk6g
Elevation: 20 to 80 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 312 to 342 days
Farmland classification: Not prime farmland

Map Unit Composition

Pineda and similar soils: 45 percent
Pinellas and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pineda

Setting

Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 1 inches: fine sand
E/Bw - 1 to 36 inches: fine sand
Btg - 36 to 54 inches: fine sandy loam
Cg - 54 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Description of Pinellas

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
E - 4 to 20 inches: fine sand
Bk - 20 to 30 inches: fine sand
Btg - 30 to 42 inches: fine sandy loam
Cg - 42 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: No

Minor Components

Farmton

Percent of map unit: 7 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Eaugallie

Percent of map unit: 7 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Wabasso

Percent of map unit: 6 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

30—Pomello fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tzw1
Elevation: 0 to 110 feet
Mean annual precipitation: 42 to 60 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Pomello and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pomello

Setting

Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
E - 4 to 42 inches: fine sand
Bh - 42 to 54 inches: fine sand
B/C - 54 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A

Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Forage suitability group: Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Other vegetative classification: Sand Pine Scrub (R155XY001FL), Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Hydric soil rating: No

Minor Components

Duette
Percent of map unit: 5 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Immokalee
Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Jonathan
Percent of map unit: 3 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, tread, rise
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL)
Hydric soil rating: No

Tavares
Percent of map unit: 2 percent
Landform: Ridges on marine terraces, knolls on marine terraces, hills on marine terraces, flatwoods on marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, side slope, tread, rise
Down-slope shape: Linear, convex
Across-slope shape: Convex, linear

Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands
Other vegetative classification: Sand Pine Scrub (R155XY001FL), Longleaf Pine-Turkey Oak Hills (R155XY002FL), Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL)
Hydric soil rating: No

31—Pompano fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tzw3
Elevation: 0 to 100 feet
Mean annual precipitation: 44 to 65 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Pompano and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pompano

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
C - 4 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Minor Components

Anclote

Percent of map unit: 4 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Valkaria

Percent of map unit: 4 percent
Landform: Drainageways on flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Malabar

Percent of map unit: 4 percent
Landform: — error in exists on —
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Immokalee

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks

Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Myakka

Percent of map unit: 3 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Riviera

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

32—Punta fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9f7
Elevation: 0 to 70 feet
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 360 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Punta and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Punta

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
E - 4 to 57 inches: fine sand
Bh - 57 to 80 inches: fine sand

Properties and qualities

Slope: 1 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Minor Components

Immokalee

Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Satellite

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces, rises on marine terraces
Landform position (three-dimensional): Tread, talf, rise
Down-slope shape: Linear, convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sand Pine Scrub (R155XY001FL), Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Hydric soil rating: No

Myakka

Percent of map unit: 2 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

34—Samsula muck, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tzw9
Elevation: 0 to 250 feet
Mean annual precipitation: 44 to 63 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 335 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Samsula and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Samsula

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous organic material over sandy marine deposits

Typical profile

Oa1 - 0 to 24 inches: muck
Oa2 - 24 to 32 inches: muck
Cg1 - 32 to 35 inches: sand
Cg2 - 35 to 44 inches: sand
Cg3 - 44 to 80 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches

Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very high (about 13.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Forage suitability group: Organic soils in depressions and on flood plains (G155XB645FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

Minor Components

Myakka

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Kaliga

Percent of map unit: 3 percent
Landform: Depressions on flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Anclote

Percent of map unit: 2 percent

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Floridana

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Sanibel

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

36—Smyrna fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2svzh
Elevation: 0 to 130 feet
Mean annual precipitation: 38 to 63 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 300 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Smyrna and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Smyrna

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
E - 4 to 13 inches: fine sand
Bh - 13 to 18 inches: fine sand
C/Bw - 18 to 49 inches: fine sand
C - 49 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Minor Components

Eaugallie

Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Basinger

Percent of map unit: 4 percent

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Placid

Percent of map unit: 2 percent
Landform: Depressions on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Pomello

Percent of map unit: 2 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sand Pine Scrub (R155XY001FL), Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Hydric soil rating: No

Immokalee

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

37—Tavares fine sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2sw00
Elevation: 0 to 130 feet

Mean annual precipitation: 42 to 63 inches
Mean annual air temperature: 66 to 77 degrees F
Frost-free period: 340 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Tavares and similar soils: 83 percent
Minor components: 17 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tavares

Setting

Landform: Flats on marine terraces, hills on marine terraces, ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, side slope, tread, rise
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Eolian or sandy marine deposits

Typical profile

A - 0 to 6 inches: fine sand
C - 6 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands
Forage suitability group: Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL)
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R155XY002FL), Sand Pine Scrub (R155XY001FL), Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL)
Hydric soil rating: No

Minor Components

Cassia

Percent of map unit: 5 percent
Landform: Rises on marine terraces, knolls on marine terraces

Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sand Pine Scrub (R155XY001FL), Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Hydric soil rating: No

Pomello

Percent of map unit: 4 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sand Pine Scrub (R155XY001FL), Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Hydric soil rating: No

Astatula

Percent of map unit: 3 percent
Landform: Hills on marine terraces, ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, riser, rise
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R155XY230FL - Sandy Scrub on Ridges, Knolls, and Dunes of Xeric Uplands
Other vegetative classification: Sandy soils on ridges and dunes of xeric uplands (G155XB111FL)
Hydric soil rating: No

Apopka

Percent of map unit: 3 percent
Landform: Hills on marine terraces, ridges on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, riser
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F154XA004FL - Moist Sandy Pine-Hardwood Woodlands
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R155XY002FL), Sandy soils on ridges and dunes of xeric uplands (G155XB111FL)
Hydric soil rating: No

Adamsville

Percent of map unit: 2 percent
Landform: Rises on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands

Other vegetative classification: Upland Hardwood Hammock (R155XY008FL), Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Hydric soil rating: No

40—Valkaria fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tzw5
Elevation: 0 to 110 feet
Mean annual precipitation: 44 to 61 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Valkaria and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Valkaria

Setting

Landform: Drainageways on flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 16 inches: fine sand
Bw - 16 to 51 inches: fine sand
C - 51 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: A/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Minor Components

Myakka
Percent of map unit: 5 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Pineda
Percent of map unit: 4 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Malabar
Percent of map unit: 4 percent
Landform: — error in exists on —
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Satellite
Percent of map unit: 2 percent
Landform: Rises on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, rise, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sand Pine Scrub (R155XY001FL), Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Hydric soil rating: No

41—Wabasso fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2svzg
Elevation: 0 to 130 feet
Mean annual precipitation: 38 to 64 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Wabasso and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wabasso

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
E - 4 to 16 inches: fine sand
Bh - 16 to 28 inches: fine sand
E' - 28 to 32 inches: fine sand
Btg - 32 to 48 inches: fine sandy loam
Ckg - 48 to 80 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: A/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Minor Components

Myakka

Percent of map unit: 4 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Riviera

Percent of map unit: 4 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 3 percent
Landform: Drainageways on flats, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave, linear, convex
Across-slope shape: Concave, linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Malabar

Percent of map unit: 2 percent
Landform: — error in exists on —
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Felda

Percent of map unit: 1 percent
Landform: Drainageways on marine terraces, flats on marine terraces

Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Pinellas

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Cabbage Palm Flatwoods (R155XY005FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: No

42—Zolfo fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tzw7
Elevation: 0 to 200 feet
Mean annual precipitation: 45 to 58 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Zolfo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Zolfo

Setting

Landform: Rises on marine terraces, flatwoods on marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 59 inches: fine sand
Bh - 59 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Forage suitability group: Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on rises and knolls of mesic uplands (G155XB131FL)
Hydric soil rating: No

Minor Components

Tavares

Percent of map unit: 6 percent
Landform: Knolls on marine terraces, rises on marine terraces, flatwoods on marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, side slope, tread, rise
Down-slope shape: Linear, convex
Across-slope shape: Convex, linear
Ecological site: R155XY180FL - Sandy Scrub on Rises, Ridges, and Knolls of Mesic Uplands
Other vegetative classification: Sand Pine Scrub (R155XY001FL), Longleaf Pine-Turkey Oak Hills (R155XY002FL), Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL)
Hydric soil rating: No

Myakka

Percent of map unit: 4 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Malabar

Percent of map unit: 3 percent
Landform: — error in exists on —
Landform position (three-dimensional): Tread, dip, talf

Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Millhopper

Percent of map unit: 2 percent
Landform: Rises on marine terraces, flatwoods on marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, rise, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F154XA004FL - Moist Sandy Pine-Hardwood Woodlands
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G155XB121FL)
Hydric soil rating: No

99—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: Unranked

Highlands County, Florida

7—Placid fine sand, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tzx9
Elevation: 0 to 160 feet
Mean annual precipitation: 44 to 61 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Placid and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Placid

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 24 inches: fine sand
Cg - 24 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL), Freshwater Marshes and Ponds (R155XY010FL)

Hydric soil rating: Yes

Minor Components

Basinger

Percent of map unit: 7 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Myakka

Percent of map unit: 5 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Gentry

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Samsula

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Organic soils in depressions and on flood plains (G155XB645FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Felda

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave

Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

8—Immokalee sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2s3ll
Elevation: 0 to 150 feet
Mean annual precipitation: 42 to 57 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Immokalee and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Immokalee

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 9 inches: sand
E - 9 to 36 inches: sand
Bh - 36 to 55 inches: sand
C - 55 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Minor Components

Valkaria

Percent of map unit: 5 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Oldsmar

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Pomello

Percent of map unit: 3 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, riser
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G155XB131FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Satellite

Percent of map unit: 2 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sand Pine Scrub (R155XY001FL), Sandy soils on rises and knolls of mesic uplands (G155XB131FL)

Hydric soil rating: No

Felda

Percent of map unit: 1 percent
Landform: Drainageways on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

10—Myakka fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2s3lg
Elevation: 0 to 130 feet
Mean annual precipitation: 42 to 56 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Myakka and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Myakka

Setting

Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 20 inches: fine sand
Bh - 20 to 36 inches: fine sand
C - 36 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 6 to 18 inches

Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Minor Components

Basinger

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Wabasso

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Cassia

Percent of map unit: 3 percent
Landform: Rises on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G155XB131FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Immokalee

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf

Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Satellite

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces, rises on marine terraces
Landform position (three-dimensional): Tread, talf, rise
Down-slope shape: Linear, convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G155XB131FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

12—Basinger fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2svym
Elevation: 0 to 100 feet
Mean annual precipitation: 42 to 63 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Basinger and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Basinger

Setting

Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, convex
Across-slope shape: Linear, concave
Parent material: Sandy marine deposits

Typical profile

Ag - 0 to 2 inches: fine sand
Eg - 2 to 18 inches: fine sand
Bh/E - 18 to 36 inches: fine sand
Cg - 36 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Minor Components

Myakka

Percent of map unit: 6 percent
Landform: Flatwoods on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Immokalee

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Placid

Percent of map unit: 4 percent
Landform: Depressions on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps

Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Pompano

Percent of map unit: 4 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Felda

Percent of map unit: 1 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Anclote

Percent of map unit: 1 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

16—Valkaria fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tzw5
Elevation: 0 to 110 feet
Mean annual precipitation: 44 to 61 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Valkaria and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Valkaria

Setting

Landform: Drainageways on flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 16 inches: fine sand
Bw - 16 to 51 inches: fine sand
C - 51 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Minor Components

Myakka

Percent of map unit: 5 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)

Hydric soil rating: No

Pineda

Percent of map unit: 4 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: F155XY130FL - Sandy over Loamy Flatwoods and Hammocks
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Malabar

Percent of map unit: 4 percent
Landform: — error in exists on —
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Satellite

Percent of map unit: 2 percent
Landform: Rises on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, rise, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Flatwoods and Hammocks on Rises and Knolls of Mesic Uplands
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G155XB131FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

