Final Pond Siting Report

Florida Department of Transportation

District One

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

From Lonesome Island Road to the Southern Leg of CR 721

Highlands County, Florida

Financial Management Number: 449851-1

ETDM Number: 14490

Date: 08-05-2025

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.

Curtis Sprunger 2026.01.23 13:12:10-05'00'

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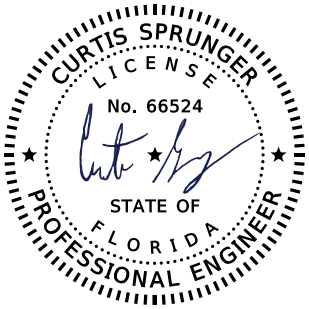

P.E. No.: 66524

SR 70
From Lonesome Island Road to the Southern Leg of CR 721
Project Development & Environment (PD&E) Study

Final Pond Siting Report

Financial Project ID No. 449851-1-22-01
ETDM Project No. 14490
Highlands County, Florida

Prepared for:

Florida Department of Transportation
District One

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December 2025

EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) District One is conducting a Project Development and Environment (PD&E) study for proposed improvements to the State Road (SR) 70 corridor in Highlands County. The intent is to provide enhanced safety along the SR 70 corridor, a major east-west roadway spanning the length of the state. The project limits extend approximately 7.6 miles from Lonesome Island Road to the southern leg of County Road (CR) 721. SR 70 is classified as a rural principal arterial and designated hurricane evacuation route part of Florida's Strategic Intermodal System (SIS). Facilities on the SIS are subject to special standards and criteria for design speed, level of service (LOS) and other requirements. SR 70 in the existing condition does not meet SIS facility criteria.

The study focuses on improving safety of this section of SR 70. Alternatives to be evaluated include adding an additional through lane in each direction, adding a median, and widening travel lanes from 10 feet to 12 feet as part of the project. Multimodal facilities (i.e., a share use path) will also be considered along the project. Each alternative will be evaluated to determine social and environmental impacts, safety enhancements, additional right-of-way (ROW) needs, and traffic performance.

The PD&E study objectives include determining proposed typical sections and developing preliminary conceptual design plans for proposed improvements while minimizing impacts to the environment, considering agency and public comments, and ensuring project compliance with all applicable federal and state laws. Proposed drainage improvements will include construction of stormwater management facilities (SMF) and floodplain compensation (FPC) sites. Stormwater runoff will be collected and conveyed to proposed SMF sites via a series of roadside swales for water quality treatment and water quantity attenuation. The PD&E study satisfies all applicable requirements, including the National Environmental Policy Act (NEPA), to qualify for federal-aid funding of subsequent development phases (design, right of way acquisition, and construction). This report has determined the preferred stormwater pond sites are SMF 1, SMF 2A, SMF 3A, SMF 4, SMF 5, SMF 6, and LIN 7L & LIN 7R and the preferred floodplain pond sites are FPC 1B, FPC 2-3B, FPC 4A, FPC 5A, FPC 6B, and FPC 7B.

A Natural Resources Evaluation (NRE) Report was prepared for the PD&E study's Preferred Alternative and preferred pond sites. The NRE documented potential primary zone nest impacts adjacent to Audubon's crested caracara nests. FDOT has coordinated with U.S. Fish and Wildlife Service (USFWS) regarding potential impacts adjacent to Audubon's crested caracara nests along the project limits. USFWS is issuing a Biological Opinion for the project's Preferred Alternative and pond sites. In association with the Biological Opinion and to confirm no additional nest impacts, a PD&E commitment has been added to conduct a standard reconnaissance survey for Audubon's crested caracara nests prior to construction.

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List of Acronyms

AADT	Annual Average Daily Traffic
CMF	Crash Modification Factors
CR	County Road
CSM	Cubic Feet per Second per Square Mile
ERP	Environmental Resource Permit
ETAT	Environmental Technical Advisory Team
ETDM	Efficient Transportation Decision Making
FAC	Florida Administrative Code
FDEM	Florida Division of Emergency Management
FDM	FDOT Design Manual
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FGT	Florida Gas Transmission
FHWA	Federal Highway Administration
FIRM	Florida Insurance Rate Map
FPC	Floodplain Compensation Site
Ft	Foot or Feet
FY	Fiscal Year
HSG	Hydrologic Soil Group
LOS	Level of Service
LRTP	Long Range Transportation Plan
NEPA	National Environmental Policy Act
OA	Other Arterial
OEM	Office of Environmental Management
Mph	Miles Per Hour
NOAA	National Oceanic and Atmospheric Administration
NRCS	National Resources Conservation Services
PD&E	Project Development and Environment
ROW	Right of Way
SCS	Soil Conservation Service
SFWMD	South Florida Water Management District
SHWT	Seasonal High-Water Table
SIS	Strategic Intermodal System
SMF	Stormwater Management Facility
SR	State Road
SSOGIS	State Safety Office Geographic Information System
STIP	State Transportation Improvement Plan

TIP	Transportation Improvement Plan
TPO	Transportation Planning Organization
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WBID	Water Body Identification Number

SECTION 1 INTRODUCTION

1.1 PD&E STUDY PURPOSE

The objective of the Project Development & Environment (PD&E) study is to assist the Florida Department of Transportation (FDOT) Office of Environmental Management (OEM) in reaching a decision on the type, location, and conceptual design of the proposed improvements for the widening of State Road (SR) 70. This study documents the need for improvements as well as the procedures utilized to develop and evaluate various improvements, including elements such as proposed typical sections, preliminary horizontal alignments, Stormwater Management Facility (SMF) and Floodplain Compensation Site (FPC) sites and intersection enhancements.

The PD&E study satisfies all applicable requirements, including the National Environmental Policy Act (NEPA), to qualify for federal-aid funding of subsequent development phases (design, right of way acquisition, and construction). This project was screened through the FDOT's Efficient Transportation Decision Making (ETDM) process as ETDM Project No. 14490. The ETDM Programming Screen Summary Report was published on June 1, 2023, containing details concerning agency comments from the Environmental Technical Advisory Team (ETAT) on the project's potential effects to natural, cultural, and community resources; and provide additional documentation of activities related to the Programming Phase of the project.

1.2 PROJECT PURPOSE AND NEED

1.2.1 Purpose

The purpose of this project is to address traffic safety conditions on SR 70 from Lonesome Island Road to the southern leg of County Road (CR) 721 within Highlands County. Other goals of the project are to maintain important east-west connectivity within the regional transportation network and accommodate freight activity within the area.

1.2.2 Need

This project is needed to improve traffic safety conditions, emergency evacuation, and incident response times. Other goals of the project are to maintain important east-west connectivity within the regional transportation network and accommodate freight activity within the area.

1.2.3 Safety

Crash data was collected for the years 2018 to 2022 from the FDOT State Safety Office Geographic Information System (SSOGIS) and Signal Four Analytics database. A total of 84 crashes were reported along the SR 70 project corridor during the five-year period. Of the 84 crashes along the project corridor, 13 (15%) were guardrail crashes and 13 (15%) were sideswipe, opposite direction crashes. The average crash rate for this section of SR 70 is 1.073, 36% more than the statewide average of 0.789 and 19.4% higher than the Highlands County crash rate of 0.898 for similar facilities. Eight fatal crashes occurred on this

segment of SR 70 during the five-year period. One of the fatal crashes were reported as a front to front crash that was caused by improper passing.

The project section of SR 70 presently features ten-foot travel lanes and eight-foot shoulders, with four feet paved. Guardrails along the roadway are also minimally set back from the travel lanes (less than seven feet). With a context classification of C2-Rural, the existing typical section does not meet 2023 FDOT Design Manual (FDM) standards. The substandard lane and shoulder widths and proximity of the guardrails to the travel lanes restrict the ability of drivers to avoid hazards within each directional travel lane without veering off the roadway causing direct impacts. According to "Evaluation of the Safety Effectiveness of the Conversion of Two-Lane roadways to Four-Lane Divided Roadways: Bayesian vs. Empirical Bayes" referenced on the Federal Highway Administration (FHWA) Crash Modification Factors (CMF) Clearinghouse, widening a rural two-lane roadway to a four-lane divided roadway can help decrease fatal and injury crashes by 45%. In addition, due to the roadway's current configuration, there is limited space for an emergency service vehicle to pass to respond to a situation during periods of congestion or to accommodate a disabled vehicle to prevent it from obstructing traffic flow. According to the Highlands County Sheriff's Office, one of the two travel lanes (if not both) is often blocked during traffic incidents.

SR 70 is part of the emergency evacuation route network designated by the Florida Division of Emergency Management (FDEM) as well as the network established by Highlands County. This roadway is critical in facilitating traffic during emergency evacuation periods as it connects to other arterials and highways of the state evacuation route network [such as US 27 (on the west) and CR 721 (on the east)] and serves as only one of two east-west facilities [SR 66/US 98 being the other] that traverses Highlands County. Under various FDEM evacuation scenarios for different storm events, FDEM noted that SR 70 has some of the longest lasting vehicle queues in the Central Florida region, contributing to prolonged clearance times. Clearance time, comprised of time required for mobilization of the evacuating populating, travel tie, and the delay time caused by traffic congestion, is one input used by County emergency managers to determine when to recommend an evacuation order and is a key factor pertaining to public safety during an evacuation event.

The project is anticipated to address deficiencies of the roadway which may reduce crashes (including fatalities) and lead to enhanced emergency evacuation capabilities and incident response times.

1.2.4 Area Wide Network/System Linkage

SR 70 is one of four corridors connecting Central and South Florida's west and east coasts as it spans from US 41 in Manatee County (west coast) to US 1 in St. Lucie County (east coast). It also connects to several major north-south transportation facilities of the state, including US 41, I 75, US 17, US 27, US 441, Florida's Turnpike, I-95, and US 1. With the nearest available parallel east-west facilities being located over 10 miles to the north and south, SR 70 is integral to facilitating east-west travel within the regional transportation network of Florida's heartland.

The project is intended to complement other SR 70 corridor safety and traffic operational improvements identified in the 2029 - 2045 SIS Long Range Cost Feasible Plan from CR 675 in Manatee County to US 98 in Okeechobee County. In turn, the improvements are anticipated to maintain the corridor's function as a designated SIS highway corridor and important east-west connection for freight and commuters across the Central Florida region and state.

1.2.5 Transportation Demand

As part of Florida's SIS highway network, SR 70 connects regionally important routes (such as I-75, US 27, Florida's Turnpike, and I-95) as well as serves as a regional through route for long-haul truck volumes and provides access to agricultural/ranching operations, industrial/commercial areas, and other intensive freight activity centers within Central Florida. The 2022 Annual Average Daily Traffic (AADT) volume for the project corridor of is 5,600 vehicles per day, of which 32% is truck traffic. Truck volumes along SR 70 are expected to increase in the future as freight distribution and logistics activities continue to gain economic significance in Central Florida counties through the rapid growth occurring along the Interstate 4 and Interstate 75 corridors within the broader region. According to the Heartland Regional Transportation Planning Organization's (TPO) 2045 Long Range Transportation Plan (LRTP), Highlands County is in the process of diversifying their economy, expanding the potential for freight distribution and logistics activity development. With the major metro markets of Orlando, Tampa, and Fort Myers being located nearly equidistant to Highlands County and more than 86% of Florida's population being located within a 150-mile (or two-hour) radius of Highlands County, the SR 70 improvements are intended to accommodate increased population and employment growth as well as support the vision of the county and larger region to grow as a trade hub.

According to the FDOT District 1 Freight Mobility and Trade Study: Technical Memorandum 5 - Freight Improvements Prioritization, improvements to SR 70 are the #1 long-term priority in Highlands County to facilitate the future growth of freight traffic in the region. Additionally, the Heartland Regional TPO, its committees, and community stakeholders have identified SR 70 as the highest priority transportation facility in the region in need of improvements due to concerns pertaining to safety, freight mobility, and economic growth. The project improvements are aligned with the goals of these plans and SIS objectives of promoting interregional transportation linked to economic development.

1.2.6 Project Status

The proposed improvements along SR 70 from East of Lonesome Island Road to NW 38th Terrace (near downtown Okeechobee) are identified in the Heartland Regional TPO 2045 LRTP Cost Feasible Plan with Other Arterial (OA) Future Funding fiscal year (FY) 2031-2035 for safety improvements and/or a PD&E Study. The projects improvements are not identified in the Heartland Regional TPO's FY 2021/22 – 2025/26 Transportation Improvement Program (TIP). The FDOT State Transportation Improvement Program (STIP) and the FY 2022-2027 Work Program identify the project improvements programmed for the PD&E Study in FY 2023-2024. The project improvements on SR 70 from East of Lonesome Island Road to NW 38th Terrace are identified in the SIS Long Range Cost Feasible Plan FY 2029-2045 for the PD&E Study in FY 2028/29 – 2034/35 and for the Preliminary Engineering phase in FY 2035/36 – 2039/40. As

noted, funding for the project as well as the project limits differ across plans; the identified plans will need to be modified to reflect consistency.

1.3 PROJECT DESCRIPTION

This roadway project proposes the widening of a two-lane facility a four-lane, divided facility and/or the inclusion of operational improvements along 7.6 miles of SR 70 from Lonesome Island Road to the southern leg of CR 721 in Highlands County. Travel lane widths will be widened from 10 feet to 12 feet as part of the project. Multimodal facilities will also be considered along the project segment, where appropriate.

SR 70 is part of Florida's SIS highway network and designated state hurricane evacuation route network. As part of the National Highway System, SR 70 is critical in the transportation network as it facilitates local and regional traffic and the movement of goods/freight. SR 70 is functionally classified as "Rural Principal Arterial – Other" within the project area and the project segment of the roadway has an existing context classification of C2-Rural. The existing typical section consists of a two-lane undivided facility with 10-foot travel lanes. There are eight-foot shoulders, four feet of which are paved; however, there are no designated bicycle lanes or sidewalks present on either side. The posted speed limit along the project corridor is 60 miles per hour (mph).

The existing right-of-way (ROW) along SR 70 project segment is generally 50-70 feet. A deep canal runs intermittently along the southern border of the project limits. Additional ROW is expected to accommodate the proposed improvements. A project location map is provided in **Figure 1-1** and can also be found in **Appendix A, A-1**.

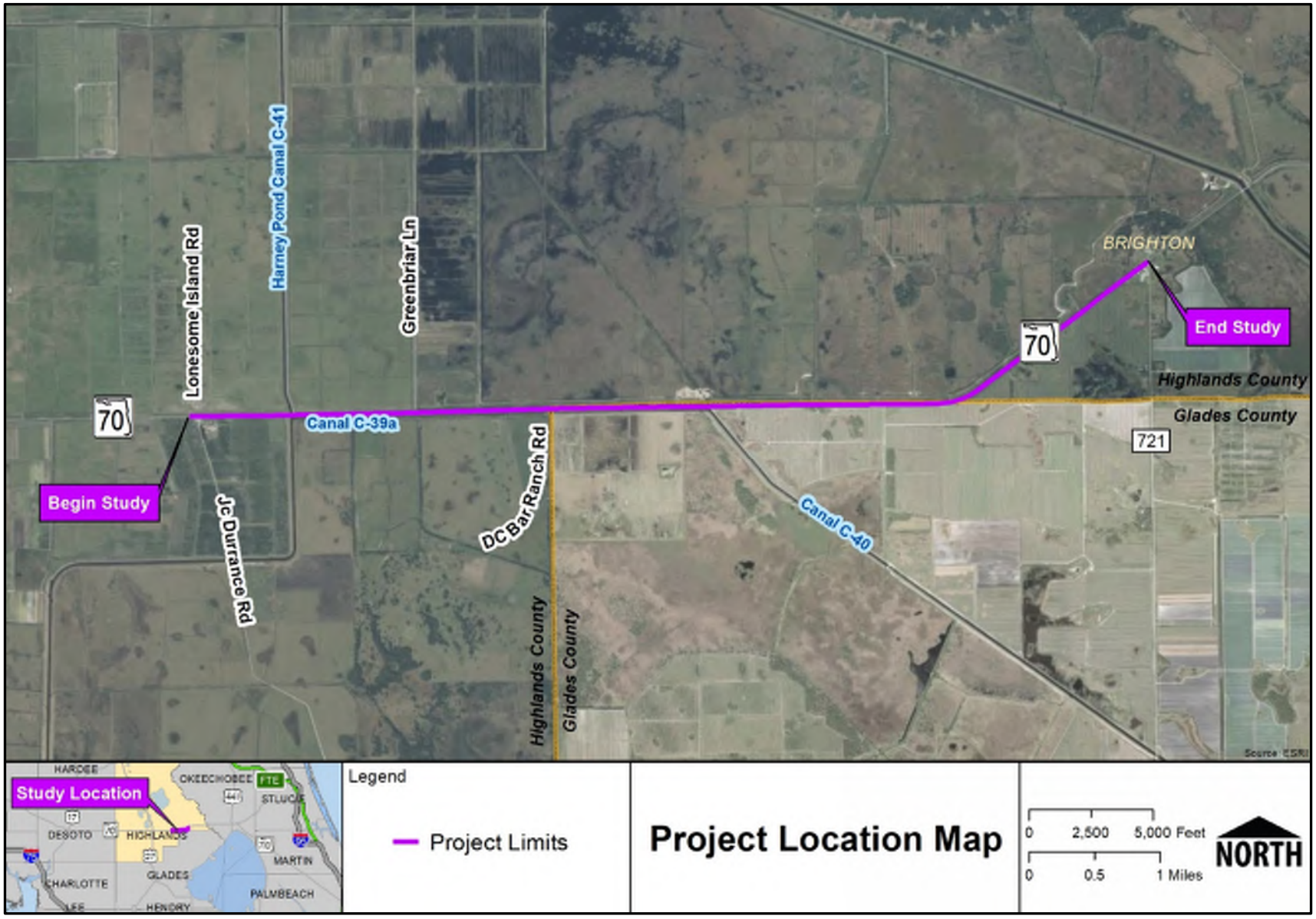


Figure 1-1 Project Location Map

1.4 EXISTING ROADWAY AND PROPOSED IMPROVEMENTS

1.4.1 Existing Roadway

Within the project area, SR 70 is currently a two-lane undivided roadway functionally classified as a rural principal arterial other roadway with a posted speed limit of 60 mph. The roadway has one 10-ft lane in each direction, with shoulders that are approximately 8-ft wide (4-ft paved) on both the south and north side throughout the corridor with no dedicated bicycle lanes or sidewalk. The existing ROW varies along the corridor, but is a minimum of 50 feet. There are two existing typical sections within the study limits. The limits of the first existing roadway typical section is from Lonesome Island Road to Harney Pond Canal C-41 and from Indian Prairie Canal C-40 to CR 721 (Southern Leg) and is provided as **Figure 1-2**. The limits of the second existing roadway typical section are from Harney Pond Canal C-41 to Indian Prairie Canal C-40 and is provided as **Figure 1-3**.

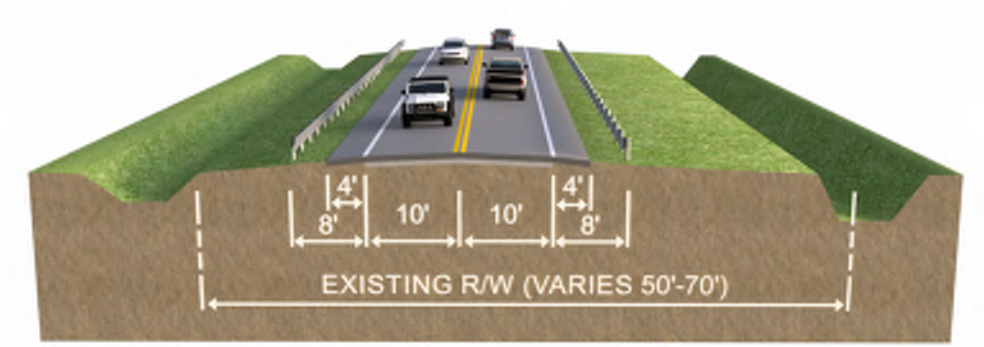


Figure 1-2 SR 70 – Existing Roadway Typical Section One

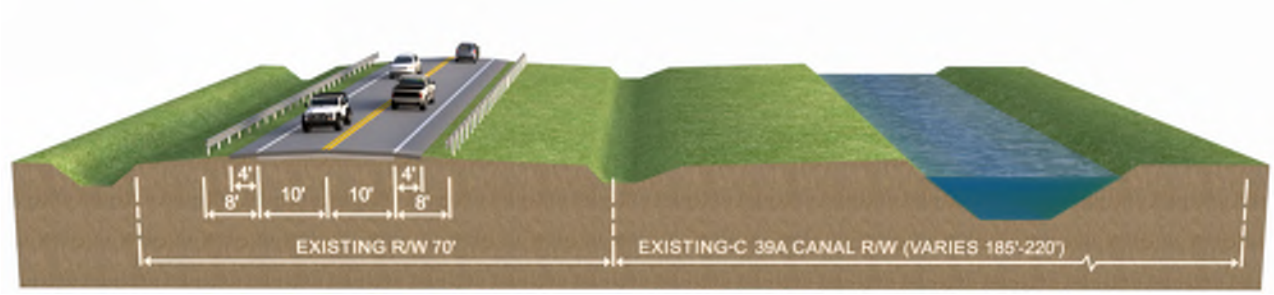


Figure 1-3 SR 70 – Existing Roadway Typical Section Two

1.4.2 Proposed Improvements

The proposed typical section shows widening of SR 70 to a four-lane divided rural roadway with a 40-foot median. There will be two 12-ft travel lanes in each direction, with outside shoulders that are 10-ft wide (5-ft paved) throughout the corridor a 12-ft shared use path is proposed along the south side of the road. The proposed ROW varies along the corridor, but is a minimum of an additional 60 feet. There are two proposed typical sections within the study limits. The limits of the first proposed typical section is from Lonesome Island Road to Harney Pond Canal C-41 and from Indian Prairie Canal C-40 to CR 721 (Southern

Leg) and is provided as **Figure 1-4**. The limits of the second proposed typical section is from Harney Pond Canal C-41 to Indian Prairie Canal C-40 and is provided as **Figure 1-5**.

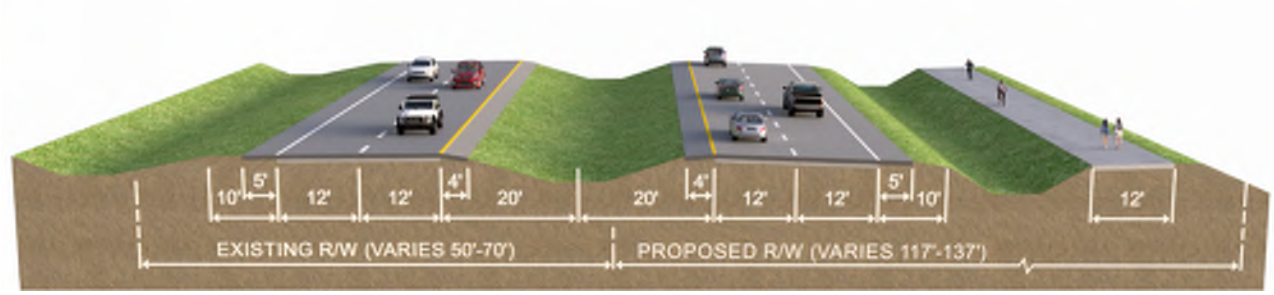


Figure 1-4 SR 70 – Proposed Roadway Typical Section One

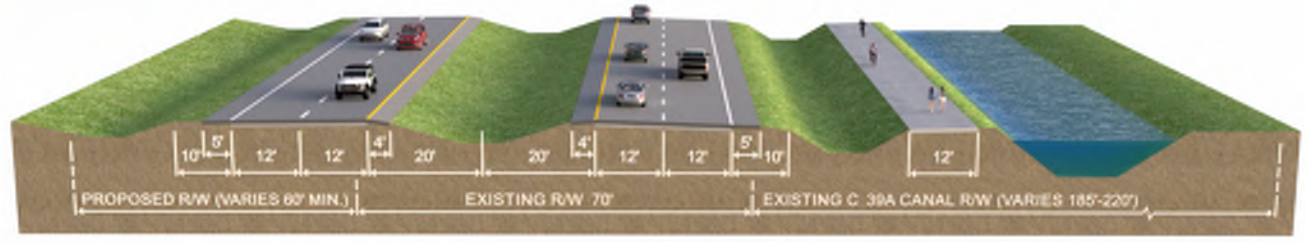


Figure 1-5 SR 70 – Proposed Roadway Typical Section Two

Each proposed typical section will be evaluated to determine social and environmental impacts, safety enhancements, additional right-of-way (ROW) needs, and traffic performance. The project includes the evaluation of SMF and FPC sites. Additional ROW will be required at some locations along SR 70 for SMF and FPC sites.

1.5 REPORT PURPOSE

The purpose of this Pond Siting Report is to verify proposed stormwater management facilities (SMF) can accommodate the roadway improvements evaluated in the PD&E Study. The proposed pond sites are based on the best available information and are sized to provide the required stormwater treatment set forth by ruling authorities. The calculations, pond configurations, and other supporting documentation presented in this report are preliminary and are subject to change.

SECTION 2 PROJECT INFORMATION

2.1 SOIL CHARACTERISTICS

Map Unit Name/ Unit Number	HSG	Description
Felda fine sand (13,10)	A/D	Nearly level to gently sloping poorly drained soil and Depth to SHWT of 3 to 18 inches with percentage of 34%.
Valkaria fine sand (16,4)	A/D	Nearly level to gently sloping poorly drained soil and depth to SHWT of 3 to 18 inches with percentage of 12%.
Basinger fine sand (14,12)	A/D	Nearly level to gently sloping poorly drained soil and depth to SHWT of 0 to 12 inches with percentage of 14%.
Immokalee sand (8)	B/D	Nearly level to gently sloping poorly drained soil and depth to SHWT of 6 to 18 inches with percentage of 8%.
Tequesta muck (26)	A/D	Nealy level to gently sloping very poorly drained soils and depth to water table of 0 inches with percentage of 6%.
Kaliga muck (18)	C/D	Nearly level to gently sloping very poorly drained soil and depth to SHWT of 0 inches with percentage of 5%.
Hicoria mucky sand (19)	C/D	Nearly level to gently sloping very poorly drained soil and depth to SHWT of 3 to 18 inches with percentage of 4%.
Malabar fine sand (17,6)	A/D	Nearly level to gently sloping very poorly drained soil and depth to SHWT of 0 inches with percentage of 2%.
Bradenton fine sand (15)	B/D	Nearly level to gently sloping very poorly drained soil and depth to SHWT of 3 to 18 inches with percentage of 1%.
Floridana fine sand (16)	C/D	Nealey level to gently sloping very poorly drained soils and depth to SHWT 0 feet with percentage of 4%.
Pineda-Pineda wet, fine sand (15)	A/D	Nearly level to gently sloping poorly drained soils wand depth to SHWT of 0 inches with percentage of 3%.

Table 2-1 Soil Characteristic

The Soil Survey of Highlands County classifies the majority of soils within the project area as Felda fine sand (13), Valkaria fine sand (16), Basinger fine sand (12), Immokalee sand (8), Tequesta muck (26), Kaliga muck (18), Hicoria mucky sand (19), Malabar fine sand (17), and Bradenton fine sand (15). The Soil Survey of Glades County classifies the majority of soils within the project area as Felda fine sand (10), Basinger fine sand (14), Floridana fine sand (16), Pineda-Pineda wet, fine sand (15), Malabar fine sand (6), and Valkaria fine sand (4). Felda fine sand (13,10) is described as nearly level to gently sloping poorly drained soils with Hydrologic Soil Group (HSG) Type A/D and depth to Seasonal High-Water Table (SHWT) of 3 to 18 inches. Basinger fine sand (14,12) is described as nearly level to gently sloping poorly drained soils with HSG Type A/D and depth to SHWT of 0 to 12 inches. Valkaria fine sand (16,4) is described as nearly level to gently sloping poorly drained soils with HSG Type A/D and depth to SHWT of 3 to 18 inches. Immokalee sand is described as nearly level to gently sloping poorly drained

soils with HSG Type B/D and depth to SHWT of 6 to 18 inches. Tequesta muck (26) is described as nearly level to gently sloping very poorly drained soils with HSG Type A/D and depth to water table of 0 inches. Kaliga muck (18) is described as nearly level to gently sloping very poorly drained soils with HSG Type C/D and depth to SHWT of 0 inches. Floridana fine sand (16) is described as nearly level to gently sloping very poorly drained soils with HSG type C/D and depth to SHWT 0 feet. Hicoria mucky sand (19) is described as nearly level to gently sloping very poorly drained soils with HSG Type C/D and depth to SHWT of 0 inches. Pineda-Pindeda wet, fine sand (15) is described as nearly level to gently sloping poorly drained soils with HSG Type A/D and depth to SHWT of 0 inches. Malabar fine sand (17,6) is described as nearly level to gently sloping poorly drained soils with HSG Type A/D and depth to SHWT of 3 to 18 inches. Bradenton fine sand (15) is described as nearly level to gently sloping poorly drained soils with HSG Type B/D and depth to SHWT of 3 to 18 inches. The percentages of each soil are as follows: Felda (34%), Basinger (14%), Valkaria (12%), Immokalee (8%), Tequesta (6%), Kaliga (5%), Floridana (4%), Hicoria (4%), Pineda-Pineda (3%), Malabar (5%), Bradenton (1%). Refer to **Appendix H, H-1** for the complete National Resources Conservation Services (NRCS) Custom Soil Resource Report.

2.2 LAND USE

The existing land use within the project corridor is characterized by: Low Density, <2 dwelling units/acre (110), Commercial and Services (140), Improved Pastures (211), Unimproved Pastures (212), Row Crops (214), Sugar Cane (215), Citrus Groves (221), Abandoned Groves (224), Herbaceous (Dry Prairie) (310), Upland Shrub and Brushland (320), Oak – Cabbage Palm Forest (427), Cabbage Palm (428), Channelized Waterways, Canals (512), Streams and Waterways (510), Reservoirs (530), Bay Swamps (611), Mixed Shrubs (617), Cabbage Palm Wetland (618), Freshwater Marshes/Graminoid Prairie – Marsh (641), Wet Prairie (643), Emergent Aquatic Vegetation (644), Roads and Highways (810). Detailed land use information is presented in **Appendix A, A-3 - A-9.**

2.3 FEMA FLOODPLAIN INFORMATION

The project site is located on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community-Panel Numbers 12055C0555C, 12055C0560C, and 12055C0580C (effective date November 18, 2015) in Highlands County and Community-Panel Numbers 12043C0025C and 12043C0050C (effective date September 26, 2014) in Glades County. The project does not include any FEMA floodways. The proposed alignment impacts several areas designated as Zone A, which are areas of the 100-year floodplain where the base flood elevation has not been determined. Refer to **Appendix F, F-1** for complete FIRM maps.

2.4 DRAINAGE REFERENCE AND RESOURCE INFORMATION

The following sources were used to locate and size the stormwater ponds and floodplain compensation sites:

- FDOT Drainage Manual 2025
- FDOT Drainage Design Guide 2025

- South Florida Water Management District Environmental Resource Permit (SFWMD ERP) Applicant's Handbook II
- Contours derived from Lidar, National Oceanic and Atmospheric Administration (NOAA) 2018
- United States Department of Agriculture (USDA) Soil Conservation Service (SCS) Soil Survey of Highlands County, Florida, August 2023
- USDA SCS Soil Survey of Glades County, Florida, September 2023
- United States Geological Survey (USGS) Quadrangle Maps
- FEMA FIRM, effective November 18, 2015 (12055C0555C, 12055C0560C, and 12055C0580C)
- FEMA FIRM, effective September 26, 2014 (12043C0025C and 12043C0050C)
- Preliminary Cultural Resource Assessment Probability Analysis for Proposed Pond Sites
- Contamination Technical Memorandum
- Wetland and Protected Species Evaluation
- Florida Gas Transmission (FGT) - Engineering and Construction Specifications (Revision 2015)

SECTION 3 EXISTING DRAINAGE CHARACTERISTICS

3.1 WATERSHED DESCRIPTIONS

SR 70 is currently a two-lane undivided roadway that drains through roadside ditches to the seven existing cross drains within the project limits. Stormwater ultimately discharges to canals along the north and south sides of the roadway. The projects falls within the Upper Bay Swamp and North Indian Prairie Canal watersheds **(See Appendix A, A-10)** of the South Florida Water Management District (SFWMD) with ultimate outfalls to the Harney Pond Canal Water Body Identification number (WBID 3204) and the Indian Prairie Canal (WBID 3206) both of which are impaired for nutrients **(See Appendix A, A-11)**. There are no existing stormwater management facilities present on or offsite. The existing drainage patterns were determined using United States Geological Survey (USGS) quadrangle maps and LiDAR contours.

3.2 CROSS DRAINS

There are seven existing cross drains along the existing SR 70 alignment. Refer to **Table 3-1** for a description of the existing cross drains. Photos of the documented cross drains taken in May 2024 can be located in **Appendix D, D-1**. These cross drains are also labeled on the FDOT Straight Line Diagram provided in **Appendix E, E-1**.

No.	MP	Station	Existing Description
CD-1	22.645	2 - 295+69.58	84” PIPE
CD-2	23.941	2 - 364+04.00	84” PIPE
CD-3	25.785	2 - 461+03.69	60” PIPE
CD-4	27.391	2 - 546+89.24	2-9’x7’ CBC
CD-5	27.950	2 - 576+39.76	18” PIPE
CD-6	27.977	2 - 577+81.93	2-7’x5’ CBC
CD-7	29.253	2 - 651+23.51	24” PIPE

Table 3-1 Existing Cross Drain Summary

SECTION 4 FLOODPLAIN

4.1 FLOODPLAIN IMPACTS

Impacts to the 100-year floodplain will occur in three ways:

- Transverse impacts resulting from cross drain extensions.
- Longitudinal impacts resulting from the road widening in areas of 100-year floodplain.
- Impacts due to stormwater management facilities located adjacent to wetland and storage areas.

All of the anticipated impacts to the floodplain occur in Zone A which does not have a determined base floodplain elevation and a study has not been conducted. Using available resources and best engineering judgement, base flood elevations were determined at various points along the proposed alignment. It is estimated there will be approximately 164 acre-feet of encroachment into the floodplain due to proposed improvements. See **Appendix G, G-2 to G-19** for encroachment calculations.

4.2 FLOODPLAIN COMPENSATION SITES

Floodplain compensation sites will be required to offset the floodplain impacts located along the project corridor. Aerial photographs, field reconnaissance, and information from the Highlands County and Glades County Property Appraiser websites were used to locate these compensation sites. During the design phase of the project, FPC configurations may vary from the assumptions in this report based on actual conditions. Compensation for floodplain impacts will be provided in floodplain compensation ponds to show no adverse floodplain stage increases. During design phase, dynamic modeling may be used to reduce the size of the floodplain compensations sites.

Compensation sites will be located in a total of six basins and will contain two alternatives per basin. Encroachment and compensation calculations are provided in **Appendix G, (G-20 to G-25)** respectively and a summary of encroachment/compensation within the floodplain is located in **Appendix G, G-1**. Additionally, alternative sites are depicted in **Appendix I**.

4.2.1 Basin 1 – FPC Locations

4.2.1.1 FPC 1A

FPC 1A is a 15.9 acers (ac) floodplain compensation site located on the south side of SR 70 from STA. 454+00 to STA. 470+00 RT. This FPC also includes a 3.7 AC access easement and 0.1 AC outfall easement. The FPC requires a partial take of Highlands County Parcel C-04-38-31-A00-0040-0000, a 317.0 AC parcel owned by 3 W Ranch LLC. An investigation by Archaeological Consultants Inc. (ACI) was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site

has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a medium ranking. The site does not have any wetland impacts. The entire site includes Immokalee sand (8) which has a depth to water table of 6" to 18" below existing ground and HSG Type B/D. The average ground elevation is 34.0' with the SHWT elevation estimated at elevation 33.0' based on the NRCS Custom Soil Resource Report in **Appendix H** and adjacent floodplain pond (FPID 414506-5-22-01). Refer to **Appendix M** for a comparison matrix.

4.2.1.2 FPC 1B (Preferred)

FPC 1B is a 13.4 AC floodplain compensation site located on the south side of SR 70 from STA. 443+50 to STA. 454+00 RT. This FPC also includes a 3.7 AC access easement and 0.1 AC outfall easement. The FPC requires a partial take of Highlands County Parcel C-04-38-31-A00-0040-0000, a 317.0 AC parcel owned by 3 W Ranch LLC. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a medium ranking. The site does not have any wetland impacts. The majority of the site includes Immokalee sand (8) with Basinger fine sand (12). Immokalee sand (8) has a depth to water table of 6" to 18" below existing ground and HSG Type B/D. Basinger fine sand (12) has a depth to water table of 0" to 12" below existing ground and HSG Type A/D. The average ground elevation is 34.0' with the SHWT elevation estimated at elevation 33.0' based on the NRCS Custom Soil Resource Report in **Appendix H** and adjacent floodplain pond (FPID 414506-5-22-01). FPC 1B is the preferred FPC site as it has the lowest overall cost, low historical archeological potential, low risk of contamination, and no wetland impacts. Refer to **Appendix M** for a comparison matrix.

4.2.2 Basin 2 & 3 – FPC Locations

4.2.2.1 FPC 2-3A

FPC 2-3A is a 56.3 AC floodplain compensation site located on the north side of SR 70 from STA. 362+00 to STA. 386+00 LT. This FPC also includes a 0.5 AC access easement. The FPC requires a partial take of Highlands County Parcel C-25-37-31-A00-0010-0000, a 8366.39 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low to moderate rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site has 1.39 AC of wetland impacts. The majority of the site includes Felda fine sand (13) which has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. There is a small area of Basinger fine sand (12) with a depth of 0"-12" below ground to the SHWT and HSG Type A/D. The

average ground elevation is 28.0’ with the SHWT elevation estimated at elevation 27.1’ based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix.

4.2.2.2 FPC2-3B (Preferred)

FPC 2-3B is a 54.8 AC floodplain compensation site located on the north side of SR 70 from STA. 384+00 to STA. 409+00 LT. This FPC also includes a 0.5 AC access easement. The FPC requires a partial take of Highlands County Parcel C-25-37-31-A00-0010-0000, a 8366.39 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low to moderate rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site does not have any wetland impacts. The majority of the site includes Felda fine sand (13) with Basinger fine sand (12). Felda fine sand (13) has a depth to water table of 3” to 18” below existing ground and HSG Type A/D. Basinger fine sand (12) has a depth to water table of 0” to 12” below existing ground and HSG Type A/D. The average ground elevation is 28.0’ with the SHWT elevation estimated at elevation 27.1’ based on the NRCS Custom Soil Resource Report in **Appendix H**. FPC 2-3B is the preferred FPC site as it has the lowest overall cost, low historical archeological potential, low risk of contamination, and no wetland impacts. Refer to **Appendix M** for a comparison matrix.

4.2.3 Basin 4 – FPC Locations

4.2.3.1 FPC 4A (Preferred)

FPC 4A is a 14.0 AC floodplain compensation site located on the south side of SR 70 from STA. 461+00 to STA. 467+00 RT. This FPC also includes a 0.1 AC outfall easement and 0.1 AC access easement. The FPC requires a partial take of Glades County Parcel A05-38-32-A00-0010-0020, a 215.15 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination. The site was investigated to determine any threatened and endangered species issues and given a medium ranking. The site has 0.78 AC of wetland impacts. The entire site includes Basinger fine sand (14) which has a depth to water table of 0” to 12” below existing ground and HSG Type A/D. The average ground elevation is 27.0’ with the SHWT elevation estimated at elevation 26.5’ based on the NRCS Custom Soil Resource Report in **Appendix H**. FPC 4A is the preferred FPC site as it has the lowest overall cost, low historical archeological potential and low risk of contamination **(Appendix L)**. The wetland impacts at this site can be minimized during the design phase. Refer to **Appendix M** for a comparison matrix.