20—Samsula muck, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tzw9
Elevation: 0 to 250 feet
Mean annual precipitation: 44 to 63 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 335 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Samsula and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Samsula

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous organic material over sandy marine deposits

Typical profile

Oa1 - 0 to 24 inches: muck
Oa2 - 24 to 32 inches: muck
Cg1 - 32 to 35 inches: sand
Cg2 - 35 to 44 inches: sand
Cg3 - 44 to 80 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very high (about 13.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Forage suitability group: Organic soils in depressions and on flood plains (G155XB645FL)
Other vegetative classification: Organic soils in depressions and on flood plains (G155XB645FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Minor Components

Myakka

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Kaliga

Percent of map unit: 3 percent
Landform: Depressions on flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps
Other vegetative classification: Organic soils in depressions and on flood plains (G155XB645FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Anclote

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Floridana

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Sanibel

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave
Ecological site: R155XY100FL - Organic Freshwater Isolated Marshes and Swamps

Other vegetative classification: Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

39—Smyrna sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2svzy
Elevation: 30 to 130 feet
Mean annual precipitation: 46 to 55 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Smyrna and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Smyrna

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear, convex
Parent material: Sandy marine deposits

Typical profile

A - 0 to 5 inches: sand
Eg - 5 to 15 inches: sand
Bh1 - 15 to 18 inches: sand
Bh2 - 18 to 22 inches: sand
C1 - 22 to 35 inches: sand
C2 - 35 to 45 inches: sand
Cg1 - 45 to 56 inches: sand
Cg2 - 56 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0

Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Minor Components

Ona

Percent of map unit: 4 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Placid

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces, depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 2 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Valkaria

Percent of map unit: 2 percent
Landform: Drainageways on flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

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Summary of Roadway Seasonal High Groundwater Table Estimates
SR 70 from West of SR 31 to CR 760 (Segment 9)
DeSoto County, Florida
FPID No. 451690-1-32-01
Tierra Project No: 6511-24-001

Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
	Northing (feet)	Easting (feet)			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
SH9-1	1045223	709713	62.8	5.0	1/21/2024	1.8	61.0	20	0.5-1.5	0.5	62.3
SH9-2	1045271	710190	63.2	5.0	1/21/2024	2.9	60.3	36	0.5-1.5	1.0	62.2
SH9-3	1045224	710687	63.9	5.0	1/21/2024	4.5	59.4	36	0.5-1.5	2.0	61.9
SH9-4	1045249	711181	62.4	4.5	1/21/2024	1.8	60.6	36	0.5-1.5	0.5	61.9
SH9-5	1045221	711692	63.7	5.0	1/21/2024	2.0	61.7	36	0.5-1.5	0.5	63.2
SH9-7	1045211	712679	63.1	3.5	1/21/2024	0.8	62.3	36	0.5-1.5	ABG[5]	>63.1
SH9-9	1045209	713496	63.6	3.5	1/21/2024	1.2	62.4	3	0.0-1.0	0.0	63.6
SH9-11	1045166	714544	64.0	5.0	1/31/2024	1.7	62.3	20	0.5-1.5	0.0	64.0
SH9-12	1045231	715011	64.8	5.0	1/31/2024	2.3	62.5	20	0.5-1.5	0.5	64.3
SH9-13	1045161	715506	63.8	4.0	1/31/2024	1.4	62.4	20	0.5-1.5	0.0	63.8
SH9-14	1045227	716022	64.6	5.0	1/31/2024	1.9	62.7	25	0.5-1.5	0.5	64.1
SH9-15	1045178	716537	64.0	4.0	1/31/2024	1.6	62.4	25	0.5-1.5	0.0	64.0
SH9-16	1045225	717031	65.6	5.0	1/31/2024	3.4	62.2	20	0.5-1.5	2.0	63.6
SH9-17	1045153	717550	63.5	5.0	2/1/2024	2.2	61.3	20	0.5-1.5	0.5	63.0
SH9-18	1045227	718007	64.8	6.0	2/1/2024	4.7	60.1	42/20	1.5-3.5/0.5-1.5	2.5	62.3
SH9-19	1045154	718500	61.5	4.5	2/1/2024	3.9	57.6	42	1.5-3.5	2.0	59.5
SH9-20	1045050	718964	59.1	5.0	2/1/2024	2.8	56.3	36/3	0.5-1.5/0.0-1.0	1.5	57.6
SH9-21	1045163	719500	55.7	5.0	2/1/2024	3.0	52.7	3/4	0.0-1.0/0.0	1.0	54.7
SH9-22	1045266	720005	52.6	3.5	2/1/2024	1.1	51.5	4/36	0.0/0.5-1.5	0.0	52.6
SH9-23	1045243	720496	56.4	4.0	2/1/2024	2.2	54.2	36	0.5-1.5	0.5	55.9
SH9-24	1045329	721003	60.1	6.0	2/1/2024	4.7	55.4	36	0.5-1.5	2.5	57.6
SH9-25	1045289	721478	58.5	5.0	2/1/2024	1.6	56.9	36	0.5-1.5	0.0	58.5
SH9-26	1045336	721988	62.2	5.0	2/1/2024	3.6	58.6	36	0.5-1.5	1.5	60.7
SH9-27	1045214	722487	61.5	5.0	2/1/2024	1.6	59.9	36	0.5-1.5	0.5	61.0
SH9-28	1045262	723014	61.2	4.0	2/1/2024	1.7	59.5	21/23	0.3-1.5/+2.0-0.0	0.5	60.7
SH9-29	1045160	723527	61.9	4.0	2/1/2024	1.8	60.1	21	0.3-1.5	0.5	61.4
SH9-30	1045048	723979	63.0	5.0	2/1/2024	2.7	60.3	21/13	0.3-1.5/0.5-1.5	1.0	62.0

[1] Boring locations and ground elevations were provided by the project surveyor.

[2] Depth below existing grades at time of field exploration.

[3] Seasonal high groundwater table depth estimated based on the DeSoto County, Florida USDA Soil Survey information.

[4] Seasonal high groundwater table depth estimated based on soil stratigraphy, measured groundwater levels from the borings, the DeSoto County, Florida USDA Soil Survey information and past experience with similar soil conditions.

[5] ABG: Estimated seasonal high groundwater table is above existing grade. Tierra recommends SHGWT be evaluated by the project biologist based on biological indicators.

Summary of Roadway Seasonal High Groundwater Table Estimates
SR 70 from West of SR 31 to CR 760 (Segment 9)
DeSoto County, Florida
FPID No. 451690-1-32-01
Tierra Project No: 6511-24-001

Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
	Northing (feet)	Easting (feet)			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
SH9-31	1045147	724495	63.7	5.0	2/1/2024	2.7	61.0	13	0.5-1.5	1.0	62.7
SH9-32	1045212	724957	64.0	5.0	2/1/2024	2.3	61.7	13	0.5-1.5	0.5	63.5
SH9-33	1045131	725464	64.5	5.0	2/1/2024	2.2	62.3	14	0.5-1.5	0.5	64.0
SH9-34	1045213	725951	62.7	5.0	2/1/2024	2.5	60.2	14	0.5-1.5	1.0	61.7
SH9-35	1045140	726461	62.1	5.0	2/1/2024	2.9	59.2	14	0.5-1.5	1.5	60.6
SH9-36	1045209	726950	62.8	5.0	2/1/2024	4.0	58.8	21	0.3-1.5	2.5	60.3
SH9-37	1045142	727461	62.4	5.0	2/1/2024	2.8	59.6	36	0.5-1.5	1.0	61.4
SH9-38	1045211	727951	63.9	5.0	2/1/2024	3.2	60.7	36	0.5-1.5	1.5	62.4
SH9-39	1045135	728459	63.8	5.0	2/1/2024	2.7	61.1	36	0.5-1.5	1.5	62.3
SH9-40	1045047	728934	63.9	5.0	1/30/2024	2.9	61.0	36	0.5-1.5	1.5	62.4
SH9-41	1045138	729441	64.1	5.0	1/30/2024	2.8	61.3	41/36	0.5-1.5/0.5-1.5	1.5	62.6
SH9-42	1045214	729943	64.3	5.0	1/30/2024	2.3	62.0	36	0.5-1.5	1.0	63.3
SH9-43	1045147	730465	64.8	5.0	1/30/2024	2.3	62.5	36	0.5-1.5	1.0	63.8
SH9-44	1045217	730950	65.4	5.0	1/30/2024	2.8	62.6	36	0.5-1.5	1.5	63.9
SH9-45	1045139	731401	64.9	5.0	1/30/2024	2.2	62.7	36	0.5-1.5	1.0	63.9
SH9-46	1045214	731961	65.5	5.0	1/30/2024	4.0	61.5	36/3	0.5-1.5/0.0-1.0	2.0	63.5
SH9-47	1045153	732463	62.7	4.0	1/30/2024	3.0	59.7	13	0.5-1.5	0.5	62.2
SH9-48	1045224	732939	63.0	4.0	1/29/2024	2.3	60.7	13	0.5-1.5	1.0	62.0
SH9-49	1045156	733450	61.9	5.0	1/29/2024	2.4	59.5	36/13	0.5-1.5/0.5-1.5	1.0	60.9
SH9-50	1045062	733917	59.7	5.0	1/29/2024	2.4	57.3	36	0.5-1.5	1.0	58.7
SH9-51	1045161	734420	58.2	6.5	1/29/2024	5.4	52.8	2	+2.0-0.0	1.5	56.7
SH9-52	1045219	734924	61.1	6.5	1/21/2024	5.4	55.7	2	+2.0-0.0	2.5	58.6
SH9-53	1045156	735434	62.8	5.0	1/21/2024	3.0	59.8	41/36	0.5-1.5/0.5-1.5	1.0	61.8
SH9-54	1045236	735915	64.9	5.0	1/21/2024	3.3	61.6	42	1.5-3.5	1.5	63.4
SH9-55	1045041	736423	67.1	5.0	1/21/2024	3.8	63.3	42	1.5-3.5	2.5	64.6

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SR 70 From CR 760 to the Highlands County Line (Segment 10)
DeSoto County, Florida
FPID No. 451942-1-32-01
Tierra Project No: 6511-24-001

Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
	Northing (feet)	Easting (feet)			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
SH10-1	1045172	737105	65.8	5.0	2/2/2024	3.0	62.8	36	0.5-1.5	1.0	64.8
SH10-2	1045232	737571	65.3	5.0	2/2/2024	3.0	62.3	36	0.5-1.5	1.0	64.3
SH10-3	1045182	738108	65.3	5.0	2/2/2024	4.3	61.1	36	0.5-1.5	2.0	63.3
SH10-4	1045286	738576	63.4	5.0	2/2/2024	2.9	60.5	14	0.5-1.5	1.0	62.4
SH10-5	1045268	739120	64.0	5.0	2/2/2024	3.8	60.2	14	0.5-1.5	1.5	62.5
SH10-6	1045376	739587	64.5	5.0	2/2/2024	3.3	61.2	14	0.5-1.5	1.5	63.0
SH10-7	1045355	740103	65.5	5.0	2/2/2024	3.3	62.2	14	0.5-1.5	1.5	64.0
SH10-8	1045454	740578	65.3	5.0	2/2/2024	3.1	62.2	14	0.5-1.5	1.0	64.3
SH10-9	1045399	741062	66.2	5.0	2/2/2024	4.4	61.8	14	0.5-1.5	2.0	64.2
SH10-10	1045304	741547	66.6	6.5	2/2/2024	3.0	63.6	14	0.5-1.5	2.0	64.6
SH10-11	1045410	742094	66.8	6.5	2/2/2024	4.0	62.8	14	0.5-1.5	2.5	64.3
SH10-12	1045482	742555	65.6	5.0	2/2/2024	3.0	62.6	14/21	0.5-1.5/0.3-1.5	1.5	64.1
SH10-13	1045405	743070	68.5	6.5	2/2/2024	5.1	63.4	21/24	0.3-1.5/0.5-1.5	3.5	65.0
SH10-14	1045484	743525	67.0	5.0	2/2/2024	3.9	63.1	24	0.5-1.5	1.0	66.0
SH10-15	1045434	744038	68.4	5.0	2/2/2024	4.0	64.4	21/24	0.3-1.5/0.5-1.5	2.5	65.9
SH10-16	1045492	744505	68.7	5.0	2/2/2024	4.2	64.5	13/21	0.5-1.5/0.5-1.5	2.3	66.4
SH10-17	1045438	745031	69.3	5.0	2/3/2024	3.3	66.1	14	0.5-1.5	2.0	67.3
SH10-18	1045504	745499	69.2	5.0	2/3/2024	4.9	64.3	14	0.5-1.5	1.8	67.4
SH10-19	1045442	746009	69.3	5.0	2/3/2024	4.4	64.9	14/20	0.5-1.5/0.5-1.5	2.0	67.3
SH10-20	1045332	746515	70.5	6.0	2/3/2024	5.0	65.5	20	0.5-1.5	2.5	68.0
SH10-21	1045444	747032	69.4	6.0	2/3/2024	4.3	65.1	20/21	0.5-1.5/0.3-1.5	1.5	67.9
SH10-22	1045512	747507	69.0	6.0	2/4/2024	4.7	64.3	21	0.3-1.5	1.5	67.5
SH10-23	1045452	748037	69.0	5.0	2/4/2024	3.6	65.4	21/40	0.3-1.5/0.3-1.5	1.8	67.2
SH10-24	1045512	748510	68.5	5.0	2/4/2024	3.8	64.7	14/21	0.5-1.5/0.5-1.5	1.0	67.5
SH10-25	1045453	749036	69.9	6.5	2/4/2024	4.4	65.5	14/40	0.5-1.5/0.3-1.5	2.5	67.4
SH10-26	1045511	749499	69.9	6.5	2/4/2024	4.0	65.9	40	0.3-1.5	2.0	67.9
SH10-27	1045456	750002	70.7	6.5	2/4/2024	3.6	67.1	40	0.3-1.5	2.0	68.7
SH10-28	1045509	750498	70.6	5.0	2/4/2024	2.6	68.0	20	0.5-1.5	1.0	69.6
SH10-29	1045466	751060	71.7	5.0	2/4/2024	3.1	68.6	14/20	0.5-1.5/0.5-1.5	1.5	70.2

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DeSoto County, Florida
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Tierra Project No: 6511-24-001

Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
	Northing (feet)	Easting (feet)			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
SH10-30	1045346	751501	71.2	5.0	2/4/2024	2.0	69.2	14	0.5-1.5	0.5	70.7
SH10-31	1045464	752059	72.6	4.0	2/4/2024	3.1	69.5	21	0.3-1.5	1.5	71.1
SH10-32	1045527	752551	72.6	6.0	2/4/2024	3.3	69.3	13	0.5-1.5	1.5	71.1
SH10-33	1045477	753044	73.5	6.0	2/4/2024	4.2	69.3	13	0.5-1.5	1.8	71.7
SH10-34	1045530	753503	73.7	6.5	2/4/2024	4.0	69.7	13	0.5-1.5	1.5	72.2
SH10-35	1045472	754019	74.1	6.0	2/4/2024	3.9	70.2	13	0.5-1.5	1.5	72.6
SH10-36	1045534	754506	75.2	6.5	2/4/2024	5.0	70.2	13	0.5-1.5	2.0	73.2
SH10-37	1045482	754998	74.4	6.5	2/4/2024	3.7	70.7	13	0.5-1.5	1.0	73.4
SH10-38	1045535	755504	75.9	6.0	2/4/2024	5.3	70.6	13	0.5-1.5	2.5	73.4
SH10-39	1045483	756049	74.7	6.0	2/4/2024	3.1	71.6	13	0.5-1.5	1.5	73.2
SH10-40	1045368	756497	74.8	6.0	2/4/2024	3.7	71.1	13	0.5-1.5	2.0	72.8
SH10-41	1045501	757015	73.3	5.0	2/4/2024	2.4	70.9	21	0.3-1.5	1.0	72.3
SH10-42	1045562	757492	73.1	6.5	2/4/2024	2.9	70.2	21	0.3-1.5	1.5	71.6
SH10-43	1045491	757978	73.8	6.5	2/4/2024	3.9	69.9	21	0.3-1.5	2.5	71.3
SH10-44	1045559	758483	72.5	6.5	2/4/2024	3.3	69.2	21	0.3-1.5	1.0	71.5
SH10-45	1045493	759051	73.3	6.5	2/5/2024	3.6	69.7	21	0.3-1.5	2.0	71.3
SH10-46	1045564	759489	74.0	6.5	2/5/2024	4.7	69.3	13/21	0.5-1.5/0.3-1.5	2.5	71.5
SH10-47	1045503	759977	73.8	6.5	2/5/2024	4.1	69.7	14	0.5-1.5	2.0	71.8
SH10-48	1045570	760487	74.0	6.5	2/5/2024	4.3	69.8	14	0.5-1.5	2.0	72.0
SH10-49	1045500	760987	75.3	10.0	2/5/2024	8.4	66.9	14	0.5-1.5	3.0	72.3
SH10-50	1045402	761481	74.4	5.0	2/5/2024	4.2	70.2	14	0.5-1.5	2.0	72.4
SH10-51	1045504	761956	74.9	6.5	2/5/2024	4.6	70.3	14	0.5-1.5	2.5	72.4
SH10-52	1045609	762468	71.5	5.5	2/5/2024	2.9	68.6	14/21	0.5-1.5/0.3-1.5	0.0	71.5
SH10-53	1045505	762951	75.1	6.5	2/5/2024	5.3	69.9	21	0.3-1.5	3.0	72.1
SH10-54	1045597	763470	73.9	6.5	2/5/2024	4.3	69.6	21/26	0.3-1.5/0.0-1.5	2.0	71.9
SH10-55	1045514	763973	75.0	6.5	2/5/2024	5.2	69.8	26	0.0-1.5	3.0	72.0
SH10-56	1045607	764468	71.2	5.0	2/5/2024	1.6	69.6	22/26	0.5-1.5/0.0-1.5	0.0	71.2
SH10-57	1045517	764970	75.3	5.0	2/5/2024	4.5	70.8	22	0.5-1.5	2.5	72.8

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Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
	Northing (feet)	Easting (feet)			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
SH10-58	1045582	765461	72.5	5.0	2/5/2024	3.1	69.4	22	0.5-1.5	0.5	72.0
SH10-59	1045517	765958	75.8	6.0	2/5/2024	4.6	71.2	24/40	0.5-1.5/0.3-1.5	2.5	73.3
SH10-60	1045414	766486	73.7	5.0	2/5/2024	2.8	71.0	24/26	0.5-1.5/0.0-1.5	0.5	73.2
SH10-61	1045527	766970	76.0	6.0	2/5/2024	5.1	70.9	24	0.5-1.5	2.5	73.5
SH10-62	1045586	767470	75.7	6.5	2/5/2024	6.1	69.6	24	0.5-1.5	2.5	73.2
SH10-63	1045535	768014	76.4	6.5	2/5/2024	6.3	70.2	24	0.5-1.5	2.5	73.9
SH10-64	1045608	768471	76.1	6.5	2/6/2024	6.3	69.9	24	0.5-1.5	1.5	74.6
SH10-65	1045533	768974	77.1	5.0	2/6/2024	4.3	72.9	24	0.5-1.5	2.0	75.1
SH10-66	1045605	769470	76.1	5.5	2/6/2024	3.3	72.8	24	0.5-1.5	1.5	74.6
SH10-67	1045548	770005	76.9	6.5	2/6/2024	5.7	71.2	24	0.5-1.5	2.0	74.9
SH10-68	1045612	770468	77.4	6.5	2/6/2024	6.1	71.3	24	0.5-1.5	2.0	75.4
SH10-69	1045551	770967	76.2	5.0	2/6/2024	4.4	71.8	20/24	0.5-1.5/0.5-1.5	1.5	74.7
SH10-70	1045456	771483	78.0	6.0	2/6/2024	5.1	72.9	3/20	0.0-1.0/0.5-1.5	1.5	76.5
SH10-71	1045555	771971	77.3	5.0	2/6/2024	3.6	73.7	3/21	0.0-1.0/0.3-1.5	1.0	76.3
SH10-72	1045608	772450	76.9	6.5	2/6/2024	4.5	72.4	20	0.5-1.5	1.3	75.6
SH10-73	1045557	772960	78.0	6.5	2/6/2024	4.2	73.8	20	0.5-1.5	1.5	76.5
SH10-74	1045619	773453	79.2	6.5	2/6/2024	6.5	72.7	20	0.5-1.5	2.2	77.0
SH10-75	1045560	773958	79.1	6.5	2/6/2024	5.7	73.4	20/24	0.5-1.5/0.5-1.5	2.0	77.1
SH10-76	1045587	774456	77.9	6.5	2/6/2024	4.5	73.4	3/24	0.0-1.0/0.5-1.5	1.0	76.9
SH10-77	1045566	774960	79.4	6.5	2/6/2024	5.7	73.7	3	0.0-1.0	2.0	77.4
SH10-78	1045602	775465	80.9	6.5	2/6/2024	6.3	74.7	24	0.5-1.5	2.5	78.4
SH10-79	1045568	775996	79.7	6.5	2/6/2024	5.4	74.3	24/40	0.5-1.5/0.3-1.5	1.5	78.2
SH10-80	1045472	776447	81.1	6.5	2/6/2024	5.6	75.5	36/40	0.5-1.5/0.3-1.5	2.0	79.1
SH10-81	1045569	776952	81.0	6.5	2/6/2024	5.1	75.9	36	0.5-1.5	1.5	79.5
SH10-82	1045619	777489	81.2	5.0	2/6/2024	4.7	76.5	36	0.5-1.5	1.5	79.7
SH10-83	1045568	777988	81.9	5.0	2/6/2024	4.5	77.4	36	0.5-1.5	1.5	80.4
SH10-84	1045633	778455	81.2	5.0	2/6/2024	4.3	76.9	36	0.5-1.5	1.0	80.2
SH10-85	1045580	778968	83.2	6.5	2/6/2024	5.7	77.5	20	0.5-1.5	3.0	80.2