4.2.3.2 FPC 4B

FPC 4B is a 17.2 AC floodplain compensation site located on the south side of SR 70 from STA. 467+00 to STA. 473+00 RT. This FPC also includes a 0.1 AC outfall easement and 0.1 AC access easement. The FPC requires a partial take of Glades County Parcel A05-38-32-A00-0010-0020, a 215.15 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a medium ranking. The site has 1.10 AC of wetland impacts. The entire site includes Basinger fine sand (14) which has a depth to water table of 0" to 12" below existing ground and HSG Type A/D. The average ground elevation is 27.0' with the SHWT elevation estimated at elevation 26.5' based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix.

4.2.4 Basin 5 – FPC Locations

4.2.4.1 FPC 5A (Preferred)

FPC 5A is a 11.8 AC floodplain compensation site located on the south side of SR 70 from STA. 489+00 to STA. 498+00 RT. This FPC also includes a 0.1 AC outfall easement and 0.2 AC access easement. The FPC requires a partial take of Glades County Parcels A05-38-32-A00-0010-0020 and A04-38-32-A00-0010-0040, 215.15 AC and 407.03 AC parcels both owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low to moderate rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a medium ranking. The site has 0.01 AC of wetland impacts. The entire site includes Pineda-Pineda, wet, fine sand (15) which has a depth to water table of 6" to 18" below existing ground and HSG Type A/D. The average ground elevation is 29.0' with the SHWT elevation estimated at elevation 28.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. FPC 5A is the preferred FPC site as it has the lowest overall cost, low historical archeological potential, low risk of contamination, and minimal wetland impacts. Refer to **Appendix M** for a comparison matrix

4.2.4.2 FPC 5B

FPC 5B is a 11.6 AC floodplain compensation site located on the south side of SR 70 from STA. 497+00 to STA. 508+00 RT. This FPC also includes a 2.1 AC access easement and 0.04 AC outfall easement. The FPC requires a partial take of Glades County Parcel A04-38-32-A00-0010-0040, a 407.03 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a medium ranking. The site has 0.15 AC of wetland impacts. The majority of the site includes Pineda-Pineda, wet, fine sand (15) with Floridana fine sand (16). Pineda-Pineda, wet, fine sand (15) has a depth to water table of 6" to 18" below existing ground and HSG Type A/D. Floridana fine sand (16) has a depth to water table of 0" below existing ground and HSG Type C/D. The average ground elevation is 29.0' with the SHWT elevation estimated at elevation 28.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix.

4.2.5 Basin 6 – FPC Locations

4.2.5.1 FPC 6A

FPC 6A is a 8.2 AC floodplain compensation site located on the south side of SR 70 from STA. 565+00 to STA. 575+00 RT. This FPC also includes a 0.4 AC access easement and 0.1 AC outfall easement. The FPC requires a partial take of Highlands County Parcel C-35-37-32-020-0500-0040, a 454.97 AC parcel owned by Lykes Bros Inc., and Glades County Parcel A03-38-32-A00-0010-0030, a 186.02 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low to moderate rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site does not have any wetland impacts. The entire site includes Valkaria fine sand (16) which has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. The average ground elevation is 27.0' with the SHWT elevation estimated at elevation 26.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix.

4.2.5.2 FPC 6B (Preferred)

FPC 6B is a 5.8 AC floodplain compensation site located on the south side of SR 70 from STA. 560+00 to STA. 570+00 RT. This FPC also includes a 0.1 AC outfall easement and 0.1 AC access easement. The FPC requires a partial take of Highlands County Parcel C-35-37-32-020-0500-0040, a 454.97 AC parcel owned by Lykes Bros Inc., and Glades County Parcel A03-38-32-A00-0010-0030, a 186.02 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination. The site was investigated to determine any threatened and endangered species issues and given a high ranking. There is the potential for primary zone impacts for the crested caracara nest associated with FPC 6B. A PD&E commitment has been added to the project to survey for the species during the design phase since it is unknown at this time when construction will occur, and the caracara nest may be in a different location. Pending the outcome of the future crested caracara survey during the design phase, if a caracara nest is located next to FPC 6A, the pond site may need to be re-evaluated. The site does not have any wetland impacts. Refer to **Appendix K** for Wetlands & Protected Species Memorandum. The entire site includes Valkaria fine sand (16) which has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. The average ground elevation is 27.0' with the SHWT elevation estimated at elevation 26.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. FPC 6B is the preferred FPC site as it has the lowest overall cost, low historical archeological potential, no wetland impacts, and low risk of contamination. Refer to **Appendix M** for a comparison matrix.

4.2.6 Basin 7 – FPC Locations

4.2.6.1 FPC 7A

FPC 7A is a 5.7 AC floodplain compensation site located on the south side of SR 70 from STA. 575+00 to STA. 588+00 RT. This FPC also includes a 0.1 AC access easement. The FPC requires a partial take of Highlands County Parcel C-35-37-32-020-0500-0040, a 454.97 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low to moderate rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site does not have any wetland impacts. The entire site includes Valkaria fine sand (16) which has a depth to water table of

3" to 18" below existing ground and HSG Type A/D. The average ground elevation is 28.0' with the SHWT elevation estimated at elevation 27.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix.

4.2.6.2 FPC 7B (Preferred)

FPC 7B is a 5.6 AC floodplain compensation site located on the south side of SR 70 from STA. 592+00 to STA. 604+00 RT. This FPC also includes a 0.1 AC outfall easement and 0.1 AC access easement. The FPC requires a partial take of Highlands County Parcel C-35-37-32-020-0500-0040, a 454.97 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low to moderate rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site does not have any wetland impacts. The entire site includes Valkaria fine sand (16) which has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. The average ground elevation is 28.0' with the SHWT elevation estimated at elevation 27.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. FPC 7B is the preferred FPC site as it has the lowest overall cost, low historical archeological potential, no wetland impacts, and low risk of contamination **(Appendix L)**. Refer to **Appendix M** for a comparison matrix.

SECTION 5 PROPOSED DRAINAGE CHARACTERISTICS

5.1 DESIGN

Stormwater runoff from SR 70 will be collected and conveyed to stormwater management facilities through roadside swales. These stormwater management facilities will provide water quality (treatment) and water quantity (attenuation). The design of the drainage and stormwater facilities will comply with the standards set forth by the FDOT Drainage Manual, FDOT Drainage Design Guide, and the SFWMD ERP Applicant's Handbook II. Per FGT's Engineering and Construction Specifications, all proposed pipe crossings shall provide a minimum of 24" separation below the FGT gas line and must cross at a ninety-degree angle. Depending on the elevation of the FGT gas line, this may require crossing under the gas line to provide the required clearance.

5.2 WATER QUALITY AND QUANTITY CRITERIA

Water quality and quantity requirements will comply with the guidelines as defined in Chapter 62-330 Florida Administrative Code (FAC) and the SFWMD ERP Applicant's Handbook II. It is noted that the proposed shared use path described in earlier sections will be exempt from water quality treatment. The new statewide stormwater rule, ratified on June 28, 2024 would not impact the water quality requirements for this project since the LDCA is anticipated to be obtained prior to June 28, 2026.

Water quality treatment for linear pond alternatives shall provide treatment for 50% of 1" over the contributing basin or 50% of 2.5" over the impervious area, whichever is greater. Water quality treatment for offsite and regional pond alternatives shall provide the greater of 1" over the contributing basin or 2.5" over the impervious area. It's noted that an additional 50% of water quality treatment has been added since all basins discharge to impaired waterbodies (WBID 3204/3206). Therefore, dry retention is treating 0.8" over the basin or 1.88" over the impervious area and the wet detention is treating 1.5" over the basin or 3.75" over the impervious area.

Water quantity shall be mandated as follows: The proposed discharge rate for the 25yr/72hr storm shall be limited to the existing rate and the proposed discharge rate for the 10yr/72hr storm shall be limited to 35.4 CSM (cubic feet per second per square mile) according to the C-41 Basin Requirement. Since the CSM discharge rate controls, the CSM volume was subtracted from the Post 10 Yr/72 Hr volume to obtain the required attenuation. To determine the allowable CMS volume, the post-developed basin area was converted to square miles and multiplied by 35.4 to determine the allowable discharge rate. Hydrology was then run with ICPR analysis using the basin CN while varying the acreage to determine at what acreage the allowable discharge rate was obtained, the runoff volume generated from that acreage was then used as the allowable runoff volume in the post-developed condition.

5.3 STORMWATER MANAGEMENT FACILTY ALTERNATIVES

Three alternatives have been proposed for the SMF configurations on this project: Linear Ponds, Offsite Ponds, and Regional Ponds. Each treatment option has been designed in compliance with the

FDOT Drainage Manual, FDOT Drainage Design Guide, and the SFWMD ERP Applicant's Handbook II. Alternatives are proposed across seven basins delineated on site which are described further below in **Table 5-1**.

Basin	Begin Station	End Station	Basin Area (AC)	Basin Impervious Area (AC)
1	1 - 463+00	1 - 514+00	44.74	15.66
2	1 - 514+00	2 - 329+00	18.92	9.08
3	2 - 329+00	2 - 446+00	44.47	21.40
4	2 - 446+00	2 - 491+00	24.32	7.91
5	2 - 491+00	2 - 548+00	32.10	10.61
6	2 - 548+00	2 - 576+00	15.32	5.09
7	2 - 576+00	2 - 649+00	35.75	11.87

Table 5-1 Basin Summary

5.3.1 Linear Ponds

This alternative involves dry retention stormwater ponds within the proposed FDOT right-of-way (ROW) to create linear ponds along the length of the project. These ponds include 30' bottom widths if located on the north side of the proposed improvements and a 10' bottom width if located on the south side. All linear pond alternatives will have 1:6 front slopes, 1:4 back slopes, and 0.5' for freeboard. The linear alternative is proposed within basins 1, 4, 5, 6, and 7. See **Appendix C, C-1 to C-13** for detailed alternative calculations and design.

5.3.2 Offsite Ponds

This alternative involves offsite wet detention ponds that will require additional right-of-way (ROW) acquisition. These ponds will include various bottom dimensions, 1:4 side slopes down to pond bottoms, 20' wide maintenance berms, and 1:4 side slopes down to existing ground. All ponds will include a minimum 1' of freeboard. The offsite alternative is proposed within all seven basins. See **Appendix C, C-14 to C-28** for detailed alternative calculations and design.

5.3.3 Regional Ponds

This alternative involves offsite regional wet detention ponds that would provide equivalent treatment, by diverting water from the adjacent canal for treatment and attenuating within the SR 70 R/W. This alternative will require additional right-of-way (ROW) acquisition. These regional ponds are designed to treat multiple basins versus the offsite alternative which only treats one basin. These ponds include various bottom dimensions with 1:4 side slopes down to pond bottoms, 20' wide maintenance berms, and 1:4 side slopes down to existing ground. All ponds will include a minimum of 1' of freeboard. There are two regional alternatives proposed, Regional A which treats basins 2-3 and Regional B which treats basins 4-7. See **Appendix C, C-29 to C-33** for detailed alternative calculations and design.

5.4 BASIN 1 ALTERNATIVES

5.4.1 LIN 1L

LIN 1L is a 4.5 AC stormwater management facility located on the north side of SR 70 from STA. 460+00 to STA. 514+00 LT. The pond requires a 4.5 AC partial take of Highlands County Parcel C-34-37-31-A00-0010-0000, a 625.71 AC parcel owned by Legends Ranch FL LLC, and Highlands County Parcel C-35-37-31-A00-0010-0000, a 604.0 AC parcel owned by Legends Ranch FL LLC. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a medium risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site does not have any wetland impacts. The majority of the site includes Immokalee sand (8) with Felda fine sand (13) and Malabar fine sand (17). Immokalee sand (8) has a depth to water table of 6" to 18" below existing ground and HSG Type B/D. Felda fine sand (13) has a depth to water table of 3" to 18" below existing ground and HSG Type B/D. Malabar fine sand (17) has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. The SHWT elevation is estimated at elevation 28.0' based on observations of the water level and stain lines in adjacent ditches. Refer to **Appendix M** for a comparison matrix. This site has the lowest R/W cost but the highest overall cost after the required embankment is included **(Appendix N)**.

5.4.2 SMF 1 (Preferred)

SMF 1 is a 5.1 AC stormwater management facility located on the north side of SR 70 from STA. 507+00 to STA. 515+00 LT. This pond also includes a 1.0 AC access easement and 0.07 AC outfall easement. The pond requires a partial take of Highlands County Parcel C-34-37-31-A00-0010-0000, a 625.71 AC parcel owned by Legends Ranch FL LLC, and Highlands County Parcel C-35-37-31-A00-0010-0000, a 604.0 AC parcel owned by Legends Ranch FL LLC. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site does not have any wetland impacts. The entire site includes Felda fine sand (13) which has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. The average ground elevation is 30.0' with the SHWT elevation estimated at elevation 29.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. SMF 1 is the preferred SMF site as it has the lowest overall cost, low historical archeological potential and no wetland impacts. Refer to **Appendix M** for a comparison matrix.

5.5 BASIN 2 ALTERNATIVES

5.5.1 SMF 2A (Preferred)

SMF 2A is a 4.6 AC stormwater management facility located on the north side of SR 70 from STA. 279+00 to STA. 286+00 LT. This pond also includes a 0.1 AC access easement and 0.22 AC outfall easement. The pond requires a partial take Highlands County Parcel C-35-37-31-A00-0010-0000, a 604.0 AC parcel owned by Legends Ranch FL LLC. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site does not have any wetland impacts. The entire site includes Felda fine sand (13) which has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. The SHWT elevation is estimated at elevation 26.0' based on observations of the water level and stain lines in adjacent ditches. SMF 2A is the preferred SMF site as it has the lowest overall cost, low historical archeological potential and no wetland impacts. Refer to **Appendix M** for a comparison matrix.

5.5.2 SMF 2B

SMF 2B is a 3.5 AC stormwater management facility located on the south side of SR 70 from STA. 303+00 to STA. 312+00 RT. This pond also includes a 0.27 AC inflow/outfall easement. The pond requires a partial take of Highlands County Parcel C-02-38-31-A00-0010-0000, a 291.94 AC parcel owned by Panamanian Ranches LLC. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site does not have any wetland impacts. The entire site includes Felda fine sand (13) which has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. The SHWT elevation is estimated at elevation 26.0' based on observations of the water level and stain lines in adjacent ditches. Refer to **Appendix M** for a comparison matrix.

5.6 BASIN 3 ALTERNATIVES

5.6.1 SMF 3A (Preferred)

SMF 3A is a 6.3 AC stormwater management facility located on the north side of SR 70 from STA. 411+00 to STA. 421+00 LT. This pond also includes a 0.25 AC inflow/access easement and 0.2 AC outfall easement. The pond requires a partial take of Highlands County Parcel C-25-37-31-A00-0010-0000, a 8366.39 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer

to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site does not have any wetland impacts. The entire site includes Felda fine sand (13) which has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. The average ground elevation is 28.0' with the SHWT elevation estimated at elevation 27.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. SMF 3A is the preferred site since it has a low ranking for precontact and historic archeological potential and no wetland impacts, where SMF 3B includes site 8HG01279. This site has additional costs of replacing the canal crossdrains, two manholes, pipes and MES **(Appendix N).** Refer to **Appendix M** for a comparison matrix.

5.6.2 SMF 3B

SMF 3B is a 6.3 AC stormwater management facility located on the north side of SR 70 from STA. 434+00 to STA. 441+00 LT. This pond also includes a 0.3 AC inflow/access easement and 0.1 AC outfall easement. The pond requires a partial take of Highlands County Parcel C-25-37-31-A00-0010-0000, a 8366.39 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low to high rating for prehistoric archeological potential due to 8HG01279 located within the northern portion of the site (determined eligible for listing in the NRHP) and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site does not have any wetland impacts. The entire site includes Felda fine sand (13) which has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. The average ground elevation is 29.0' with the SHWT elevation estimated at elevation 28.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. This site has additional costs of replacing the canal crossdrains, two manholes, pipes and MES **(Appendix N).** Refer to **Appendix M** for a comparison matrix.

5.7 BASIN 4 ALTERNATIVES

5.7.1 LINEAR 4

LIN 4L is a 3.4 ac stormwater management facility located on the north side of SR 70 from STA. 448+00 to STA. 490+00 LT. The pond requires a 3.4 AC partial take of Highlands County Parcel C-25-37-31-A00-0010-0000, a 8366.39 AC parcel owned by Lykes Bros Inc., and Glades County Parcel A05-38-32-A00-0010-0020, a 215.15 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site does not have any wetland impacts. The majority of the site includes Basinger fine sand (14) with Felda fine sand (10). Basinger fine sand (14)

has a depth to water table of 0" to 12" below existing ground and HSG Type A/D. Felda fine sand (10) has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. The average ground elevation is 28.0' with the SHWT elevation estimated at elevation 27.2' based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix.

LIN 4R is a 1.7 AC stormwater management facility located on the south side of SR 70 from STA. 448+00 to STA. 490+00 RT. The pond requires a 1.7 AC partial take of Highlands County Parcel C-25-37-31-A00-0010-0000, a 8366.39 AC parcel owned by Lykes Bros Inc., and Glades County Parcel A05-38-32-A00-0010-0020, a 215.15 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site does not have any wetland impacts. The majority of the site includes Basinger fine sand (14) with Felda fine sand (10). Basinger fine sand (14) has a depth to water table of 0" to 12" below existing ground and HSG Type A/D. Felda fine sand (10) has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. The average ground elevation is 28.0' with the SHWT elevation estimated at elevation 27.2' based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix.

5.7.2 SMF 4 (Preferred)

SMF 4 is a 3.4 AC stormwater management facility located on the south side of SR 70 from STA. 480+00 to STA. 488+00 RT. This pond also includes a 0.1 AC outfall easement. The pond requires a partial take of Glades County Parcel A05-38-32-A00-0010-0020, a 215.5 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low to moderate rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a medium ranking. The site does not have any wetland impacts. The majority of the site includes Pineda-Pineda, wet, fine sand (15) with Basinger fine sand (14). Pineda-Pineda, wet, fine sand (15) has a depth to water table of 6" to 18" below existing ground and HSG Type A/D. Basinger fine sand (14) has a depth to water table of 0" to 12" below existing ground and HSG Type A/D. The SHWT elevation is estimated at elevation 27.0' based on observations of the water level and stain lines in adjacent ditches. SMF 4 is the preferred SMF site as it has the lowest overall cost, low historical archeological potential and no wetland impacts. Refer to **Appendix M** for a comparison matrix.

5.8 BASIN 5 ALTERNATIVES

5.8.1 LINEAR 5

LIN 5L is a 4.8 AC stormwater management facility located on the north side of SR 70 from STA. 490+00 to STA. 549+00 LT. The pond requires a 4.8 AC partial take of Glades County Parcel A04-38-32-A00-0010-0040, a 407.03 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site has 0.28 AC of wetland impacts. The majority of the site includes Valkaria fine sand (4) with Felda fine sand (10) and Pineda-Pineda, wet, fine sand (15). Valkaria fine sand (4) has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. Felda fine sand (10) has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. Pineda-Pineda, wet, fine sand (15) has a depth to water table of 6" to 18" below existing ground and HSG Type A/D. The average ground elevation is 28.0' with the SHWT elevation estimated at elevation 27.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix.

LIN 5R is a 2.2 AC stormwater management facility located on the south side of SR 70 from STA. 490+00 to STA. 549+00 RT. The pond requires a partial take of Glades County Parcel A04-38-32-A00-0010-0040 (407.03 AC parcel), Glades County Parcel A04-38-32-A00-0010-0030 (90.44 AC parcel), and Glades County Parcel A03-38-32-A00-0010-0030 (186.02 AC parcel) all owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site has 0.28 AC of wetland impacts. The majority of the site includes Valkaria fine sand (4) with Felda fine sand (10) and Pineda-Pineda, wet, fine sand (15). Valkaria fine sand (4) has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. Felda fine sand (10) has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. Pineda-Pineda, wet, fine sand (15) has a depth to water table of 6" to 18" below existing ground and HSG Type A/D. The average ground elevation is 28.0' with the SHWT elevation estimated at elevation 27.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix.

5.8.2 SMF 5 (Preferred)

SMF 5 is a 5.6 AC stormwater management facility located on the south side of SR 70 from STA. 497+00 to STA. 513+00 RT. This pond also includes a 0.02 AC outfall easement. The pond requires a partial take of Glades County Parcel A04-38-32-A00-0010-0040, a 407.03 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or

archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site has 0.08 AC of wetland impacts. The majority of the site includes Pineda-Pineda, wet, fine sand (15) which has a depth to water table of 6" to 18" below existing ground and HSG Type A/D. A small area of Floridana fine sand (16) is also present with the SHWT at the ground's surface and HSG Type C/D. The average ground elevation is 28.0' with the SHWT elevation estimated at elevation 27.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. SMF 5 is the preferred SMF site as it has the lowest overall cost, low historical archeological potential and the least amount of wetland impacts. Refer to **Appendix M** for a comparison matrix.

5.9 BASIN 6 ALTERNATIVES

5.9.1 LINEAR 6

LIN 6L is a 2.0 AC stormwater management facility located on the north side of SR 70 from STA. 549+00 to STA. 577+00 LT. The pond is located within the FDOT R/W. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a medium ranking. The site has 0.26 AC of wetland impacts. The majority of the site includes Valkaria fine sand (16) with Hicoria mucky sand (19). Valkaria fine sand (16) has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. Hicoria mucky sand (19) has a depth to water table of 0" below existing ground and HSG Type C/D. The average ground elevation is 28.0' with the SHWT elevation estimated at elevation 27.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix.

LIN 6R is a 1.1 AC stormwater management facility located on the south side of SR 70 from STA. 549+00 to STA. 577+00 RT. The pond requires a partial take of Highlands County Parcel C-35-37-32-020-0500-0040, a 454.97 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a medium ranking. The site has 0.26 AC of wetland impacts. The majority of the site includes Valkaria fine sand (16) with Hicoria mucky sand (19). Valkaria fine sand (16) has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. Hicoria mucky sand (19) has a depth to water table of 0" below existing ground and HSG Type C/D. The average ground elevation is 28.0' with the SHWT elevation estimated at elevation 27.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix.

5.9.2 SMF 6 (Preferred)

SMF 6 is a 2.3 AC stormwater management facility located on the south side of SR 70 from STA. 554+00 to STA. 562+00 RT. This pond also includes a 0.1 AC outfall easement. The pond requires a partial take of Highlands County Parcel C-35-37-32-020-0500-0040, a 454.97 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a medium ranking. The site does not have any wetland impacts. The entire site includes Valkaria fine sand (16) which has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. The average ground elevation is 28.0' with the SHWT elevation estimated at elevation 27.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. SMF 6 is the preferred SMF site as it has the lowest overall cost, low historical archeological potential and no wetland impacts. Refer to **Appendix M** for a comparison matrix.

5.10 BASIN 7 ALTERNATIVES

5.10.1 LINEAR 7 (Preferred)

LIN 7L is a 4.1 AC stormwater management facility located on the north side of SR 70 from STA. 577+00 to STA. 637+00 LT. The pond requires a partial take of Highlands County Parcel C-35-37-32-020-0500-0040, a 454.97 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site has 0.40 AC of wetland impacts. The majority of the site includes Valkaria fine sand (16) with Basinger fine sand (12) and Hicoria mucky sand (19). Valkaria fine sand (16) has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. Basinger fine sand (12) has a depth to water table of 0" to 12" below existing ground and HSG Type A/D. Hicoria mucky sand (19) has a depth to water table of 0" below existing ground and HSG Type C/D. The average ground elevation is 28.0' with the SHWT elevation estimated at elevation 27.2' based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix.

LIN 7R is a 2.3 AC stormwater management facility located on the south side of SR 70 from STA. 577+00 to STA. 635+00 RT. The pond requires a partial take of Highlands County Parcel C-35-37-32-020-0500-0040, a 454.97 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a medium risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and

endangered species issues and given a high ranking. The site has 0.40 AC of wetland impacts. The majority of the site includes Valkaria fine sand (16) with Basinger fine sand (12) and Hicoria mucky sand (19). Valkaria fine sand (16) has a depth to water table of 3" to 18" below existing ground and HSG Type A/D. Basinger fine sand (12) has a depth to water table of 0" to 12" below existing ground and HSG Type A/D. Hicoria mucky sand (19) has a depth to water table of 0" below existing ground and HSG Type C/D. The average ground elevation is 28.0' with the SHWT elevation estimated at elevation 27.0' based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix. Linear 7 is the preferred configuration as it has the lowest overall cost and low historical archeological potential.

5.10.2 SMF 7

SMF 7 is a 8.6 AC stormwater management facility located on the north side of SR 70 from STA. 614+00 to STA. 636+00 LT. This pond also includes a 0.1 AC outfall easement. The pond requires a partial take of Highlands County Parcel C-35-37-32-020-0500-0040, a 454.97 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a medium risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a high ranking. The site does not have any wetland impacts. The entire site includes Basinger fine sand (12) which has a depth to water table of 0" to 12" below existing ground and HSG Type A/D. The SHWT elevation is estimated at elevation 28.0' based on observations of the water level and stain lines in adjacent ditches. Refer to **Appendix M** for a comparison matrix.

5.11 REGIONAL POND ALTERNATIVES

5.11.1 REGIONAL A

REG A is a 37.3 AC stormwater management facility located on the south side of SR 70 from STA. 360+00 to STA. 381+00 RT and would provide equivalent treatment for basin 2 and 3, with attenuation required within the SR 70 R/W. The pond would divert water from the adjacent canal for treatment. This pond also includes a 6.2 AC access easement and two 0.1 AC outfall easement. The pond requires a partial take of Highlands County Parcel C-01-38-31-A00-0010-0000, a 659.68 AC parcel owned by Panamanian Ranches LLC, and Highlands County Parcel C-12-38-31-A00-0010-0000, a 642.0 AC parcel owned by Panamanian Ranches LLC. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low to moderate rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has no risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a medium ranking. The site does not have any wetland impacts. The majority of the site includes Basinger fine sand (12) with Felda fine sand (13). Basinger fine sand (12) has a depth to water

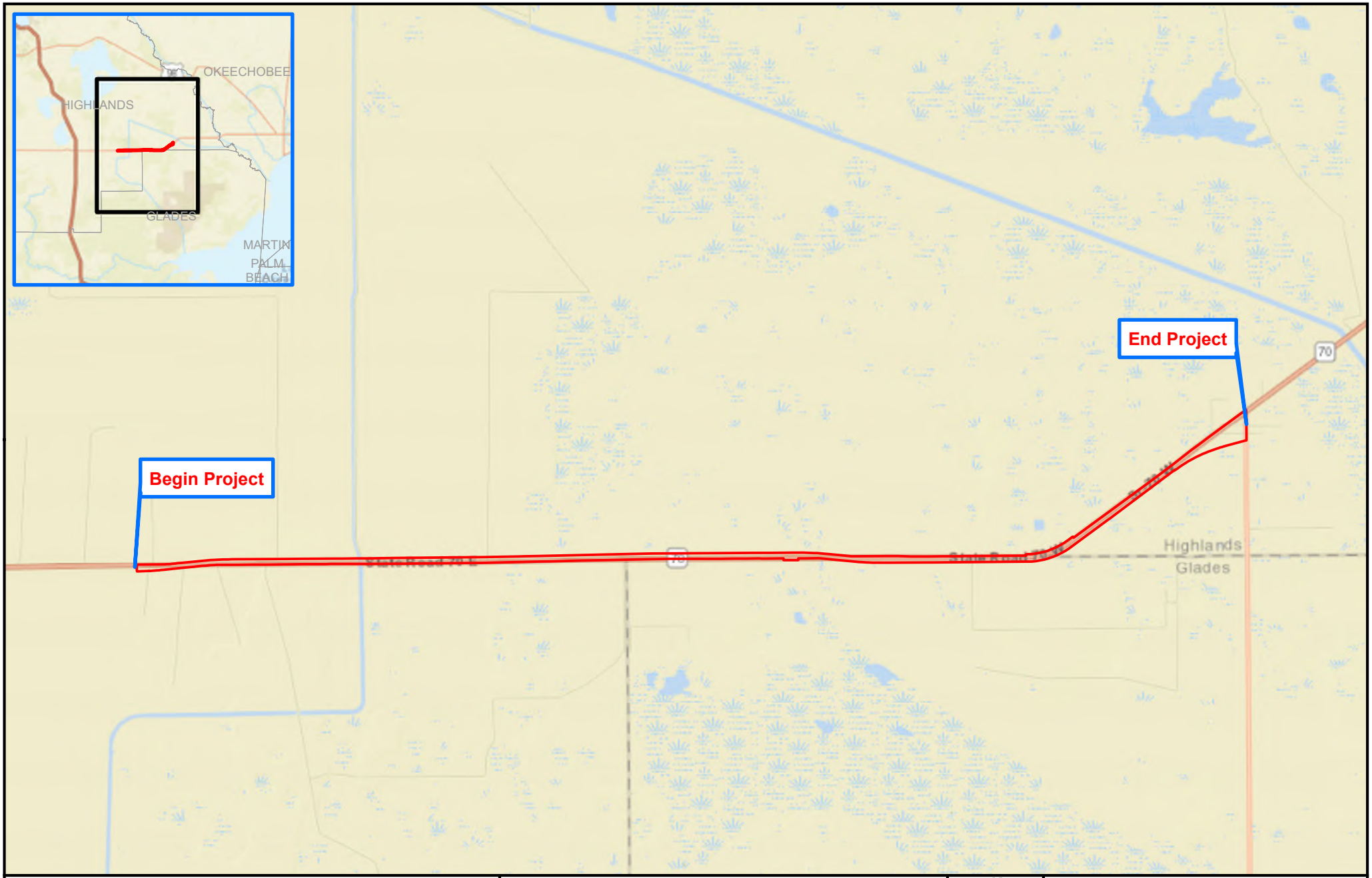
table of 0” to 12” below existing ground and HSG Type A/D. Felda fine sand (13) has a depth to water table of 3” to 18” below existing ground and HSG Type A/D. The average ground elevation is 28.0’ with the SHWT elevation estimated at elevation 27.5’ based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix. The matrix was used to compare REG A to SMF 2A/SMF 2B and SMF3A/SMF 3B. The preferred pond sites were determined to be SMF 2A and SMF 3A.

5.11.2 REGIONAL B

REG B is a 25.2 AC stormwater management facility located on the south side of SR 70 from STA. 492+00 to STA. 501+00 RT and would provide equivalent treatment for basin 4-7, with attenuation required within the SR 70 R/W. The pond would divert water from the adjacent canal for treatment. This pond also includes a 2.3 AC access easement and 0.1 AC outfall easement. The pond requires a partial take of Glades County Parcel A04-38-32-A00-0010-0040, a 407.03 AC parcel owned by Lykes Bros Inc. An investigation by ACI was conducted to conclude if the site has any historic resources or archeological potential. This site has a low rating for prehistoric archeological potential and a low rating for historical archeological potential. For further detail refer to the Cultural Resource Assessment Survey in **Appendix J**. The site has a low risk for contamination **(Appendix L)**. The site was investigated to determine any threatened and endangered species issues and given a medium ranking. The site does not have any wetland impacts. The entire site includes Pineda-Pineda, wet, fine sand (15) which has a depth to water table of 6” to 18” below existing ground and HSG Type A/D. The average ground elevation is 28.0’ with the SHWT elevation estimated at elevation 27.0’ based on the NRCS Custom Soil Resource Report in **Appendix H**. Refer to **Appendix M** for a comparison matrix. The matrix was used to compare REG B to LIN 4L & LIN 4R/SMF 4, LIN 5L & LIN 5R/SMF 5, LIN 6L & LIN 6R/SMF 6, LIN 7L & LIN 7R/SMF 7. The preferred pond sites were determined to be SMF 4, SMF 5, SMF 6, and LIN 7L & LIN 7R.

APPENDIX A

Figures



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Project Area

Project Location Map

SR 70 from Lonesome Island Road to CR 721

Highlands County, Florida
FPID No. 449851-1-22-01

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5,000 2,500 0 5,000

Feet

Kisinger Campo & Associates, Corp.
201 N. Franklin Street, Suite 400
Tampa, FL 33602
Phone: 813/871-5331
www.kisingercampo.com

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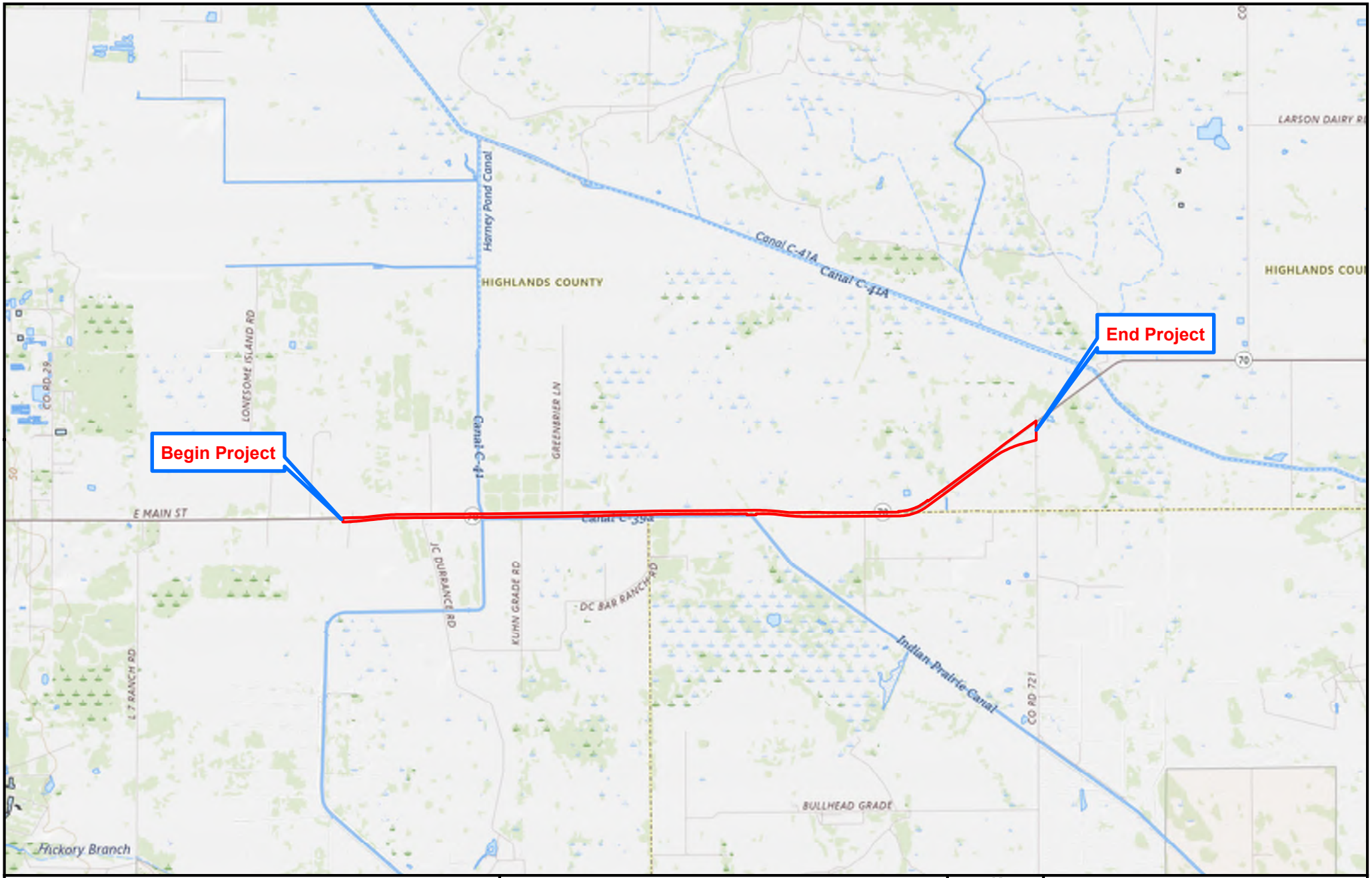

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Project Area

USGS Quadrangle Map

SR 70 from Lonesome Island Road to CR 721

Highlands County, Florida
FPID No. 449851-1-22-01

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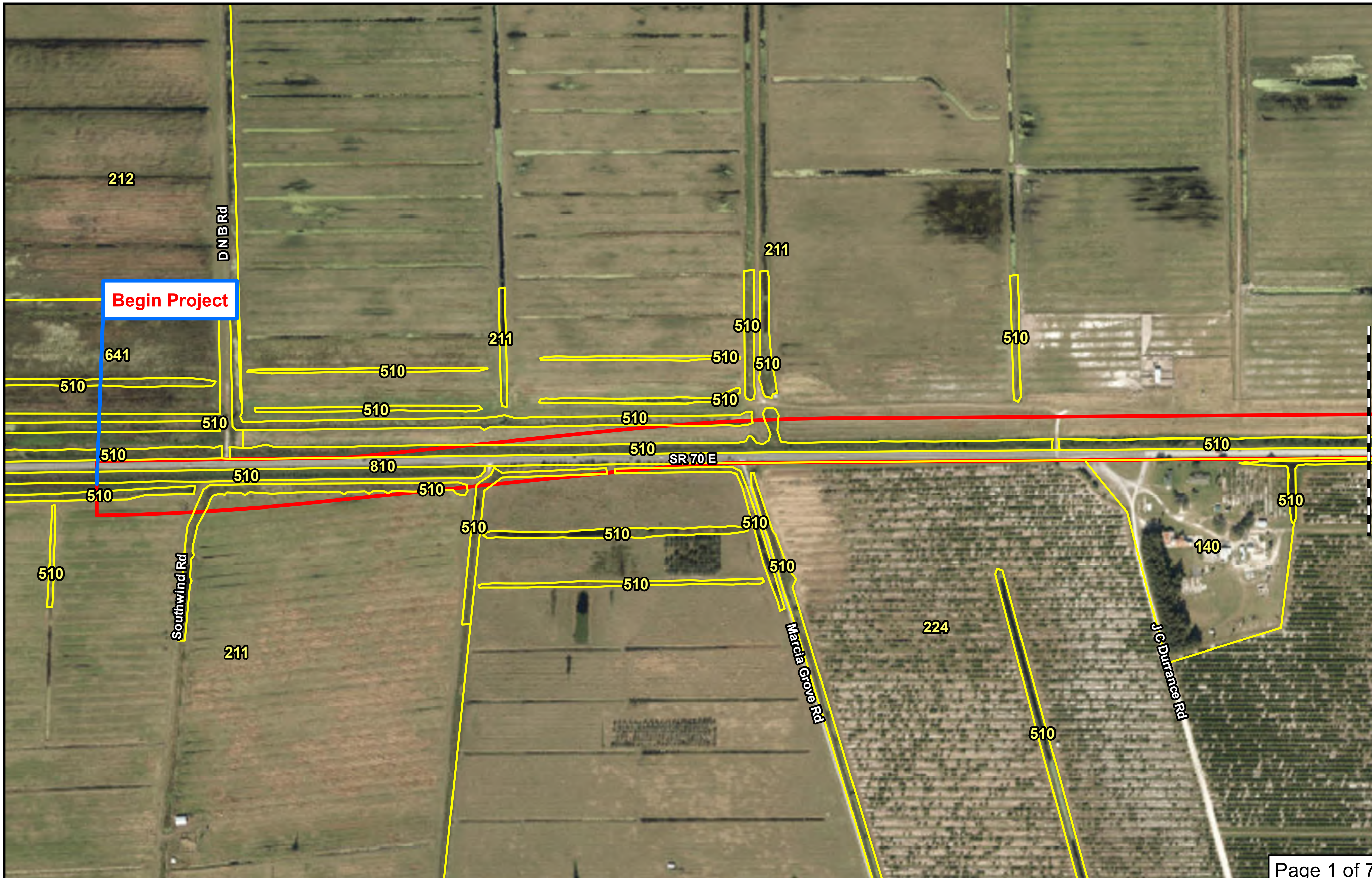