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	Northing (feet)	Easting (feet)			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
SH10-86	1045633	779456	83.5	6.5	2/6/2024	5.4	78.1	20	0.5-1.5	2.5	81.0
SH10-87	1045578	779979	84.6	6.0	2/6/2024	5.4	79.2	20	0.5-1.5	2.5	82.1
SH10-88	1045636	780444	84.3	5.0	2/6/2024	4.3	80.0	20	0.5-1.5	1.5	82.8
SH10-89	1045496	780964	83.5	6.0	2/6/2024	4.6	78.9	20/32	0.5-1.5/0.5-1.5	1.5	82.0
SH10-90	1045650	781446	81.5	5.0	2/6/2024	2.9	78.6	36	0.5-1.5	0.0	81.5
SH10-91	1045598	781960	82.7	5.0	2/6/2024	4.2	78.5	24/36	0.5-1.5/0.5-1.5	0.5	82.2
SH10-92	1045652	782441	83.7	6.0	2/6/2024	5.2	78.5	24/36	0.5-1.5/0.5-1.5	1.5	82.2
SH10-93	1045601	782968	83.1	5.0	2/6/2024	4.3	78.9	24/36	0.5-1.5/0.5-1.5	0.5	82.6
SH10-94	1045659	783479	83.9	6.0	2/6/2024	5.4	78.5	36	0.5-1.5	1.5	82.4
SH10-95	1045604	783971	84.1	5.0	2/6/2024	4.7	79.4	36	0.5-1.5	1.5	82.6
SH10-96	1045660	784442	84.2	6.0	2/6/2024	5.6	78.6	36	0.5-1.5	2.0	82.2
SH10-97	1045611	784941	84.0	5.0	2/5/2024	4.8	79.3	36	0.5-1.5	1.5	82.5
SH10-98	1045668	785434	84.9	6.5	2/5/2024	6.3	78.7	36	0.5-1.5	1.5	83.4
SH10-99	1045530	785982	84.7	6.0	2/5/2024	4.8	80.0	3/36	0.0-1.0/0.5-1.5	1.5	83.2
SH10-100	1045676	786447	84.0	6.0	2/5/2024	5.8	78.3	3	0.0-1.0	1.0	83.0
SH10-101	1045629	786984	83.3	5.0	2/5/2024	4.0	79.3	40	0.3-1.5	1.0	82.3
SH10-102	1045682	787448	83.3	5.0	2/5/2024	3.4	79.9	40	0.3-1.5	1.0	82.3
SH10-103	1045627	787955	83.4	5.0	2/5/2024	3.4	80.0	3	0.0-1.0	1.5	81.9
SH10-104	1045677	788428	83.1	5.0	2/5/2024	4.5	78.6	3	0.0-1.0	1.0	82.1
SH10-105	1045632	788976	83.2	5.0	2/5/2024	3.2	80.0	3	0.0-1.0	1.0	82.2
SH10-106	1045693	789411	82.7	5.0	2/5/2024	3.8	79.0	40	0.3-1.5	1.0	81.7
SH10-107	1045635	789918	83.4	6.0	2/5/2024	4.2	79.2	3	0.0-1.0	1.5	81.9
SH10-108	1045699	790413	83.5	6.0	2/5/2024	5.4	78.1	3/20	0.0-1.0/0.5-1.5	2.0	81.5
SH10-109	1045533	790872	83.7	5.0	2/5/2024	3.3	80.4	20	0.5-1.5	2.0	81.7
SH10-110	1045706	791409	83.1	5.0	2/5/2024	4.8	78.3	20	0.5-1.5	1.5	81.6
SH10-111	1045651	791905	82.7	5.0	2/3/2024	4.0	78.7	40	0.3-1.5	1.0	81.7
SH10-112	1045713	792404	81.9	5.0	2/3/2024	3.9	78.0	40	0.3-1.5	0.5	81.4
SH10-113	1045658	792947	82.3	5.0	2/3/2024	3.8	78.6	40	0.3-1.5	1.0	81.3

[1] Boring locations and ground elevations were provided by the project surveyor.

[2] Depth below existing grades at time of field exploration.

[3] Seasonal high groundwater table depth estimated based on the DeSoto County, Florida USDA Soil Survey information.

[4] Seasonal high groundwater table depth estimated based on soil stratigraphy, measured groundwater levels from the borings, the DeSoto County, Florida USDA Soil Survey information and past experience with similar soil conditions.

[5] ABG: Estimated seasonal high groundwater table is above existing grade. Tierra recommends SHGWT be evaluated by the project biologist based on biological indicators.

Summary of Roadway Seasonal High Groundwater Table Estimates
SR 70 From CR 760 to the Highlands County Line (Segment 10)
DeSoto County, Florida
FPID No. 451942-1-32-01
Tierra Project No: 6511-24-001

Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
	Northing (feet)	Easting (feet)			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
SH10-114	1045722	793405	81.1	5.5	2/3/2024	4.4	76.7	40	0.3-1.5	0.5	80.6
SH10-115	1045663	793889	81.8	6.0	2/3/2024	5.0	76.8	40	0.3-1.5	1.5	80.3
SH10-116	1045721	794399	81.8	6.0	2/3/2024	5.1	76.7	40	0.3-1.5	1.5	80.3
SH10-117	1045662	794906	83.5	6.0	2/3/2024	5.9	77.6	20	0.5-1.5	3.0	80.5
SH10-118	1045731	795405	83.3	7.0	2/3/2024	6.9	76.4	20	0.5-1.5	2.5	80.8
SH10-119	1045565	795877	81.9	5.0	2/3/2024	4.4	77.5	20/24	0.5-1.5/0.5-1.5	1.0	80.9
SH10-120	1045748	796391	82.8	6.0	2/3/2024	5.8	77.1	24	0.5-1.5	1.5	81.3
SH10-121	1045655	796861	84.8	7.0	2/3/2024	6.9	77.9	24	0.5-1.5	3.5	81.3
SH10-122	1045730	797349	79.7	5.0	2/3/2024	3.3	76.4	24/34	0.5-1.5/+2.0-0.0	0.0	79.7
SH10-123	1045675	797856	79.6	5.0	2/3/2024	3.3	76.3	34	+2.0-0.0	ABG[5]	>79.6
SH10-124	1045585	798215	81.5	6.5	2/3/2024	4.5	77.0	34	+2.0-0.0	1.5	80.0

[1] Boring locations and ground elevations were provided by the project surveyor.

[2] Depth below existing grades at time of field exploration.

[3] Seasonal high groundwater table depth estimated based on the DeSoto County, Florida USDA Soil Survey information.

[4] Seasonal high groundwater table depth estimated based on soil stratigraphy, measured groundwater levels from the borings, the DeSoto County, Florida USDA Soil Survey information and past experience with similar soil conditions.

[5] ABG: Estimated seasonal high groundwater table is above existing grade. Tierra recommends SHGWT be evaluated by the project biologist based on biological indicators.

Summary of SMF/FPC Alternatives Seasonal High Groundwater Table Estimates
SR 70 from West of SR 31 to Highlands County Line
DeSoto County, Florida
FPID No. 451942-2-52-01
Tierra Project No: 6511-24-001

SMF/FPC Site Name	Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
		Northing	Easting			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
FPC 0901C	PBA-1	1045770	710558	64.7	7.0	3/12/2025	6.9	57.8	36	0.5-1.5	4.5	60.2
FPC 0901B	PBA-2	1045741	710678	63.9	7.0	3/12/2025	6.6	57.3	36	0.5-1.5	3.5	60.4
FPC 0901A	PBA-3	1044662	710736	63.5	7.0	3/12/2025	6.6	56.9	36	0.5-1.5	3.0	60.5
	PBA-4	1044510	710754	63.1	7.0	3/12/2025	6.4	56.7	36	0.5-1.5	3.0	60.1
SMF 0901C	PBA-5	1045816	711396	63.8	5.0	3/12/2025	4.8	59.0	36	0.5-1.5	2.0	61.8
	PBA-6	1045401	711409	63.7	6.5	3/12/2025	5.4	58.3	36	0.5-1.5	2.0	61.7
	PBA-7	1045600	711419	63.9	7.0	3/12/2025	5.8	58.1	36	0.5-1.5	2.0	61.9
	PBA-8	1045414	711759	63.8	7.0	3/12/2025	5.5	58.3	36	0.5-1.5	2.0	61.8
SMF 0901A	PBA-10	1045673	712128	63.5	5.0	3/25/2025	4.8	58.7	36	0.5-1.5	1.0	62.5
	PBA-12	1045935	712476	63.0	5.0	3/25/2025	4.2	58.8	31	0.3-1.5	0.5	62.5
	PBA-13	1045423	712492	63.5	5.0	3/25/2025	4.5	59.0	36	0.5-1.5	1.0	62.5
SMF 0901B	PBA-15	1045907	713421	63.4	5.0	3/25/2025	4.0	59.4	3	0.0-1.0	0.5	62.9
	PBA-17	1045652	713786	63.3	5.0	3/25/2025	4.0	59.3	3	0.0-1.0	0.5	62.8
	PBA-19	1045875	714165	64.3	5.0	3/25/2025	4.6	59.7	20	0.5-1.5	1.5	62.8
	PBA-20	1045452	714186	63.7	5.0	3/25/2025	4.3	59.4	3	0.0-1.0	1.0	62.7
LP-4051R	PBA-21	1045003	714795	63.8	3.0	3/12/2025	GNE[5]	<60.8	25	0.5-1.5	1.0	62.8
	PBA-22	1044999	715815	63.7	5.0	3/12/2025	4.3	59.4	25	0.5-1.5	0.5	63.2
	PBA-23	1044981	716805	64.8	5.0	3/12/2025	4.8	60.0	20	0.5-1.5	1.5	63.3
	PBA-24	1045000	717773	65.2	6.0	3/12/2025	5.8	59.4	20	0.5-1.5	2.5	62.7
SMF 0902B	SH9-20	1045050	718964	59.1	5.0	2/1/2024	2.8	56.3	36/3	0.5-1.5/0.0-1.0	1.5	57.6
	PBA-25	1044785	718860	60.4	6.5	3/12/2025	4.9	55.5	36/42	0.5-1.5/1.5-3.5	2.5	57.9
	PBA-26	1044551	719033	59.6	5.0	3/12/2025	5.0	54.6	36	0.5-1.5	2.0	57.6
	PBA-27	1044793	719170	58.3	5.0	3/12/2025	4.7	53.6	3	0.0-1.0	1.5	56.8
LP-4096L	PBA-28	1045286	719239	58.5	6.5	3/13/2025	4.6	53.9	3	0.0-1.0	2.0	56.5
	SH9-22	1045266	720005	52.6	3.5	2/1/2024	1.1	51.5	4/36	0.0/0.5-1.5	0.0	52.6
	PBA-29	1045333	720276	55.4	5.5	3/13/2025	3.5	51.9	36	0.5-1.5	1.0	54.4
	SH9-24	1045329	721003	60.1	6.0	2/1/2024	4.7	55.4	36	0.5-1.5	3.0	57.1
	PBA-33	1045405	721323	60.3	5.0	3/13/2025	4.2	56.1	36	0.5-1.5	2.0	58.3
	SH9-26	1045336	721988	62.2	5.0	2/1/2024	3.6	58.6	36	0.5-1.5	2.0	60.2
	PBA-34	1045346	722357	62.1	5.0	3/13/2025	4.0	58.1	36	0.5-1.5	1.5	60.6
	SH9-28	1045262	723014	61.2	4.0	2/1/2024	1.7	59.5	21/23	0.3-1.5/+2.0-0.0	0.8	60.4
	PBA-35	1045270	723314	61.6	5.0	3/13/2025	3.4	58.2	21	0.3-1.5	1.0	60.6
SMF 0902A	PBA-30	1044956	720581	58.3	7.0	3/13/2025	5.9	52.4	36	0.5-1.5	1.0	57.3
	PBA-31	1044765	720958	59.4	6.0	3/13/2025	5.7	53.7	25	0.5-1.5	1.0	58.4
	PBA-32	1044983	721029	60.1	6.0	3/13/2025	5.7	54.4	36	0.5-1.5	1.5	58.6

[1] Boring locations and ground elevations were provided by the project surveyor.
[2] Depth below existing grades at time of field exploration.
[3] Seasonal high groundwater table depth estimated based on the DeSoto County, Florida USDA Soil Survey information.
[4] Seasonal high groundwater table depth estimated based on soil stratigraphy, measured groundwater levels from the borings, the DeSoto County, Florida USDA Soil Survey information and past experience with similar soil conditions.
[5] GNE: Groundwater Not Encountered
[6] Boring performed in active farmland at time of field exploration; encountered groundwater levels may be influenced by farmland irrigation.

Summary of SMF/FPC Alternatives Seasonal High Groundwater Table Estimates
SR 70 from West of SR 31 to Highlands County Line
DeSoto County, Florida
FPID No. 451942-2-52-01
Tierra Project No: 6511-24-001

SMF/FPC Site Name	Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
		Northing	Easting			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
LP-4148R	SH9-30	1045048	723979	63.0	5.0	2/1/2024	2.7	60.3	21/13	0.3-1.5/0.5-1.5	1.3	61.7
	PBA-36	1044987	724723	63.8	5.0	3/13/2025	3.6	60.2	13	0.5-1.5	1.5	62.3
	PBA-37	1044991	725620	63.3	5.0	3/13/2025	3.5	59.8	14	0.5-1.5	1.5	61.8
	PBA-38	1044968	726379	63.7	6.5	3/13/2025	5.2	58.5	14/41	0.5-1.5/0.5-1.5	2.0	61.7
	PBA-39	1044902	727147	60.2	5.0	3/14/2025	3.5	56.7	21	0.3-1.5	1.0	59.2
	PBA-40	1044911	727604	61.0	5.0	3/14/2025	3.8	57.2	36	0.5-1.5	1.0	60.0
	SH9-40	1045047	728934	63.9	5.0	1/30/2024	2.9	61.0	36	0.5-1.5	1.5	62.4
	PBA-44	1044988	729894	64.1	5.0	3/13/2025	4.0	60.1	36	0.5-1.5	1.0	63.1
SMF 0903B	SH9-36	1045209	726950	62.8	5.0	2/1/2024	4.0	58.8	21	0.3-1.5	2.5	60.3
	PBA-41	1045514	727065	62.4	5.0	3/13/2025	3.8	58.6	36	0.5-1.5	1.5	60.9
	PBA-43	1045609	727537	62.3	4.0	3/13/2025	1.6	60.7	36	0.5-1.5	0.5	61.8
SMF 0904B	PBA-45	1044229	731760	62.3	5.0	3/13/2025	4.4	57.9	3/20	0.0-1.0/0.5-1.5	1.0	61.3
	PBA-46	1043991	732070	63.2	5.5	3/13/2025	4.6	58.6	20	0.5-1.5	1.5	61.7
LP-4227L	SH9-46	1045214	731961	65.5	5.0	1/30/2024	4.0	61.5	36/3	0.5-1.5/0.0-1.0	2.0	63.5
	PBA-47	1045270	732300	64.6	5.0	3/14/2025	3.8	60.8	13	0.5-1.5	1.5	63.1
SMF 0904A	SH9-48	1045224	732939	63.0	4.0	1/29/2024	2.3	60.7	13	0.5-1.5	1.0	62.0
	PBA-48	1045801	732884	64.3	5.0	3/14/2025	2.5	61.8	13	0.5-1.5	0.5	63.8
	PBA-49	1045543	733163	62.9	6.5	3/14/2025	3.7	59.2	13	0.5-1.5	0.5	62.4
	PBA-50	1045776	733402	63.1	6.0	3/14/2025	4.5	58.6	36	0.5-1.5	1.5	61.6
	PBA-51	1045307	733457	62.6	6.5	3/14/2025	5.0	57.6	36	0.5-1.5	1.0	61.6
LP-4236L	SH9-48	1045224	732939	63.0	4.0	1/29/2024	2.3	60.7	13	0.5-1.5	1.0	62.0
	PBA-51	1045307	733457	62.6	6.5	3/14/2025	5.0	57.6	36	0.5-1.5	1.0	61.6
	PBA-52	1045252	734123	57.2	6.0	3/14/2025	4.1	53.1	36	0.5-1.5	1.5	55.7
LP-4260R	PBA-53	1044941	735587	64.3	5.5	3/13/2025	4.6	59.7	41	0.5-1.5	2.0	62.3
	SH9-55	1045041	736423	67.1	5.0	1/21/2024	3.8	63.3	42	1.5-3.5	2.5	64.6
	PBA-54	1044945	736910	66.6	5.0	3/13/2025	4.8	61.8	36	0.5-1.5	1.5	65.1
LP-4279L	SH10-2	1045232	737571	65.3	5.0	2/2/2024	3.0	62.3	36	0.5-1.5	1.0	64.3
	SH10-4	1045286	738576	63.4	5.0	2/2/2024	2.9	60.5	14	0.5-1.5	1.0	62.4
	PBA-59	1045502	739408	63.4	5.0	3/17/2025	2.4	61.0	14	0.5-1.5	0.0	63.4
SMF 0904A	PBA-55	1046233	738725	64.9	5.0	3/17/2025	3.3	61.6	14	0.5-1.5	1.5	63.4
	PBA-56	1045570	738828	64.0	5.0	3/17/2025	3.8	60.2	14	0.5-1.5	0.5	63.5
	PBA-57	1045874	738896	64.6	5.0	3/17/2025	3.7	60.9	14	0.5-1.5	1.0	63.6
	PBA-58	1046229	739375	65.3	5.0	3/17/2025	3.9	61.4	14	0.5-1.5	1.5	63.8
	PBA-59	1045502	739408	63.4	5.0	3/17/2025	2.4	61.0	14	0.5-1.5	0.0	63.4
	PBA-60	1045895	739424	64.8	5.0	3/17/2025	3.3	61.5	14	0.5-1.5	0.5	64.3

[1] Boring locations and ground elevations were provided by the project surveyor.
[2] Depth below existing grades at time of field exploration.
[3] Seasonal high groundwater table depth estimated based on the DeSoto County, Florida USDA Soil Survey information.
[4] Seasonal high groundwater table depth estimated based on soil stratigraphy, measured groundwater levels from the borings, the DeSoto County, Florida USDA Soil Survey information and past experience with similar soil conditions.
[5] GNE: Groundwater Not Encountered
[6] Boring performed in active farmland at time of field exploration; encountered groundwater levels may be influenced by farmland irrigation.

Summary of SMF/FPC Alternatives Seasonal High Groundwater Table Estimates
SR 70 from West of SR 31 to Highlands County Line
DeSoto County, Florida
FPID No. 451942-2-52-01
Tierra Project No: 6511-24-001

SMF/FPC Site Name	Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
		Northing	Easting			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
FPC 1001A	PBA-56	1045570	738828	64.0	5.0	3/17/2025	3.8	60.2	14	0.5-1.5	0.5	63.5
	PBA-59	1045502	739408	63.4	5.0	3/17/2025	2.4	61.0	14	0.5-1.5	0.0	63.4
SMF 1001A	PBA-61	1044987	739187	62.9	5.0	3/13/2025	3.4	59.5	14	0.5-1.5	1.0	61.9
	PBA-62	1044615	739212	62.5	5.0	3/13/2025	3.9	58.6	14	0.5-1.5	1.0	61.5
	PBA-63	1044626	739665	63.3	5.0	3/13/2025	3.4	59.9	14	0.5-1.5	1.5	61.8
	PBA-64	1044986	739682	64.0	5.0	3/13/2025	4.3	59.7	14	0.5-1.5	2.0	62.0
SMF 1001A	PBA-63	1044626	739665	63.3	5.0	3/13/2025	3.4	59.9	14	0.5-1.5	1.5	61.8
	PBA-64	1044986	739682	64.0	5.0	3/13/2025	4.3	59.7	14	0.5-1.5	2.0	62.0
	PBA-65	1044978	740107	63.8	5.0	3/13/2025	3.1	60.7	14	0.5-1.5	1.5	62.3
	PBA-66	1044562	740113	63.2	5.0	3/13/2025	3.4	59.8	14	0.5-1.5	1.0	62.2
LP-4311R	SH10-7	1045355	740103	65.5	5.0	2/2/2024	3.3	62.2	14	0.5-1.5	1.5	64.0
	PBA-65	1044978	740107	63.8	5.0	3/13/2025	3.1	60.7	14	0.5-1.5	1.5	62.3
	SH10-10	1045304	741547	66.6	6.5	2/2/2024	3.0	63.6	14	0.5-1.5	2.0	64.6
	SH10-13	1045405	743070	68.5	6.5	2/2/2024	5.1	63.4	21/24	0.3-1.5/0.5-1.5	3.5	65.0
	PBA-69	1045012	743560	66.6	5.0	3/13/2025	3.3	63.3	3/20	0.0-1.0/0.5-1.5	0.5	66.1
	SH10-15	1045434	744038	68.4	5.0	2/2/2024	4.0	64.4	21/24	0.3-1.5/0.5-1.5	2.5	65.9
	PBA-74	1045032	744843	69.0	5.0	3/13/2025	5.2	63.8	14	0.5-1.5	1.5	67.5
	SH10-17	1045438	745031	69.3	5.0	2/3/2024	3.3	66.1	14	0.5-1.5	2.3	67.0
	PBA-75	1045297	745956	68.2	5.0	3/17/2025	3.6	64.6	20/23	0.5-1.5/+2.0-0.0	0.5	67.7
	SH10-20	1045332	746515	70.5	6.0	2/3/2024	5.0	65.5	20	0.5-1.5	2.5	68.0
	PBA-80	1045232	747928	68.2	5.0	3/17/2025	3.7	64.5	21	0.3-1.5	0.5	67.7
	SH10-25	1045453	749036	69.9	6.5	2/4/2024	4.4	65.5	14/40	0.5-1.5/0.3-1.5	2.5	67.4
	PBA-85	1045318	749836	69.4	4.5	3/17/2025	3.1	66.3	40	0.3-1.5	0.5	68.9
	SH10-30	1045346	751501	71.2	5.0	2/4/2024	2.0	69.2	14	0.5-1.5	0.5	70.7
	PBA-89	1045216	753497	72.9	5.0	3/17/2025	4.2	68.7	13	0.5-1.5	0.5	72.4
	SH10-40	1045368	756497	74.8	6.0	2/4/2024	3.7	71.1	13	0.5-1.5	2.0	72.8
	PBA-93	1045267	757854	71.5	5.0	3/25/2025	4.7	66.8	21	0.3-1.5	0.0	71.5
	PBA-96	1045252	758531	72.6	5.0	3/25/2025	4.5	68.1	21	0.3-1.5	1.0	71.6
	PBA-99	1045201	759575	73.2	5.0	3/19/2025	4.0	69.2	13	0.5-1.5	1.0	72.2
	PBA-105	1045250	760313	73.8	6.0	3/19/2025	4.8	69.0	14	0.5-1.5	2.0	71.8
FPC 1002C	PBA-67	1044948	743159	66.4	5.0	3/13/2025	3.6	62.8	20	0.5-1.5	1.5	64.9
	PBA-68	1044701	743480	67.0	5.0	3/13/2025	2.9	64.1	3/20	0.0-1.0/0.5-1.5	1.0	66.0
	PBA-69	1045012	743560	66.6	5.0	3/13/2025	3.3	63.3	3/20	0.0-1.0/0.5-1.5	0.5	66.1
FPC 1002A	PBA-70	1045907	743746	66.6	5.5	3/18/2025	3.4	63.2	21	0.3-1.5	0.5	66.1
	PBA-71	1045645	744017	67.6	5.0	3/18/2025	4.3	63.3	13	0.5-1.5	1.0	66.6
	PBA-72	1045902	744263	68.6	5.0	3/18/2025	4.8	63.8	13	0.5-1.5	1.5	67.1

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Summary of SMF/FPC Alternatives Seasonal High Groundwater Table Estimates
SR 70 from West of SR 31 to Highlands County Line
DeSoto County, Florida
FPID No. 451942-2-52-01
Tierra Project No: 6511-24-001