Legend

Project Area
140: Commercial and Services
211: Improved Pastures
212: Unimproved Pastures
224: Abandoned Groves
510: Streams and Waterways
641: Freshwater Marshes / Graminoid Prairie - Marsh
810: Roads and Highways

FLUCFCS Land Use Map

SR 70 from Lonesome Island Road to CR 721

Highlands County, Florida
FPID No. 449851-1-22-01

N S E W

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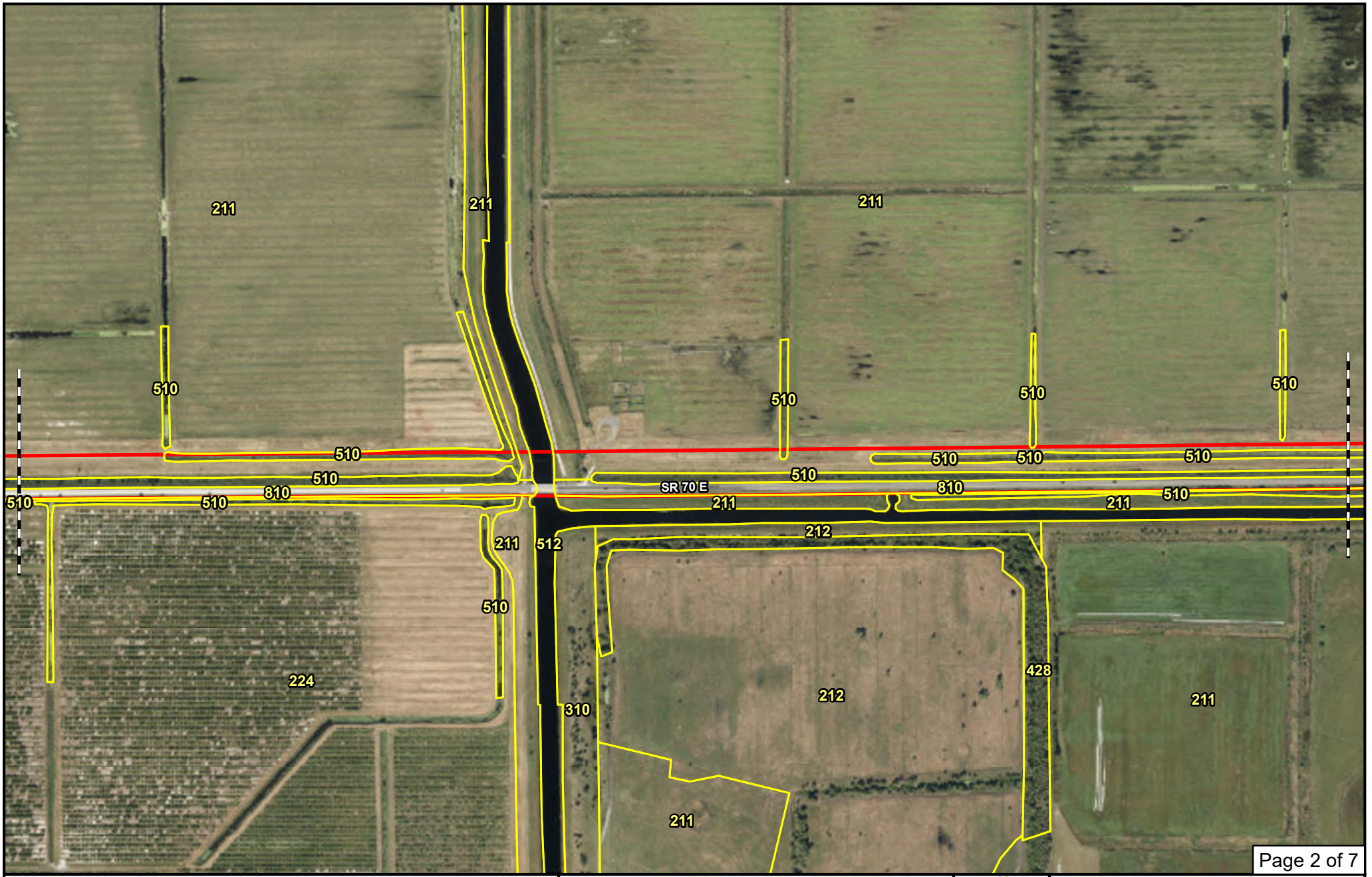

Page 2 of 7

Legend

- Project Area
- 211: Improved Pastures
- 212: Unimproved Pastures
- 224: Abandoned Groves
- 310: Herbaceous (Dry Prairie)
- 428: Cabbage Palm
- 510: Streams and Waterways
- 512: Channelized Waterways, Canals
- 810: Roads and Highways

FLUCFCS Land Use Map

SR 70 from Lonesome Island Road to CR 721

Highlands County, Florida
FPID No. 449851-1-22-01

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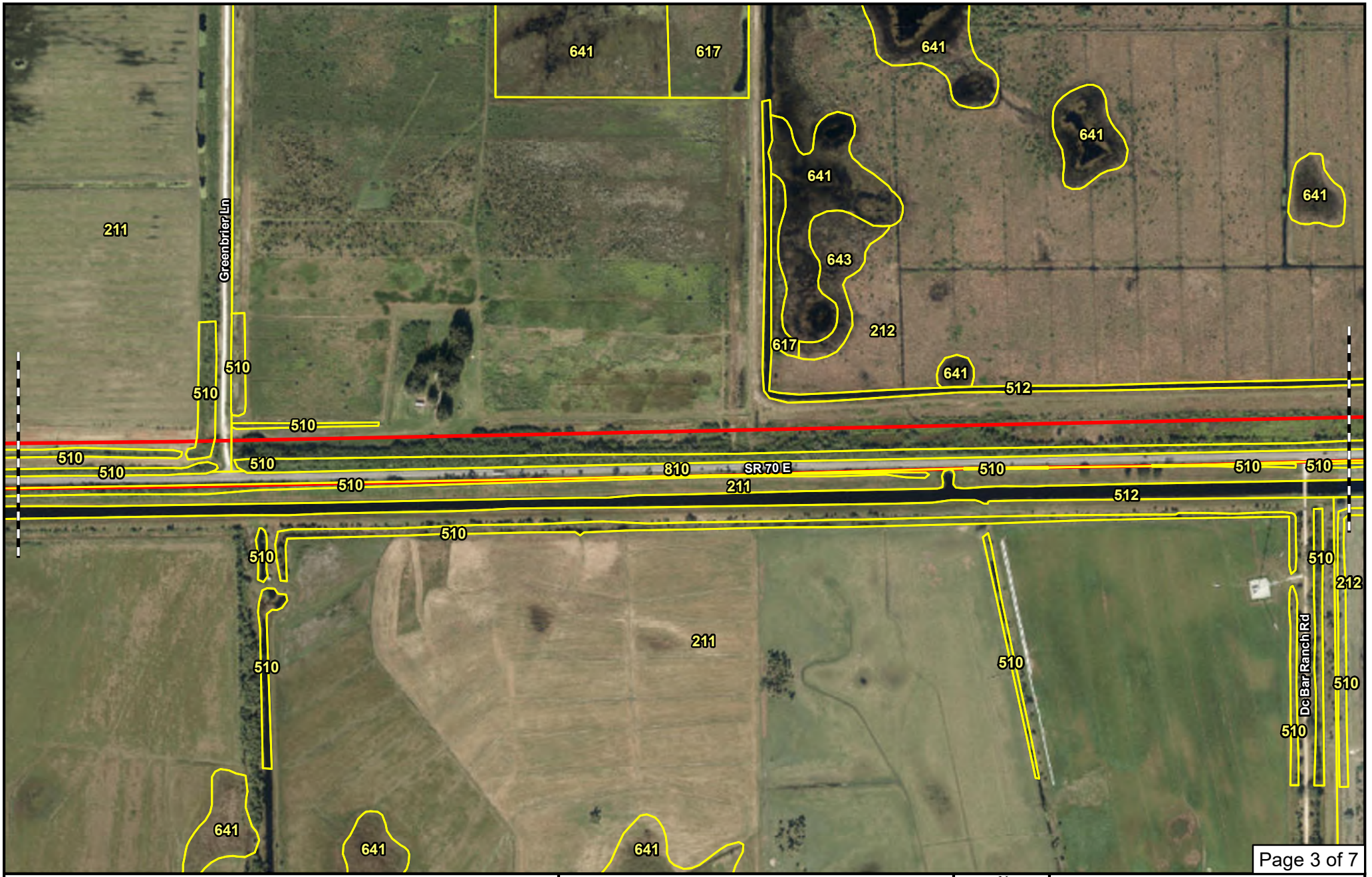

Page 3 of 7

Legend

- Project Area
- 211: Improved Pastures
- 212: Unimproved Pastures
- 510: Streams and Waterways
- 512: Channelized Waterways, Canals
- 617: Mixed Shrubs
- 641: Freshwater Marshes / Graminoid Prairie - Marsh
- 643: Wet Prairie
- 810: Roads and Highways

FLUCFCS Land Use Map

SR 70 from Lonesome Island Road to CR 721

Highlands County, Florida
FPID No. 449851-1-22-01

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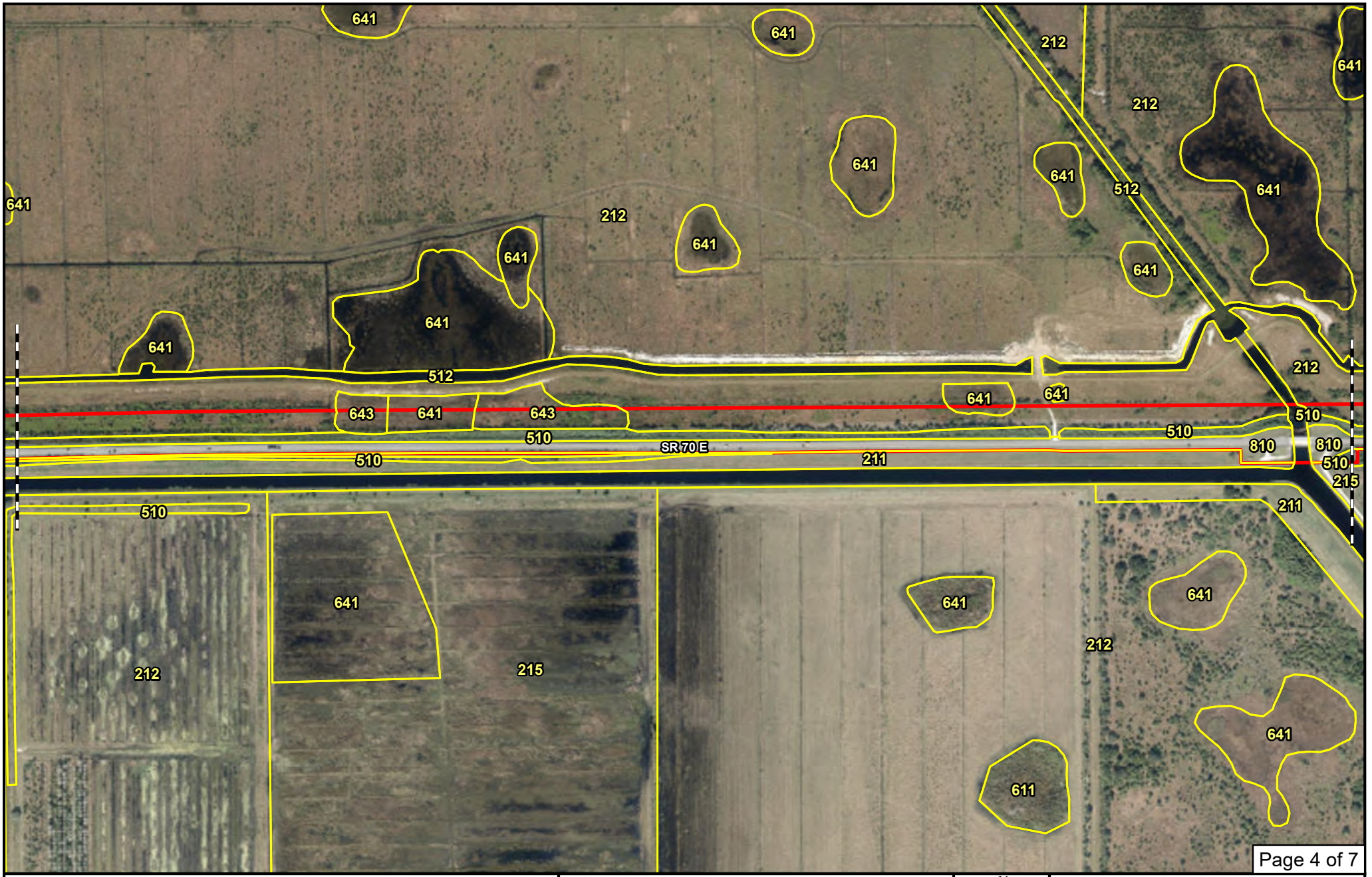

Page 4 of 7

Legend

- Project Area
- 211: Improved Pastures
- 212: Unimproved Pastures
- 215: Sugar Cane
- 510: Streams and Waterways
- 512: Channelized Waterways, Canals
- 611: Bay Swamps
- 641: Freshwater Marshes / Graminoid Prairie - Marsh
- 643: Wet Prairie
- 810: Roads and Highways

FLUCFCS Land Use Map

SR 70 from Lonesome Island Road to CR 721

Highlands County, Florida
FPID No. 449851-1-22-01

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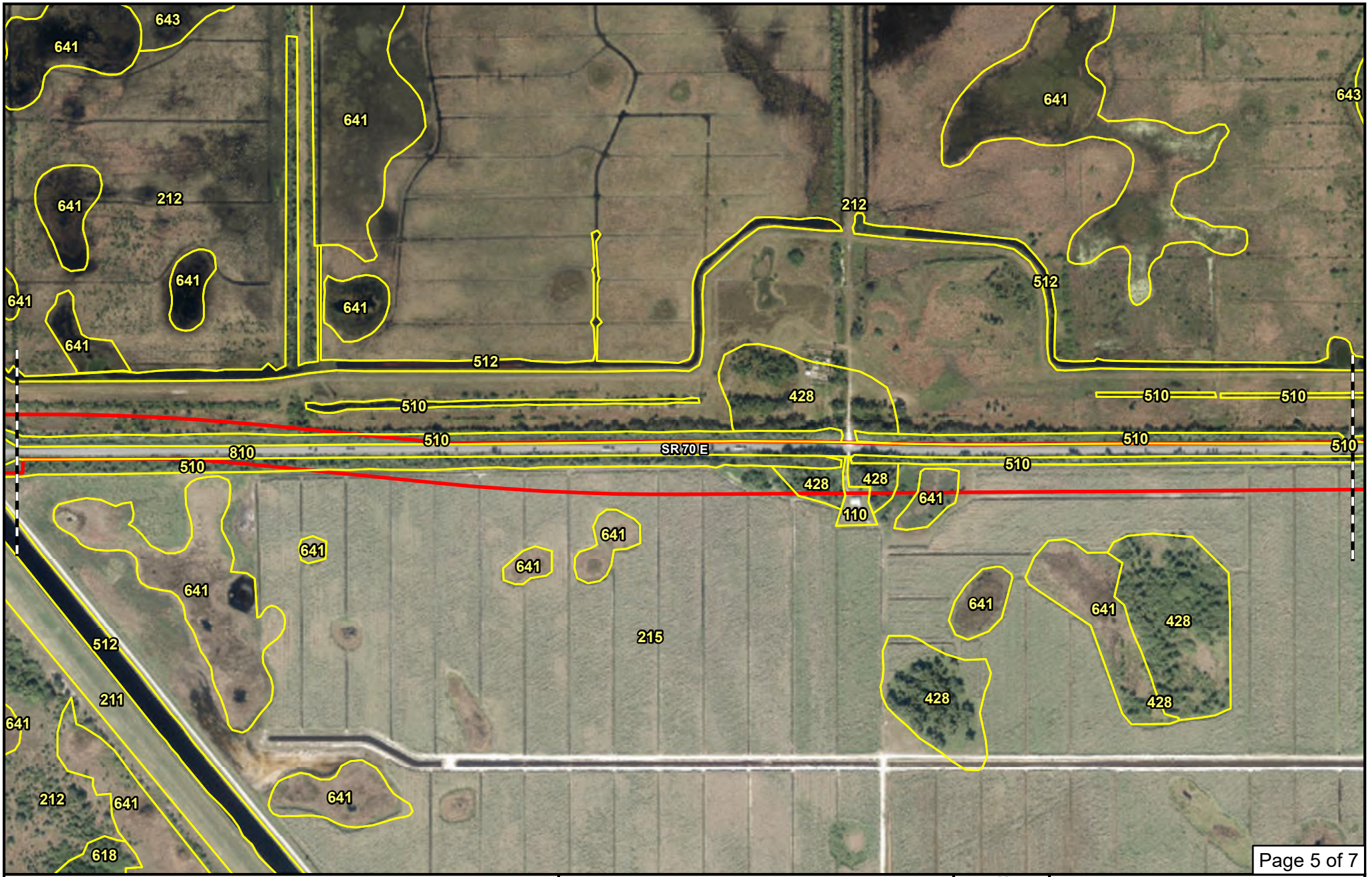

Legend

- Project Area
- 110: Low Density, <2 dwelling units/acre
- 211: Improved Pastures
- 212: Unimproved Pastures
- 215: Sugar Cane
- 428: Cabbage Palm
- 510: Streams and Waterways
- 512: Channelized Waterways, Canals
- 618: Cabbage Palm Wetland
- 641: Freshwater Marshes / Graminoid Prairie - Marsh
- 643: Wet Prairie
- 810: Roads and Highways

FLUCFCS Land Use Map

SR 70 from Lonesome Island Road to CR 721

Highlands County, Florida
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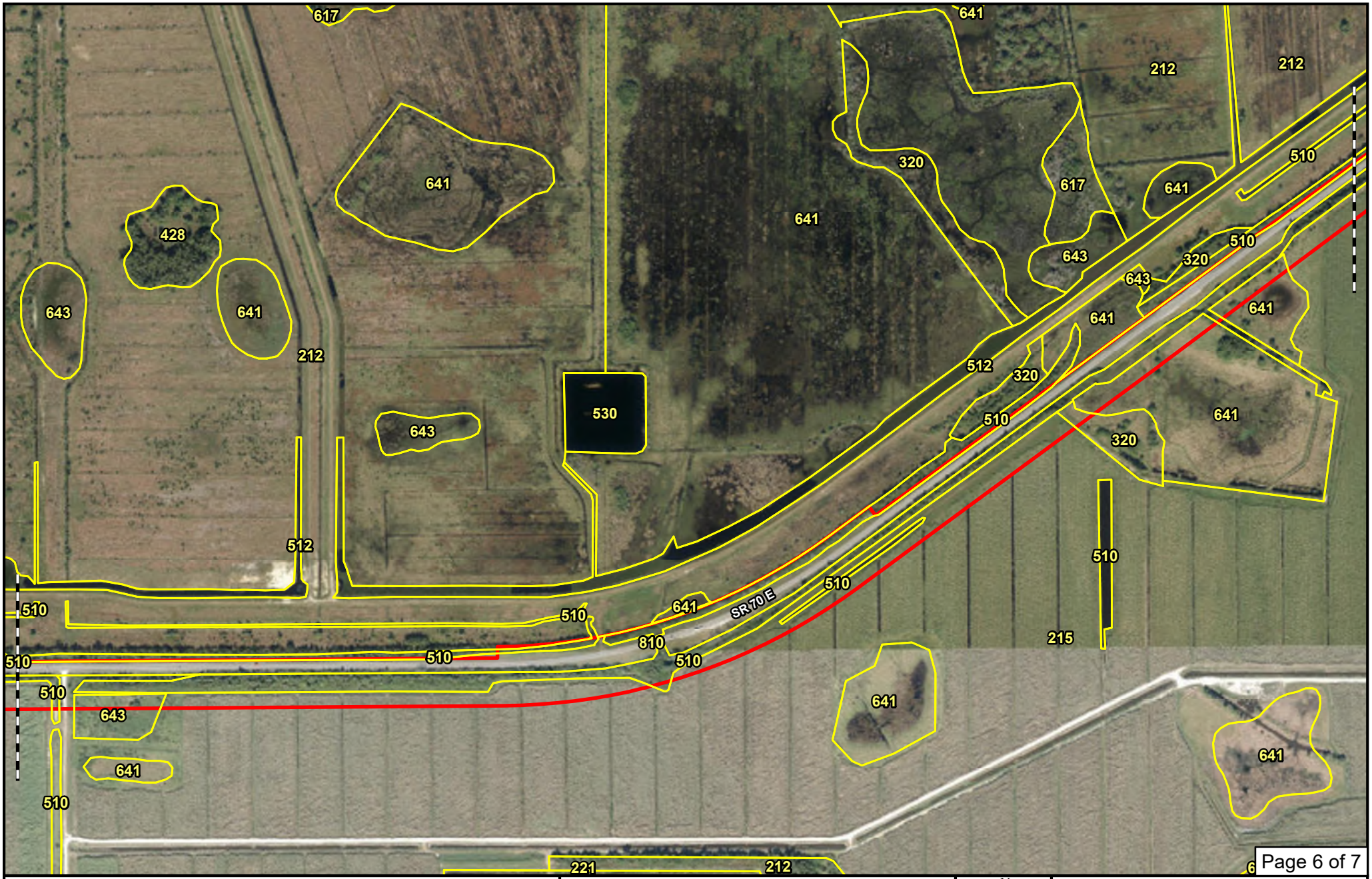

Legend

- Project Area
- 212: Unimproved Pastures
- 215: Sugar Cane
- 221: Citrus Groves
- 320: Upland Shrub and Brushland
- 428: Cabbage Palm
- 510: Streams and Waterways
- 512: Channelized Waterways, Canals
- 530: Reservoirs
- 617: Mixed Shrubs
- 641: Freshwater Marshes / Graminoid Prairie - Marsh
- 643: Wet Prairie
- 810: Roads and Highways

FLUCFCS Land Use Map

SR 70 from Lonesome Island Road to CR 721

Highlands County, Florida
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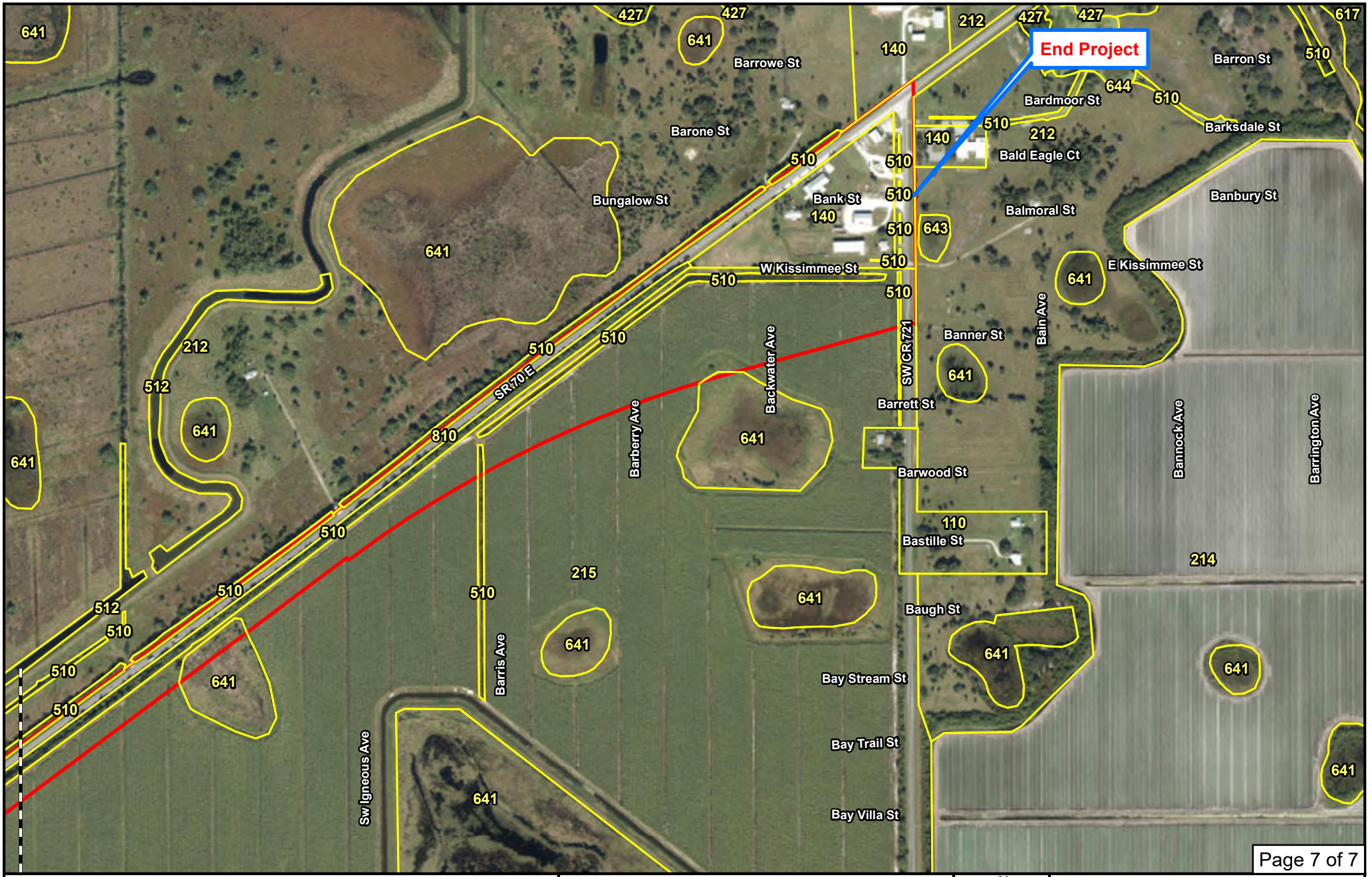
Phone: 813/871-5331
www.kisingercampo.com

Path: C:\PW\KCA\GIS Projects\449851-1 SR 70 from Lonesome Island Rd to CR 721\Maps\Figures\Drainage\SR 70_Lonesome_to_CR721_ Land Use Map.mxd 7/10/2024



Legend

- Project Area
- 110: Low Density, <2 dwelling units/acre
- 140: Commercial and Services
- 212: Unimproved Pastures
- 214: Row Crops
- 215: Sugar Cane
- 427: Oak - Cabbage Palm Forest
- 510: Streams and Waterways
- 512: Channelized Waterways, Canals
- 617: Mixed Shrubs
- 641: Freshwater Marshes / Graminoid Prairie - Marsh
- 643: Wet Prairie
- 644: Emergent Aquatic Vegetation
- 810: Roads and Highways

FLUCFCS Land Use Map

SR 70 from Lonesome Island Road to CR 721

Highlands County, Florida
FPID No. 449851-1-22-01

N W E S

600 300 0 600

Feet

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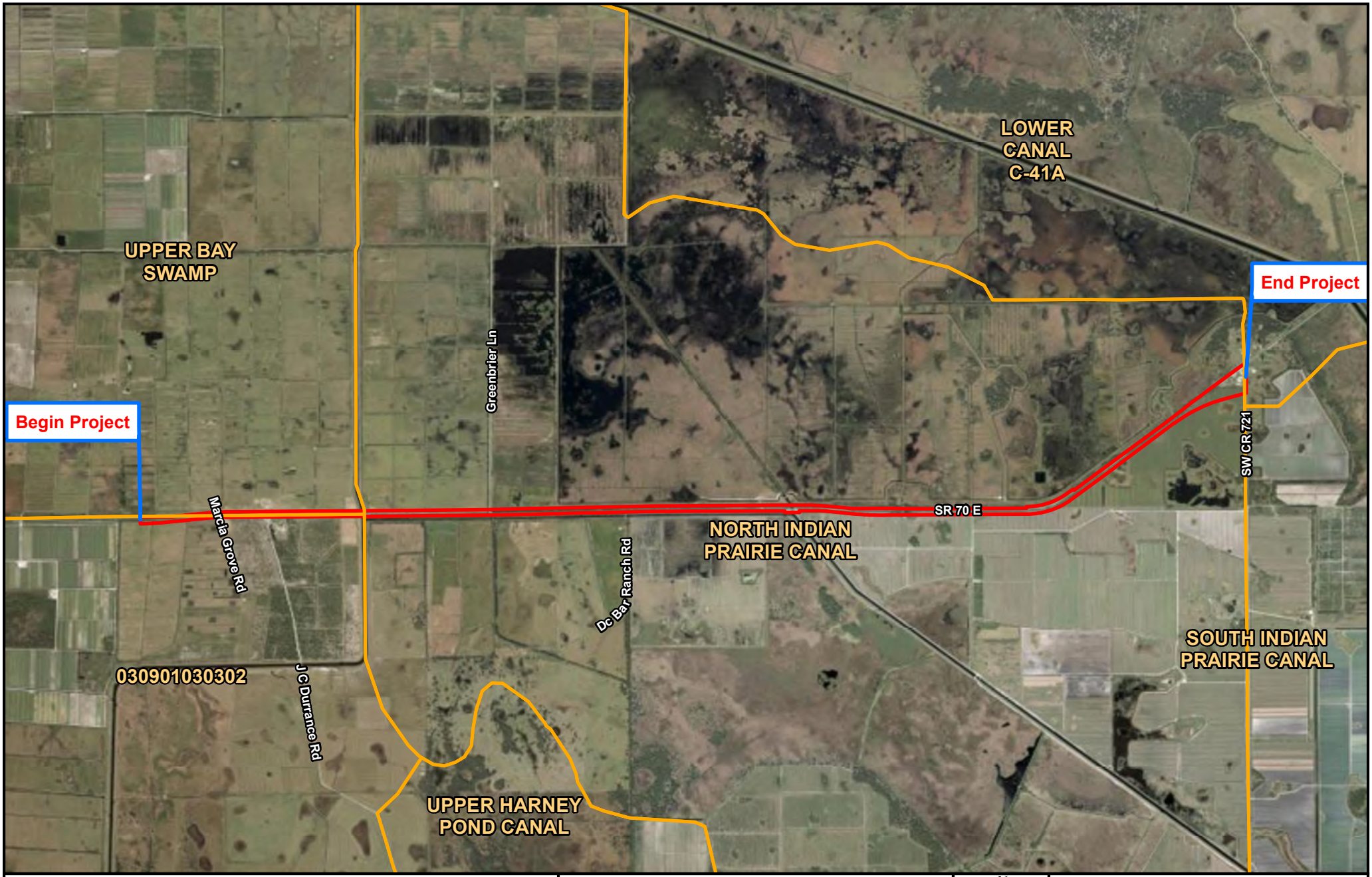

Legend

- Project Area
- Waterhsed Boundary

Watershed Map

SR 70 from Lonesome Island Road to CR 721

Highlands County, Florida
FPID No. 449851-1-22-01

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Miles

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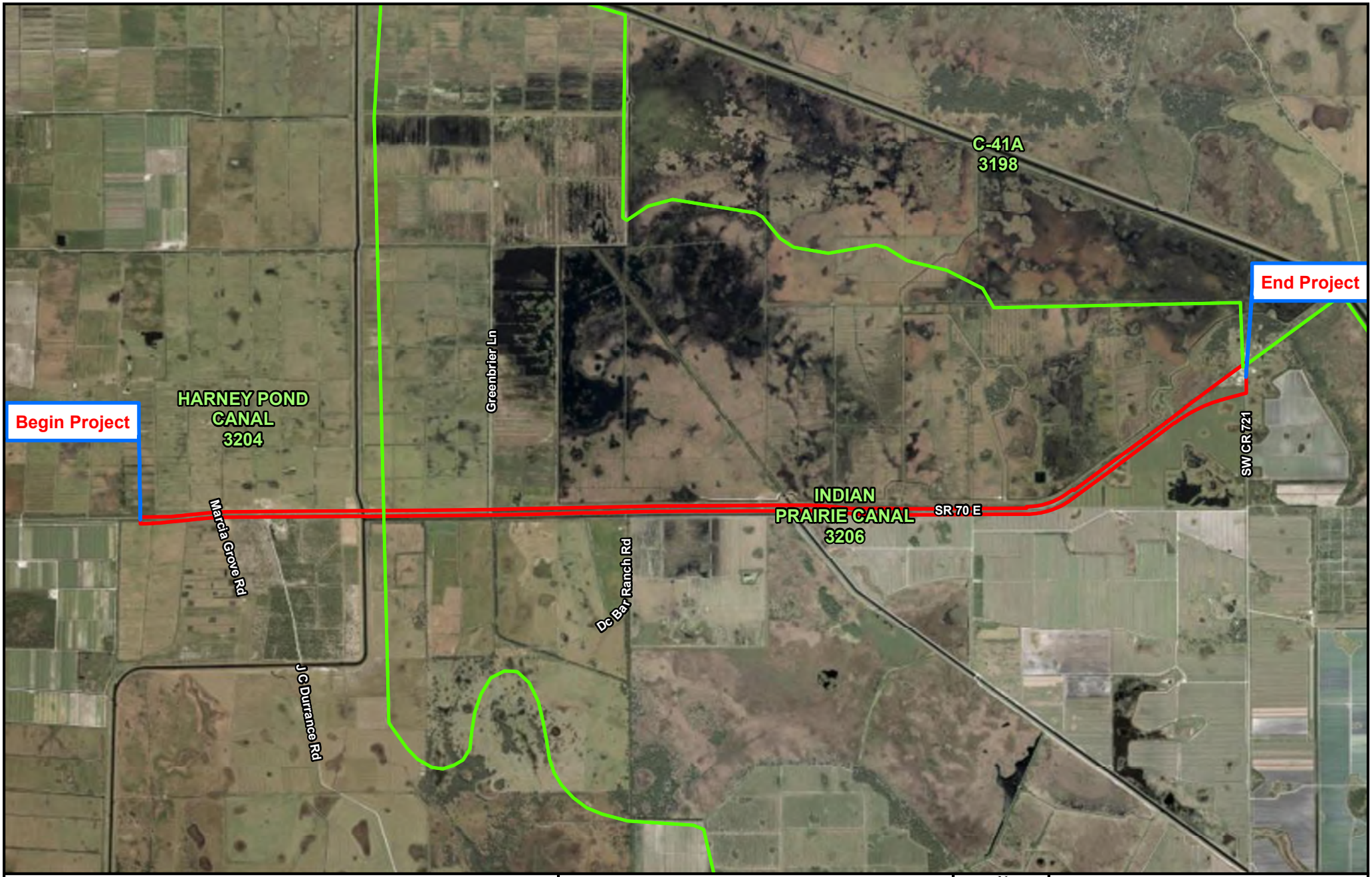

Legend

- Project Area
- WBID Boundary

WBID Map

SR 70 from Lonesome Island Road to CR 721

Highlands County, Florida
FPID No. 449851-1-22-01

N
W E
S

1 0.5 0 1

Miles

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APPENDIX B

Correspondence

Meeting Minutes

SR 70 from Lonesome Island Road to the Southern Leg of CR 721 PD&E Study
August 8, 2024

Attendees

Mark Romano (KCA)
Diana Turner (FDEP)

Discussion

- Mark Romano informed Diana Turner on the reason for his call. FDOT is conducting a PD&E study to evaluate the widening of SR 70 in Highlands County, FL. As part of this PD&E, we are completing the Water Quality Impact Evaluation Checklist and have identified that our project discharges to Harney Pond Canal (WBID 3204) and Indian Prairie Canal (WBID 3206) both which are part of the Lake Okeechobee BMAP. As part of the WQIE checklist we are required to reach out to the BMAP contact listed on FDEP's website.
- Diana Turner informed that those WBIDs are located within the Indian Prairie Subwatershed of the Lake Okeechobee BMAP and the most recent Targeted Restoration Area (TRA) evaluation shows those areas as a Priority 1 for both TN and TP.
- Diana Turner provided KCA with a link to the most recent TRA evaluation and the BMAP annual meeting materials.
- End of meeting

APPENDIX C

SMF Calculations

LINEAR POND ALTERNATIVES

PROJECT NAME:	SR70 - Lonesome-CR721	**KISINGER CAMPO & ASSOCIATES**
BASIN / SMF DESIGNATION:	Basin 1 Linear (Dry Retention)	

PRE-DEVELOPED: BASIN 1 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Onsite Pervious (fair condition)	D, A/D, B/D	77	37.66	2899.47
Impervious (Asphalt)		98	5.55	543.82
		TOTALS	43.20	3443.29

COMPOSITE CN =	79.7

POST-DEVELOPED: BASIN 1 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	27.54	2120.94
Impervious (Asphalt)		98	15.66	1534.68
		TOTALS	43.20	3655.62

COMPOSITE CN =	84.6

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR **BASIN 1: PRE-DEVELOPED**

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**2.55**
2)	**DETERMINE RUNOFF - R**			
	$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$	**RUNOFF (inches)**	**R**	**5.12**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**18.45**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR **BASIN 1: POST-DEVELOPED**

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**1.82**
2)	**DETERMINE RUNOFF - R**			
	$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$	**RUNOFF (inches)**	**R**	**5.69**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**20.47**

WATER QUALITY CALCULATIONS: BASIN 1

Total Basin Area =	43.20 ac		
DCIA =	15.66 ac		
Dry Retention the greater of			
Treatment Volume Required (Total Basin Area)=	0.8"	Runoff Over Total Basin =	**2.88 Ac-Ft**
Treatment Volume Required (Impervious Area)=	1.88"	Runoff Over DCIA =	**2.45 Ac-Ft**
		Required Treatment Volume =	**2.88 Ac-Ft**

PRE - POST VOLUME DIFFERENCE: BASIN 1

10YR/72HR POST-VOLUME =	**20.47**	**AC-FT**	
35.4 CSM ALLOWED VOLUME	**0.90**	**AC-FT**	< From ICPR4
REQUIRED ATTENUATION VOLUME =	**19.57**	**AC-FT**	

STAGE STORAGE CALCULATIONS - BASIN 1 LINEAR POND LEFT

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	38.00	3.60				27.00
			3.52	1.20	4.22	
DHW	36.80	3.44				22.78
			3.00	6.60	19.80	
WEIR	30.20	2.56				2.98
			2.48	1.20	2.98	
BOTTOM	29.00	2.40				0.00

*Area assumes bottom width of 30', a front slope of 1:4, a back slope of 1:4, a freeboard of 0.5', and a basin length of 10074' (Basin 1 extends from STA. 463+00.00 to STA. 514+00.00).

*Under this configuration, roadway will need to be raised in order to provide enough volume for attenuation. A cost for this is included in Appendix N

Note: Area is based on a 40' total bottom width, distributable between the north and south sides.