SMF/FPC Site Name	Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
		Northing	Easting			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
FPC 1002B	PBA-73	1044845	744574	68.0	5.0	3/13/2025	3.6	64.4	20	0.5-1.5	1.5	66.5
	PBA-74	1045032	744843	69.0	5.0	3/13/2025	5.2	63.8	14	0.5-1.5	1.5	67.5
SMF 1002B	PBA-76	1044836	746555	69.6	5.0	3/17/2025	3.8	65.8	20	0.5-1.5	1.0	68.6
	PBA-77	1045033	747016	69.4	5.0	3/17/2025	4.5	64.9	20	0.5-1.5	1.0	68.4
	PBA-78	1044589	747034	69.4	5.0	3/17/2025	4.3	65.1	20	0.5-1.5	1.0	68.4
SMF 1002A	PBA-79	1044671	747679	67.4	4.5	3/17/2025	3.5	63.9	21	0.3-1.5	1.0	66.4
	PBA-80	1045232	747928	68.2	5.0	3/17/2025	3.7	64.5	21	0.3-1.5	0.5	67.7
	PBA-81	1044939	748086	68.0	5.0	3/17/2025	3.5	64.5	21	0.3-1.5	1.0	67.0
SMF 1002C	PBA-82	1046195	747951	68.2	4.0	3/17/2025	1.7[6]	66.5[6]	40	0.3-1.5	0.5	67.7
	PBA-83	1045781	747982	68.2	5.0	3/17/2025	1.9[6]	66.3[6]	40	0.3-1.5	0.5	67.7
	PBA-84	1046014	748320	68.3	5.0	3/17/2025	1.9[6]	66.4[6]	14	0.5-1.5	0.5	67.8
SMF 1003B	PBA-86	1045835	753237	73.7	5.5	3/17/2025	4.6	69.1	13/14	0.5-1.5/0.5-1.5	2.0	71.7
	PBA-87	1045833	753768	74.0	6.0	3/17/2025	4.3	69.7	13/14	0.5-1.5/0.5-1.5	1.5	72.5
SMF 1003A	PBA-88	1044943	753231	72.6	4.0	3/17/2025	3.5	69.1	13	0.5-1.5	0.5	72.1
	PBA-89	1045216	753497	72.9	5.0	3/17/2025	4.2	68.7	13	0.5-1.5	0.5	72.4
	PBA-90	1044981	753785	73.9	5.0	3/17/2025	4.6	69.3	13	0.5-1.5	1.0	72.9
FPC 1003B	PBA-92	1044860	757790	72.7	5.0	3/25/2025	3.6	69.1	21	0.3-1.5	1.0	71.7
	PBA-93	1045267	757854	71.5	5.0	3/25/2025	4.7	66.8	21	0.3-1.5	0.0	71.5
	PBA-94	1045051	757991	72.6	5.0	3/25/2025	4.8	67.8	21	0.3-1.5	1.0	71.6
	PBA-95	1044869	758286	72.1	6.0	3/25/2025	4.2	67.9	21	0.3-1.5	1.0	71.1
FPC 1003A	PBA-96	1045252	758531	72.6	5.0	3/25/2025	4.5	68.1	21	0.3-1.5	1.0	71.6
	PBA-97	1044985	758586	72.0	5.0	3/25/2025	4.6	67.4	21	0.3-1.5	1.0	71.0
	PBA-98	1044958	759003	72.5	5.0	3/25/2025	3.8	68.7	21	0.3-1.5	1.0	71.5
SMF 1004A	PBA-98	1044958	759003	72.5	5.0	3/25/2025	3.8	68.7	21	0.3-1.5	1.0	71.5
SMF 1004B	PBA-99	1045201	759575	73.2	5.0	3/19/2025	4.0	69.2	13	0.5-1.5	1.0	72.2
	PBA-101	1044901	759579	73.0	5.0	3/19/2025	4.6	68.4	13	0.5-1.5	1.0	72.0
FPC 1004A	PBA-99	1045201	759575	73.2	5.0	3/19/2025	4.0	69.2	13	0.5-1.5	1.0	72.2
	PBA-101	1044901	759579	73.0	5.0	3/19/2025	4.6	68.4	13	0.5-1.5	1.0	72.0
	PBA-103	1045032	759982	72.9	5.0	3/19/2025	4.8	68.1	13	0.5-1.5	1.0	71.9
	PBA-105	1045250	760313	73.8	6.0	3/19/2025	4.8	69.0	13	0.5-1.5	2.0	71.8
	PBA-106	1044813	760328	73.1	5.0	3/19/2025	4.1	69.0	13	0.5-1.5	1.5	71.6
	PBA-108	1045013	760655	73.6	8.0	3/19/2025	7.1	66.5	13	0.5-1.5	2.0	71.6

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SR 70 from West of SR 31 to Highlands County Line
DeSoto County, Florida
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Tierra Project No: 6511-24-001

SMF/FPC Site Name	Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
		Northing	Easting			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
FPC 1004B	PBA-100	1044507	759560	72.4	5.0	3/19/2025	3.5	68.9	13	0.5-1.5	1.0	71.4
	PBA-102	1044298	759995	72.4	7.0	3/19/2025	5.4	67.0	13	0.5-1.5	1.0	71.4
	PBA-104	1044673	759984	72.9	5.0	3/19/2025	4.4	68.5	13	0.5-1.5	1.0	71.9
	PBA-107	1044468	760359	70.4	5.0	3/19/2025	4.3	66.1	13/19	0.5-1.5/+2.0-0.0	0.0	70.4
	PBA-109	1044244	760799	71.5	7.0	3/19/2025	7.6	63.9	13	0.5-1.5	1.0	70.5
LP-4516L	SH10-48	1045570	760487	74.0	6.5	2/5/2024	4.3	69.8	14	0.5-1.5	2.0	72.0
	PBA-113	1045818	761727	75.6	6.5	3/14/2025	5.9	69.7	14	0.5-1.5	2.5	73.1
	SH10-52	1045609	762468	71.5	5.5	2/5/2024	2.9	68.6	14/21	0.5-1.5/0.3-1.5	0.0	71.5
	SH10-54	1045597	763470	73.9	6.5	2/5/2024	4.3	69.6	21/26	0.3-1.5/0.0-1.5	2.0	71.9
	SH10-56	1045607	764468	71.2	5.0	2/5/2024	1.6	69.6	22/26	0.5-1.5/0.0-1.5	0.0	71.2
	SH10-58	1045582	765461	72.5	5.0	2/5/2024	3.1	69.4	22	0.5-1.5	0.5	72.0
	SH10-62	1045586	767470	75.7	6.5	2/5/2024	6.1	69.6	24	0.5-1.5	2.5	73.2
FPC 1004C	PBA-110	1046592	761491	76.0	7.0	3/14/2025	5.0	71.0	14	0.5-1.5	2.0	74.0
	PBA-111	1047011	761535	75.1	6.0	3/14/2025	3.5	71.6	14	0.5-1.5	1.0	74.1
	PBA-112	1046179	761572	74.7	5.0	3/14/2025	3.7	71.0	14	0.5-1.5	1.5	73.2
	PBA-113	1045818	761727	75.6	6.5	3/14/2025	5.9	69.7	14	0.5-1.5	2.5	73.1
	PBA-114	1046398	761820	75.3	5.0	3/14/2025	3.3	72.0	13	0.5-1.5	1.5	73.8
	PBA-115	1046905	761905	76.0	4.0	3/14/2025	2.7	73.3	13/14	0.5-1.5/0.5-1.5	1.0	75.0
SMF 1005B	PBA-113	1045818	761727	75.6	6.5	3/14/2025	5.9	69.7	14	0.5-1.5	2.5	73.1
	PBA-116	1045853	762259	75.2	6.5	3/18/2025	6.4	68.8	14	0.5-1.5	2.5	72.7
	PBA-117	1045842	762781	74.2	7.0	3/18/2025	5.7	68.5	21	0.3-1.5	1.5	72.7
FPC 1005A	PBA-118	1046824	762247	76.4	5.0	3/14/2025	2.6	73.8	13	0.5-1.5	1.5	74.9
	PBA-119	1046629	762568	76.1	4.0	3/14/2025	2.8	73.3	14	0.5-1.5	1.0	75.1
	PBA-120	1047040	762565	76.2	3.5	3/14/2025	2.3	73.9	13	0.5-1.5	1.0	75.2
	PBA-121	1046823	763123	75.4	3.5	3/14/2025	2.3	73.1	13	0.5-1.5	0.5	74.9
FPC 1005B	PBA-122	1046653	763863	75.3	6.5	3/14/2025	5.4	69.9	26	0.0-1.5	2.0	73.3
	PBA-124	1046398	764323	75.4	5.0	3/14/2025	4.2	71.2	22	0.5-1.5	1.5	73.9
	PBA-126	1046586	764874	74.4	5.0	3/18/2025	4.8	69.6	22	0.5-1.5	1.5	72.9
	PBA-127	1046046	764924	74.7	5.0	3/18/2025	4.0	70.7	22	0.5-1.5	1.5	73.2
	PBA-128	1046298	765204	74.9	5.0	3/18/2025	3.7	71.2	22	0.5-1.5	1.5	73.4
	PBA-129	1046529	765503	75.3	5.0	3/18/2025	3.7	71.6	22	0.5-1.5	1.5	73.8
SMF 1005A	PBA-123	1046137	764072	75.3	7.0	3/14/2025	5.3	70.0	26	0.0-1.5	2.0	73.3
	PBA-125	1045951	764334	74.9	7.0	3/14/2025	5.5	69.4	22	0.0-1.5	1.5	73.4

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SMF/FPC Site Name	Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
		Northing	Easting			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
FPC 1005C	PBA-130	1047779	764494	76.5	5.0	3/18/2025	5.0	71.5	24	0.5-1.5	1.0	75.5
	PBA-131	1047585	764932	75.4	2.0	3/18/2025	GNE[5]	<73.4	18/24	+2.0-0.0/0.5-1.5	0.0	75.4
	PBA-132	1047783	765291	77.1	5.0	3/18/2025	4.8	72.3	24	0.5-1.5	1.5	75.6
	PBA-133	1047585	765710	76.8	5.5	3/18/2025	5.3	71.5	29	0.0-1.5	1.0	75.8
	PBA-134	1047802	766016	76.8	5.0	3/18/2025	4.7	72.1	29	0.0-1.5	1.0	75.8
LP-4585R	SH10-63	1045535	768014	76.4	6.5	2/5/2024	6.3	70.2	24	0.5-1.5	2.5	73.9
	PBA-137	1045273	769064	77.2	5.5	3/18/2025	3.8	73.4	20	0.5-1.5	1.0	76.2
	PBA-139	1045284	769653	76.7	6.5	3/17/2025	4.3	72.4	20	0.5-1.5	1.0	75.7
	PBA-142	1045300	770403	76.6	6.5	3/17/2025	3.1	73.5	24	0.5-1.5	1.0	75.6
	PBA-146	1045282	771253	77.4	6.5	3/17/2025	4.7	72.7	20	0.5-1.5	2.0	75.4
	PBA-148	1045325	771940	76.6	3.0	3/18/2025	GNE[5]	<73.6	3	0.0-1.0	1.5	75.1
FPC 1006A	PBA-135	1044675	769039	76.5	6.5	3/18/2025	4.5	72.0	20	0.5-1.5	1.5	75.0
	PBA-137	1045273	769064	77.2	5.5	3/18/2025	3.8	73.4	20	0.5-1.5	1.0	76.2
	PBA-138	1045006	769411	76.0	5.0	3/18/2025	3.5	72.5	20/40	0.5-1.5/0.3-1.5	1.0	75.0
	PBA-139	1045284	769653	76.7	6.5	3/17/2025	4.3	72.4	20	0.5-1.5	1.0	75.7
	PBA-141	1044937	770027	77.0	5.0	3/17/2025	4.1	72.9	20	0.5-1.5	1.5	75.5
	PBA-142	1045300	770403	76.6	6.5	3/17/2025	3.1	73.5	24	0.5-1.5	1.0	75.6
	PBA-143	1044775	770432	76.5	5.0	3/18/2025	4.1	72.4	20	0.5-1.5	1.0	75.5
FPC 1006B	PBA-135	1044675	769039	76.5	6.5	3/18/2025	4.5	72.0	20	0.5-1.5	1.5	75.0
	PBA-136	1044119	769084	76.2	6.5	3/18/2025	4.0	72.2	20	0.5-1.5	1.5	74.7
	PBA-140	1044113	769687	75.9	6.0	3/18/2025	3.6	72.3	20	0.5-1.5	1.0	74.9
SMF 1006A	PBA-142	1045300	770403	76.6	6.5	3/17/2025	3.1	73.5	24	0.5-1.5	1.0	75.6
	PBA-143	1044775	770432	76.5	5.0	3/18/2025	4.1	72.4	20	0.5-1.5	1.0	75.5
	PBA-144	1045009	770796	76.6	5.0	3/17/2025	3.8	72.8	20	0.5-1.5	1.0	75.6
	PBA-145	1044715	771227	76.8	6.0	3/18/2025	3.4	73.4	20	0.5-1.5	1.5	75.3
	PBA-146	1045282	771253	77.4	6.5	3/17/2025	4.7	72.7	20	0.5-1.5	2.0	75.4
FPC 1007C	PBA-146	1045282	771253	77.4	6.5	3/17/2025	4.7	72.7	20	0.5-1.5	2.0	75.4
	PBA-147	1044968	771633	76.4	6.0	3/18/2025	3.8	72.6	3	0.0-1.0	1.5	74.9
	PBA-148	1045325	771940	76.6	3.0	3/18/2025	GNE[5]	<73.6	3	0.0-1.0	1.5	75.1
FPC 1007A	PBA-150	1044910	772301	76.8	6.0	3/19/2025	3.4	73.4	3	0.0-1.0	2.0	74.8
	PBA-151	1045333	772533	77.8	6.5	3/18/2025	3.7	74.1	20	0.5-1.5	2.0	75.8
FPC 1007B	PBA-149	1044671	772225	76.4	6.0	3/19/2025	3.8	72.6	3	0.0-1.0	1.5	74.9
	PBA-152	1044667	772687	77.4	6.5	3/19/2025	3.8	73.6	20	0.5-1.5	1.5	75.9