ASSUMED EOP EL.= 35.5

Soils: Felda Fine Sand (13), Immokalee sand (8), and Malabar Fine Sand (17)

Source: A SHW of 28 is assumed based on observations of the water level and stain lines in adjacent ditches

Estimated SHW depth: 1.0 ft

Estimated SHW: 28 ft

VOLUMETRIC CALCULATIONS

Treatment Volume Required=	2.88 Ac-Ft	
Attenuation Volume Required =	19.57 Ac-Ft	
Total Volume Provided	**22.78 Ac-Ft**	
Total Attenuation Provided	**19.80 Ac-Ft**	**OK**
Total Treatment Provided	**2.98 Ac-Ft**	**OK**

PROJECT NAME:	SR70 - Lonesome-CR721	**KISINGER CAMPO & ASSOCIATES**
BASIN / SMF DESIGNATION:	Basin 2 (Dry Retention)	

PRE-DEVELOPED: BASIN 2 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Onsite Pervious (fair condition)	D, A/D, B/D	77	14.60	1124.50
Impervious (Asphalt)		98	3.22	315.53
		TOTALS	17.82	1440.03

COMPOSITE CN =	80.8

POST-DEVELOPED: BASIN 2 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	8.74	673.26
Impervious (Asphalt)		98	9.08	889.84
		TOTALS	17.82	1563.10

COMPOSITE CN =	87.7

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR **BASIN 2: PRE-DEVELOPED**

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**2.38**
2)	**DETERMINE RUNOFF - R**			
	R= (7.5-0.2*S)^2 / (7.5+0.8*S)	**RUNOFF (inches)**	**R**	**5.25**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**7.80**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR **BASIN 2: POST-DEVELOPED**

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**1.40**
2)	**DETERMINE RUNOFF - R**			
	R= (7.5-0.2*S)^2 / (7.5+0.8*S)	**RUNOFF (inches)**	**R**	**6.05**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**8.98**

PROJECT NAME:	SR70 - Lonesome-CR721	**KISINGER CAMPO & ASSOCIATES**
BASIN / SMF DESIGNATION:	Basin 3 (Dry Retention)	

PRE-DEVELOPED: BASIN 3 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Onsite Pervious (fair condition)	D, A/D, B/D	77	34.40	2648.82
Impervious (Asphalt)		98	7.58	743.26
		TOTALS	41.98	3392.08

COMPOSITE CN =	80.8

POST-DEVELOPED: BASIN 3 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	20.58	1585.01
Impervious (Asphalt)		98	21.40	2097.20
		TOTALS	41.98	3682.21

COMPOSITE CN =	87.7

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR — BASIN 3: PRE-DEVELOPED

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**2.38**
2)	**DETERMINE RUNOFF - R**			
	R= (7.5-0.2*S)^2 / (7.5+0.8*S)	**RUNOFF (inches)**	**R**	**5.25**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**18.37**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR — BASIN 3: POST-DEVELOPED

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**1.40**
2)	**DETERMINE RUNOFF - R**			
	R= (7.5-0.2*S)^2 / (7.5+0.8*S)	**RUNOFF (inches)**	**R**	**6.05**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**21.15**

PROJECT NAME:	SR70 - Lonesome-CR721	**KISINGER CAMPO & ASSOCIATES**
BASIN / SMF DESIGNATION:	Basin 4 Linear (Dry Retention)	

PRE-DEVELOPED: BASIN 4 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Onsite Pervious (fair condition)	D, A/D, B/D	77	19.02	1464.54
Impervious (Asphalt)		98	2.80	274.40
		TOTALS	21.82	1738.94

COMPOSITE CN =	79.7

POST-DEVELOPED: BASIN 4 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	13.91	1071.07
Impervious (Asphalt)		98	7.91	775.18
		TOTALS	21.82	1846.25

COMPOSITE CN =	84.6

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR **BASIN 4: PRE-DEVELOPED**

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**2.55**
2)	**DETERMINE RUNOFF - R**			
	$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$	**RUNOFF (inches)**	**R**	**5.12**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**9.32**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR **BASIN 4: POST-DEVELOPED**

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**1.82**
2)	**DETERMINE RUNOFF - R**			
	$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$	**RUNOFF (inches)**	**R**	**5.69**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**10.34**

WATER QUALITY CALCULATIONS: BASIN 4 LINEAR POND

Total Basin Area =	21.82 ac		
DCIA =	7.91 ac		
Dry Retention the greater of			
Treatment Volume Required (Total Basin Area)=	0.8"	Runoff Over Total Basin =	**1.36 Ac-Ft**
Treatment Volume Required (Impervious Area)=	1.88"	Runoff Over DCIA =	**1.24 Ac-Ft**
		Required Treatment Volume =	**1.36 Ac-Ft**

PRE - POST VOLUME DIFFERENCE: BASIN 4 LINEAR POND

10 YR / 72 HR POST-VOLUME =	**10.34**	**AC-FT**	
35.4 CSM ALLOWED VOLUME	**0.17**	**AC-FT**	< From ICPR4
REQUIRED ATTENUATION VOLUME =	**10.17**	**AC-FT**	

STAGE STORAGE CALCULATIONS - BASIN 4 LINEAR POND LEFT

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	33.00	3.40				12.80
			3.38	0.50	1.69	
DHW	32.50	3.35				11.11
			3.20	3.10	9.90	
WEIR	29.40	3.04				1.21
			3.02	0.40	1.21	
BOTTOM	29.00	3.00				0.00

*Area assumes bottom width of 30', a front slope of 1:6, a back slope of 1:4, a freeboard of 0.5', and a basin length of 4360' (Basin 4 extends from STA. 449+00.00 to STA. 491+00.00).
Note: Area is based on a 40' total bottom width, distributable between the north and south sides.

STAGE STORAGE CALCULATIONS - BASIN 4 LINEAR POND RIGHT

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	33.00	1.70				5.21
			1.65	0.50	0.83	
DHW	32.50	1.60				4.38
			1.29	3.10	4.00	
WEIR	29.40	0.98				0.38
			0.94	0.40	0.38	
BOTTOM	29.00	0.90				0.00

*Area assumes bottom width of 10', a front slope of 1:6, a back slope of 1:4, a freeboard of 0.5', and a basin length of 4360' (Basin 4 extends from STA. 449+00.00 to STA. 491+00.00).
Note: Area is based on a 40' total bottom width, distributable between the north and south sides.
Assumed EOP EL.= 33.5

Soils: Felda fine sand (10), Basinger fine sand (14)
Estimated SHW depth: 0.8 ft
Estimated SHW 27.2 ft

VOLUMETRIC CALCULATIONS

Treatment Volume Required=	1.36 Ac-Ft	
Attenuation Volume Required =	10.17 Ac-Ft	
Total Volume Provided	**15.49 Ac-Ft**	
Total Attenuation Provided	**13.90 Ac-Ft**	**OK**
Total Treatment Provided	**1.59 Ac-Ft**	**OK**

PROJECT NAME:	SR70 - Lonesome-CR721	**KISINGER CAMPO & ASSOCIATES**
BASIN / SMF DESIGNATION:	Basin 5 Linear (Dry Retention)	

PRE-DEVELOPED: BASIN 5 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Onsite Pervious (fair condition)	D, A/D, B/D	77	25.53	1965.81
Impervious (Asphalt)		98	3.76	368.48
		TOTALS	29.29	2334.29

COMPOSITE CN =	79.7

POST-DEVELOPED: BASIN 5 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	18.68	1438.36
Impervious (Asphalt)		98	10.61	1039.78
		TOTALS	29.29	2478.14

COMPOSITE CN =	84.6

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR **BASIN 5: PRE-DEVELOPED**

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**2.55**
2)	**DETERMINE RUNOFF - R**			
	$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$	**RUNOFF (inches)**	**R**	**5.12**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**12.51**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR **BASIN 5: POST-DEVELOPED**

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**1.82**
2)	**DETERMINE RUNOFF - R**			
	$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$	**RUNOFF (inches)**	**R**	**5.69**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**13.88**

WATER QUALITY CALCULATIONS: BASIN 5 LINEAR POND

Total Basin Area =	29.29 ac		
DCIA =	10.61 ac		
Dry Retention the greater of			
Treatment Volume Required (Total Basin Area)=	0.8"	Runoff Over Total Basin =	**1.95 Ac-Ft**
Treatment Volume Required (Impervious Area)=	1.88"	Runoff Over DCIA =	**1.66 Ac-Ft**
		Required Treatment Volume =	**1.95 Ac-Ft**

PRE - POST VOLUME DIFFERENCE: BASIN 5 LINEAR POND

10 YR / 72 HR POST-VOLUME =	**13.88**	**AC-FT**	
35.4 CSM ALLOWED VOLUME	**0.28**	**AC-FT**	< From ICPR4
REQUIRED ATTENUATION VOLUME =	**13.60**	**AC-FT**	

STAGE STORAGE CALCULATIONS - BASIN 5 LINEAR POND LEFT

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	33.00	4.80				15.04
			4.73	0.50	2.36	
DHW	32.50	4.66				12.68
			4.29	2.60	11.14	
WEIR	29.90	3.91				1.54
			3.86	0.40	1.54	
BOTTOM	29.50	3.80				0.00

*Area assumes bottom width of 30', a front slope of 1:6, a back slope of 1:4, a freeboard of 0.5', and a basin length of 5852' (Basin 5 extends from STA. 491+00.00 to STA. 548+00.00).
Note: Area is based on a 40' total bottom width, distributable between the north and south sides.

STAGE STORAGE CALCULATIONS - BASIN 5 LINEAR POND RIGHT

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	33.00	2.20				5.94
			2.13	0.50	1.06	
DHW	32.50	2.06				4.88
			1.69	2.60	4.38	
WEIR	29.90	1.31				0.50
			1.26	0.40	0.50	
BOTTOM	29.50	1.20				0.00

*Area assumes bottom width of 10', a front slope of 1:6, a back slope of 1:4, a freeboard of 0.5', and a basin length of 5852' (Basin 5 extends from STA. 491+00.00 to STA. 548+00.00).
Note: Area is based on a 40' total bottom width, distributable between the north and south sides.
ASSUMED EOP EL.= 33.5

Soils:Valkaria fine sand (16)
Estimated SHW depth: 1.0 ft
Estimated SHW: 27 ft

VOLUMETRIC CALCULATIONS

Treatment Volume Required=	1.95 Ac-Ft	
Attenuation Volume Required =	13.60 Ac-Ft	
Total Volume Provided	**17.56 Ac-Ft**	
Total Attenuation Provided	**15.52 Ac-Ft**	**OK**
Total Treatment Provided	**2.04 Ac-Ft**	**OK**

PROJECT NAME:	SR70 - Lonesome-CR721	**KISINGER CAMPO & ASSOCIATES**
BASIN / SMF DESIGNATION:	Basin 6 Linear (Dry Retention)	

PRE-DEVELOPED: BASIN 6 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Onsite Pervious (fair condition)	D, A/D, B/D	77	12.25	943.25
Impervious (Asphalt)		98	1.81	177.38
		TOTALS	14.06	1120.63

COMPOSITE CN =	79.7

POST-DEVELOPED: BASIN 6 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	8.97	690.69
Impervious (Asphalt)		98	5.09	498.82
		TOTALS	14.06	1189.51

COMPOSITE CN =	84.6

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR **BASIN 6: PRE-DEVELOPED**

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**2.55**
2)	**DETERMINE RUNOFF - R**			
	R= (7.5-0.2*S)^2 / (7.5+0.8*S)	**RUNOFF (inches)**	**R**	**5.12**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**6.00**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR **BASIN 6: POST-DEVELOPED**

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**1.82**
2)	**DETERMINE RUNOFF - R**			
	R= (7.5-0.2*S)^2 / (7.5+0.8*S)	**RUNOFF (inches)**	**R**	**5.69**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**6.66**

WATER QUALITY CALCULATIONS: BASIN 6 LINEAR POND

Total Basin Area =	14.06 ac		
DCIA =	5.09 ac		
Dry Retention the greater of			
Treatment Volume Required (Total Basin Area)=	0.8"	Runoff Over Total Basin =	**0.94 Ac-Ft**
Treatment Volume Required (Impervious Area)=	1.88"	Runoff Over DCIA =	**0.80 Ac-Ft**
		Required Treatment Volume =	**0.94 Ac-Ft**

PRE - POST VOLUME DIFFERENCE: BASIN 6 LINEAR POND

10 YR / 72 HR POST-VOLUME =	**6.66**	**AC-FT**	
35.4 CSM ALLOWED VOLUME	**0.11**	**AC-FT**	< From ICPR4
REQUIRED ATTENUATION VOLUME =	**6.55**	**AC-FT**	

STAGE STORAGE CALCULATIONS - BASIN 6 LINEAR POND LEFT

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	33.00	2.00				6.80
			1.96	0.50	0.98	
DHW	32.50	1.93				5.82
			1.72	2.70	4.65	
WEIR	29.80	1.52				1.17
			1.46	0.80	1.17	
BOTTOM	29.00	1.40				0.00

*Area assumes bottom width of 30', a front slope of 1:6, a back slope of 1:4, a freeboard of 0.5', and a basin length of 2809' (Basin 6 extends from 491+00.00 to STA. 548+00.00).
Note: Area is based on a 40' total bottom width, distributable between the north and south sides.

STAGE STORAGE CALCULATIONS - BASIN 6 LINEAR POND RIGHT

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	33.00	1.10				3.46
			1.07	0.50	0.54	
DHW	32.50	1.04				2.92
			0.88	2.70	2.38	
WEIR	29.80	0.72				0.54
			0.68	0.80	0.54	
BOTTOM	29.00	0.63				0.00

*Area assumes bottom width of 10', a front slope of 1:6, a back slope of 1:4, a freeboard of 0.5', and a basin length of 2809' (Basin 6 extends from 491+00.00 to STA. 548+00.00).
Note: Area is based on a 40' total bottom width, distributable between the north and south sides.
ASSUMED EOP EL.= 33.5

Soils: Valkaria fine sand (16)
Estimated SHW depth: 1.0 ft
Estimated SHW: 27 ft

VOLUMETRIC CALCULATIONS

Treatment Volume Required=	0.94 Ac-Ft	
Attenuation Volume Required =	6.55 Ac-Ft	
Total Volume Provided	**8.74 Ac-Ft**	
Total Attenuation Provided	**7.03 Ac-Ft**	**OK**
Total Treatment Provided	**1.71 Ac-Ft**	**OK**

PROJECT NAME:	SR70 - Lonesome-CR721	**KISINGER CAMPO & ASSOCIATES**
BASIN / SMF DESIGNATION:	Basin 7 Linear (Dry Retention)	

PRE-DEVELOPED: BASIN 7 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Onsite Pervious (fair condition)	D, A/D, B/D	77	28.55	2198.35
Impervious (Asphalt)		98	4.21	412.58
		TOTALS	32.76	2610.93

COMPOSITE CN =	79.7

POST-DEVELOPED: BASIN 7 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	20.89	1608.53
Impervious (Asphalt)		98	11.87	1163.26
		TOTALS	32.76	2771.79

COMPOSITE CN =	84.6

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR **BASIN 7: PRE-DEVELOPED**

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**2.55**
2)	**DETERMINE RUNOFF - R**			
	R= (7.5-0.2*S)^2 / (7.5+0.8*S)	**RUNOFF (inches)**	**R**	**5.12**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**13.99**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR **BASIN 7: POST-DEVELOPED**

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**1.82**
2)	**DETERMINE RUNOFF - R**			
	R= (7.5-0.2*S)^2 / (7.5+0.8*S)	**RUNOFF (inches)**	**R**	**5.69**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**15.52**

WATER QUALITY CALCULATIONS: BASIN 7 LINEAR POND

Total Basin Area =	32.76 ac		
DCIA =	11.87 ac		
Dry Retention the greater of			
Treatment Volume Required (Total Basin Area)=	0.8"	Runoff Over Total Basin =	**2.18 Ac-Ft**
Treatment Volume Required (Impervious Area)=	1.88"	Runoff Over DCIA =	**1.85 Ac-Ft**
		Required Treatment Volume =	**2.18 Ac-Ft**

PRE - POST VOLUME DIFFERENCE: BASIN 7 LINEAR POND

10 YR / 72 HR POST-VOLUME =	**15.52**	**AC-FT**	
35.4 CSM ALLOWED VOLUME	**0.28**	**AC-FT**	< From ICPR4
REQUIRED ATTENUATION VOLUME =	**15.24**	**AC-FT**	

STAGE STORAGE CALCULATIONS - BASIN 7 LINEAR POND LEFT

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	33.00	4.10				15.40
			4.07	0.50	2.03	
DHW	32.50	4.04				13.37
			3.87	2.70	10.45	
WEIR	29.80	3.70				2.92
			3.65	0.80	2.92	
BOTTOM	29.00	3.60				0.00

*Area assumes bottom width of 30', a front slope of 1:6, a back slope of 1:4, a freeboard of 0.5', and a basin length of 6545' (Basin 7 extends from STA. 548+00.00 to STA. 642+00.00).
Note: Area is based on a 40' total bottom width, distributable between the north and south sides.

STAGE STORAGE CALCULATIONS - BASIN 7 LINEAR POND RIGHT

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	33.00	2.30				7.20
			2.24	0.50	1.12	
DHW	32.50	2.18				6.08
			1.84	2.70	4.96	
WEIR	29.80	1.50				1.12
			1.40	0.80	1.12	
BOTTOM	29.00	1.30				0.00

*Area assumes bottom width of 10', a front slope of 1:6, a back slope of 1:4, a freeboard of 0.5', and a basin length of 6545' (Basin 7 extends from STA. 548+00.00 to STA. 642+00.00).
Note: Area is based on a 40' total bottom width, distributable between the north and south sides.

ASSUMED EOP EL.= 33.5

Soils: Valkaria fine sand (16), Basinger fine sand (12), and Hicoria mucky sand (19)
Estimated SHW depth: 0.8 ft
Estimated SHW: 27.2 ft

VOLUMETRIC CALCULATIONS

Treatment Volume Required=	2.18 Ac-Ft	
Attenuation Volume Required =	15.24 Ac-Ft	
Total Volume Provided	**19.45 Ac-Ft**	
Total Attenuation Provided	**15.41 Ac-Ft**	**OK**
Total Treatment Provided	**4.04 Ac-Ft**	**OK**

OFFSITE POND ALTERNATIVES

PROJECT NAME:	SR 70 (PD&E Highlands County)	**KISINGER CAMPO & ASSOCIATES**
BASIN / SMF DESIGNATION:	Basin 1	
BASIN ANALYSIS (PRE/POST)	SMF 1	

PRE-DEVELOPED: BASIN 1 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	27.75	2136.75
Impervious (Asphalt)		98	5.55	543.90
Water		100	0.00	0.00
		TOTALS	44.74	2680.65

COMPOSITE CN =	59.9

POST-DEVELOPED: BASIN 1 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	25.48	1961.96
Impervious (Asphalt)		98	15.66	1534.68
Water		100	3.60	360.00
		TOTALS	44.74	3856.64

COMPOSITE CN =	86.2

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR

BASIN 1: PRE-DEVELOPED

1) DETERMINE SOIL STORAGE - S

$S = (1000/CN) - 10$

SOIL STORAGE (inches)	**S**	**6.69**

2) DETERMINE RUNOFF - R

$R = (7.5-0.2*S)^2 / (7.5+0.8*S)$

RUNOFF (inches)	**R**	**2.95**

3) DETERMINE RUNOFF VOLUME- V(R)

$V(R) = R/12*AREA$

RUNOFF (Ac-ft.)	**V(R)**	**11.01**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR

BASIN 1: POST-DEVELOPED

1) DETERMINE SOIL STORAGE - S

$S = (1000/CN) - 10$

SOIL STORAGE (inches)	**S**	**1.60**

2) DETERMINE RUNOFF - R

$R = (87.5-0.2*S)^2 / (7.5+0.8*S)$

RUNOFF (inches)	**R**	**5.87**

3) DETERMINE RUNOFF VOLUME- V(R)

$V(R) = R/12*AREA$

RUNOFF (Ac-ft.)	**V(R)**	**21.89**

WATER QUALITY CALCULATIONS

Total Basin Area =	44.74 ac		
DCIA =	15.66 ac		
Wet Detention the greater of			
Treatment Volume Required (Total Basin Area) =	1.5"	Runoff Over Total Basin =	**5.59 Ac-Ft**
Treatment Volume Required (Impervious Area)=	3.75"	Runoff Over DCIA =	**4.89 Ac-Ft**
		Required Treatment Volume =	**5.59 Ac-Ft**

PRE - POST VOLUME DIFFERENCE

10 YR / 72 HR POST-VOLUME =	**21.89**	**AC-FT**	
35.4 CSM ALLOWED VOLUME	**0.39**	**AC-FT**	< From ICPR4
REQUIRED ATTENUATION VOLUME =	**21.50**	**AC-FT**	

STAGE STORAGE CALCULATIONS - SMF 1

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	35.00	5.10				35.04
1' Freeboard from			5.09	1.00	5.09	
DHW	34.00	5.07				29.95
			5.01	4.80	24.04	
WEIR	29.20	4.94				5.91
			4.93	1.20	5.91	
ORIFICE	28.00	4.91				0.00
			4.58	6.00	27.48	
Bottom	22.00	4.25				0.00

SHW = 29 Avg. exst. Ground in SMF site = 30.0

Source: (USDA Soil Survey) Source: Lidar contours

Assumed Low EOP = 35.5

Felda fine sand (13)
Assumed
1.0 ft below

Water Quality Calculations

ATTENUATION REQUIRED =	**21.50 Ac-Ft**
ATTENUATION PROVIDED =	**24.04 Ac-Ft**
TREATMENT REQUIRED =	**5.59 Ac-Ft**
TREATMENT PROVIDED =	**5.91 Ac-Ft**
LITTORAL SHELF VOLUME =	**27.48 Ac-Ft**

PROJECT NAME:	SR70 - Lonesome-CR721	**KISINGER CAMPO & ASSOCIATES**
BASIN / SMF DESIGNATION:	Basin 2	
BASIN ANALYSIS (PRE/POST)	SMF 2	

PRE-DEVELOPED: BASIN 2 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	15.70	1208.90
Impervious (Asphalt)		98	3.22	315.56
Water		100	0.00	0.00
		TOTALS	18.92	1524.46

COMPOSITE CN =	80.6

POST-DEVELOPED: BASIN 2 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	8.03	618.31
Impervious (Asphalt)		98	9.08	889.84
Water		100	1.81	181.00
		TOTALS	18.92	1689.15

COMPOSITE CN =	89.3

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR — BASIN 2: PRE-DEVELOPED

1) DETERMINE SOIL STORAGE - S

S= (1000/CN) - 10

SOIL STORAGE (inches)	**S**	**2.41**

2) DETERMINE RUNOFF - R

$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$

RUNOFF (inches)	**R**	**5.23**

3) DETERMINE RUNOFF VOLUME- V(R)

V(R)= R/12*AREA

RUNOFF (Ac-ft.)	**V(R)**	**8.24**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR — BASIN 2: POST-DEVELOPED

1) DETERMINE SOIL STORAGE - S

S= (1000/CN) - 10

SOIL STORAGE (inches)	**S**	**1.20**

2) DETERMINE RUNOFF - R

$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$

RUNOFF (inches)	**R**	**6.23**

3) DETERMINE RUNOFF VOLUME- V(R)

V(R)= R/12*AREA

RUNOFF (Ac-ft.)	**V(R)**	**9.83**

WATER QUALITY CALCULATIONS

Total Basin Area =	18.92 ac		
DCIA =	9.08 ac		
Wet Detention the greater of			
Treatment Volume Required (Total Basin Area) =	1.5"	Runoff Over Total Basin =	**2.37 Ac-Ft**
Treatment Volume Required (Impervious Area)=	3.75"	Runoff Over DCIA =	**2.84 Ac-Ft**
		Required Treatment Volume =	**2.84 Ac-Ft**

PRE - POST VOLUME DIFFERENCE

10 YR / 72 HR POST-VOLUME =	**9.83**	**AC-FT**	
35.4 CSM ALLOWED VOLUME	**0.17**	**AC-FT**	< From ICPR4
REQUIRED ATTENUATION VOLUME =	**9.66**	**AC-FT**	

STAGE STORAGE CALCULATIONS - SMF 2A

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	34.00	4.80				36.68
1' Freeboard from			4.68	4.50	21.06	
DHW	29.50	4.56				15.62
			4.49	2.60	11.67	
WEIR	26.90	4.42				3.95
			4.39	0.90	3.95	
ORIFICE	26.00	4.37				0.00
			4.04	6.00	24.24	
Bottom	20.00	3.71				0.00

SHW = 26 — Avg. exst. Ground in SMF site = 28.0

Source: A SHW of 26 is assumed based on observations of the water level and stain lines in adjacent ditches — Felda fine sand (13) Assumed 1.0 ft below — Source: Lidar contours

Assumed Low EOP = 34.5

Water Quality Calculations

ATTENUATION REQUIRED =	**9.66 Ac-Ft**
ATTENUATION PROVIDED=	**11.67 Ac-Ft**
TREATMENT REQUIRED =	**2.84 Ac-Ft**
TREATMENT PROVIDED =	**3.95 Ac-Ft**

STAGE STORAGE CALCULATIONS - SMF 2B

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	34.00	3.50				26.60
1' Freeboard from			3.41	4.00	13.65	
DHW	30.00	3.33				12.95
			3.26	3.00	9.78	
WEIR	27.00	3.19				3.17
			3.17	1.00	3.17	
ORIFICE	26.00	3.15				0.00
			2.82	6.00	16.92	
Bottom	20.00	2.49				0.00

SHW = 26 — Avg. exst. Ground in SMF site = 28.0

Source: A SHW of 26 is assumed based on observations of the water level and stain lines in adjacent ditches — Felda fine sand (13) Assumed 1.0 ft below — Source: Lidar contours

Assumed Low EOP = 34.5

Water Quality Calculations

ATTENUATION REQUIRED =	**9.66 Ac-Ft**
ATTENUATION PROVIDED=	**9.78 Ac-Ft**
TREATMENT REQUIRED =	**2.84 Ac-Ft**
TREATMENT PROVIDED =	**3.17 Ac-Ft**

PROJECT NAME:	SR70 - Lonesome-CR721	**KISINGER CAMPO & ASSOCIATES**
BASIN / SMF DESIGNATION:	Basin 3	
BASIN ANALYSIS (PRE/POST)	SMF 3	

PRE-DEVELOPED: BASIN 3 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	36.88	2839.76
Impervious (Asphalt)		98	7.59	743.82
Water		100	0.00	0.00
		TOTALS	44.47	3583.58

COMPOSITE CN =	80.6

POST-DEVELOPED: BASIN 3 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	17.77	1368.29
Impervious (Asphalt)		98	21.40	2097.20
Water		100	5.30	530.00
		TOTALS	44.47	3995.49

COMPOSITE CN =	89.8

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR

BASIN 3: PRE-DEVELOPED

1) DETERMINE SOIL STORAGE - S

S= (1000/CN) - 10

SOIL STORAGE (inches)	**S**	**2.41**

2) DETERMINE RUNOFF - R

$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$

RUNOFF (inches)	**R**	**5.23**

3) DETERMINE RUNOFF VOLUME- V(R)

V(R)= R/12*AREA

RUNOFF (Ac-ft.)	**V(R)**	**19.37**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR

BASIN 3: POST-DEVELOPED

1) DETERMINE SOIL STORAGE - S

S= (1000/CN) - 10

SOIL STORAGE (inches)	**S**	**1.14**

2) DETERMINE RUNOFF - R

$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$

RUNOFF (inches)	**R**	**6.29**

3) DETERMINE RUNOFF VOLUME- V(R)

V(R)= R/12*AREA

RUNOFF (Ac-ft.)	**V(R)**	**23.31**

WATER QUALITY CALCULATIONS

Total Basin Area =	44.47 ac		
DCIA =	21.40 ac		
Wet Detention the greater of			
Treatment Volume Required (Total Basin Area) =	1.5"	Runoff Over Total Basin =	**5.56 Ac-Ft**
Treatment Volume Required (Impervious Area)=	3.75"	Runoff Over DCIA =	**6.69 Ac-Ft**
		Required Treatment Volume =	**6.69 Ac-Ft**

PRE - POST VOLUME DIFFERENCE

10 YR / 72 HR POST-VOLUME =	**23.31**	**AC-FT**	
35.4 CSM ALLOWED VOLUME	**0.41**	**AC-FT**	< From ICPR4
REQUIRED ATTENUATION VOLUME =	**22.90**	**AC-FT**	

STAGE STORAGE CALCULATIONS - SMF 3A

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	35.00	6.40				49.44
1' Freeboard from			6.32	3.00	18.95	
DHW	32.00	6.24				30.49
			6.13	3.80	23.30	
WEIR	28.20	6.03				7.19
			5.99	1.20	7.19	
ORIFICE	27.00	5.96				0.00
			5.63	6.00	33.78	
Bottom	21.00	5.30				0.00

SHW = 27 Avg. exst. Ground in SMF site = 28.0
Source: (USDA Soil Survey) Source: Lidar contours

Felda fine sand (13)
Assumed 1 ft below Assumed Low EOP = 35.5

Water Quality Calculations

ATTENUATION REQUIRED =	**22.90 Ac-Ft**
ATTENUATION PROVIDED=	**23.30 Ac-Ft**
TREATMENT REQUIRED =	**6.69 Ac-Ft**
TREATMENT PROVIDED =	**7.19 Ac-Ft**

STAGE STORAGE CALCULATIONS - SMF 3B

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	35.00	6.30				42.88
1' Freeboard from			6.25	2.00	12.50	
DHW	33.00	6.20				30.38
			6.11	3.80	23.20	
WEIR	29.20	6.01				7.18
			5.98	1.20	7.18	
ORIFICE	28.00	5.95				0.00
			5.62	6.00	33.72	
Bottom	22.00	5.29				0.00

SHW = 28 Avg. exst. Ground in SMF site = 29.0
Source: (USDA Soil Survey) Source: Lidar contours

Felda fine sand (13)
Assumed 1 ft below Assumed Low EOP = 35.5

Water Quality Calculations

ATTENUATION REQUIRED =	**22.90 Ac-Ft**
ATTENUATION PROVIDED=	**23.20 Ac-Ft**
TREATMENT REQUIRED =	**6.69 Ac-Ft**
TREATMENT PROVIDED =	**7.18 Ac-Ft**

PROJECT NAME:	SR70 - Lonesome-CR721	**KISINGER CAMPO & ASSOCIATES**
BASIN / SMF DESIGNATION:	Basin 4	
BASIN ANALYSIS (PRE/POST)	SMF 4	

PRE-DEVELOPED: BASIN 4 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	21.52	1657.04
Impervious (Asphalt)		98	2.80	274.65
Water		100	0.00	0.00
		TOTALS	24.32	1931.69

COMPOSITE CN =	79.4

POST-DEVELOPED: BASIN 4 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	13.41	1032.57
Impervious (Asphalt)		98	7.91	775.18
Water		100	3.00	300.00
		TOTALS	24.32	2107.75

COMPOSITE CN =	86.7

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR

BASIN 4: PRE-DEVELOPED

1) DETERMINE SOIL STORAGE - S			
S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**2.59**
2) DETERMINE RUNOFF - R			
$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$	**RUNOFF (inches)**	**R**	**5.09**
3) DETERMINE RUNOFF VOLUME- V(R)			
V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**10.32**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR

BASIN 4: POST-DEVELOPED

1) DETERMINE SOIL STORAGE - S			
S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**1.53**
2) DETERMINE RUNOFF - R			
$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$	**RUNOFF (inches)**	**R**	**5.93**
3) DETERMINE RUNOFF VOLUME- V(R)			
V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**12.02**

WATER QUALITY CALCULATIONS

Total Basin Area =	24.32 ac		
DCIA =	7.91 ac		
Wet Detention the greater of			
Treatment Volume Required (Total Basin Area) =	1.5"	Runoff Over Total Basin =	**3.04 Ac-Ft**
Treatment Volume Required (Impervious Area)=	3.75"	Runoff Over DCIA =	**2.47 Ac-Ft**
		Required Treatment Volume =	**3.04 Ac-Ft**

PRE - POST VOLUME DIFFERENCE

10 YR / 72 HR POST-VOLUME =	**12.02**	**AC-FT**	
35.4 CSM ALLOWED VOLUME	**0.21**	**AC-FT**	< From ICPR4
REQUIRED ATTENUATION VOLUME =	**11.81**	**AC-FT**	

STAGE STORAGE CALCULATIONS - SMF 4

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	33.00	3.40				19.68
1' Freeboard from			3.38	1.00	3.38	
DHW	32.00	3.36				16.30
			3.28	4.00	13.12	
WEIR	28.00	3.20				3.18
			3.18	1.00	3.18	
ORIFICE	27.00	3.16				0.00
			2.83	6.00	16.98	
Bottom	21.00	2.50				0.00

SHW = 27

Source: A SHW of 27 is assumed based on observations of the water level and stain lines in adjacent ditches

Pineda-Pineda (15)
Assumed 1 ft below

Avg. exst. Ground in SMF site = 29.0

Source: Lidar contours

Assumed Low EOP = 33.5

Water Quality Calculations

ATTENUATION REQUIRED =	**11.81 Ac-Ft**
ATTENUATION PROVIDED =	**13.12 Ac-Ft**
TREATMENT REQUIRED =	**3.04 Ac-Ft**
TREATMENT PROVIDED =	**3.18 Ac-Ft**

PROJECT NAME:	SR70 - Lonesome-CR721	**KISINGER CAMPO & ASSOCIATES**
BASIN / SMF DESIGNATION:	Basin 5	
BASIN ANALYSIS (PRE/POST)	SMF 5	

PRE-DEVELOPED: BASIN 5 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	28.34	2182.18
Impervious (Asphalt)		98	3.76	368.64
Water		100	0.00	0.00
		TOTALS	32.10	2550.82

COMPOSITE CN =	79.5

POST-DEVELOPED: BASIN 5 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	17.82	1372.14
Impervious (Asphalt)		98	10.61	1039.78
Water		100	3.67	367.00
		TOTALS	32.10	2778.92

COMPOSITE CN =	86.6

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR

BASIN 5: PRE-DEVELOPED

1) DETERMINE SOIL STORAGE - S

S= (1000/CN) - 10

SOIL STORAGE (inches)	**S**	**2.58**

2) DETERMINE RUNOFF - R

$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$

RUNOFF (inches)	**R**	**5.10**

3) DETERMINE RUNOFF VOLUME- V(R)

V(R)= R/12*AREA

RUNOFF (Ac-ft.)	**V(R)**	**13.65**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR

BASIN 5: POST-DEVELOPED

1) DETERMINE SOIL STORAGE - S

S= (1000/CN) - 10

SOIL STORAGE (inches)	**S**	**1.55**

2) DETERMINE RUNOFF - R

$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$

RUNOFF (inches)	**R**	**5.92**

3) DETERMINE RUNOFF VOLUME- V(R)

V(R)= R/12*AREA

RUNOFF (Ac-ft.)	**V(R)**	**15.83**

WATER QUALITY CALCULATIONS

Total Basin Area =	32.10 ac		
DCIA =	10.61 ac		
Wet Detention the greater of			
Treatment Volume Required (Total Basin Area) =	1.5"	Runoff Over Total Basin =	**4.01 Ac-Ft**
Treatment Volume Required (Impervious Area)=	3.75"	Runoff Over DCIA =	**3.32 Ac-Ft**
		Required Treatment Volume =	**4.01 Ac-Ft**

PRE - POST VOLUME DIFFERENCE

10 YR / 72 HR POST-VOLUME =	**15.83**	**AC-FT**	
35.4 CSM ALLOWED VOLUME	**0.28**	**AC-FT**	< From ICPR4
REQUIRED ATTENUATION VOLUME =	**15.55**	**AC-FT**	

STAGE STORAGE CALCULATIONS - SMF 5

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	33.00	5.60				30.49
1' Freeboard from			5.47	1.50	8.21	
DHW	31.50	5.34				22.28
			5.04	3.50	17.63	
WEIR	28.00	4.73				4.65
			4.65	1.00	4.65	
ORIFICE	27.00	4.56				0.00
			4.23	6.00	25.38	
Bottom	21.00	3.90				0.00

SHW = 27 — Pineda-Pineda (15) Assumed 1 ft below
Source: (USDA Soil Survey)

Avg. exst. Ground in SMF site = 28.0
Source: Lidar contours
Assumed Low EOP = 33.5

Water Quality Calculations

ATTENUATION REQUIRED =	**15.55 Ac-Ft**
ATTENUATION PROVIDED =	**17.63 Ac-Ft**
TREATMENT REQUIRED =	**4.01 Ac-Ft**
TREATMENT PROVIDED =	**4.65 Ac-Ft**

PROJECT NAME:	SR70 - Lonesome-CR721	**KISINGER CAMPO & ASSOCIATES**
BASIN / SMF DESIGNATION:	Basin 6	
BASIN ANALYSIS (PRE/POST)	SMF 6	

PRE-DEVELOPED: BASIN 6 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	13.51	1040.27
Impervious (Asphalt)		98	1.81	176.95
Water		100	0.00	0.00
		TOTALS	15.32	1217.22

COMPOSITE CN =	79.5

POST-DEVELOPED: BASIN 6 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	8.53	656.81
Impervious (Asphalt)		98	5.09	498.82
Water		100	1.70	170.00
		TOTALS	15.32	1325.63

COMPOSITE CN =	86.5

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR — BASIN 6: PRE-DEVELOPED

1) DETERMINE SOIL STORAGE - S

$S = (1000/CN) - 10$

SOIL STORAGE (inches)	**S**	**2.58**

2) DETERMINE RUNOFF - R

$R = (7.5-0.2*S)^2 / (7.5+0.8*S)$

RUNOFF (inches)	**R**	**5.10**

3) DETERMINE RUNOFF VOLUME- V(R)

$V(R) = R/12*AREA$

RUNOFF (Ac-ft.)	**V(R)**	**6.51**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR — BASIN 6: POST-DEVELOPED

1) DETERMINE SOIL STORAGE - S

$S = (1000/CN) - 10$

SOIL STORAGE (inches)	**S**	**1.56**

2) DETERMINE RUNOFF - R

$R = (7.5-0.2*S)^2 / (7.5+0.8*S)$

RUNOFF (inches)	**R**	**5.91**

3) DETERMINE RUNOFF VOLUME- V(R)

$V(R) = R/12*AREA$

RUNOFF (Ac-ft.)	**V(R)**	**7.54**

WATER QUALITY CALCULATIONS

Total Basin Area =	15.32 ac		
DCIA =	5.09 ac		
Wet Detention the greater of			
Treatment Volume Required (Total Basin Area) =	1.5"	Runoff Over Total Basin =	**1.92 Ac-Ft**
Treatment Volume Required (Impervious Area)=	3.75"	Runoff Over DCIA =	**1.59 Ac-Ft**
		Required Treatment Volume =	**1.92 Ac-Ft**

PRE - POST VOLUME DIFFERENCE

10 YR / 72 HR POST-VOLUME =	**7.54**	**AC-FT**	
35.4 CSM ALLOWED VOLUME	**0.14**	**AC-FT**	< From ICPR4
REQUIRED ATTENUATION VOLUME =	**7.40**	**AC-FT**	

STAGE STORAGE CALCULATIONS - SMF 6

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	33.00	2.30				13.02
1' Freeboard from			2.28	1.00	2.28	
DHW	32.00	2.26				10.74
			2.17	4.00	8.68	
WEIR	28.00	2.08				2.06
			2.06	1.00	2.06	
ORIFICE	27.00	2.04				0.00
			1.71	6.00	10.26	
Bottom	21.00	1.38				0.00

SHW = 27 — Valkaria fine sand (16)
Source: (USDA Soil Survey) — Assumed 1 ft below

Avg. exst. Ground in SMF site = 28.0
Source: Lidar contours
Assumed Low EOP = 33.5

Water Quality Calculations

ATTENUATION REQUIRED =	**7.40 Ac-Ft**
ATTENUATION PROVIDED=	**8.68 Ac-Ft**
TREATMENT REQUIRED =	**1.92 Ac-Ft**
TREATMENT PROVIDED =	**2.06 Ac-Ft**

PROJECT NAME:	SR70 - Lonesome-CR721	**KISINGER CAMPO & ASSOCIATES**
BASIN / SMF DESIGNATION:	Basin 7	
BASIN ANALYSIS (PRE/POST)	SMF 7	

PRE-DEVELOPED: BASIN 7 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	31.54	2428.58
Impervious (Asphalt)		98	4.21	412.29
Water		100	0.00	0.00
		TOTALS	35.75	2840.87

COMPOSITE CN =	79.5

POST-DEVELOPED: BASIN 7 RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	19.88	1530.76
Impervious (Asphalt)		98	11.87	1163.26
Water		100	4.00	400.00
		TOTALS	35.75	3094.02

COMPOSITE CN =	86.5

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR **BASIN 7: PRE-DEVELOPED**

1) DETERMINE SOIL STORAGE - S			
S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**2.58**
2) DETERMINE RUNOFF - R			
$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$	**RUNOFF (inches)**	**R**	**5.10**
3) DETERMINE RUNOFF VOLUME- V(R)			
V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**15.20**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR **BASIN 7: POST-DEVELOPED**

1) DETERMINE SOIL STORAGE - S			
S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**1.56**
2) DETERMINE RUNOFF - R			
$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$	**RUNOFF (inches)**	**R**	**5.91**
3) DETERMINE RUNOFF VOLUME- V(R)			
V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**17.59**

WATER QUALITY CALCULATIONS

Total Basin Area =	35.75 ac		
DCIA =	11.87 ac		
Wet Detention the greater of			
Treatment Volume Required (Total Basin Area) =	1.5"	Runoff Over Total Basin =	**4.47 Ac-Ft**
Treatment Volume Required (Impervious Area)=	3.75"	Runoff Over DCIA =	**3.71 Ac-Ft**
		Required Treatment Volume =	**4.47 Ac-Ft**

PRE - POST VOLUME DIFFERENCE

10 YR / 72 HR POST-VOLUME =	**17.59**	**AC-FT**
35.4 CSM ALLOWED VOLUME	**0.31**	**AC-FT**
REQUIRED ATTENUATION VOLUME =	**17.28**	**AC-FT**

STAGE STORAGE CALCULATIONS - SMF 7

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	33.00	8.60				41.60
1' Freeboard from			8.49	2.00	16.98	
DHW	31.00	8.38				24.62
			8.24	2.40	19.78	
WEIR	28.60	8.11				4.84
			8.07	0.60	4.84	
ORIFICE	28.00	8.04				0.00
			7.71	6.00	46.26	
Bottom	22.00	7.38				0.00

SHW = 28

Source: A SHW of 28 is assumed based on observations of the water level and stain lines in adjacent ditches

Basinger fine sand (12)
Assumed
0.5 ft below

Avg. exst. Ground in SMF site = 30.0

Source: Lidar contours

Assumed Low EOP = 33.5

Water Quality Calculations

ATTENUATION REQUIRED =	**17.28 Ac-Ft**
ATTENUATION PROVIDED =	**19.78 Ac-Ft**
TREATMENT REQUIRED =	**4.47 Ac-Ft**
TREATMENT PROVIDED =	**4.84 Ac-Ft**

REGIONAL POND ALTERNATIVES

PROJECT NAME:	SR70 - Lonesome-CR721	Kisinger Campo & Associates
BASIN DESIGNATION:	Basins 2-3	

Alternative C: Regional Pond A Size Estimate

Basin Length (ft)	16808
Impervious Width (ft)	79
R/W Width (ft)	218

1)	**DETERMINE Contributing Basin Area**		
	Contributing Basin = (L*W/43560)	**acre**	**104.62**
	Contributing Imp. = (L*W/43560)	**acre**	**30.48**
2)	**DETERMINE REQUIRED TREATMENT VOLUME (WET DET.)**		
	1" Over Contributing Basin Area	**acre-ft**	**8.72**
	or 2.5" Over Impervious Area	**acre-ft**	**6.35**
3)	**TREATMENT DEPTH WITHIN POND**	**ft**	**1.00**
	BERMS/SLOPES/CURVALINEAR FACTOR		**2.00**
4)	**DETERMINE POND SIZE**		
	A = (Treatment Volume/Treatment Depth) * 2	**acres**	**17.44**
	15% CONTINGENCY	**acres**	**20.05**

PRE-DEVELOPED: BASIN RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	93.81	7223.15
Impervious (Asphalt)		98	10.81	1059.38
Water		100	0.00	0.00
		TOTALS	104.62	8282.53

COMPOSITE CN =	79.2

POST-DEVELOPED: BASIN RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	37.03	2851.31
Impervious (Asphalt)		98	30.48	2987.32
Water		100	37.12	3712.00
		TOTALS	104.63	9550.63

COMPOSITE CN =	91.3

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR	PRE-DEVELOPED

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**2.63**
2)	**DETERMINE RUNOFF - R**			
	$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$	**RUNOFF (inches)**	**R**	**5.07**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**44.17**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR	POST-DEVELOPED

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**0.95**
2)	**DETERMINE RUNOFF - R**			
	$R= (7.5-0.2*S)^2 / (7.5+0.8*S)$	**RUNOFF (inches)**	**R**	**6.47**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**56.38**

Attenuation will be provided at each crossdrain along SR 70

WATER QUALITY CALCULATIONS

Total Basin Area (Basins 2&3) = 63.39 ac
DCIA = 30.48 ac

Wet Detention the greater of

Treatment Volume Required (Total Basin Area) =	1.5"	Runoff Over Total Basin =	**7.92 Ac-Ft**
Treatment Volume Required (Impervious Area)=	3.75"	Runoff Over DCIA =	**9.53 Ac-Ft**
		Required Treatment Volume =	**9.53 Ac-Ft**

STAGE STORAGE CALCULATIONS - Regional Pond A

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	29.00	36.67				54.87
1' Freeboard			36.61	1.00	36.61	
	28.00	36.55				18.26
			36.54	0.20	7.31	
WEIR	27.80	36.53				10.95
			36.51	0.30	10.95	
SHW / ORIFICE	27.50	36.49				0.00
			36.34	2.50	90.85	
Bottom	25.00	36.19				0.00

SHW = 27.5
Source: (USDA Soil Survey)
Basinger (12)
Assumed
0.5 ft below

Avg. exst. Ground in SMF site = 28.0
Source: Lidar contours

Assumed Low EOP = 35.0

Water Quality Calculations

TREATMENT REQUIRED =	**9.53 Ac-Ft**
TREATMENT PROVIDED =	**10.95 Ac-Ft**

PROJECT NAME:	SR70 - Lonesome-CR721	Kisinger Campo & Associates
BASIN DESIGNATION:	Basins 4-7	

Alternative C: Regional Pond B Size Estimate

Basin Length (ft)	19566
Impervious Width (ft)	79
R/W Width (ft)	218

1)	**DETERMINE Contributing Basin Area**		
	Contributing Basin = (L*W/43560)	**acre**	**97.92**
	Contributing Imp. = (L*W/43560)	**acre**	**35.48**
2)	**DETERMINE REQUIRED TREATMENT VOLUME (WET DET.)**		
	1" Over Contributing Basin Area	**acre-ft**	**8.16**
	or 2.5" Over Impervious Area	**acre-ft**	**7.39**
3)	**TREATMENT DEPTH WITHIN POND**	**ft**	**1.00**
	BERMS/SLOPES/CURVALINEAR FACTOR		**2.00**
4)	**DETERMINE POND SIZE**		
	A = (Treatment Volume/Treatment Depth) * 2	**acres**	**16.32**
	15% CONTINGENCY	**acres**	**18.77**

PRE-DEVELOPED: BASIN RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	85.34	6571.17
Impervious (Asphalt)		98	12.58	1232.84
Water		100	0.00	0.00
		TOTALS	97.92	7804.01

COMPOSITE CN =	79.7

POST-DEVELOPED: BASIN RUNOFF CURVE NUMBER WORKSHEET

LAND-USE DESCRIPTION	SOIL GROUP	CN	AREA (ac)	PRODUCT
Open space (fair condition)	D, A/D, B/D	77	38.32	2950.64
Impervious (Asphalt)		98	35.48	3477.04
Water		100	24.12	2412.00
		TOTALS	97.92	8839.68

COMPOSITE CN =	90.3

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR | PRE-DEVELOPED

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**2.55**
2)	**DETERMINE RUNOFF - R**			
	R= $(7.5-0.2*S)^2$ / (7.5+0.8*S)	**RUNOFF (inches)**	**R**	**5.12**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**41.81**

ESTIMATE OF RUNOFF VOLUME - 10YR/72HR | POST-DEVELOPED

1)	**DETERMINE SOIL STORAGE - S**			
	S= (1000/CN) - 10	**SOIL STORAGE (inches)**	**S**	**1.07**
2)	**DETERMINE RUNOFF - R**			
	R= $(7.5-0.2*S)^2$ / (7.5+0.8*S)	**RUNOFF (inches)**	**R**	**6.35**
3)	**DETERMINE RUNOFF VOLUME- V(R)**			
	V(R)= R/12*AREA	**RUNOFF (Ac-ft.)**	**V(R)**	**51.81**

Attenuation will be provided at each crossdrain along SR 70

WATER QUALITY CALCULATIONS

Total Basin Area (Basins 4-7) = 107.49 ac
DCIA = 35.48 ac

Wet Detention the greater of

Treatment Volume Required (Total Basin Area) =	1.5"	Runoff Over Total Basin =	**13.44 Ac-Ft**
Treatment Volume Required (Impervious Area)=	3.75"	Runoff Over DCIA =	**11.09 Ac-Ft**
		Required Treatment Volume =	**13.44 Ac-Ft**

STAGE STORAGE CALCULATIONS - Regional Pond B

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	29.00	24.70				49.20
1' Freeboard			24.65	1.00	24.65	
	28.00	24.60				24.55
			24.58	0.40	9.83	
WEIR	27.60	24.56				14.72
			24.53	0.60	14.72	
ORIFICE	27.00	24.50				0.00
			24.45	1.00	24.45	
Bottom	26.00	24.40				0.00

SHW = 27
Source: (USDA Soil Survey)
Pineda-Pineda (15)
Assumed
1.0 ft below

Avg. exst. Ground in SMF site = 28.0
Source: Lidar contours

Assumed Low EOP = 34.5

Water Quality Calculations

TREATMENT REQUIRED =	**13.44 Ac-Ft**
TREATMENT PROVIDED =	**14.72 Ac-Ft**

BMPTrains Regional Alternative Analysis

Complete Report (not including cost) Ver 4.3.5

Project: SR70-Lonesome

Date: 12/29/2025 9:40:33 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Basin 1-2 (Harney Pond)	Basin 3-7 (Indian Prairie)
Rainfall Zone	Florida Zone 2	Florida Zone 2
Annual Mean Rainfall	50.00	50.00
Pre-Condition Landuse Information		
Landuse	Agricultural - Pasture: TN=3.510TP=0.686	Agricultural - Pasture: TN=3.510TP=0.686
Area (acres)	63.39	107.49
Rational Coefficient (0-1)	0.19	0.19
Non DCIA Curve Number	77.00	77.00
DCIA Percent (0-100)	13.78	13.27
Nitrogen EMC (mg/l)	3.510	3.510
Phosphorus EMC (mg/l)	0.686	0.686
Runoff Volume (ac-ft/yr)	50.439	83.876
Groundwater N (kg/yr)	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000
Nitrogen Loading (kg/yr)	218.292	363.000
Phosphorus Loading (kg/yr)	42.663	70.945
Post-Condition Landuse Information		
Landuse	Rangeland/Parkland: TN=1.150 TP=0.055	Rangeland/Parkland: TN=1.150 TP=0.055
Area (acres)	63.39	107.49

Rational Coefficient (0-1)	0.37	0.33
Non DCIA Curve Number	77.00	77.00
DCIA Percent (0-100)	38.86	32.86
Wet Pond Area (ac)	0.00	0.00
Nitrogen EMC (mg/l)	1.150	1.150
Phosphorus EMC (mg/l)	0.055	0.055
Runoff Volume (ac-ft/yr)	97.854	146.682
Groundwater N (kg/yr)	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000
Nitrogen Loading (kg/yr)	138.752	207.988
Phosphorus Loading (kg/yr)	6.636	9.947

Catchment Number: 1 Name: Basin 1-2 (Harney Pond)
Project: SR70-Lonesome
Date: 12/29/2025

None Design

Watershed Characteristics

Catchment Area (acres)	63.39
Contributing Area (acres)	63.390
Non-DCIA Curve Number	77.00
DCIA Percent	38.86
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 (%)	

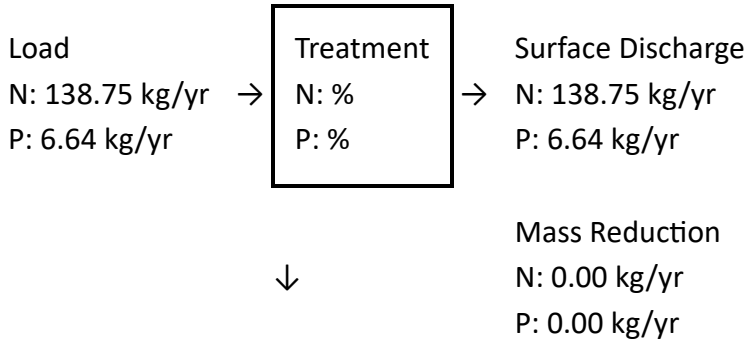
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

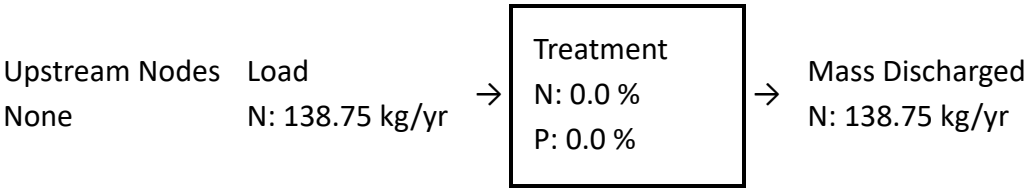
Groundwater Discharge (Stand-Alone)

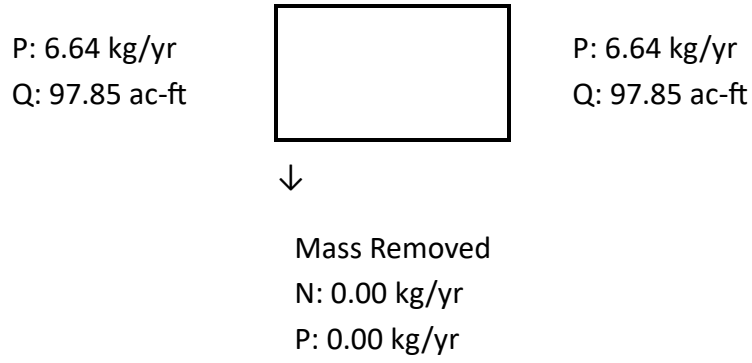
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)





Catchment Number: 2 Name: Basin 3-7 (Indian Prairie)
Project: SR70-Lonesome
Date: 12/29/2025

None Design

Watershed Characteristics

Catchment Area (acres)	107.49
Contributing Area (acres)	107.490
Non-DCIA Curve Number	77.00
DCIA Percent	32.86
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 (%)	

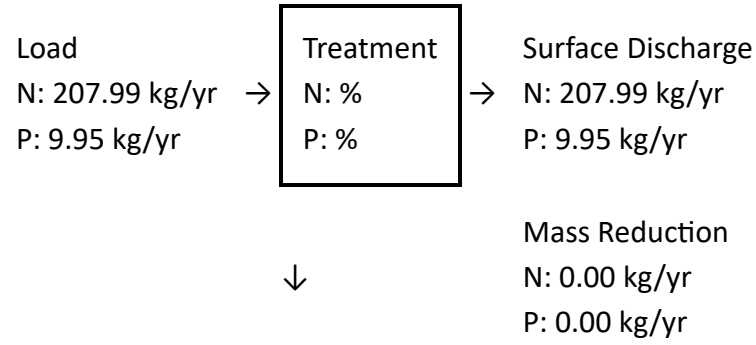
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

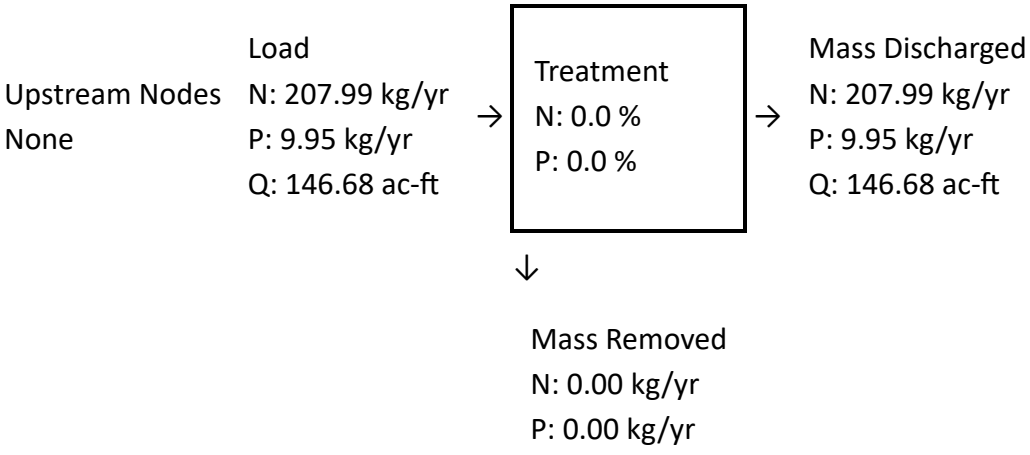
Groundwater Discharge (Stand-Alone)

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)



Summary Treatment Report Version: 4.3.5

Project: SR70-Lonesome

Analysis Type: Net Improvement

Date:12/29/2025

BMP Types:

Catchment 1 - (Basin 1-2 (Harney Pond)) None

Catchment 2 - (Basin 3-7 (Indian Prairie)) None

Based on % removal values to the nearest percent

Routing Summary

Catchment 1 Routed to Outlet

Catchment 2 Routed to Outlet

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge		
Total N pre load	581.29 kg/yr	
Total N post load	346.74 kg/yr	
Target N load reduction	%	
Target N discharge load	581.29 kg/yr	
Percent N load reduction	%	
Provided N discharge load	346.74 kg/yr	764.56 lb/yr
Provided N load removed	kg/yr	lb/yr

Phosphorus

Surface Water Discharge		
Total P pre load	113.609 kg/yr	
Total P post load	16.583 kg/yr	
Target P load reduction	%	
Target P discharge load	113.609 kg/yr	
Percent P load reduction	%	
Provided P discharge load	16.583 kg/yr	36.57 lb/yr
Provided P load removed	kg/yr	lb/yr

BMPTrains Linear Alternatives Analysis

Complete Report (not including cost) Ver 4.3.5
Project: SR70 Lonesome
Date: 12/29/2025 9:06:19 AM
Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Basin 1 Linear
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.00
Pre-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	43.20
Rational Coefficient (0-1)	0.18
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	12.84
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	33.149
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	62.127
Phosphorus Loading (kg/yr)	8.175
Post-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	43.20
Rational Coefficient (0-1)	0.35
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	36.25
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	63.342
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	118.713
Phosphorus Loading (kg/yr)	15.620

Catchment Number: 1 Name: Basin 1 Linear
Project: SR70 Lonesome
Date: 12/29/2025

Retention Design

Retention Depth (in)	0.800
Retention Volume (ac-ft)	2.880

Watershed Characteristics

Catchment Area (acres)	43.20
Contributing Area (acres)	43.200
Non-DCIA Curve Number	77.00
DCIA Percent	36.25
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	48
Provided TN Treatment Efficiency (%)	79
Required TP Treatment Efficiency (%)	48
Provided TP Treatment Efficiency (%)	79

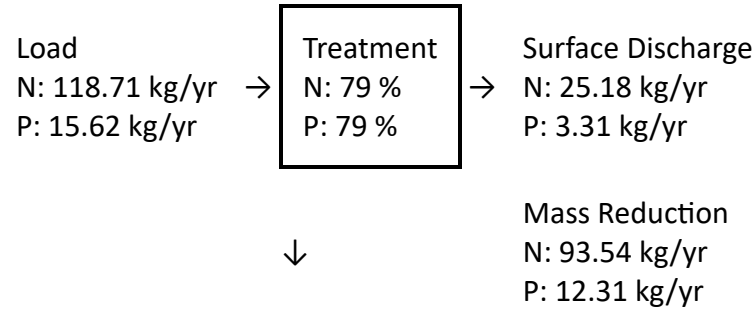
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

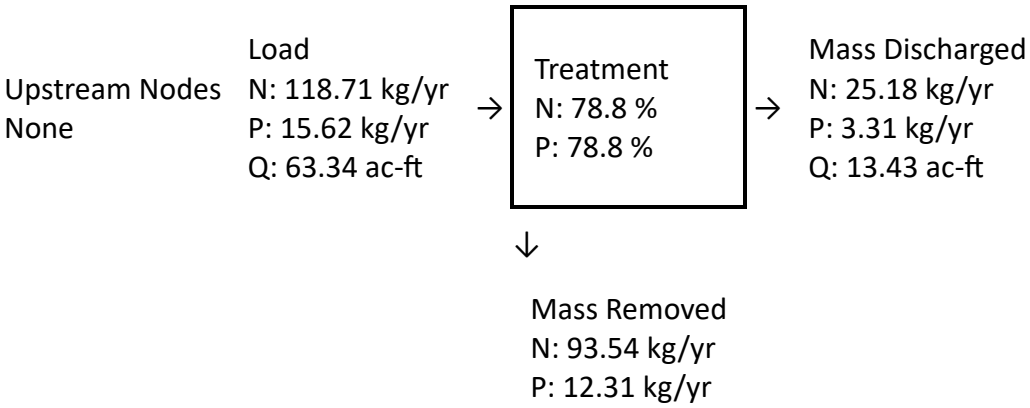
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	93.538
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	12.308
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Load Diagram for Retention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: SR70 Lonesome

Analysis Type: Net Improvement Date:12/29/2025

BMP Types:

Catchment 1 - (Basin 1 Linear Retention

Based on % removal values to the nearest percent

Routing Summary

Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report
Nitrogen

Surface Water Discharge

Total N pre load	62.13 kg/yr	
Total N post load	118.71 kg/yr	
Target N load reduction	48 %	
Target N discharge load	62.13 kg/yr	
Percent N load reduction	79 %	
Provided N discharge load	25.18 kg/yr	55.51 lb/yr
Provided N load removed	93.54 kg/yr	206.25 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	8.175 kg/yr	
Total P post load	15.62 kg/yr	
Target P load reduction	48 %	
Target P discharge load	8.175 kg/yr	
Percent P load reduction	79 %	
Provided P discharge load	3.313 kg/yr	7.3 lb/yr
Provided P load removed	12.308 kg/yr	27.138 lb/yr

Complete Report (not including cost) Ver 4.3.5

Project: SR70 Lonesome

Date: 12/29/2025 9:10:07 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	SR70 Lonesome Basin 4 Linear
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.00
Pre-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	21.82
Rational Coefficient (0-1)	0.18
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	12.83
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	16.737
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	31.367
Phosphorus Loading (kg/yr)	4.127
Post-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	21.82
Rational Coefficient (0-1)	0.35
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	36.25
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	31.994
Groundwater N (kg/yr)	0.000

Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	59.961
Phosphorus Loading (kg/yr)	7.890

Catchment Number: 1 Name: SR70 Lonesome Basin 4 Linear
Project: SR70 Lonesome
Date: 12/29/2025

Retention Design

Retention Depth (in)	0.800
Retention Volume (ac-ft)	1.455

Watershed Characteristics

Catchment Area (acres)	21.82
Contributing Area (acres)	21.820
Non-DCIA Curve Number	77.00
DCIA Percent	36.25
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	48
Provided TN Treatment Efficiency (%)	79
Required TP Treatment Efficiency (%)	48
Provided TP Treatment Efficiency (%)	79

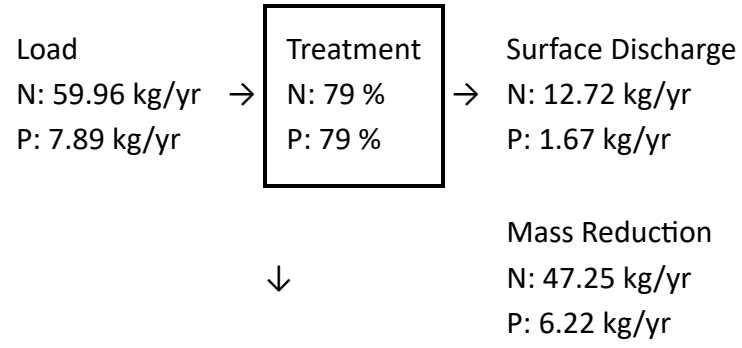
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

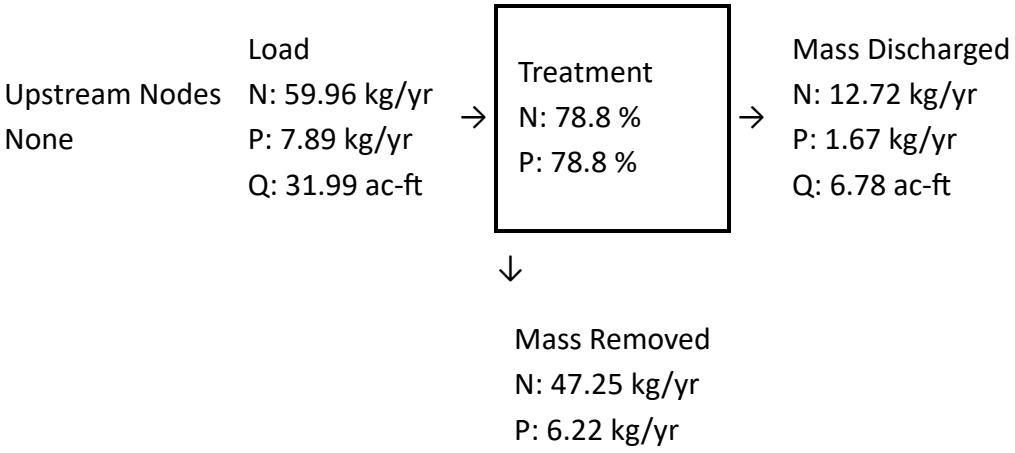
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	47.245
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	6.216
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Load Diagram for Retention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: SR70 Lonesome	Date:12/29/2025
Analysis Type: Net Improvement	**Routing Summary**
BMP Types:	Catchment 1 Routed to Outlet

Catchment 1 - (SR70 Lonesome Basin 4 Linear Retention

Based on % removal values to the nearest percent

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	31.37 kg/yr	
Total N post load	59.96 kg/yr	
Target N load reduction	48 %	
Target N discharge load	31.37 kg/yr	
Percent N load reduction	79 %	
Provided N discharge load	12.72 kg/yr	28.04 lb/yr
Provided N load removed	47.25 kg/yr	104.18 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	4.127 kg/yr	
Total P post load	7.89 kg/yr	
Target P load reduction	48 %	
Target P discharge load	4.127 kg/yr	
Percent P load reduction	79 %	
Provided P discharge load	1.673 kg/yr	3.69 lb/yr
Provided P load removed	6.216 kg/yr	13.707 lb/yr

Complete Report (not including cost) Ver 4.3.5

Project: SR70 Lonesome

Date: 12/29/2025 9:13:51 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	SR70 Lonesome Basin 5 Linear
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.00
Pre-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	29.29
Rational Coefficient (0-1)	0.18
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	12.90
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	22.528
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	42.222
Phosphorus Loading (kg/yr)	5.556
Post-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	29.29
Rational Coefficient (0-1)	0.35
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	36.22
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	42.920
Groundwater N (kg/yr)	0.000

Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	80.440
Phosphorus Loading (kg/yr)	10.584

Catchment Number: 1 Name: SR70 Lonesome Basin 5 Linear
Project: SR70 Lonesome
Date: 12/29/2025

Retention Design

Retention Depth (in)	0.800
Retention Volume (ac-ft)	1.953

Watershed Characteristics

Catchment Area (acres)	29.29
Contributing Area (acres)	29.290
Non-DCIA Curve Number	77.00
DCIA Percent	36.22
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	48
Provided TN Treatment Efficiency (%)	79
Required TP Treatment Efficiency (%)	48
Provided TP Treatment Efficiency (%)	79

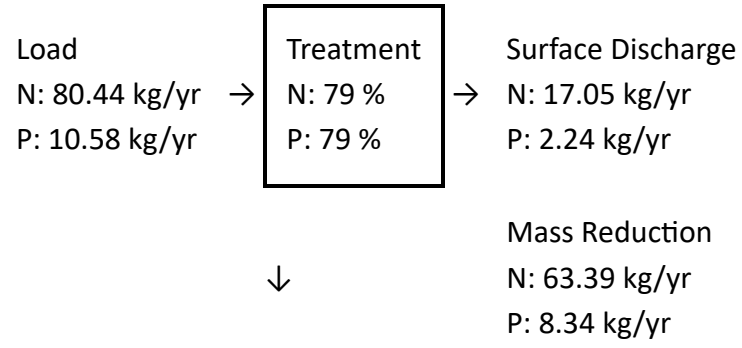
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

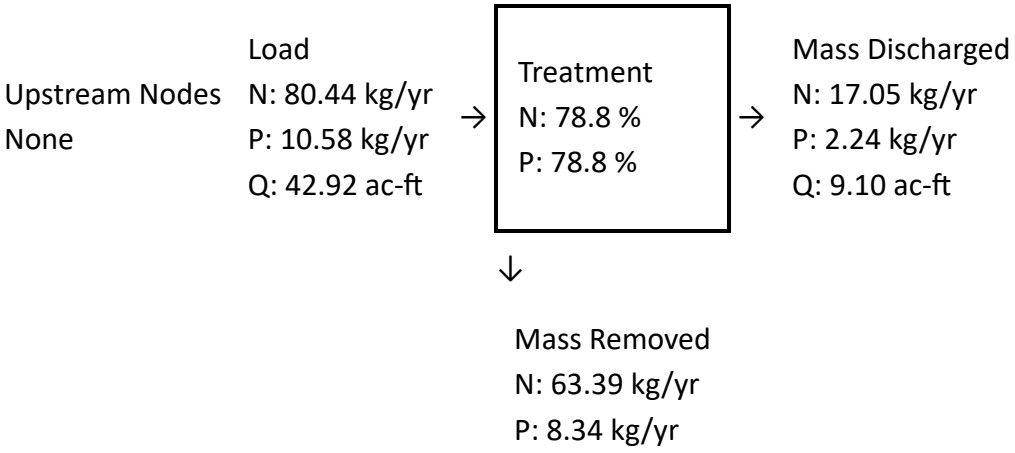
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	63.385
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	8.340
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Load Diagram for Retention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: SR70 Lonesome	Date:12/29/2025
Analysis Type: Net Improvement	**Routing Summary**
BMP Types:	Catchment 1 Routed to Outlet

Catchment 1 - (SR70 Lonesome Basin 5 Linear Retention

Based on % removal values to the nearest percent

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	42.22 kg/yr	
Total N post load	80.44 kg/yr	
Target N load reduction	48 %	
Target N discharge load	42.22 kg/yr	
Percent N load reduction	79 %	
Provided N discharge load	17.05 kg/yr	37.61 lb/yr
Provided N load removed	63.39 kg/yr	139.76 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	5.556 kg/yr	
Total P post load	10.584 kg/yr	
Target P load reduction	48 %	
Target P discharge load	5.556 kg/yr	
Percent P load reduction	79 %	
Provided P discharge load	2.244 kg/yr	4.95 lb/yr
Provided P load removed	8.34 kg/yr	18.39 lb/yr

Complete Report (not including cost) Ver 4.3.5

Project: SR70 Lonesome

Date: 12/29/2025 9:17:09 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	SR70 Lonesome Basin 6 Linear
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.00

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	14.06
Rational Coefficient (0-1)	0.18
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	12.87
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	10.802
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	20.244
Phosphorus Loading (kg/yr)	2.664

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	14.06
Rational Coefficient (0-1)	0.35
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	36.20
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	20.595
Groundwater N (kg/yr)	0.000

Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	38.598
Phosphorus Loading (kg/yr)	5.079

Catchment Number: 1 Name: SR70 Lonesome Basin 6 Linear
Project: SR70 Lonesome
Date: 12/29/2025

Retention Design

Retention Depth (in)	0.800
Retention Volume (ac-ft)	0.937

Watershed Characteristics

Catchment Area (acres)	14.06
Contributing Area (acres)	14.060
Non-DCIA Curve Number	77.00
DCIA Percent	36.20
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	48
Provided TN Treatment Efficiency (%)	79
Required TP Treatment Efficiency (%)	48
Provided TP Treatment Efficiency (%)	79

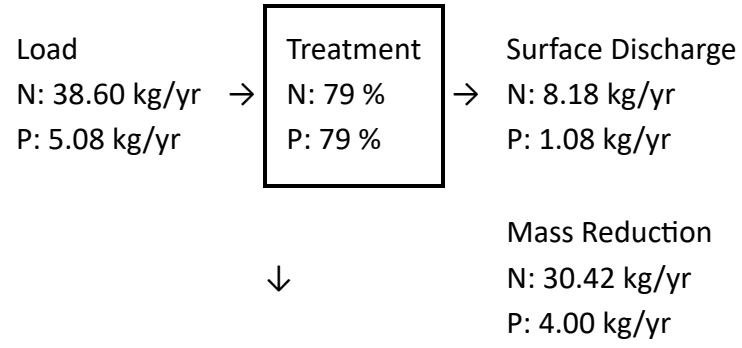
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

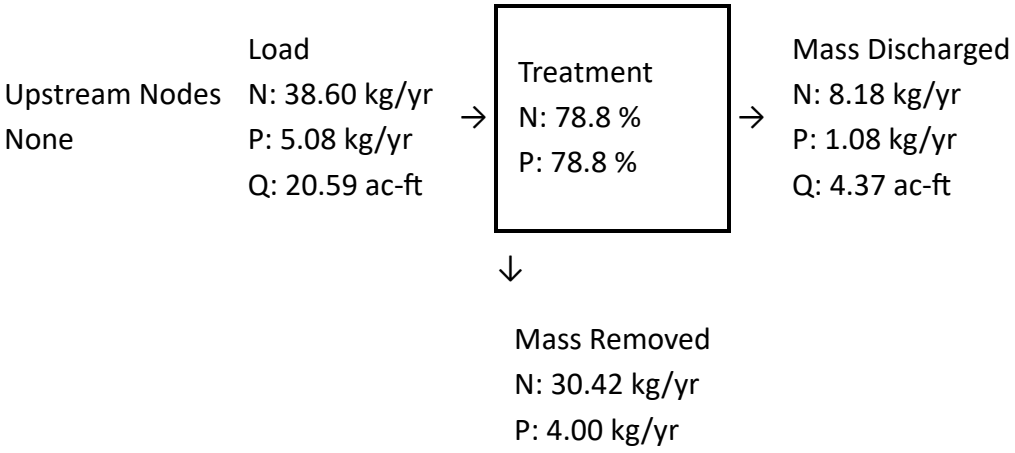
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	30.416
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	4.002
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Load Diagram for Retention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: SR70 Lonesome	Date:12/29/2025
Analysis Type: Net Improvement	**Routing Summary**
BMP Types:	Catchment 1 Routed to Outlet

Catchment 1 - (SR70 Lonesome Basin 6 Linear Retention

Based on % removal values to the nearest percent

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	20.24 kg/yr	
Total N post load	38.6 kg/yr	
Target N load reduction	48 %	
Target N discharge load	20.24 kg/yr	
Percent N load reduction	79 %	
Provided N discharge load	8.18 kg/yr	18.04 lb/yr
Provided N load removed	30.42 kg/yr	67.07 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	2.664 kg/yr	
Total P post load	5.079 kg/yr	
Target P load reduction	48 %	
Target P discharge load	2.664 kg/yr	
Percent P load reduction	79 %	
Provided P discharge load	1.077 kg/yr	2.37 lb/yr
Provided P load removed	4.002 kg/yr	8.825 lb/yr

Complete Report (not including cost) Ver 4.3.5

Project: SR70 Lonesome

Date: 12/29/2025 9:20:45 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	SR70 Lonesome Basin 7 Linear
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.00
Pre-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	32.76
Rational Coefficient (0-1)	0.18
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	12.85
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	25.148
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	47.131
Phosphorus Loading (kg/yr)	6.201
Post-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	32.76
Rational Coefficient (0-1)	0.35
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	36.23
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	48.015
Groundwater N (kg/yr)	0.000

Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	89.988
Phosphorus Loading (kg/yr)	11.840

Catchment Number: 1 Name: SR70 Lonesome Basin 7 Linear (Left)
Project: SR70 Lonesome
Date: 12/29/2025

Retention Design

Retention Depth (in)	0.800
Retention Volume (ac-ft)	2.184

Watershed Characteristics

Catchment Area (acres)	32.76
Contributing Area (acres)	32.760
Non-DCIA Curve Number	77.00
DCIA Percent	36.23
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	48
Provided TN Treatment Efficiency (%)	79
Required TP Treatment Efficiency (%)	48
Provided TP Treatment Efficiency (%)	79

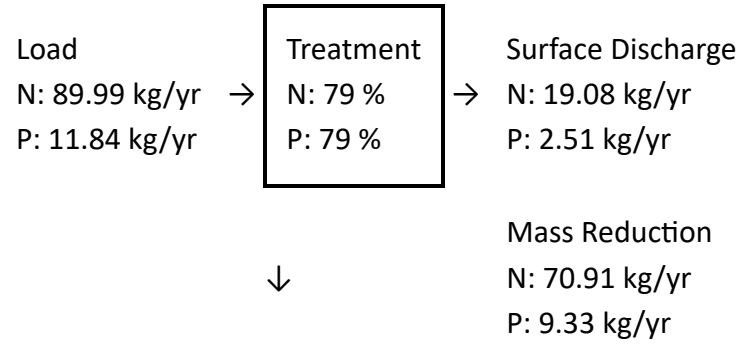
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

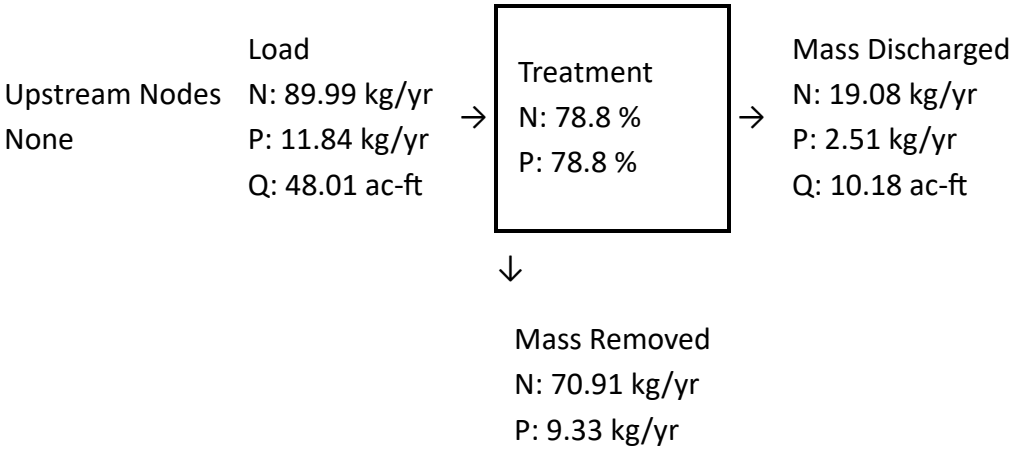
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	70.907
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	9.330
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Load Diagram for Retention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: SR70 Lonesome	Date:12/29/2025
Analysis Type: Net Improvement	**Routing Summary**
BMP Types:	Catchment 1 Routed to Outlet

Catchment 1 - (SR70 Lonesome Basin 7 Linear Retention

Based on % removal values to the nearest percent

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	47.13 kg/yr	
Total N post load	89.99 kg/yr	
Target N load reduction	48 %	
Target N discharge load	47.13 kg/yr	
Percent N load reduction	79 %	
Provided N discharge load	19.08 kg/yr	42.07 lb/yr
Provided N load removed	70.91 kg/yr	156.35 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	6.201 kg/yr	
Total P post load	11.84 kg/yr	
Target P load reduction	48 %	
Target P discharge load	6.201 kg/yr	
Percent P load reduction	79 %	
Provided P discharge load	2.511 kg/yr	5.54 lb/yr
Provided P load removed	9.33 kg/yr	20.572 lb/yr

BMPTrains SMF Alternatives Analysis

Complete Report (not including cost) Ver 4.3.5

Project: SR70 Lonesome

Date: 12/29/2025 9:23:51 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	SR70 Lonesome Basin 1 SMF 1
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.00
Pre-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	44.74
Rational Coefficient (0-1)	0.18
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	12.41
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	33.750
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	63.254
Phosphorus Loading (kg/yr)	8.323
Post-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	44.74
Rational Coefficient (0-1)	0.34
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	35.00
Wet Pond Area (ac)	5.10
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	56.652
Groundwater N (kg/yr)	0.000

Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	106.175
Phosphorus Loading (kg/yr)	13.970