[1] Boring locations and ground elevations were provided by the project surveyor.
[2] Depth below existing grades at time of field exploration.
[3] Seasonal high groundwater table depth estimated based on the DeSoto County, Florida USDA Soil Survey information.
[4] Seasonal high groundwater table depth estimated based on soil stratigraphy, measured groundwater levels from the borings, the DeSoto County, Florida USDA Soil Survey information and past experience with similar soil conditions.
[5] GNE: Groundwater Not Encountered
[6] Boring performed in active farmland at time of field exploration; encountered groundwater levels may be influenced by farmland irrigation.

Summary of SMF/FPC Alternatives Seasonal High Groundwater Table Estimates
SR 70 from West of SR 31 to Highlands County Line
DeSoto County, Florida
FPID No. 451942-2-52-01
Tierra Project No: 6511-24-001

SMF/FPC Site Name	Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
		Northing	Easting			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
SMF 1006B	PBA-151	1045333	772533	77.8	6.5	3/18/2025	3.7	74.1	20	0.5-1.5	2.0	75.8
	PBA-152	1044667	772687	77.4	6.5	3/19/2025	3.8	73.6	20	0.5-1.5	1.5	75.9
	PBA-153	1044992	772882	78.2	6.5	3/19/2025	4.4	73.8	20	0.5-1.5	2.0	76.2
	PBA-154	1044780	773350	77.9	6.5	3/19/2025	4.0	73.9	20	0.5-1.5	1.5	76.4
	PBA-155	1045304	773365	78.4	6.5	3/19/2025	4.5	73.9	20	0.5-1.5	2.0	76.4
	PBA-156	1045050	773857	78.8	6.5	3/19/2025	4.1	74.7	20	0.5-1.5	2.0	76.8
LP-4648R	SH10-75	1045560	773958	79.1	6.5	2/6/2024	5.7	73.4	20/24	0.5-1.5/0.5-1.5	2.0	77.1
	PBA-157	1045328	775269	79.9	6.5	3/19/2025	4.8	75.1	3	0.0-1.0	1.5	78.4
	PBA-159	1045328	775806	79.8	6.5	3/19/2025	5.2	74.6	24/40	0.5-1.5/0.3-1.5	1.5	78.3
	PBA-163	1045264	776234	79.5	6.0	3/18/2025	4.2	75.3	40	0.3-1.5	1.0	78.5
	SH10-80	1045472	776447	81.1	6.5	2/6/2024	5.6	75.5	36/40	0.5-1.5/0.3-1.5	2.0	79.1
	PBA-165	1045268	776710	80.4	6.0	3/18/2025	4.2	76.2	36	0.5-1.5	2.0	78.4
	PBA-167	1045325	777380	80.9	6.0	3/18/2025	5.5	75.4	24	0.5-1.5	1.5	79.4
	PBA-168	1045258	777967	81.0	6.0	3/18/2025	3.8	77.2	36	0.5-1.5	1.5	79.5
	PBA-176	1045399	779225	83.9	6.5	3/14/2025	4.6	79.3	20	0.5-1.5	2.5	81.4
	PBA-177	1045329	780491	84.3	6.5	3/14/2025	5.5	78.8	20	0.5-1.5	3.0	81.3
	SH10-89	1045496	780964	83.5	6.0	2/6/2024	4.6	78.9	20/32	0.5-1.5/0.5-1.5	2.0	81.5
FPC 1008B	PBA-157	1045328	775269	79.9	6.5	3/19/2025	4.8	75.1	3	0.0-1.0	1.5	78.4
	PBA-158	1044992	775373	79.1	5.0	3/19/2025	3.8	75.3	3	0.0-1.0	1.0	78.1
	PBA-159	1045328	775806	79.8	6.5	3/19/2025	5.2	74.6	24/40	0.5-1.5/0.3-1.5	1.5	78.3
	PBA-160	1045015	775805	78.8	5.0	3/18/2025	4.4	74.4	3	0.0-1.0	1.5	77.3
FPC 1008A	PBA-161	1044603	775899	79.2	6.0	3/18/2025	4.3	74.9	3	0.0-1.0	1.5	77.7
	PBA-162	1044975	776164	80.0	6.0	3/18/2025	4.7	75.3	40	0.3-1.5	1.5	78.5
	PBA-163	1045264	776234	79.5	6.0	3/18/2025	4.2	75.3	40	0.3-1.5	1.0	78.5
	PBA-164	1044590	776405	79.9	6.0	3/18/2025	3.7	76.2	24	0.5-1.5	1.5	78.4
SMF 1007B	PBA-162	1044975	776164	80.0	6.0	3/18/2025	4.7	75.3	40	0.3-1.5	1.5	78.5
	PBA-163	1045264	776234	79.5	6.0	3/18/2025	4.2	75.3	40	0.3-1.5	1.0	78.5
	PBA-164	1044590	776405	79.9	6.0	3/18/2025	3.7	76.2	24	0.5-1.5	1.5	78.4
	PBA-165	1045268	776710	80.4	6.0	3/18/2025	4.2	76.2	36	0.5-1.5	2.0	78.4
	PBA-166	1044869	776705	80.3	6.0	3/18/2025	3.8	76.5	24	0.5-1.5	1.5	78.8
SMF 1007A	PBA-167	1045325	777380	80.9	6.0	3/18/2025	5.5	75.4	24	0.5-1.5	1.5	79.4
	PBA-168	1045258	777967	81.0	6.0	3/18/2025	3.8	77.2	36	0.5-1.5	1.5	79.5
	PBA-169	1044957	778073	80.8	6.0	3/18/2025	3.0	77.8	36	0.5-1.5	1.0	79.8
FPC 1008C	PBA-170	1045756	776859	80.8	6.0	3/19/2025	5.2	75.6	36	0.5-1.5	2.0	78.8
	PBA-172	1046070	777098	81.3	6.0	3/19/2025	3.7	77.6	36	0.5-1.5	2.0	79.3

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Summary of SMF/FPC Alternatives Seasonal High Groundwater Table Estimates
SR 70 from West of SR 31 to Highlands County Line
DeSoto County, Florida
FPID No. 451942-2-52-01
Tierra Project No: 6511-24-001

SMF/FPC Site Name	Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
		Northing	Easting			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
SMF 1007C	PBA-171	1046387	777004	80.6	5.0	3/19/2025	2.3	78.3	36	0.5-1.5	1.5	79.1
	PBA-172	1046070	777098	81.3	6.0	3/19/2025	3.7	77.6	36	0.5-1.5	2.0	79.3
	PBA-173	1045892	777444	81.3	6.5	3/19/2025	4.1	77.2	36	0.5-1.5	2.0	79.3
	PBA-174	1046441	777535	81.2	5.0	3/19/2025	2.9	78.3	40	0.3-1.5	1.5	79.7
	PBA-175	1046098	777673	81.8	5.0	3/19/2025	3.5	78.3	36	0.5-1.5	2.0	79.8
FPC 1009C	PBA-178	1045216	781465	82.8	6.5	3/14/2025	4.5	78.3	36	0.5-1.5	1.5	81.3
FPC 1009B	PBA-179	1045235	781829	83.2	6.0	3/14/2025	5.0	78.2	36	0.5-1.5	1.5	81.7
FPC 1009A	PBA-180	1046048	781540	82.8	5.0	3/19/2025	4.3	78.5	24	0.5-1.5	1.0	81.8
	PBA-181	1045838	781839	83.5	6.5	3/19/2025	5.3	78.2	24	0.5-1.5	2.0	81.5
	PBA-182	1046076	781892	83.2	6.0	3/19/2025	4.5	78.7	24	0.5-1.5	1.5	81.7
LP-4742R	PBA-183	1045429	783778	85.2	6.0	3/14/2025	5.3	79.9	36	0.5-1.5	2.0	83.2
	SH10-97	1045611	784941	84.0	5.0	2/5/2024	4.8	79.3	36	0.5-1.5	1.5	82.5
	SH10-99	1045530	785982	84.7	6.0	2/5/2024	4.8	80.0	3/36	0.0-1.0/0.5-1.5	1.8	82.9
	SH10-101	1045629	786984	83.3	5.0	2/5/2024	4.0	79.3	40	0.3-1.5	1.0	82.3
	PBA-184	1045429	787583	84.5	6.0	3/19/2025	4.9	79.6	40	0.3-1.5	2.0	82.5
	SH10-105	1045632	788976	83.2	5.0	2/5/2024	3.2	80.0	3	0.0-1.0	1.3	81.9
	PBA-190	1045336	789911	83.0	6.0	3/14/2025	2.8	80.2	3	0.0-1.0	1.0	82.0
	SH10-109	1045533	790872	83.7	5.0	2/5/2024	3.3	80.4	20	0.5-1.5	2.0	81.7
	SH10-111	1045651	791905	82.7	5.0	2/3/2024	4.0	78.7	40	0.3-1.5	1.0	81.7
	PBA-194	1045354	792997	82.1	6.0	3/14/2025	3.2	78.9	40	0.3-1.5	1.0	81.1
SMF 1008C	PBA-185	1046663	788307	82.7	5.0	3/14/2025	1.5[6]	81.2[6]	40	0.3-1.5	0.5	82.2
	PBA-186	1045966	788350	82.6	4.0	3/14/2025	2.5[6]	80.1[6]	3	0.0-1.0	0.5	82.1
	PBA-187	1046359	788685	82.7	4.0	3/14/2025	3.5[6]	79.2[6]	3/40	0.0-1.0/0.3-1.5	0.5	82.2
	PBA-188	1046633	789012	82.5	4.0	3/14/2025	4.5[6]	78.0[6]	40	0.3-1.5	0.5	82.0
	PBA-189	1045916	789055	82.4	5.0	3/14/2025	5.5[6]	76.9[6]	3	0.0-1.0	0.5	81.9
SMF 1008A	PBA-190	1045336	789911	83.0	6.0	3/14/2025	2.8	80.2	3	0.0-1.0	1.0	82.0
	PBA-191	1045094	790274	83.4	6.0	3/14/2025	3.3	80.1	20	0.5-1.5	1.5	81.9
FPC 1010B	PBA-192	1045272	792304	82.3	6.0	3/14/2025	3.7	78.6	40	0.3-1.5	1.0	81.3
	PBA-193	1044688	792348	82.2	5.0	3/14/2025	3.1	79.1	3	0.0-1.0	1.0	81.2
	PBA-195	1044678	793155	82.1	6.0	3/14/2025	3.1	79.0	40	0.3-1.5	1.0	81.1
	PBA-196	1045075	793598	81.9	6.0	3/14/2025	4.3	77.6	40	0.3-1.5	1.5	80.4
	PBA-197	1044268	793721	80.6	5.5	3/14/2025	4.1	76.5	40	0.3-1.5	1.0	79.6
SMF 1008B	PBA-194	1045354	792997	82.1	6.0	3/14/2025	3.2	78.9	40	0.3-1.5	1.0	81.1
	PBA-196	1045075	793598	81.9	6.0	3/14/2025	4.3	77.6	40	0.3-1.5	1.5	80.4

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SR 70 from West of SR 31 to Highlands County Line
DeSoto County, Florida
FPID No. 451942-2-52-01
Tierra Project No: 6511-24-001

SMF/FPC Site Name	Boring Name	Boring Location[1] FL State Plane West		Surveyed Ground Elevation[1] (feet, NAVD 88)	Boring Depth[2] (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated SHGWT[4]	
		Northing	Easting			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth[2] (feet)	Elevation (feet, NAVD 88)
FPC 1010C	PBA-198	1046282	793193	81.1	4.0	3/13/2025	1.2[6]	79.9[6]	40	0.3-1.5	0.5	80.6
	PBA-199	1045997	793771	81.0	3.0	3/13/2025	1.1[6]	79.9[6]	40	0.3-1.5	0.5	80.5
	PBA-200	1046288	794393	82.0	4.5	3/13/2025	1.6[6]	80.4[6]	40	0.3-1.5	1.0	81.0
SMF 1009A	PBA-201	1045987	794926	82.5	6.0	3/13/2025	2.3[6]	80.2[6]	20	0.5-1.5	1.0	81.5
	PBA-202	1046332	795308	82.7	5.0	3/13/2025	1.8[6]	80.9[6]	40	0.3-1.5	1.0	81.7
LP-4850R	SH10-117	1045662	794906	83.5	6.0	2/3/2024	5.9	77.6	20	0.5-1.5	3.0	80.5
	SH10-119	1045565	795877	81.9	5.0	2/3/2024	4.4	77.5	20/24	0.5-1.5/0.5-1.5	1.0	80.9
	SH10-121	1045655	796861	84.8	7.0	2/3/2024	6.9	77.9	24	0.5-1.5	3.5	81.3
	PBA-204	1045276	796920	82.4	6.0	3/13/2025	5.1	77.3	24	0.5-1.5	1.5	80.9
	SH10-124	1045585	798215	81.5	6.5	2/3/2024	4.5	77.0	34	+2.0-0.0	1.5	80.0
SMF 1009B	PBA-203	1044724	796619	82.4	5.0	3/13/2025	2.8	79.6	13	0.5-1.5	1.5	80.9
	PBA-204	1045276	796920	82.4	6.0	3/13/2025	5.1	77.3	24	0.5-1.5	1.5	80.9
FPC 1010A	PBA-205	1047883	797116	83.7	5.0	3/13/2025	1.8[6]	81.9[6]	24	0.5-1.5	1.0	82.7
	PBA-206	1047451	797447	83.1	3.0	3/13/2025	2.3[6]	80.8[6]	24	0.5-1.5	1.0	82.1
	PBA-207	1047920	797884	83.4	6.0	3/13/2025	3.5[6]	79.9[6]	24	0.5-1.5	1.0	82.4

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5701 Division Drive,Fort Myers Florida 33905 - 239.275-8875

RE: SEASONAL HIGH WATER MARK'S
SURVEY DATE: 02/15/2024

Description: SR 70 Segments 9-10
FP ID.: 451690-1, 451942-1
From: East of SR 31 to Desoto/Highlands Co. Line (Segments 9-10)

	STATE PLANE FLORIDA WEST (0902)		NAVD 1988		
FIELD LABELED	NORTHING	EASTING	ELEVATION	DESCRIPTION	SURVEY NOTE
SHW 1	1045123.11	719716.39	48.94	SEASONAL HIGH WATERMARK	NAME DUPLICATED
SHW1	1045153.16	738824.45	59.62	SEASONAL HIGH WATERMARK	NAME DUPLICATED
SHW2	1045054.84	726869.56	59.02	SEASONAL HIGH WATERMARK	NAME DUPLICATED
SHW 2	1045367.55	750983.40	70.55	SEASONAL HIGH WATERMARK	NAME DUPLICATED/ ADDED 0.55' TO NEW PAINT LINE
SHW 3	1045413.22	758077.33	68.84	SEASONAL HIGH WATERMARK	
SHW 4	1045425.94	760858.51	68.05	SEASONAL HIGH WATERMARK	
SHW 5	1045458.30	772038.29	73.43	SEASONAL HIGH WATERMARK	
SHW 6	1045500.56	781524.38	78.00	SEASONAL HIGH WATERMARK	
SHW 7	1045541.87	788455.48	79.52	SEASONAL HIGH WATERMARK	
SHW 8	1045585.67	793765.72	77.28	SEASONAL HIGH WATERMARK	
SHW 9	1045548.27	776069.62	75.98	SEASONAL HIGH WATERMARK	
SHW10	1045544.10	772046.78	72.84	SEASONAL HIGH WATERMARK	
SHW11	1045481.24	760873.98	68.79	SEASONAL HIGH WATERMARK	

5701 Division Drive,Fort Myers Florida 33905 - 239.275-8875

RE: SEASONAL HIGH BIOLOGICAL INDICATORS
Survey Date: 06/10/2024

Description: SR 70 Segment 9-10
FPID.:451690-1 & 451942-1
From: East of SR 31 to Desoto/Highlands Co Line

	STATE PLANE FLORIDA WEST (0902)		NAVD 1988	
FIELD LABELED	NORTHING	EASTING	ELEVATION	DESCRIPTION
SHW-278- R	1045028.16	726879.86	59.01	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-278- L	1045141.16	726891.23	59.69	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-302- L	1045145.79	729283.61	61.90	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-302- R	1045054.22	729278.39	62.16	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW 316 L	1045145.99	730738.24	64.53	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-317	1045142.99	730801.36	64.34	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-320-L	1045148.79	731077.15	64.37	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-323-L	1045144.02	731408.20	64.22	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-323-LB	1045145.43	731447.72	64.17	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-326- L	1045141.24	731764.25	63.67	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-327- L	1045143.02	731814.41	63.58	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-329- L-A	1045143.78	732023.50	63.43	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-329- L-B	1045144.00	732063.46	63.30	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-345- L-A	1045147.14	733566.20	60.67	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-345- L-B	1045144.63	733617.66	60.88	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-354-L	1045130.54	734521.40	53.70	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-397-L	1045245.78	738824.64	62.59	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-397-R	1045153.25	738834.12	61.23	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-404-L-A	1045307.83	739494.95	62.82	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-405-L	1045435.32	739579.51	61.50	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-404 L-B	1045433.99	739510.03	61.71	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-418-L	1045502.58	740929.87	62.04	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-423-L	1045486	742309	N/A	NO FLAG FOUND
SHW-459-L-A	1045529	744976	N/A	NO FLAG FOUND
SHW-459-L-B	1045560	745001	N/A	NO FLAG FOUND
SHW-476-L	1045534.95	746654.08	64.29	SEASONAL HIGH/BIOLOGICAL INDICATOR

SHW-484- LB	1045522.71	747563.67	67.81	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-484-LA	1045438.89	747565.75	68.75	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-484-R	1045323.99	747560.90	67.32	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-511-L	1045513	750210	N/A	NO FLAG FOUND
SHW-519-L	1045452.59	750986.13	70.08	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-519-R	1045339.73	750995.04	70.20	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-547-L	1045533	753767	N/A	NO FLAG FOUND
SHW-565-L B	1045584.77	755639.39	70.83	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-565-L A	1045586	755607	N/A	NO FLAG FOUND
SHW-573-L	1045607.10	756320.03	69.40	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-578-L	1045591.35	756872.50	68.14	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-587-L	1045585.1	757719.3	73.19	NO FLAG FOUND-SURVEYED GROUND LEVEL
SHW-589-L	1045468.99	758007.83	71.68	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-594-L	1045576.59	758537.83	73.48	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-604-L	1045596.99	759515.31	69.07	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-616	1045612.22	760673.65	69.93	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-617	1045481.54	760841.09	71.31	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-620	1045700.88	761112.63	70.04	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-629	1045671.87	762059.66	68.62	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-688 LB	1045632.73	765917.75	71.12	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-688 LA	1045631.44	765877.50	71.43	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-672- L	1045521.14	766362.43	72.95	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-681	1045627.10	767109.53	69.07	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-687- L	1045631.45	767849.78	70.58	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-699-L	1045634.12	769136.60	70.45	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-709-L	1045636.46	769983.98	72.62	SEASONAL HIGH/BIOLOGICAL INDICATOR
SWH-718-L	1045639.22	770804.63	72.44	SEASONAL HIGH/BIOLOGICAL INDICATOR
SWH-772-L	1045664.67	771366.36	73.36	SEASONAL HIGH/BIOLOGICAL INDICATOR
SWH-772-L	1045647.51	772482.15	73.52	SEASONAL HIGH/BIOLOGICAL INDICATOR
SWH-743-L	1045653.77	773286.16	72.98	SEASONAL HIGH/BIOLOGICAL INDICATOR
SWH-755-L	1045657.99	774575.42	75.27	SEASONAL HIGH/BIOLOGICAL INDICATOR
SWH-763-L	1045680.22	775431.46	77.34	SEASONAL HIGH/BIOLOGICAL INDICATOR
SWH-777-L	1045669.21	776766.40	75.51	SEASONAL HIGH/BIOLOGICAL INDICATOR
SWH-784-L	1045667.41	777566.10	77.25	SEASONAL HIGH/BIOLOGICAL INDICATOR
SWH-793-L	1045674.77	778412.19	77.48	SEASONAL HIGH/BIOLOGICAL INDICATOR
SWH-803- L	1045687.02	779454.36	77.43	SEASONAL HIGH/BIOLOGICAL INDICATOR
SWH-808-L	1045689.96	779898.09	79.05	SEASONAL HIGH/BIOLOGICAL INDICATOR
SWH-809-L	1045691.01	779976.80	79.77	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-831-L	1045661.78	781141.09	79.13	NO FLAG FOUND-SURVEYED GROUND LEVEL
SHW- 824-L	1045586.64	781518.28	80.55	SEASONAL HIGH/BIOLOGICAL INDICATOR

SHW-830-L	1045686.29	782121.63	79.86	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-833-L	1045687.82	782411.91	79.87	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-844-L	1045690.69	783518.79	79.65	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-854- L	1045701.21	784497.67	79.51	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-863-L	1045709.30	785434.42	80.38	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-874-L	1045716.07	786576.20	80.53	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-206-L	1045145.18	719713.73	48.88	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-884-L	1045721.78	787494.72	78.57	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-894-L	1045626.79	788464.09	80.66	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-903-L	1045731.68	789469.09	80.73	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-923-L	1045746.86	791274.51	77.23	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-937-L	1045812.09	792848.78	78.75	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-946- L	1045651.60	793768.60	78.08	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-956- L	1045767.63	794755.19	77.04	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-972-L	1045771.73	796278.53	76.68	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-981-L	1045765.95	797209.50	77.44	SEASONAL HIGH/BIOLOGICAL INDICATOR
SHW-981-L	1045584.88	798385.30	79.03	SEASONAL HIGH/BIOLOGICAL INDICATOR