Catchment Number: 1 Name: SR70 Lonesome Basin 1 SMF 1
Project: SR70 Lonesome
Date: 12/29/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	27.480
Permanent Pool Volume (ac-ft) for 31 days residence	4.812
Annual Residence Time (days)	177
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	44.74
Contributing Area (acres)	39.640
Non-DCIA Curve Number	77.00
DCIA Percent	35.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	40
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	40
Provided TP Treatment Efficiency (%)	79

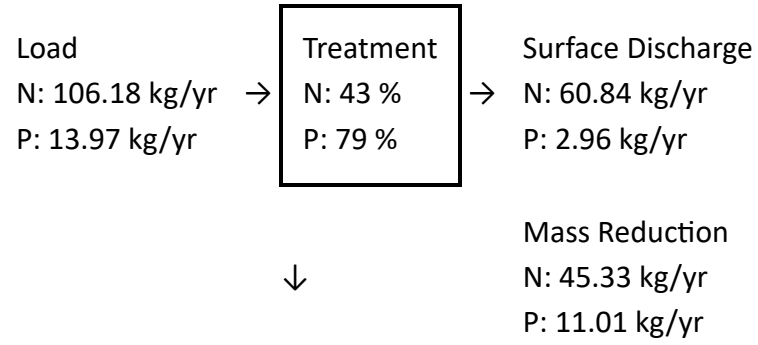
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

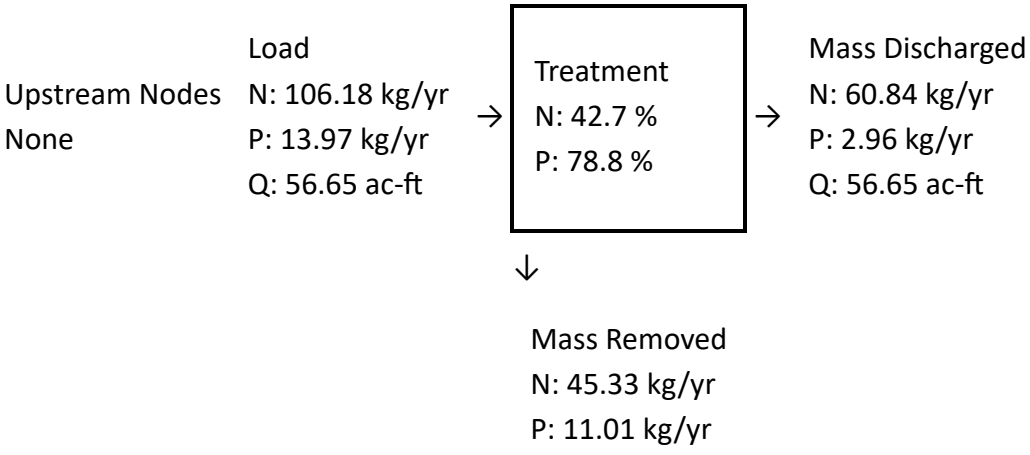
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: SR70 Lonesome

Analysis Type: Net Improvement Date:12/29/2025

BMP Types:

Catchment 1 - (SR70 Lonesome Basin 1 SMF 1) Wet Detention Based on % removal values to the nearest percent

Routing Summary

Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge		
Total N pre load	63.25 kg/yr	
Total N post load	106.18 kg/yr	
Target N load reduction	40 %	
Target N discharge load	63.25 kg/yr	
Percent N load reduction	43 %	
Provided N discharge load	60.84 kg/yr	134.16 lb/yr
Provided N load removed	45.33 kg/yr	99.95 lb/yr

Phosphorus

Surface Water Discharge		
Total P pre load	8.323 kg/yr	
Total P post load	13.97 kg/yr	
Target P load reduction	40 %	
Target P discharge load	8.323 kg/yr	
Percent P load reduction	79 %	
Provided P discharge load	2.959 kg/yr	6.52 lb/yr
Provided P load removed	11.012 kg/yr	24.281 lb/yr

Complete Report (not including cost) Ver 4.3.5

Project: SR70 Lonesome

Date: 12/29/2025 9:27:00 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	SR70 Lonesome Basin 2 SMF 2A
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.00
Pre-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	18.92
Rational Coefficient (0-1)	0.21
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	17.01
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	16.879
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	31.634
Phosphorus Loading (kg/yr)	4.162
Post-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	18.92
Rational Coefficient (0-1)	0.44
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	47.99
Wet Pond Area (ac)	4.80
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	25.657
Groundwater N (kg/yr)	0.000

Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	48.084
Phosphorus Loading (kg/yr)	6.327

Catchment Number: 1 Name: SR70 Lonesome Basin 2 SMF 2A
Project: SR70 Lonesome
Date: 12/29/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	24.240
Permanent Pool Volume (ac-ft) for 31 days residence	2.179
Annual Residence Time (days)	345
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	18.92
Contributing Area (acres)	14.120
Non-DCIA Curve Number	77.00
DCIA Percent	47.99
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	34
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	34
Provided TP Treatment Efficiency (%)	85

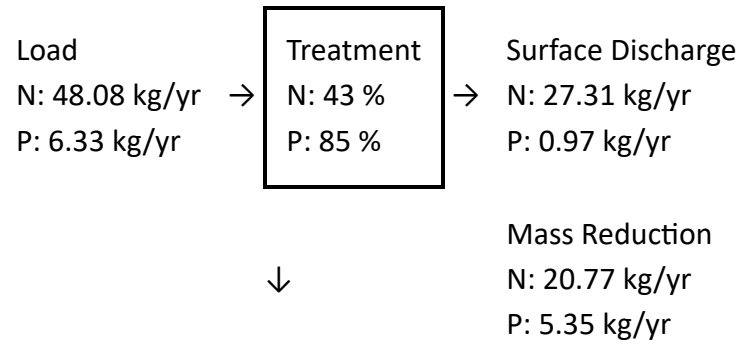
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

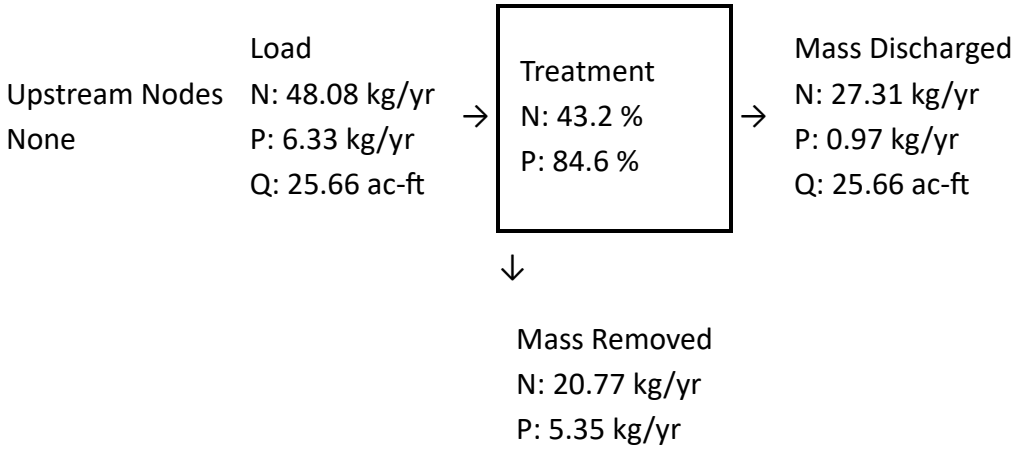
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: SR70 Lonesome

Analysis Type: Net Improvement Date:12/29/2025

BMP Types:

Catchment 1 - (SR70 Lonesome Basin 2 SMF 2A) Wet Detention Based on % removal values to the nearest percent

Routing Summary

Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	31.63 kg/yr	
Total N post load	48.08 kg/yr	
Target N load reduction	34 %	
Target N discharge load	31.63 kg/yr	
Percent N load reduction	43 %	
Provided N discharge load	27.31 kg/yr	60.22 lb/yr
Provided N load removed	20.77 kg/yr	45.8 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	4.162 kg/yr	
Total P post load	6.327 kg/yr	
Target P load reduction	34 %	
Target P discharge load	4.162 kg/yr	
Percent P load reduction	85 %	
Provided P discharge load	.972 kg/yr	2.14 lb/yr
Provided P load removed	5.355 kg/yr	11.807 lb/yr

Complete Report (not including cost) Ver 4.3.5

Project: SR70 Lonesome

Date: 12/29/2025 9:28:35 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	SR70 Lonesome Basin 2 SMF 2B
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.00
Pre-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	18.92
Rational Coefficient (0-1)	0.21
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	17.01
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	16.879
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	31.634
Phosphorus Loading (kg/yr)	4.162
Post-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	18.92
Rational Coefficient (0-1)	0.44
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	47.99
Wet Pond Area (ac)	3.50
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	28.019
Groundwater N (kg/yr)	0.000

Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	52.512
Phosphorus Loading (kg/yr)	6.909

Catchment Number: 1 Name: SR70 Lonesome Basin 2 SMF 2B
Project: SR70 Lonesome
Date: 12/29/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	16.920
Permanent Pool Volume (ac-ft) for 31 days residence	2.380
Annual Residence Time (days)	220
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	18.92
Contributing Area (acres)	15.420
Non-DCIA Curve Number	77.00
DCIA Percent	47.99
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	40
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	40
Provided TP Treatment Efficiency (%)	81

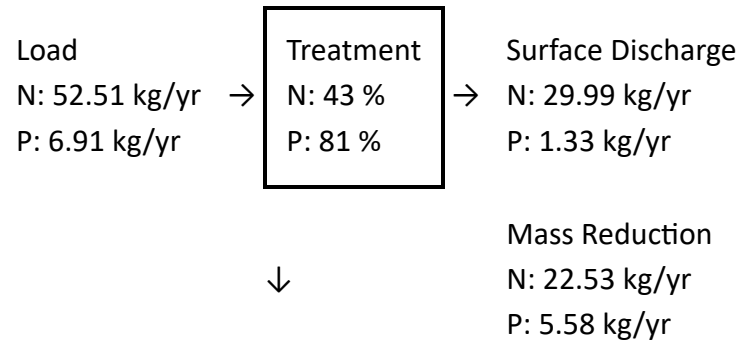
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

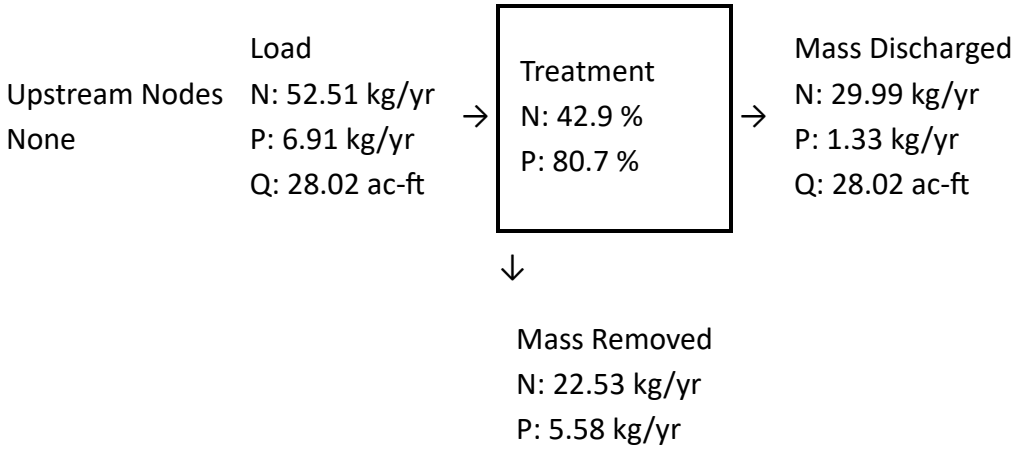
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: SR70 Lonesome

Analysis Type: Net Improvement Date:12/29/2025

BMP Types:

Catchment 1 - (SR70 Lonesome Basin 2 SMF 2B) Wet Detention Based on % removal values to the nearest percent

Routing Summary

Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	31.63 kg/yr	
Total N post load	52.51 kg/yr	
Target N load reduction	40 %	
Target N discharge load	31.63 kg/yr	
Percent N load reduction	43 %	
Provided N discharge load	29.99 kg/yr	66.12 lb/yr
Provided N load removed	22.53 kg/yr	49.67 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	4.162 kg/yr	
Total P post load	6.909 kg/yr	
Target P load reduction	40 %	
Target P discharge load	4.162 kg/yr	
Percent P load reduction	81 %	
Provided P discharge load	1.333 kg/yr	2.94 lb/yr
Provided P load removed	5.577 kg/yr	12.297 lb/yr

Complete Report (not including cost) Ver 4.3.5

Project: SR70 Lonesome

Date: 12/29/2025 9:30:09 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	SR70 Lonesome Basin 3 SMF 3A
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.00
Pre-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	44.47
Rational Coefficient (0-1)	0.21
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	17.06
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	39.739
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	74.477
Phosphorus Loading (kg/yr)	9.800
Post-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	44.47
Rational Coefficient (0-1)	0.44
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	48.12
Wet Pond Area (ac)	6.40
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	69.321
Groundwater N (kg/yr)	0.000

Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	129.919
Phosphorus Loading (kg/yr)	17.095

Catchment Number: 1 Name: SR70 Lonesome Basin 3 SMF 3A
Project: SR70 Lonesome
Date: 12/29/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	33.780
Permanent Pool Volume (ac-ft) for 31 days residence	5.888
Annual Residence Time (days)	178
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	44.47
Contributing Area (acres)	38.070
Non-DCIA Curve Number	77.00
DCIA Percent	48.12
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	43
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	43
Provided TP Treatment Efficiency (%)	79

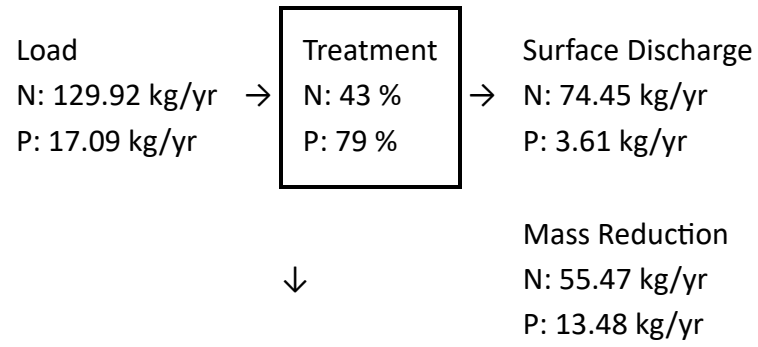
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

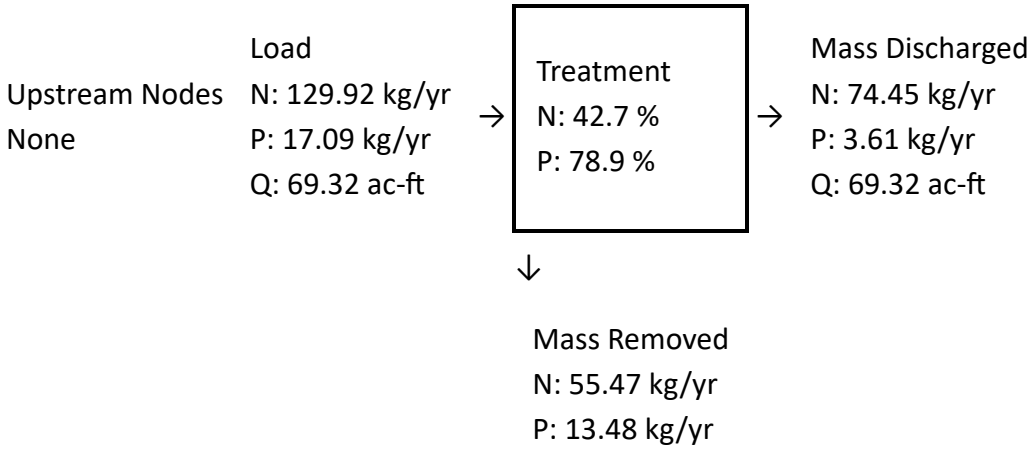
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: SR70 Lonesome

Analysis Type: Net Improvement Date:12/29/2025

BMP Types:

Catchment 1 - (SR70 Lonesome Basin 3 SMF 3A) Wet Detention Based on % removal values to the nearest percent

Routing Summary

Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	74.48 kg/yr	
Total N post load	129.92 kg/yr	
Target N load reduction	43 %	
Target N discharge load	74.48 kg/yr	
Percent N load reduction	43 %	
Provided N discharge load	74.45 kg/yr	164.15 lb/yr
Provided N load removed	55.47 kg/yr	122.32 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	9.8 kg/yr	
Total P post load	17.095 kg/yr	
Target P load reduction	43 %	
Target P discharge load	9.8 kg/yr	
Percent P load reduction	79 %	
Provided P discharge load	3.614 kg/yr	7.97 lb/yr
Provided P load removed	13.481 kg/yr	29.726 lb/yr

Complete Report (not including cost) Ver 4.3.5

Project: SR70 Lonesome

Date: 12/29/2025 9:32:01 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	SR70 Lonesome Basin 3 SMF 3B
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.00
Pre-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	44.47
Rational Coefficient (0-1)	0.21
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	17.06
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	39.739
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	74.477
Phosphorus Loading (kg/yr)	9.800
Post-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	44.47
Rational Coefficient (0-1)	0.44
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	48.12
Wet Pond Area (ac)	6.30
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	69.503
Groundwater N (kg/yr)	0.000

Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	130.261
Phosphorus Loading (kg/yr)	17.140

Catchment Number: 1 Name: SR70 Lonesome Basin 3 SMF 3B
Project: SR70 Lonesome
Date: 12/29/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	33.720
Permanent Pool Volume (ac-ft) for 31 days residence	5.903
Annual Residence Time (days)	177
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	44.47
Contributing Area (acres)	38.170
Non-DCIA Curve Number	77.00
DCIA Percent	48.12
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	43
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	43
Provided TP Treatment Efficiency (%)	79

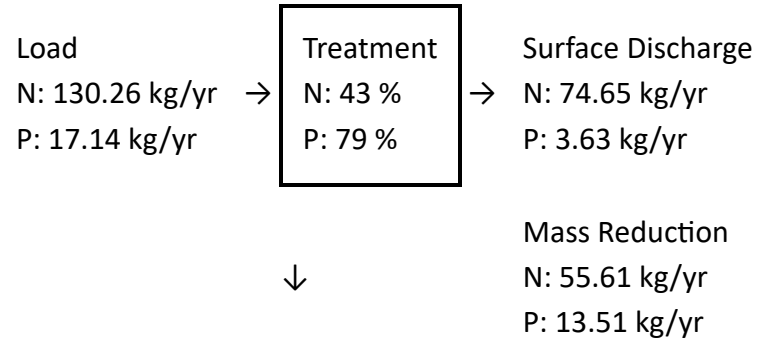
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

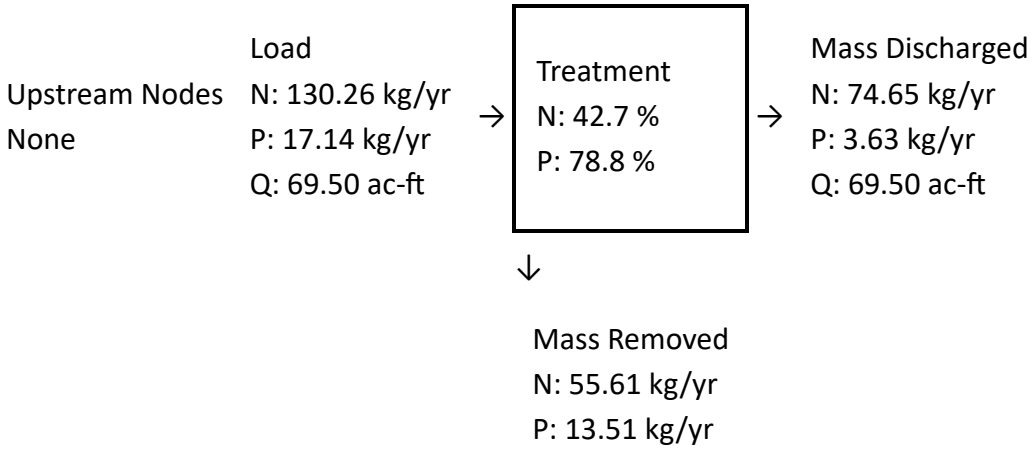
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: SR70 Lonesome

Analysis Type: Net Improvement Date:12/29/2025

BMP Types:

Catchment 1 - (SR70 Lonesome Basin 3 SMF 3B) Wet Detention Based on % removal values to the nearest percent

Routing Summary

Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	74.48 kg/yr	
Total N post load	130.26 kg/yr	
Target N load reduction	43 %	
Target N discharge load	74.48 kg/yr	
Percent N load reduction	43 %	
Provided N discharge load	74.65 kg/yr	164.6 lb/yr
Provided N load removed	55.61 kg/yr	122.63 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	9.8 kg/yr	
Total P post load	17.14 kg/yr	
Target P load reduction	43 %	
Target P discharge load	9.8 kg/yr	
Percent P load reduction	79 %	
Provided P discharge load	3.63 kg/yr	8 lb/yr
Provided P load removed	13.51 kg/yr	29.789 lb/yr

Complete Report (not including cost) Ver 4.3.5

Project: SR70 Lonesome

Date: 12/29/2025 9:33:22 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	SR70 Lonesome Basin 4 SMF 4
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.00
Pre-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	24.32
Rational Coefficient (0-1)	0.17
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	11.51
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	17.686
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	33.146
Phosphorus Loading (kg/yr)	4.361
Post-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	24.32
Rational Coefficient (0-1)	0.33
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	32.52
Wet Pond Area (ac)	3.40
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	28.333
Groundwater N (kg/yr)	0.000

Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	53.101
Phosphorus Loading (kg/yr)	6.987

Catchment Number: 1 Name: SR70 Lonesome Basin 4 SMF 4
Project: SR70 Lonesome
Date: 12/29/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	16.980
Permanent Pool Volume (ac-ft) for 31 days residence	2.406
Annual Residence Time (days)	219
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	24.32
Contributing Area (acres)	20.920
Non-DCIA Curve Number	77.00
DCIA Percent	32.52
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	38
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	38
Provided TP Treatment Efficiency (%)	81

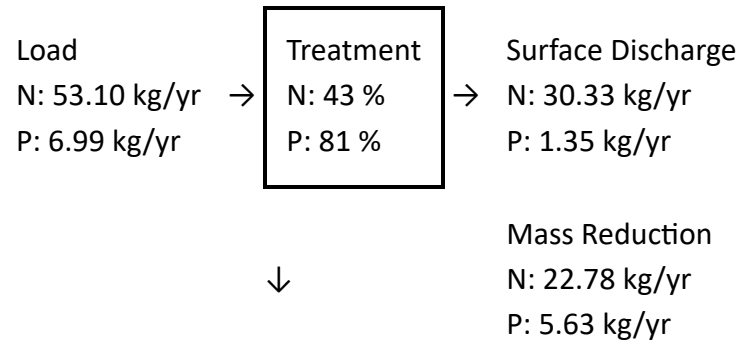
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

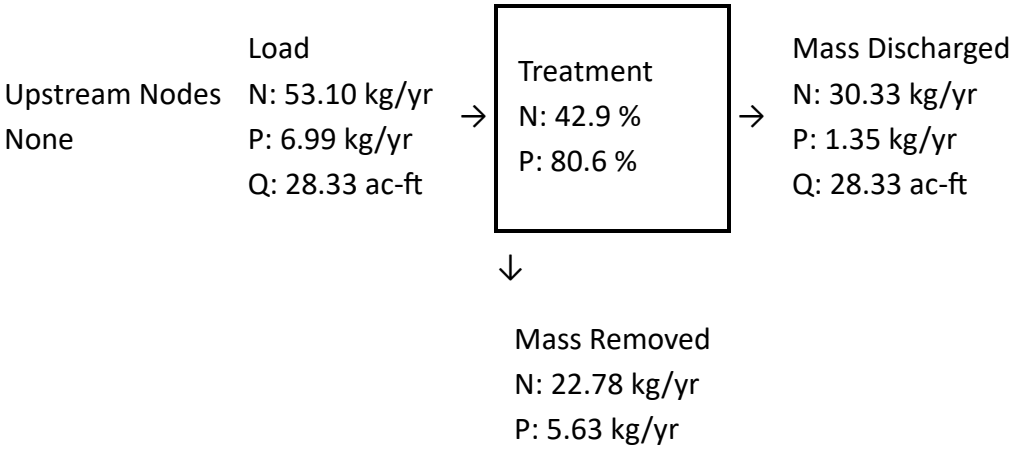
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: SR70 Lonesome

Analysis Type: Net Improvement Date:12/29/2025

BMP Types:

Catchment 1 - (SR70 Lonesome Basin 4 SMF 4) Wet Detention Based on % removal values to the nearest percent

Routing Summary

Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	33.15 kg/yr	
Total N post load	53.1 kg/yr	
Target N load reduction	38 %	
Target N discharge load	33.15 kg/yr	
Percent N load reduction	43 %	
Provided N discharge load	30.33 kg/yr	66.87 lb/yr
Provided N load removed	22.78 kg/yr	50.22 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	4.361 kg/yr	
Total P post load	6.987 kg/yr	
Target P load reduction	38 %	
Target P discharge load	4.361 kg/yr	
Percent P load reduction	81 %	
Provided P discharge load	1.352 kg/yr	2.98 lb/yr
Provided P load removed	5.635 kg/yr	12.424 lb/yr

Complete Report (not including cost) Ver 4.3.5

Project: SR70 Lonesome

Date: 12/29/2025 9:34:39 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	SR70 Lonesome Basin 5 SMF 5
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.00
Pre-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	32.10
Rational Coefficient (0-1)	0.18
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	11.71
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	23.537
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	44.113
Phosphorus Loading (kg/yr)	5.804
Post-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	32.10
Rational Coefficient (0-1)	0.33
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	33.05
Wet Pond Area (ac)	5.60
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	36.314
Groundwater N (kg/yr)	0.000

Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	68.058
Phosphorus Loading (kg/yr)	8.955

Catchment Number: 1 Name: SR70 Lonesome Basin 5 SMF 5
Project: SR70 Lonesome
Date: 12/29/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	25.380
Permanent Pool Volume (ac-ft) for 31 days residence	3.084
Annual Residence Time (days)	255
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	32.10
Contributing Area (acres)	26.500
Non-DCIA Curve Number	77.00
DCIA Percent	33.05
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	35
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	35
Provided TP Treatment Efficiency (%)	82

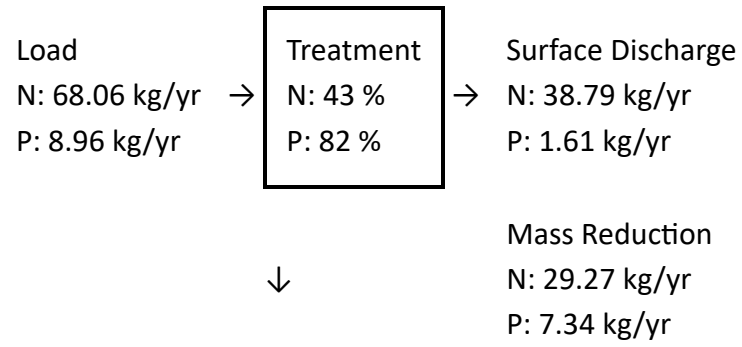
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

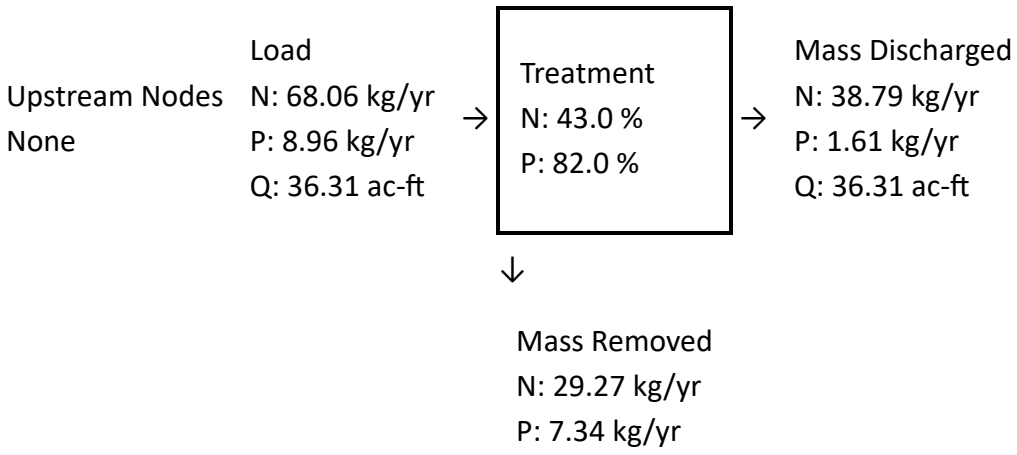
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: SR70 Lonesome

Analysis Type: Net Improvement Date:12/29/2025

BMP Types:

Catchment 1 - (SR70 Lonesome Basin 5 SMF 5) Wet Detention Based on % removal values to the nearest percent

Routing Summary

Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	44.11 kg/yr	
Total N post load	68.06 kg/yr	
Target N load reduction	35 %	
Target N discharge load	44.11 kg/yr	
Percent N load reduction	43 %	
Provided N discharge load	38.79 kg/yr	85.52 lb/yr
Provided N load removed	29.27 kg/yr	64.55 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	5.804 kg/yr	
Total P post load	8.955 kg/yr	
Target P load reduction	35 %	
Target P discharge load	5.804 kg/yr	
Percent P load reduction	82 %	
Provided P discharge load	1.613 kg/yr	3.56 lb/yr
Provided P load removed	7.342 kg/yr	16.188 lb/yr

Complete Report (not including cost) Ver 4.3.5

Project: SR70 Lonesome

Date: 12/29/2025 9:36:02 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	SR70 Lonesome Basin 6 SMF 6
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.00
Pre-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	15.32
Rational Coefficient (0-1)	0.18
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	11.81
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	11.280
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	21.140
Phosphorus Loading (kg/yr)	2.782
Post-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	15.32
Rational Coefficient (0-1)	0.33
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	33.22
Wet Pond Area (ac)	2.30
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	17.909
Groundwater N (kg/yr)	0.000

Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	33.564
Phosphorus Loading (kg/yr)	4.416

Catchment Number: 1 Name: SR70 Lonesome Basin 6 SMF 6
Project: SR70 Lonesome
Date: 12/29/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	10.260
Permanent Pool Volume (ac-ft) for 31 days residence	1.521
Annual Residence Time (days)	209
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	15.32
Contributing Area (acres)	13.020
Non-DCIA Curve Number	77.00
DCIA Percent	33.22
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	37
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	37
Provided TP Treatment Efficiency (%)	80

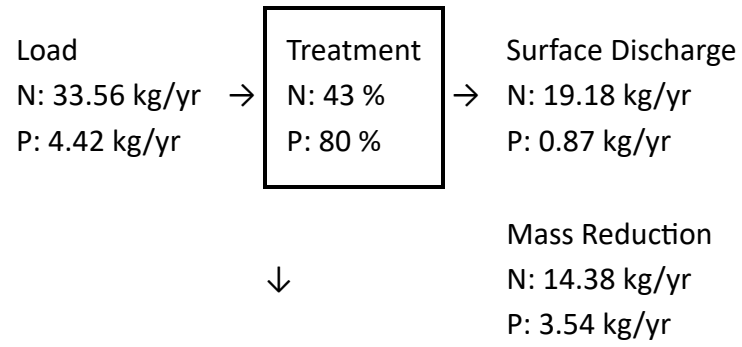
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

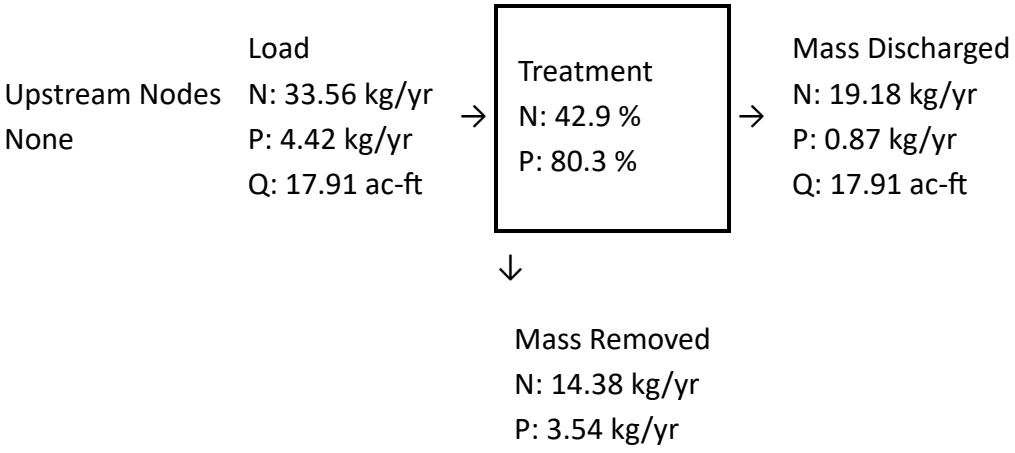
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: SR70 Lonesome

Analysis Type: Net Improvement Date:12/29/2025

BMP Types:

Catchment 1 - (SR70 Lonesome Basin 6 SMF 6) Wet Detention Based on % removal values to the nearest percent

Routing Summary

Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	21.14 kg/yr	
Total N post load	33.56 kg/yr	
Target N load reduction	37 %	
Target N discharge load	21.14 kg/yr	
Percent N load reduction	43 %	
Provided N discharge load	19.18 kg/yr	42.29 lb/yr
Provided N load removed	14.38 kg/yr	31.71 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	2.782 kg/yr	
Total P post load	4.416 kg/yr	
Target P load reduction	37 %	
Target P discharge load	2.782 kg/yr	
Percent P load reduction	80 %	
Provided P discharge load	.872 kg/yr	1.92 lb/yr
Provided P load removed	3.544 kg/yr	7.815 lb/yr

Complete Report (not including cost) Ver 4.3.5

Project: SR70 Lonesome

Date: 12/29/2025 9:37:21 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	SR70 Lonesome Basin 7 SMF 7
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.00
Pre-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	35.75
Rational Coefficient (0-1)	0.18
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	11.77
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	26.278
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	49.250
Phosphorus Loading (kg/yr)	6.480
Post-Condition Landuse Information	
Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	35.75
Rational Coefficient (0-1)	0.33
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	33.20
Wet Pond Area (ac)	8.60
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	37.328
Groundwater N (kg/yr)	0.000

Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	69.958
Phosphorus Loading (kg/yr)	9.205

Catchment Number: 1 Name: SR70 Lonesome Basin 7 SMF 7
Project: SR70 Lonesome
Date: 12/29/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	46.260
Permanent Pool Volume (ac-ft) for 31 days residence	3.170
Annual Residence Time (days)	452
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	35.75
Contributing Area (acres)	27.150
Non-DCIA Curve Number	77.00
DCIA Percent	33.20
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	30
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	30
Provided TP Treatment Efficiency (%)	87

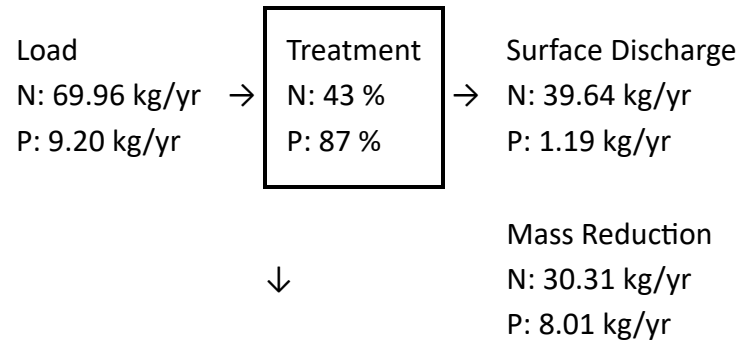
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

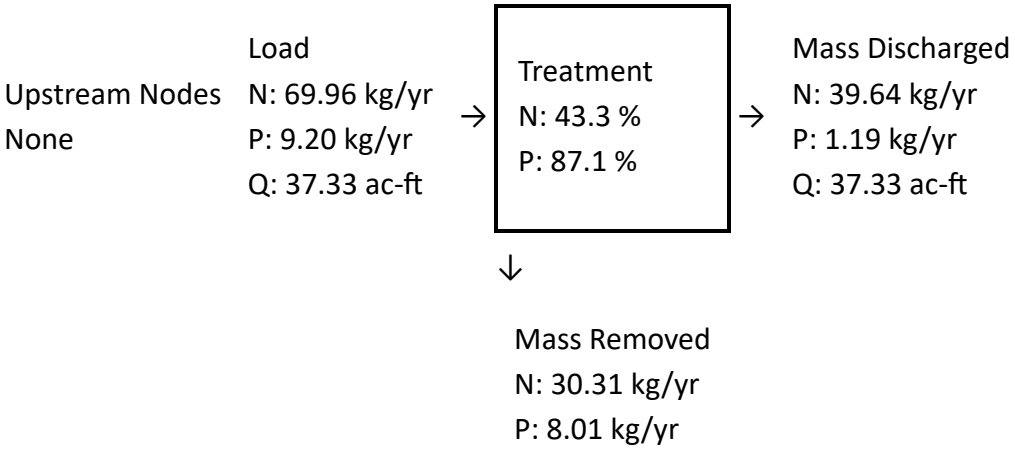
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: SR70 Lonesome

Analysis Type: Net Improvement Date:12/29/2025

BMP Types:

Catchment 1 - (SR70 Lonesome Basin 7 SMF 7) Wet Detention Based on % removal values to the nearest percent

Routing Summary

Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	49.25 kg/yr	
Total N post load	69.96 kg/yr	
Target N load reduction	30 %	
Target N discharge load	49.25 kg/yr	
Percent N load reduction	43 %	
Provided N discharge load	39.64 kg/yr	87.42 lb/yr
Provided N load removed	30.31 kg/yr	66.84 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	6.48 kg/yr	
Total P post load	9.205 kg/yr	
Target P load reduction	30 %	
Target P discharge load	6.48 kg/yr	
Percent P load reduction	87 %	
Provided P discharge load	1.192 kg/yr	2.63 lb/yr
Provided P load removed	8.013 kg/yr	17.669 lb/yr

ICPR4 Report

Simple Basin: BASIN 1 AC

Scenario:	LINEAR POND
Node:	B1AC
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	43.2000 ac
Curve Number:	84.6
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 1R

Scenario:	LINEAR POND
Node:	B1R
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.8160 ac
Curve Number:	84.6
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 2 AC

Scenario:	LINEAR POND
Node:	B2AC
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs

Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	17.8200 ac
Curve Number:	80.8
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 2R

Scenario:	LINEAR POND
Node:	B2R
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.3650 ac
Curve Number:	80.8
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 3 AC

Scenario:	LINEAR POND
Node:	B3AC
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	41.9800 ac
Curve Number:	87.7
% Impervious:	0.00
% DCIA:	0.00

% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 3R

Scenario:	LINEAR POND
Node:	B3R
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.7930 ac
Curve Number:	87.7
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 4 AC

Scenario:	LINEAR POND
Node:	B4AC
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	21.8200 ac
Curve Number:	84.6
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 4R

Scenario:	LINEAR POND
Node:	B4R
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.3500 ac
Curve Number:	84.6
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 5 AC

Scenario:	LINEAR POND
Node:	B5AC
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	29.2900 ac
Curve Number:	84.6
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 5R

Scenario:	LINEAR POND
Node:	B5R
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs

Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.5940 ac
Curve Number:	84.6
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 6 AC

Scenario:	LINEAR POND
Node:	B6AC
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	14.0600 ac
Curve Number:	84.6
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 6R

Scenario:	LINEAR POND
Node:	B6R
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.2340 ac
Curve Number:	84.6
% Impervious:	0.00
% DCIA:	0.00

% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 7 AC

Scenario:	LINEAR POND
Node:	B7AC
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	32.7600 ac
Curve Number:	84.6
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 7R

Scenario:	LINEAR POND
Node:	B7R
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.5940 ac
Curve Number:	84.6
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 1 AC

Scenario:	SMF SITES
Node:	B1AC
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	44.7400 ac
Curve Number:	86.2
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 1R

Scenario:	SMF SITES
Node:	B1R
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.8040 ac
Curve Number:	86.2
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 2 AC

Scenario:	SMF SITES
Node:	B2AC
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs

Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	18.9200 ac
Curve Number:	89.3
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 2R

Scenario:	SMF SITES
Node:	B2R
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.3270 ac
Curve Number:	89.3
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 3 AC

Scenario:	SMF SITES
Node:	B3AC
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	44.4700 ac
Curve Number:	89.8
% Impervious:	0.00
% DCIA:	0.00

% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 3R

Scenario:	SMF SITES
Node:	B3R
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.7800 ac
Curve Number:	89.8
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 4 AC

Scenario:	SMF SITES
Node:	B4AC
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	24.3200 ac
Curve Number:	86.7
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 4R

Scenario:	SMF SITES
Node:	B4R
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.4350 ac
Curve Number:	86.7
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 5 AC

Scenario:	SMF SITES
Node:	B5AC
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	32.1000 ac
Curve Number:	86.6
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 5R

Scenario:	SMF SITES
Node:	B5R
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs

Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.5700 ac
Curve Number:	86.6
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 6 AC

Scenario:	SMF SITES
Node:	B6AC
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	15.3200 ac
Curve Number:	86.5
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 6R

Scenario:	SMF SITES
Node:	B6R
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.2750 ac
Curve Number:	86.5
% Impervious:	0.00
% DCIA:	0.00

% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 7 AC

Scenario:	SMF SITES
Node:	B7AC
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	35.7500 ac
Curve Number:	86.5
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: BASIN 7R

Scenario:	SMF SITES
Node:	B7R
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	0.6400 ac
Curve Number:	86.5
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Node: B1AC

Scenario: LINEAR POND
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B1R

Scenario: LINEAR POND
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B2AC

Scenario: LINEAR POND
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B2R

Scenario: LINEAR POND
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B3AC

Scenario: LINEAR POND
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B3R

Scenario: LINEAR POND
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B4AC

Scenario: LINEAR POND
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B4R

Scenario: LINEAR POND
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft

Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B5AC

Scenario: LINEAR POND
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B5R

Scenario: LINEAR POND
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B6AC

Scenario: LINEAR POND
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B6R

Scenario: LINEAR POND
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B7AC

Scenario: LINEAR POND
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B7R

Scenario: LINEAR POND
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B1AC

Scenario: SMF SITES
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B1R

Scenario:	SMF SITES
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	0.00 ft
Warning Stage:	0.00 ft
Boundary Stage:	

Comment:

Node: B2AC

Scenario:	SMF SITES
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	0.00 ft
Warning Stage:	0.00 ft
Boundary Stage:	

Comment:

Node: B2R

Scenario:	SMF SITES
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	0.00 ft
Warning Stage:	0.00 ft
Boundary Stage:	

Comment:

Node: B3AC

Scenario:	SMF SITES
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	0.00 ft
Warning Stage:	0.00 ft
Boundary Stage:	

Comment:

Node: B3R

Scenario: SMF SITES
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B4AC

Scenario: SMF SITES
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B4R

Scenario: SMF SITES
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B5AC

Scenario: SMF SITES
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft

Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B5R

Scenario: SMF SITES
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B6AC

Scenario: SMF SITES
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B6R

Scenario: SMF SITES
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B7AC

Scenario: SMF SITES
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Node: B7R

Scenario: SMF SITES
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Comment:

Simulation: 10YR-72HR

Scenario: LINEAR POND
Run Date/Time: 7/11/2024 10:29:17 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	96.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	7.50 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 10YR-72HR

Scenario: SMF SITES
Run Date/Time: 7/11/2024 11:02:09 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	96.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:

Conductivity Set:	
Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	7.50 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Node Max Conditions [LINEAR POND]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
B1AC	10YR-72HR	0.00	0.00	0.0000	131.15	0.00	0
B1R	10YR-72HR	0.00	0.00	0.0000	2.48	0.00	0
B2AC	10YR-72HR	0.00	0.00	0.0000	51.69	0.00	0
B2R	10YR-72HR	0.00	0.00	0.0000	1.06	0.00	0
B3AC	10YR-72HR	0.00	0.00	0.0000	131.39	0.00	0
B3R	10YR-72HR	0.00	0.00	0.0000	2.48	0.00	0
B4AC	10YR-72HR	0.00	0.00	0.0000	66.24	0.00	0
B4R	10YR-72HR	0.00	0.00	0.0000	1.06	0.00	0
B5AC	10YR-72HR	0.00	0.00	0.0000	88.92	0.00	0
B5R	10YR-72HR	0.00	0.00	0.0000	1.80	0.00	0
B6AC	10YR-72HR	0.00	0.00	0.0000	42.68	0.00	0
B6R	10YR-72HR	0.00	0.00	0.0000	0.71	0.00	0
B7AC	10YR-72HR	0.00	0.00	0.0000	99.45	0.00	0
B7R	10YR-72HR	0.00	0.00	0.0000	1.80	0.00	0

Node Max Conditions [SMF SITES]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
B1AC	10YR-72HR	0.00	0.00	0.0000	138.08	0.00	0
B1R	10YR-72HR	0.00	0.00	0.0000	2.48	0.00	0
B2AC	10YR-72HR	0.00	0.00	0.0000	60.02	0.00	0
B2R	10YR-72HR	0.00	0.00	0.0000	1.04	0.00	0
B3AC	10YR-72HR	0.00	0.00	0.0000	141.61	0.00	0
B3R	10YR-72HR	0.00	0.00	0.0000	2.48	0.00	0
B4AC	10YR-72HR	0.00	0.00	0.0000	75.42	0.00	0
B4R	10YR-72HR	0.00	0.00	0.0000	1.35	0.00	0
B5AC	10YR-72HR	0.00	0.00	0.0000	99.46	0.00	0
B5R	10YR-72HR	0.00	0.00	0.0000	1.77	0.00	0
B6AC	10YR-72HR	0.00	0.00	0.0000	47.42	0.00	0
B6R	10YR-72HR	0.00	0.00	0.0000	0.85	0.00	0
B7AC	10YR-72HR	0.00	0.00	0.0000	110.66	0.00	0
B7R	10YR-72HR	0.00	0.00	0.0000	1.98	0.00	0

Scenario	Simulation	Node Name	Basin Name	Realtive Time (hrs)	Volume (ac-ft)
Linear Ponds	10YR-72HR	Dummy Node-B1R	Basin 1- Reduced	96.0027	0.39
Linear Ponds	10YR-72HR	Dummy Node-B2R	Basin 2- Reduced	96.0027	0.16
Linear Ponds	10YR-72HR	Dummy Node-B3R	Basin 3- Reduced	96.0027	0.40
Linear Ponds	10YR-72HR	Dummy Node-B4R	Basin 4- Reduced	96.0027	0.17
Linear Ponds	10YR-72HR	Dummy Node-B5R	Basin 5- Reduced	96.0027	0.28
Linear Ponds	10YR-72HR	Dummy Node-B6R	Basin 6- Reduced	96.0027	0.11
Linear Ponds	10YR-72HR	Dummy Node-B7R	Basin 7- Reduced	96.0027	0.28
SMF Sites	10YR-72HR	Dummy Node-B1R	Basin 1- Reduced	96.0027	0.39
SMF Sites	10YR-72HR	Dummy Node-B2R	Basin 2- Reduced	96.0027	0.17
SMF Sites	10YR-72HR	Dummy Node-B3R	Basin 3- Reduced	96.0027	0.41
SMF Sites	10YR-72HR	Dummy Node-B4R	Basin 4- Reduced	96.0027	0.21
SMF Sites	10YR-72HR	Dummy Node-B5R	Basin 5- Reduced	96.0027	0.28
SMF Sites	10YR-72HR	Dummy Node-B6R	Basin 6- Reduced	96.0027	0.14
SMF Sites	10YR-72HR	Dummy Node-B7R	Basin 7- Reduced	96.0027	0.31

APPENDIX D

Cross Drain Photos

CD-1: 84” Pipe (Sta. 295+70)

N. Side of SR 70

S. Side of SR 70

CD-2: 84” Pipe (Sta. 364+04)

N. Side of SR 70

S. Side of SR 70

CD-3: 60” Pipe (Sta. 461+04)

N. Side of SR 70

S. Side of SR 70

CD-4: 2-9'x7' Pipes (Sta. 546+84)

N. Side of SR 70

S. Side of SR 70

CD-5: 18” Pipe (Sta. 576+40)

N. Side of SR 70

S. Side of SR 70

CD-6: 2-5'x7' Pipes (Sta. 577+80)

N. of SR 70

S. of SR 70

CD-7: 24” Pipe (Sta. 651+24)

N. Side of SR 70

S. Side of SR 70

APPENDIX E

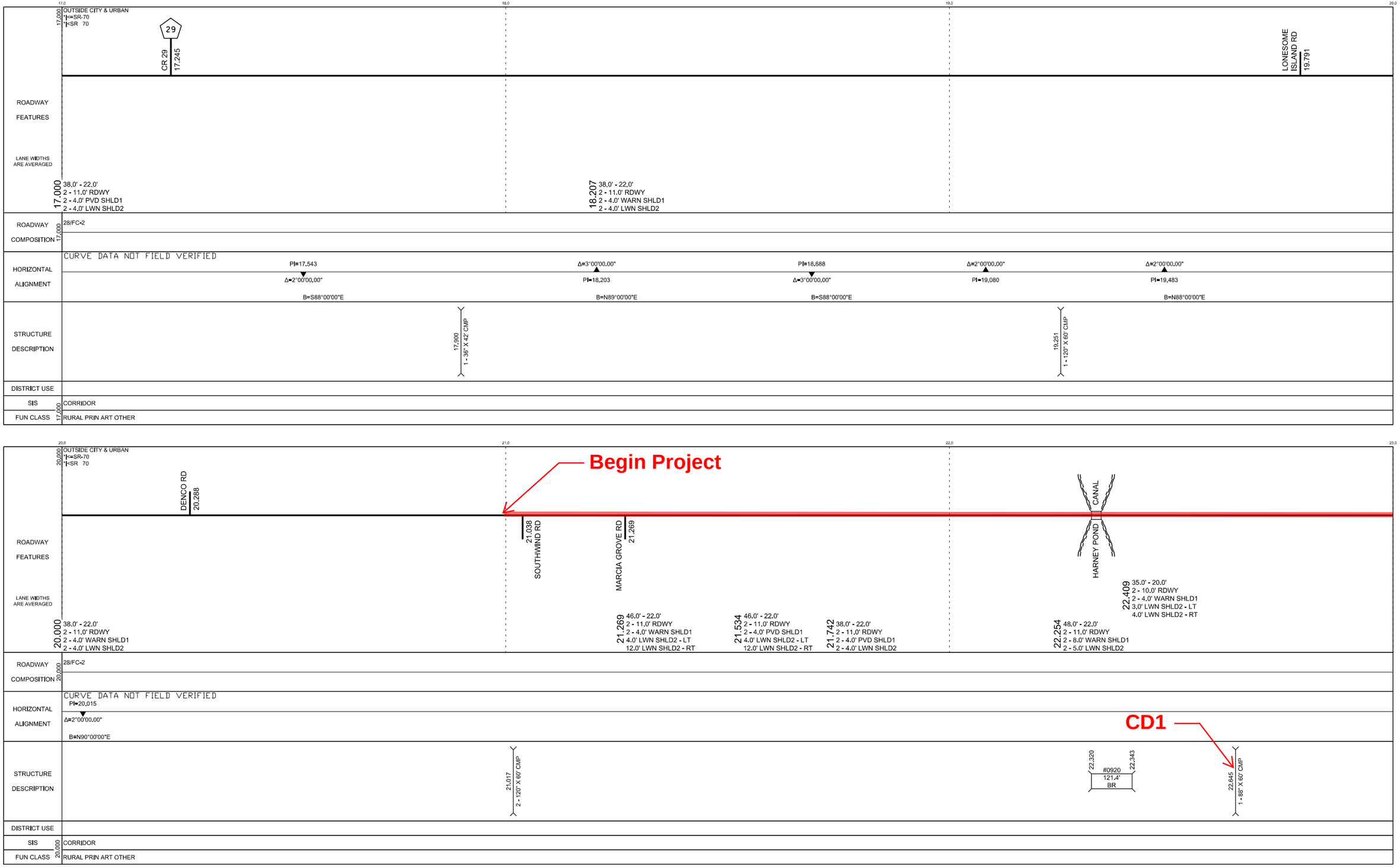
Straight Line Diagram

	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	02/01/2023	04/17/2023				
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	HIGHLANDS	01	09060000	4 OF 7



Version: 1.4.2.27 04/17/2023

	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	02/01/2023	04/17/2023				
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	HIGHLANDS	01	09060000	5 OF 7

23.0 24.0 25.0 26.0

ROADWAY FEATURES

23.000 OUTSIDE CITY & URBAN
*I<=SR-70
*I<SR 70

GREENBRIER LN 23.278

D C BAR RANCH RD 24.279

CANAL
INDIAN PRAIRIE

LANE WIDTHS ARE AVERAGED

23.000 35.0' - 20.0'
2 - 10.0' RDWY
2 - 4.0' WARN SHLD1
3.0' LWN SHLD2 - LT
4.0' LWN SHLD2 - RT

ROADWAY COMPOSITION

23.000 28/FC-2

HORIZONTAL ALIGNMENT

CURVE DATA NOT FIELD VERIFIED

Δ=0°30'00.00"
PI=23.296
B=N89°30'00"E

PI=24.401
Δ=0°30'00.00"
B=N89°00'00"E

Δ=0°02'30.00"
PI=25.558
B=N87°24'10"E

STRUCTURE DESCRIPTION

CD2 → 23.941 1 - 88" X 60' CMP

25.506 #0009 100.3' BR 25.525

CD3 (MP 25.785) →

DISTRICT USE

SIS 23.000 CORRIDOR

FUN CLASS 23.000 RURAL PRIN ART OTHER

26.0 27.0 28.0

ROADWAY FEATURES

26.000 OUTSIDE CITY & URBAN
*I<=SR-70
*I<SR 70

LYKES RD 26.852

27.222 44.0' - 20.0'
2 - 10.0' RDWY
4.0' WARN SHLD1 - LT
5.0' WARN SHLD1 - RT
12.0' LWN SHLD2 - LT
3.0' LWN SHLD2 - RT

27.427 53.0' - 20.0'
2 - 10.0' RDWY
4.0' WARN SHLD1 - LT
5.0' WARN SHLD1 - RT
2 - 12.0' LWN SHLD2

27.524 44.0' - 20.0'
2 - 10.0' RDWY
4.0' WARN SHLD1 - LT
5.0' WARN SHLD1 - RT
12.0' LWN SHLD2 - LT
3.0' LWN SHLD2 - RT

27.640 34.0' - 20.0'
2 - 10.0' RDWY
2 - 4.0' WARN SHLD1
2 - 3.0' LWN SHLD2

27.906 41.0' - 20.0'
2 - 10.0' RDWY
2 - 4.0' WARN SHLD1
10.0' LWN SHLD2 - LT
3.0' LWN SHLD2 - RT

27.961 50.0' - 20.0'
2 - 10.0' RDWY
8.0' WARN SHLD1 - LT
6.0' WARN SHLD1 - RT
4.0' VG SHLD2 - LT
12.0' LWN SHLD2 - RT

LANE WIDTHS ARE AVERAGED

26.000 35.0' - 20.0'
2 - 10.0' RDWY
2 - 4.0' WARN SHLD1
3.0' LWN SHLD2 - LT
4.0' LWN SHLD2 - RT

ROADWAY COMPOSITION

26.000 28/FC-2

HORIZONTAL ALIGNMENT

CURVE DATA NOT FIELD VERIFIED

Δ=4°00'00.00"
PC=26.450
PI=26.449
PT=26.512

Δ=35°55'30.00"
D=2°00'00.00
PC=27.286
PI=27.462
PT=27.626

B=N51°28'40"E

STRUCTURE DESCRIPTION

CD4 → 27.391 2 - 9' X 7' X 52' CBC

CD6 →
CD5 → 27.950 1 - 18' X 74' CC 27.977 2 - 7' X 5' X 93' CBC

DISTRICT USE

SIS 26.000 CORRIDOR

FUN CLASS 26.000 RURAL PRIN ART OTHER

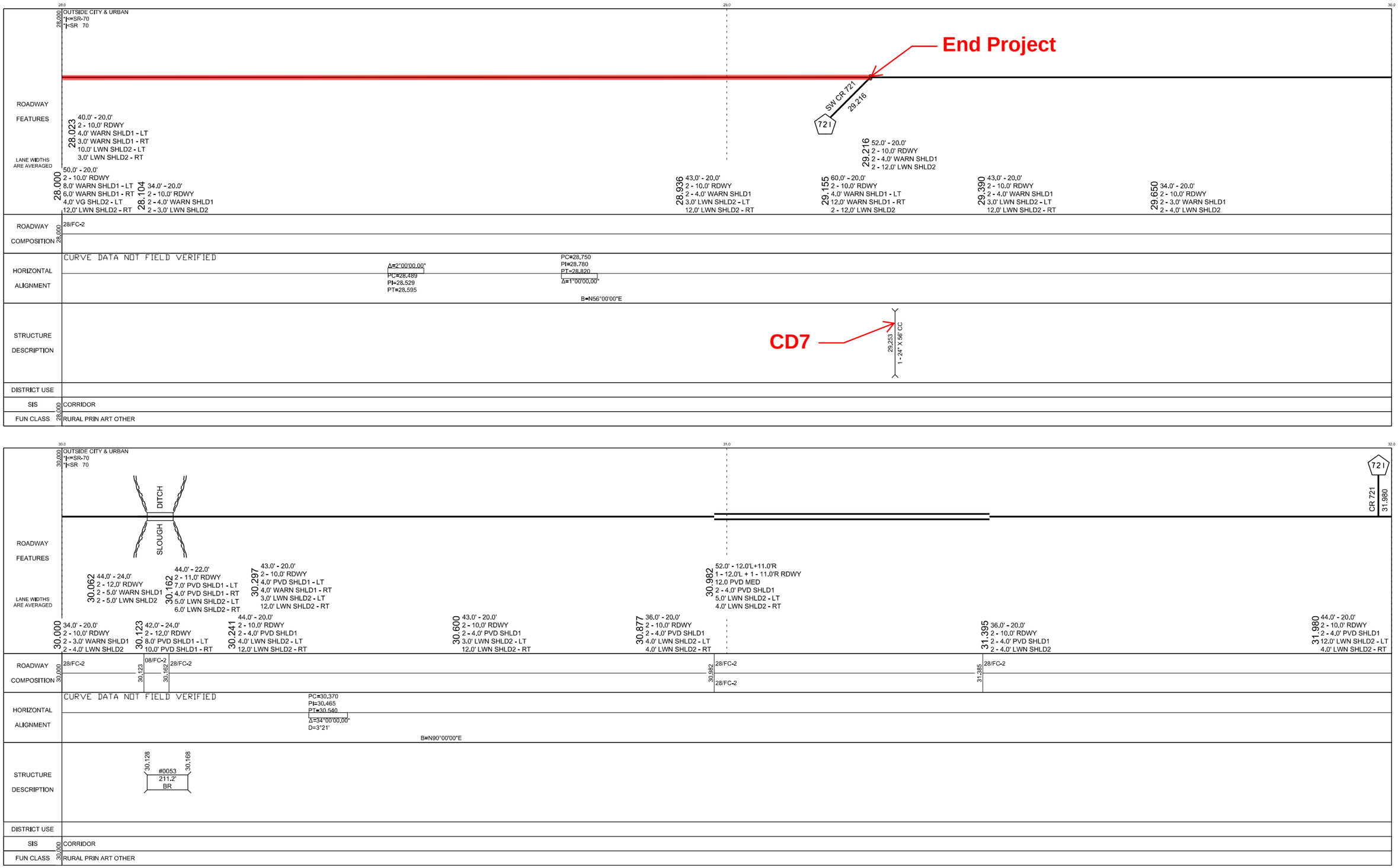
Version: 1.4.2.27 04/17/2023

	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV
DATE	02/01/2023	04/17/2023				
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	HIGHLANDS	01	09060000	6 OF 7



Version: 1.4.2.27 04/17/2023

APPENDIX F

FEMA FIRM Maps

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation information presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

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Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

Base map information shown on this FIRM was provided in digitial format by the Southwest Florida Water Management District. The original orthophotographic base imagery was provided in color with a on-foot pixel resolution at a scale of 1" = 200' from photography flown January - February 2008.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this juristiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

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Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

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DATUM INFORMATION

The **projection** used in the preparation of this map was State Plane Florida East. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane Zone used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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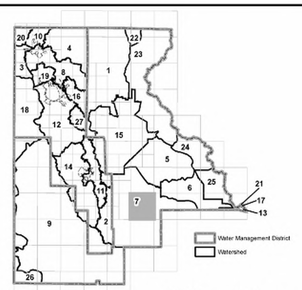
Spatial Reference System Division
National Geodetic Survey, NOAA
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3242

Example Datum Offset Calculation
using datum offset table below
NAVD88 = NGVD29 + (datum offset value)

To obtain current elevation, description, and/or location information for **benchmarks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242** or visit its website at http://www.ngs.noaa.gov/



ID	Watershed	Datum Offset (ft)	Study Type*	Total Rainfall 1-day 100-yr/500-yr*	Volume (in) Multi-Day 100-yr/500-yr*	Date of Model*
1	Arbuckle Creek	-1.13				
2	Bay Swamp	-1.13				
3	Bee Branch	-1.13				
4	Bonnet Creek	-1.13				
5	C-41 AN	-1.13				
6	C-41 AS	-1.13				
7	C-41 N	-1.13				
8	Carter Creek	-1.13				
9	Fisheating Creek	-1.13				
10	Grassy Creek (north)	-1.13				
11	Grassy Creek (central)	-1.13				
12	Josephine Creek	-1.13				
13	L-59E	-1.13				
14	Lake Francis Outlet	-1.13				
15	Lake Istokpoga	-1.13				
16	Lake Lucas	-1.13				
17	Lake Okeechobee	-1.13				
18	Little Charley Bowlegs	-1.13				
19	Little Red Water Lake	-1.13				
20	Old Town Creek	-1.13				
21	S-154C	-1.13				
22	S-65AC	-1.13				
23	S-65BC	-1.13				
24	S-65D	-1.13				
25	S-65E	-1.13				
26	Shell Creek	-1.13				
27	Yellow Bluff Creek	-1.13				

* Multiple study types, rainfall volumes, and/or model dates found within specific watersheds; refer to the Flood Insurance Study (FIS) for details.

This digital Flood Insurance Rate Map (FIRM) was produced through a cooperative partnership between the Southwest Florida Water Management District (SWFWMD), South Florida Water Management District (SFWMD), Highlands County, Federal Emergency Management Agency (FEMA) and the associated communities within Highlands County.

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** No Base Flood Elevations determined.
- **ZONE AE** Base Flood Elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot; and areas protected by levees from 1% annual chance flood. See additional note in Watershed Table on left collar[1]

OTHER AREAS

- **ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4275000mE — 1000-meter Universal Transverse Mercator grid ticks, Zone 17 W
- 6000000 FT — 5000-foot grid values: Florida State Plane coordinate system, East zone (FIPSZONE 0901), Transverse Mercator projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile
- 222218 — Section - Township - Range
- 7NX1000 — Junction - Points defining locations of flow accumulation or hydraulic connectivity. The first two characters of the Junction name represents the specific watershed (as shown in the map collar locator map) in which the Junction is located (note that boundary Junctions, without an associated floodplain, are also shown).
- Watershed Boundaries

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
November 18, 2015

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0555C

FIRM

FLOOD INSURANCE RATE MAP

HIGHLANDS COUNTY, FLORIDA AND INCORPORATED AREAS

PANEL 555 OF 710
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HIGHLANDS COUNTY	120111	0555	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12055C0555C
EFFECTIVE DATE
NOVEMBER 18, 2015

Federal Emergency Management Agency

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(301) 713-3242

Example Datum Offset Calculation
using datum offset table below
NAVD88 = NGVD29 + (datum offset value)

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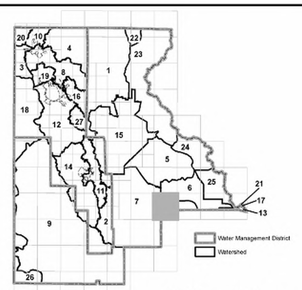

ID	Watershed	Datum Offset (ft)	Study Type*	Total Rainfall 1-day 100-or500-yr*	Volume (cf) Multi-Day 100-or500-yr*	Date of Model*
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2	Bay Swamp	+1.13				
3	Bee Branch	+1.13				
4	Bonnet Creek	+1.13				
5	C-41 AN	+1.13				
6	C-41 AS	+1.13				
7	C-41 N	+1.13				
8	Carter Creek	+1.13				
9	Fisheating Creek	+1.13				
10	Grassy Creek (north)	+1.13				
11	Grassy Creek (central)	+1.13				
12	Josephine Creek	+1.13				
13	L-59E	+1.13				
14	Lake Francis Outlet	+1.13				
15	Lake Istokpoga	+1.13				
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23	S-65BC	+1.13				
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* Multiple study types, rainfall volumes, and/or model dates found within specific watersheds; refer to the Flood Insurance Study (FIS) for details.

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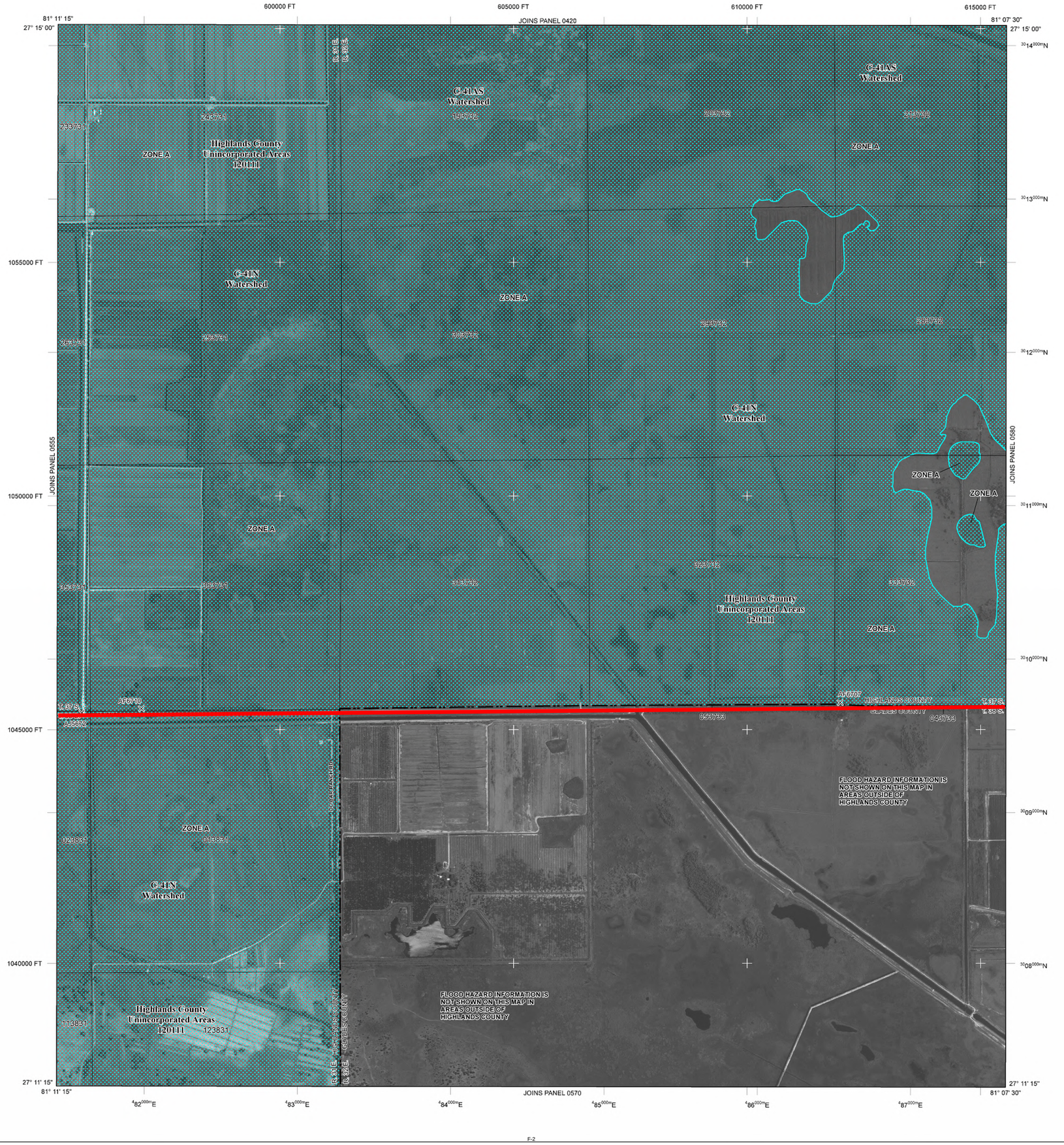

LEGEND

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ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
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ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot; and areas protected by levees from 1% annual chance flood. See additional note in Watershed Table on left collar[1]

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

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	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities
513	Base Flood Elevation line and value; elevation in feet*
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* Referenced to the North American Vertical Datum of 1988

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97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
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6000000 FT	5000-foot grid values: Florida State Plane coordinate system, East zone (FIPSZONE 0901), Transverse Mercator projection
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M1.5	River Mile
222218	Section - Township - Range
7NX1000	Junction - Points defining locations of flow accumulation or hydraulic connectivity. The first two characters of the Junction name represents the specific watershed (as shown in the map collar locator map) in which the Junction is located (note that boundary Junctions, without an associated floodplain, are also shown).
	Watershed Boundaries

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
November 18, 2015

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

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MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0560C

FIRM

FLOOD INSURANCE RATE MAP

HIGHLANDS COUNTY, FLORIDA AND INCORPORATED AREAS

PANEL 560 OF 710
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HIGHLANDS COUNTY	120111	0560	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12055C0560C
EFFECTIVE DATE
NOVEMBER 18, 2015

Federal Emergency Management Agency

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Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map was State Plane Florida East FIPS 0901. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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NGS Information Services
NOAA, N/NGS12
National Geodetic Survey, SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit their website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was derived from multiple sources. Base map files were provided in digital format by the U.S. Geological Survey, U.S. Bureau of the Census, Bureau of Land Management, and the local communities of Glades County. This information was compiled from the National Geodetic Survey, 2004, the Geological Survey of Florida, 1998, the U.S. Department of Commerce, 2001, U.S. Geological Survey, 2004, and Glades County Tax Assessors Office, 2005. Additional information was photogrammetrically compiled at a scale of 1:12,000 from U.S. Geological Survey aerial photography dated 1997 to 1999.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

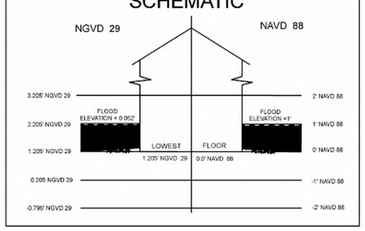
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

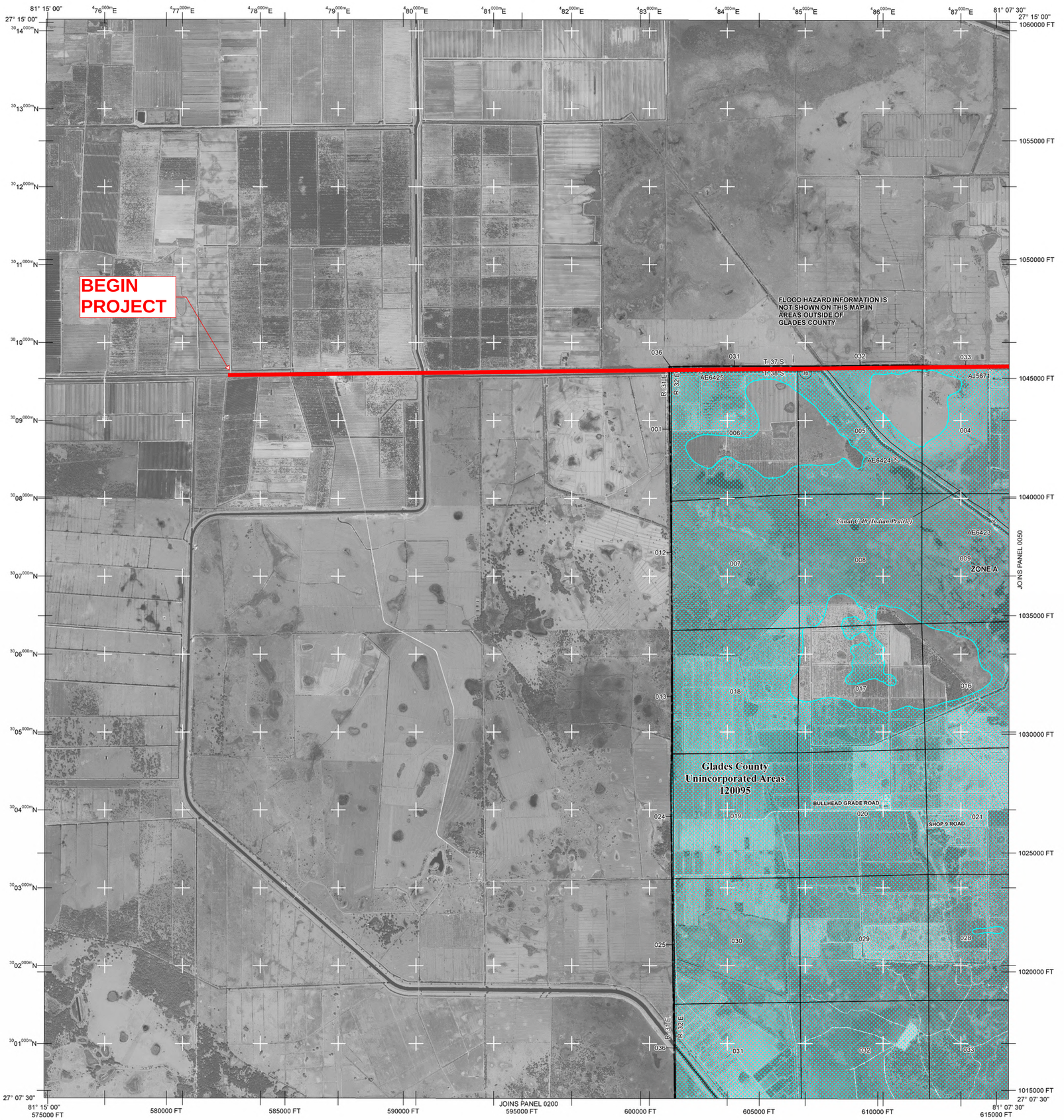
Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map.The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and their website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1- 877- FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.

Ground, structure, and flood elevations may be compared and/or referenced to NGVD 29 by applying a standard Conversion factor.To get the conversion from NGVD 29 to NAVD 88, subtract 1.205 feet from the NGVD 29 elevation. The 1.205 feet value is an average for the entire county. The Datum Conversion Schematic below illustrates this conversion.

DATUM CONVERSION SCHEMATIC





LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** No Base Flood Elevations determined.
- **ZONE AE** Base Flood Elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** / **ZONE D** Areas determined to be outside the 0.2% annual chance floodplain. Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D Boundary
- CBRS and OPA Boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 (EL 987) Base Flood Elevation line and value; elevation in feet*
- Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- A / A Cross section line
- 23 / 23 Transect line
- 97° 07' 30", 32° 22' 30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4976000mE 1000-meter Universal Transverse Mercator grid values, zone 17
- 600000 FT 5000-foot grid ticks: Florida State Plane coordinate system, East zone (FIPSZONE 0901), Transverse Mercator projection
- DX5510 Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index.

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP PANEL
September 26, 2014
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'

1,000 0 1,000 2,000 3,000 4,000 FEET
600 0 600 1,200 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0025C

FIRM

FLOOD INSURANCE RATE MAP
GLADES COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 25 OF 575
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GLADES COUNTY	120095	0025	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12043C0025C

EFFECTIVE DATE
SEPTEMBER 26, 2014

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map was State Plane Florida East FIPS 0901. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey, SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit their website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was derived from multiple sources. Base map files were provided in digital format by the U.S. Geological Survey, U.S. Bureau of the Census, Bureau of Land Management, and the local communities of Glades County. This information was compiled from the National Geodetic Survey, 2004, the Geological Survey of Florida, 1998, the U.S. Department of Commerce, 2001, U.S. Geological Survey, 2004, and Glades County Tax Assessors Office, 2005. Additional information was photogrammetrically compiled at a scale of 1:12,000 from U.S. Geological Survey aerial photography dated 1997 to 1999.

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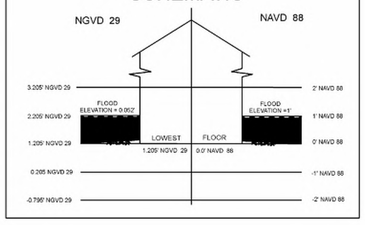
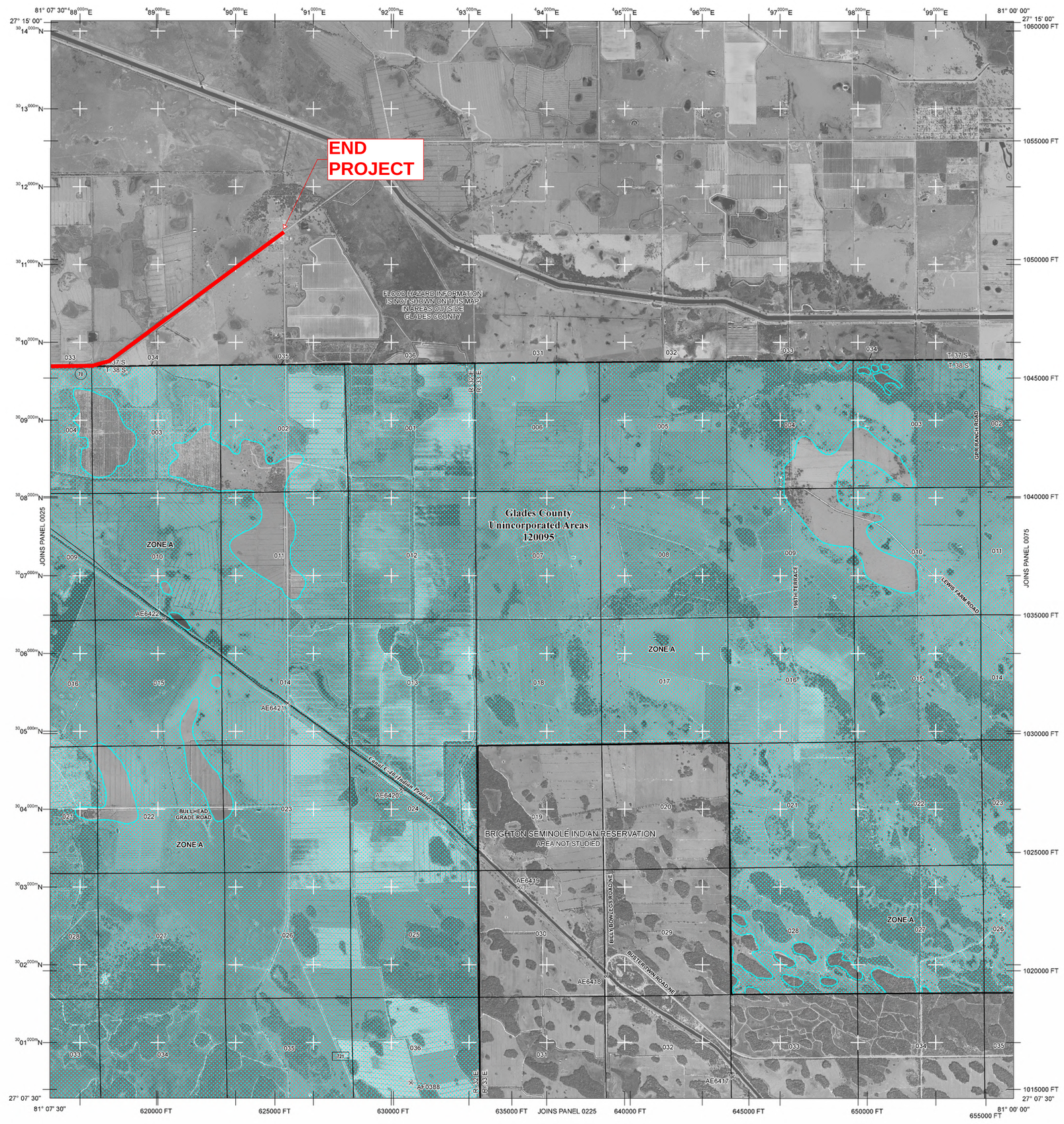
DATUM CONVERSION SCHEMATIC





LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** No Base Flood Elevations determined.
- **ZONE AE** Base Flood Elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
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- **ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** **ZONE D** Areas determined to be outside the 0.2% annual chance floodplain. Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D Boundary
- CBRS and OPA Boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 (EL 987) Base Flood Elevation line and value; elevation in feet* / Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- A — A Cross section line
- 23 — 23 Transect line
- 97° 07' 30", 32° 22' 30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4976000m E 1000-meter Universal Transverse Mercator grid values, zone 17
- 600000 FT 5000-foot grid ticks: Florida State Plane coordinate system, East zone (FIPSZONE 0901), Transverse Mercator projection
- DX5510 Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index.

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP PANEL
September 26, 2014
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'

1,000 0 1,000 2,000 3,000 4,000 FEET
600 0 600 1,200 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0050C

FIRM

FLOOD INSURANCE RATE MAP
GLADES COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 50 OF 575
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GLADES COUNTY	120065	0050	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12043C0050C
EFFECTIVE DATE
SEPTEMBER 26, 2014

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

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Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

Base map information shown on this FIRM was provided in digitial format by the Southwest Florida Water Management District. The original orthophotographic base imagery was provided in color with a on-foot pixel resolution at a scale of 1" = 200' from photography flown January - February 2008.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

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If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/national-flood-insurance-program.

DATUM INFORMATION

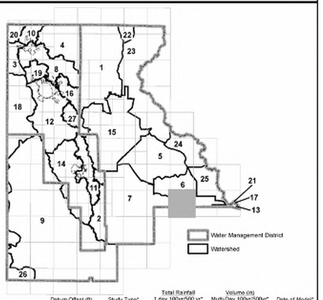
The **projection** used in the preparation of this map was State Plane Florida East. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane Zone used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Base Flood Elevations (BFEs)on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3242

Example Datum Offset Calculation
using datum offset table below
NAVD88 = NGVD29 + (datum offset value)

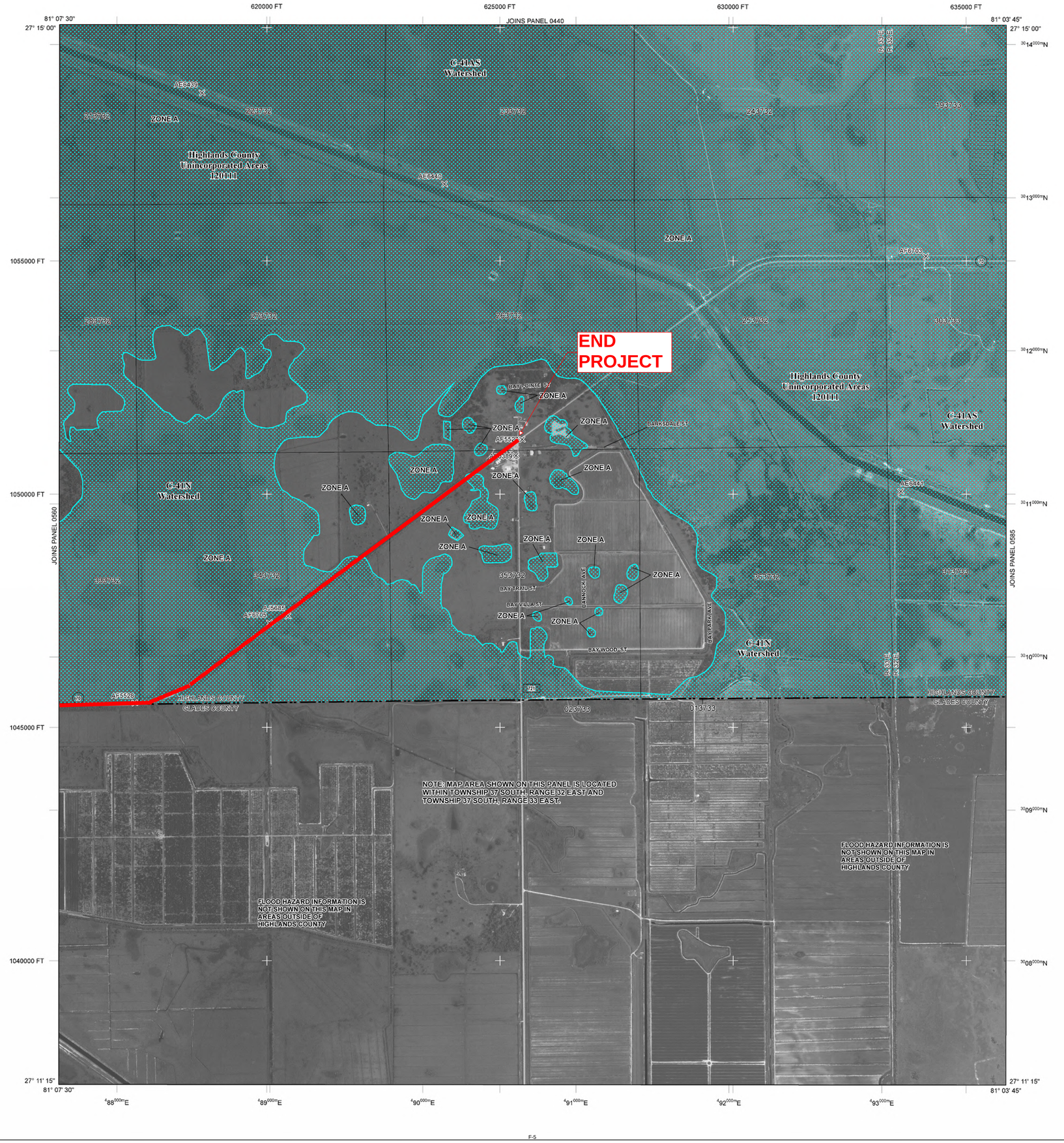
To obtain current elevation, description, and/or location information for **benchmarks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242** or visit its website at http://www.ngs.noaa.gov/



ID	Watershed	Datum Offset (ft)	Study Type*	Total Rainfall 1-day 100yr/500 yr*	Volume (in) Multi-Day 100yr/500yr*	Date of Model*
1	Arbuckle Creek	-1.13				
2	Bay Swamp	-1.13				
3	Bee Branch	-1.13				
4	Bonnet Creek	-1.13				
5	C-41 AN	-1.13				
6	C-41 AS	-1.13				
7	C-41 N	-1.13				
8	Carter Creek	-1.13				
9	Fisheating Creek	-1.13				
10	Grassy Creek (north)	-1.13				
11	Grassy Creek (central)	-1.13				
12	Josephine Creek	-1.13				
13	L-59E	-1.13				
14	Lake Francis Outlet	-1.13				
15	Lake Istokpoga	-1.13				
16	Lake Lucas	-1.13				
17	Little Charley Bowlegs	-1.13				
18	Little Red Water Lake	-1.13				
19	Old Town Creek	-1.13				
20	S-154C	-1.13				
21	S-65A	-1.13				
22	S-65BC	-1.13				
23	S-65D	-1.13				
24	S-65E	-1.13				
25	Shell Creek	-1.13				
26	Yellow Bluff Creek	-1.13				
27		-1.13				

* Multiple study types, rainfall volumes, and/or model dates found within specific watersheds; refer to the Flood Insurance Study (FIS) for details.

This digital Flood Insurance Rate Map (FIRM) was produced through a cooperative partnership between the Southwest Florida Water Management District (SWFWMD), South Florida Water Management District (SFWMD), Highlands County, Federal Emergency Management Agency (FEMA) and the associated communities within Highlands County.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

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- **ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot; and areas protected by levees from 1% annual chance flood. See additional note in Watershed Table on left collar[1]

OTHER AREAS

- **ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
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- CBRS and OPA boundary
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- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4275000mE — 1000-meter Universal Transverse Mercator grid ticks, Zone 17 W
- 6000000 FT — 5000-foot grid values: Florida State Plane coordinate system, East zone (FIPSZONE 0901), Transverse Mercator projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile
- 222218 — Section - Township - Range
- 7NX1000 — Junction - Points defining locations of flow accumulation or hydraulic connectivity. The first two characters of the Junction name represents the specific watershed (as shown in the map collar locator map) in which the Junction is located (note that boundary Junctions, without an associated floodplain, are also shown).
- Watershed Boundaries

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
November 18, 2015

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0580C

FIRM

FLOOD INSURANCE RATE MAP

HIGHLANDS COUNTY, FLORIDA AND INCORPORATED AREAS

PANEL 580 OF 710
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HIGHLANDS COUNTY	120111	0580	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12055C0580C
EFFECTIVE DATE
NOVEMBER 18, 2015

Federal Emergency Management Agency

APPENDIX G

Floodplain Calculations

FLOODPLAIN SUMMARY TABLE

Station	Enchroachment (Ac-ft)	Required Compensation	Ac-ft	Provided Compensation	Ac-ft
1 - 443-477	4.27	FPC 1 =	11.07	FPC 1A =	15.75
1 - 477-482	N/A				
1 - 482-492	1.97			FPC 1B =	13.25
1 - 492-514	4.83				
1 - 514-518+40	1.99	FPC 2-3 =	78.02	FPC 2-3A =	83.63
2 - 282-317	15.72				
2 - 317-355	13.96				
2 - 355-396	20.00				
2 - 396-410	8.08			FPC 2-3B =	81.46
2 - 410-434	12.28				
2 - 434-450	5.99				
2 - 450-462	6.78	FPC 4 =	17.69	FPC 4A =	37.20
2 - 462-474	5.35				
2 - 474-486	5.56			FPC 4B =	20.47
2 - 486-498	6.39	FPC 5 =	36.17	FPC 5A =	39.48
2 - 498-538	18.85				
2 - 538-557	10.93			FPC 5B =	38.74
2 - 557-576	11.38	FPC 6 =	11.38	FPC 6A =	13.52
				FPC 6B =	13.54
2 - 576-597	11.79	FPC 7 =	11.79	FPC 7A =	13.22
				FPC 7B =	13.08
Totals	163.95	Totals	166.12	Totals	
				Alternative A	202.79
				Alternative B	180.54

* Note: 50% of the encroachment within 1 - 443-477 was accounted for in a previous job. Within this range, 4.27 Ac-ft of encroachment will be considered in the required compensation

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **1**

Location **STA 443 - 477**

100 YR= **33.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
33.00	147983.00	
		138117.50
32.00	128252.00	
		123319.00
31.00	118386.00	
		110987.00
30.00	103588.00	
TOTAL (ft^3)		**372,424**
TOTAL (ac-ft)		**8.55**

SHW **30.00** **NAVD**

Depth to SHW **1.00** **ft**

Map Unit Symbol **8, 13, 26**

Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **1**

Location **STA 482 - 492**

100 YR= **33.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
33.00	34075.00	
		31803.50
32.00	29532.00	
		28396.00
31.00	27260.00	
		25421.50
30.00	23583.00	
TOTAL (ft^3)		**85,621**
TOTAL (ac-ft)		**1.97**

SHW **30.00** **NAVD**

Depth to SHW **1.00** **ft**

Map Unit Symbol **8, 17**

Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **1**

Location **STA 492 - 514**

100 YR= **33.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
33.00	80103.00	
		77600.00
32.00	75097.00	
		70090.50
31.00	65084.00	
		62581.00
30.00	60078.00	
TOTAL (ft^3)		**210,272**
TOTAL (ac-ft)		**4.83**

SHW **30.00** **NAVD**

Depth to SHW **1.00** **ft**

Map Unit Symbol **8, 13, 17**

Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **1**

Location **STA 514 - 518+40**

100 YR= **33.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
33.00	25155.00	
		24537.50
32.00	23920.00	
		22985.00
31.00	22050.00	
		20580.00
30.00	19110.00	
		18375.00
29.00	17640.00	
TOTAL (ft^3)		**86,478**
TOTAL (ac-ft)		**1.99**

SHW **29.00** **NAVD**

Depth to SHW **1.00** **ft**

Map Unit Symbol **13**

Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **2**

Location **STA 282 - 317**

100 YR= **33.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
33.00	162555.00	
		160092.00
32.00	157629.00	
		152703.00
31.00	147777.00	
		137925.50
30.00	128074.00	
		123148.00
29.00	118222.00	
		110833.00
28.00	103444.00	
TOTAL (ft^3)		**684,702**
TOTAL (ac-ft)		**15.72**

SHW **28.00** **NAVD**

Depth to SHW **1.00** **ft**

Map Unit Symbol **13, 26**

Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **2**

Location **STA 317 - 355**

100 YR= **33.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
33.00	182749.00	
		176991.50
32.00	171234.00	
		159818.50
31.00	148403.00	
		142694.50
30.00	136986.00	
		128425.00
29.00	119864.00	
TOTAL (ft^3)		**607,930**
TOTAL (ac-ft)		**13.96**

SHW **29.00** **NAVD**

Depth to SHW **1.00** **ft**

Map Unit Symbol **13, 15**

Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **2**

Location **STA 355 - 396**

100 YR= **33.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
33.00	206831.00	
		203697.00
32.00	200563.00	
		194295.50
31.00	188028.00	
		175492.50
30.00	162957.00	
		156689.50
29.00	150422.00	
		141020.50
28.00	131619.00	
TOTAL (ft^3)		**871,195**
TOTAL (ac-ft)		**20.00**

SHW **28.00** **NAVD**

Depth to SHW **1.00** **ft**

Map Unit Symbol **10, 13**

Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **2**

Location **STA 396 - 410**

100 YR= **33.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
33.00	86829.00	
		82296.50
32.00	77764.00	
		76343.00
31.00	74922.00	
		72581.00
30.00	70240.00	
		65568.50
29.00	60897.00	
		55032.00
28.00	49167.00	
TOTAL (ft^3)		**351,821**
TOTAL (ac-ft)		**8.08**

SHW **28.00** **NAVD**

Depth to SHW **1.00** **ft**

Map Unit Symbol **10, 13, 16, 19**

Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **2**

Location **STA 410 - 434**

100 YR= **33.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
33.00	127481.00	
		125258.50
32.00	123036.00	
		119191.00
31.00	115346.00	
		107656.50
30.00	99967.00	
		96121.50
29.00	92276.00	
		86509.50
28.00	80743.00	
TOTAL (ft^3)		**534,737**
TOTAL (ac-ft)		**12.28**

SHW **28.00** **NAVD**

Depth to SHW **1.00** **ft**

Map Unit Symbol **10, 13**

Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **2**

Location **STA 434 - 450**

100 YR= **33.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
33.00	77698.00	
		75221.50
32.00	72745.00	
		69109.00
31.00	65473.00	
		61835.00
30.00	58197.00	
		54560.00
29.00	50923.00	
TOTAL (ft^3)		**260,726**
TOTAL (ac-ft)		**5.99**

SHW **29.00** **NAVD**

Depth to SHW **1.00** **ft**

Map Unit Symbol **10, 12, 13**

Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **2**
Location **STA 450 - 462**
100 YR= **33.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
33.00	62279.00	
		59755.50
32.00	57232.00	
		55547.50
31.00	53863.00	
		52179.50
30.00	50496.00	
		47130.00
29.00	43764.00	
		42081.00
28.00	40398.00	
		38714.00
27.00	37030.00	
TOTAL (ft^3)		**295,408**
TOTAL (ac-ft)		**6.78**

SHW **27.00** **NAVD**
Depth to SHW **1.00** **ft**
Map Unit Symbol **12**
Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **2**
Location **STA 462 - 474**
100 YR= **32.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
32.00	58266.00	
		54432.50
31.00	50599.00	
		49830.00
30.00	49061.00	
		47529.50
29.00	45998.00	
		43698.50
28.00	41399.00	
		37385.50
27.00	33372.00	
TOTAL (ft^3)		**232,876**
TOTAL (ac-ft)		**5.35**

SHW **27.00** **NAVD**
Depth to SHW **1.00** **ft**
Map Unit Symbol **12, 14**
Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **2**
Location **STA 474 - 486**
100 YR= **33.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
33.00	58681.00	
		56235.50
32.00	53790.00	
		52161.00
31.00	50532.00	
		48904.50
30.00	47277.00	
		44831.50
29.00	42386.00	
		39926.50
28.00	37467.00	
TOTAL (ft^3)		**242,059**
TOTAL (ac-ft)		**5.56**

SHW **28.00** **NAVD**
Depth to SHW **1.00** **ft**
Map Unit Symbol **10, 14**
Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **2**
Location **STA 486 - 498**
100 YR= **34.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
34.00	59561.00	
		56341.50
33.00	53122.00	
		52317.00
32.00	51512.00	
		49902.00
31.00	48292.00	
		45072.00
30.00	41852.00	
		39437.50
29.00	37023.00	
		35414.00
28.00	33805.00	
TOTAL (ft^3)		**278,484**
TOTAL (ac-ft)		**6.39**

SHW **28.00** **NAVD**
Depth to SHW **1.00** **ft**
Map Unit Symbol **10**
Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **2**
Location **STA 498 - 538**
100 YR= **33.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
33.00	197706.00	
		189468.00
32.00	181230.00	
		175738.50
31.00	170247.00	
		164755.00
30.00	159263.00	
		151025.00
29.00	142787.00	
		140041.50
28.00	137296.00	
TOTAL (ft^3)		**821,028**
TOTAL (ac-ft)		**18.85**

SHW **27.00** **NAVD**
Depth to SHW **1.00** **ft**
Map Unit Symbol **4, 15**
Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **2**
Location **STA 538 - 557**
100 YR= **35.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
35.00	116315.00	
		109893.00
34.00	103471.00	
		102034.00
33.00	100597.00	
		97453.50
32.00	94310.00	
		88057.50
31.00	81805.00	
		78658.50
30.00	75512.00	
TOTAL (ft^3)		**476,097**
TOTAL (ac-ft)		**10.93**

SHW **30.00** **NAVD**
Depth to SHW **1.00** **ft**
Map Unit Symbol **16**
Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **2**
Location **STA 557 - 576**
100 YR= **33.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
33.00	121016.00	
		114474.50
32.00	107933.00	
		106299.50
31.00	104666.00	
		101393.50
30.00	98121.00	
		91579.50
29.00	85038.00	
		81992.50
28.00	78947.00	
TOTAL (ft^3)		**495,740**
TOTAL (ac-ft)		**11.38**

SHW **28.00** **NAVD**
Depth to SHW **1.00** **ft**
Map Unit Symbol **16, 19**
Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

FLOODPLAIN ENCROACHMENT CALCULATIONS

Alignment **2**
Location **STA 557 - 597**
100 YR= **34.00** **NAVD**

ENCROACHMENT

Existing Elevation (ft)	Area (ft^2)	Vol (ft^3)
34.00	125838.00	
		119035.50
33.00	112233.00	
		110526.50
32.00	108820.00	
		105425.00
31.00	102030.00	
		95228.50
30.00	88427.00	
		83325.00
29.00	78223.00	
TOTAL (ft^3)		**513,541**
TOTAL (ac-ft)		**11.79**

SHW **29.00** **NAVD**
Depth to SHW **1.00** **ft**
Map Unit Symbol **16, 19**
Notes: Accounts for proposed roadway and trail limits only, excluding existing roadway and unimproved areas, from BFE to estimated SHW

STAGE STORAGE CALCULATIONS - FPC1A

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	34.00	15.90				15.75
			15.83	0.50	7.91	
	33.50	15.75				7.83
			15.67	0.50	7.83	
SHW	33.00	15.58				0.00

SHW = 33.0 NAVD
Tailwater= 33.0 NAVD

Note: If constructed, FPC 1A will be an addition to FPC 2B which was designed under FPID 414506-5-22-01. FPC 2B has an existing ground at elevation 34' and a SHW table at 33'. This will not require additional driveway or hydraulic connection. See FPC Alternatives Exhibit 9 **(Appendix I, I-11)** for more information.

COMPENSATION REQUIRED = 11.07 Ac-Ft

COMPENSATION PROVIDED = 15.75 Ac-Ft

STAGE STORAGE CALCULATIONS - FPC1B

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	34.00	13.40				13.25
			13.33	0.50	6.66	
	33.50	13.25				6.59
			13.18	0.50	6.59	
SHW	33.00	13.11				0.00

SHW = 33.0 NAVD
Tailwater= 33.0 NAVD

Note: If constructed, FPC 1B will be an addition to FPC 2B which was designed under FPID 414506-5-22-01. FPC 2B has an existing ground at elevation 34' and a SHW table at 33'. This will not require additional driveway or hydraulic connection. See FPC Alternatives Exhibit 9 **(Appendix I, I-11)** for more information.

COMPENSATION REQUIRED = 11.07 Ac-Ft

COMPENSATION PROVIDED = 13.25 Ac-Ft

STAGE STORAGE CALCULATIONS - FPC2-3A

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	28.00	56.30				83.63
			55.94	1.00	55.94	
	27.00	55.57				27.69
			55.39	0.50	27.69	
CONTROL	26.50	55.20				0.00

SHW = 27.1 NAVD
Tailwater= 26.5 NAVD

Based on Avg ground of 28' and Felda (13) soils with a depth to the SHW of 3"-18" (Avg 10.5") below ground

Note: 26.5 tailwater comes from agriculture ditch to the south.

COMPENSATION REQUIRED = 78.02 Ac-Ft

COMPENSATION PROVIDED = 83.63 Ac-Ft

STAGE STORAGE CALCULATIONS - FPC2-3B

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	28.00	54.80				81.46
			54.47	1.00	54.47	
	27.00	54.14				26.99
			53.98	0.50	26.99	
CONTROL	26.50	53.82				0.00

SHW = 27.1 NAVD
Tailwater= 26.5 NAVD

Based on Avg ground of 28' and Felda (13) soils with a depth to the SHW of 3"-18" (Avg 10.5") below ground

Note: 26.5 tailwater comes from agriculture ditch to the south.

COMPENSATION REQUIRED = 78.02 Ac-Ft

COMPENSATION PROVIDED = 81.46 Ac-Ft

STAGE STORAGE CALCULATIONS - FPC4A

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	27.30	14.00				17.95
			13.93	0.30	4.18	
	27.00	13.85				13.78
			13.78	1.00	13.78	
CONTROL	26.00	13.70				0.00

SHW = 26.5 NAVD
Tailwater= 25.5 NAVD

Based on Avg ground of 27' and Basinger (12) soils with a depth to the SHW of 0"-12" (Avg 6") below ground

Note: 25.5 tailwater comes from agriculture ditch to the south.

COMPENSATION REQUIRED = 17.69 Ac-Ft

COMPENSATION PROVIDED = 17.95 Ac-Ft

STAGE STORAGE CALCULATIONS - FPC4B

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	27.20	17.20				20.47
			17.09	0.70	11.96	
	27.00	17.05				8.51
			17.02	0.50	8.51	
CONTROL	26.50	16.98				0.00

SHW = 26.5 NAVD
Tailwater= 25.5 NAVD

Based on Avg ground of 27' and Basinger (12) soils with a depth to the SHW of 0"-12" (Avg 6") below ground

Note: 25.5 tailwater comes from agriculture ditch to the south.

COMPENSATION REQUIRED = 17.69 Ac-Ft

COMPENSATION PROVIDED = 20.47 Ac-Ft

STAGE STORAGE CALCULATIONS - FPC5A

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	29.00	11.80				39.48
			11.60	1.00	11.60	
	28.00	11.40				27.88
			11.30	1.00	11.30	
	27.00	11.20				16.58
			11.10	1.00	11.10	
	26.00	11.00				5.48
			10.95	0.50	5.48	
CONTROL	25.50	10.90				0.00

SHW = 28.0 NAVD
Tailwater= 25.5 NAVD

Based on Avg ground of 29' and Pineda-Pineda (15) soils with a depth to the SHW of 6"-18" (Avg 12") below ground

Note: 25.5 tailwater comes from agriculture ditch to the south.

COMPENSATION REQUIRED = 36.17 Ac-Ft

COMPENSATION PROVIDED = 39.48 Ac-Ft

STAGE STORAGE CALCULATIONS - FPC5B

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	29.00	11.60				38.74
			11.45	1.00	11.45	
	28.00	11.30				27.29
			11.15	1.00	11.15	
	27.00	10.99				16.14
			10.84	1.00	10.84	
	26.00	10.68				5.30
			10.61	0.50	5.30	
CONTROL	25.50	10.53				0.00

SHW = 28.0 NAVD
Tailwater= 25.5 NAVD

Based on Avg ground of 29' and Pineda-Pineda (15) soils with a depth to the SHW of 6"-18" (Avg 12") below ground

Note: 25.5 tailwater comes from agriculture ditch to the south.

COMPENSATION REQUIRED = 36.17 Ac-Ft

COMPENSATION PROVIDED = 38.74 Ac-Ft

STAGE STORAGE CALCULATIONS - FPC6A

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	27.20	8.20				13.52
			8.14	0.20	1.63	
	27.00	8.08				11.90
			7.98	1.00	7.98	
SHW	26.00	7.88				3.92
			7.83	0.50	3.92	
CONTROL	25.50	7.78				0.00

SHW = 26.0 NAVD
Tailwater= 25.5 NAVD

Based on Avg ground of 29' and Valkaria (16) soils with a depth to the SHW of 6"-18" (Avg 12") below ground

Note: 25.5 tailwater comes from agriculture ditch to the south.

COMPENSATION REQUIRED = 11.38 Ac-Ft

COMPENSATION PROVIDED = 13.52 Ac-Ft

STAGE STORAGE CALCULATIONS - FPC6B

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	28.00	5.80				13.54
			5.64	1.00	5.64	
	27.00	5.47				7.90
			5.34	1.00	5.34	
SHW	26.00	5.20				2.57
			5.14	0.50	2.57	
CONTROL	25.50	5.07				0.00

SHW = 26.0 NAVD
Tailwater= 25.5 NAVD

Based on Avg ground of 29' and Valkaria (16) soils with a depth to the SHW of 6"-18" (Avg 12") below ground

Note: 25.5 tailwater comes from agriculture ditch to the south.

COMPENSATION REQUIRED = 11.38 Ac-Ft

COMPENSATION PROVIDED = 13.54 Ac-Ft

STAGE STORAGE CALCULATIONS - FPC7A

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	28.00	5.70				13.22
			5.54	1.00	5.54	
	27.00	5.37				7.69
			5.21	1.00	5.21	
	26.00	5.04				2.48
			4.96	0.50	2.48	
CONTROL	25.50	4.88				0.00

SHW = 27.0 NAVD
Tailwater= 25.5 NAVD

Based on Avg ground of 28' and Valkaria (16) soils with a depth to the SHW of 6"-18" (Avg 12") below ground

Note: 25.5 tailwater comes from agriculture ditch to the south.

COMPENSATION REQUIRED = 11.79 Ac-Ft

COMPENSATION PROVIDED = 13.22 Ac-Ft

STAGE STORAGE CALCULATIONS - FPC7B

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
INSIDE BERM	28.00	5.60				13.08
			5.46	1.00	5.46	
	27.00	5.31				7.63
			5.16	1.00	5.16	
	26.00	5.01				2.47
			4.94	0.50	2.47	
CONTROL	25.50	4.86				0.00

SHW = 27.0 NAVD
Tailwater= 25.5 NAVD

Based on Avg ground of 28' and Valkaria (16) soils with a depth to the SHW of 6"-18" (Avg 12") below ground

Note: 25.5 tailwater comes from agriculture ditch to the south.

COMPENSATION REQUIRED = 11.79 Ac-Ft

COMPENSATION PROVIDED = 13.08 Ac-Ft

APPENDIX H

NRCS Custom Soil Resource Report

United States Department of Agriculture

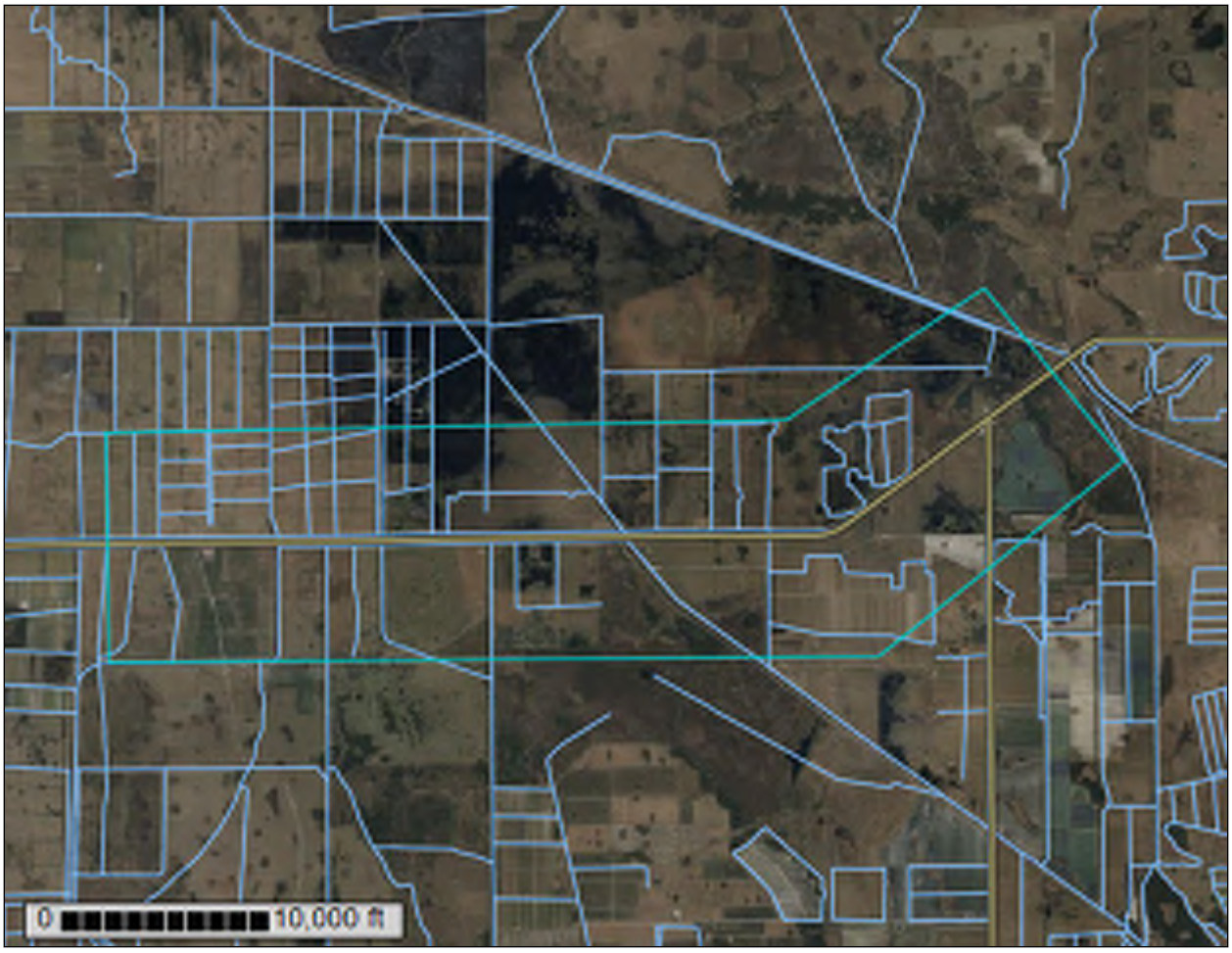
NRCS

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 Glades County, Florida, and Highlands County, Florida

SR70 - Lonesome to CR721



July 15, 2024

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.

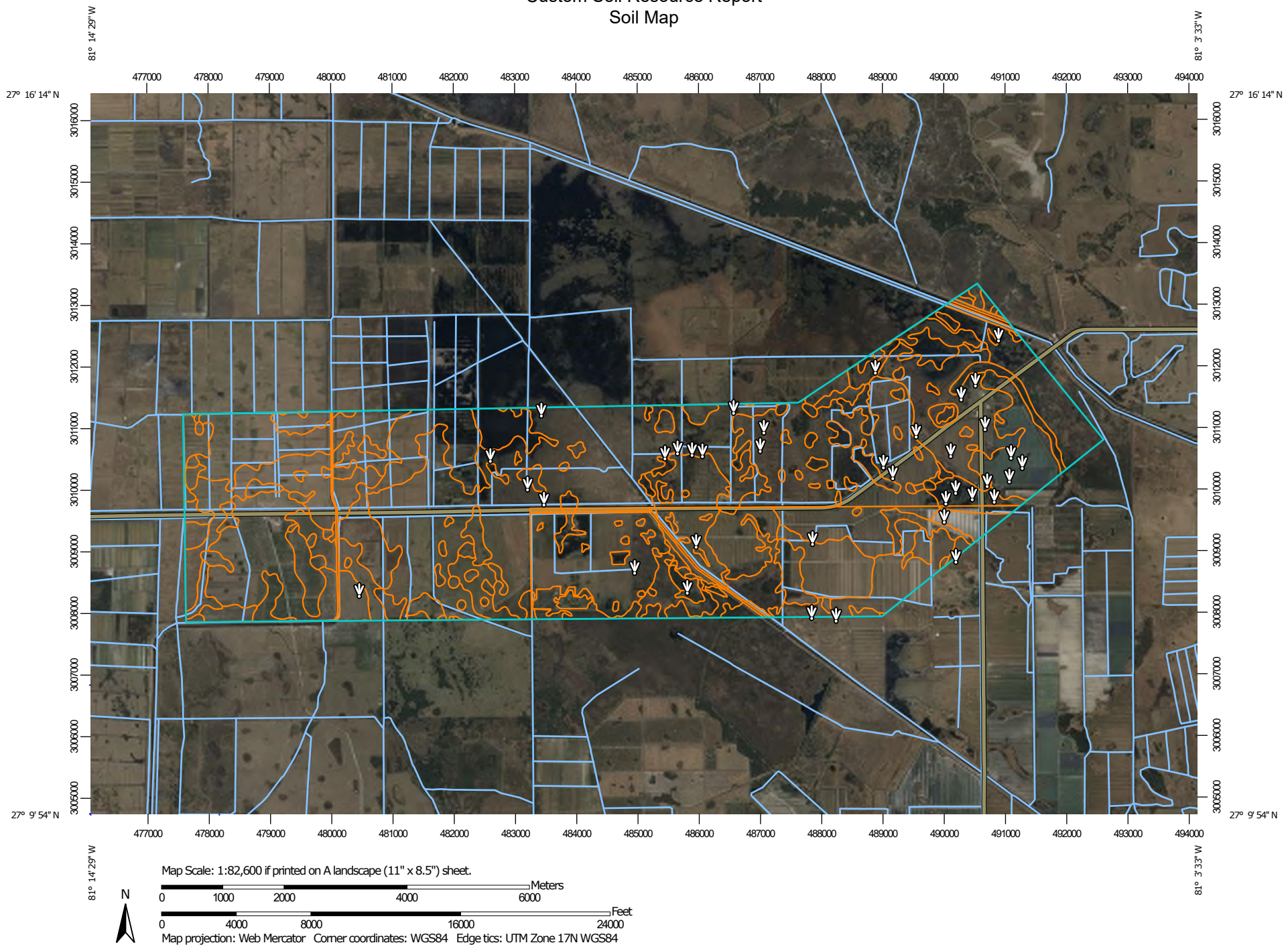
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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: Glades County, Florida
Survey Area Data: Version 22, Sep 6, 2023

Soil Survey Area: Highlands County, Florida
Survey Area Data: Version 23, Aug 28, 2023

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
4	Valkaria fine sand, 0 to 2 percent slopes	285.1	2.3%
6	Malabar fine sand, 0 to 2 percent slopes	389.2	3.1%
7	Pople fine sand, 0 to 2 percent slopes	15.9	0.1%
8	Gator muck, frequently ponded, 0 to 1 percent slopes	3.1	0.0%
10	Felda fine sand, 0 to 2 percent slopes	835.1	6.6%
11	Tequesta muck, drained	15.7	0.1%
14	Basinger fine sand, 0 to 2 percent slopes	509.3	4.1%
15	Pineda-Pineda, wet, fine sand, 0 to 2 percent slopes	409.6	3.3%
16	Floridana fine sand, frequently ponded, 0 to 1 percent slopes	487.4	3.9%
36	Malabar fine sand, high, 0 to 2 percent slopes	32.4	0.3%
99	Water	65.9	0.5%
Subtotals for Soil Survey Area		**3,048.6**	**24.3%**
Totals for Area of Interest		**12,567.6**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Basinger fine sand, frequently ponded, 0 to 1 percent slopes	72.4	0.6%
7	Placid fine sand, frequently ponded, 0 to 1 percent slopes	112.4	0.9%
8	Immokalee sand, 0 to 2 percent slopes	1,051.7	8.4%
10	Myakka fine sand, 0 to 2 percent slopes	52.0	0.4%
12	Basinger fine sand, 0 to 2 percent slopes	1,186.3	9.4%
13	Felda fine sand, 0 to 2 percent slopes	3,429.3	27.3%
15	Bradenton fine sand, 0 to 2 percent slopes	133.1	1.1%
16	Valkaria fine sand, 0 to 2 percent slopes	1,221.7	9.7%
17	Malabar fine sand, 0 to 2 percent slopes	174.1	1.4%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
18	Kaliga muck, frequently ponded, 0 to 1 percent slopes	601.5	4.8%
19	Hicoria mucky sand, depressional	519.8	4.1%
20	Samsula muck, frequently ponded, 0 to 1 percent slopes	28.7	0.2%
24	Pineda sand, 0 to 2 percent slopes	87.0	0.7%
26	Tequesta muck, frequently ponded, 0 to 1 percent slopes	745.8	5.9%
30	Oldsmar fine sand, 0 to 2 percent slopes	6.6	0.1%
31	Felda fine sand, frequently ponded, 0 to 1 percent slopes	26.3	0.2%
32	Arents, very steep	30.1	0.2%
99	Water	38.7	0.3%
Subtotals for Soil Survey Area		**9,517.3**	**75.7%**
Totals for Area of Interest		**12,567.6**	**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.

Glades County, Florida

4—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, talf, dip
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, 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

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: 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: 4 percent
Landform: Flats 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: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Satellite

Percent of map unit: 2 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 Upland Mesic Flatwoods and Hammocks on Rises and Knolls
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G155XB131FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

6—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: Farmland of unique importance

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: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
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 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: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Minor Components

Valkaria
Percent of map unit: 5 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

Pineda
Percent of map unit: 4 percent
Landform: Flats 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: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), 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: 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

Basinger
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: R155XY070FL - Sandy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

7—Pople fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2y9gr
Elevation: 10 to 70 feet
Mean annual precipitation: 42 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

Pople and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pople

Setting

Landform: Drainageways on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Sandy and loamy marine deposits

Typical profile

Ap - 0 to 8 inches: fine sand
E - 8 to 15 inches: fine sand
Bk - 15 to 30 inches: fine sand
Btkg - 30 to 38 inches: sandy clay loam
Cg - 38 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 (0.20 to 0.60 in/hr)
Depth to water table: About 6 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 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/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: Wetland Hardwood Hammock (R155XY012FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: No

Minor Components

Ft. drum

Percent of map unit: 4 percent
Landform: Rises on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Tread, rise, 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

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: 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: 4 percent
Landform: Flats 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: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Valkaria

Percent of map unit: 3 percent
Landform: Drainageways on flats 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), Slough (R155XY011FL)
Hydric soil rating: Yes

8—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: Not prime farmland

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: Convex, concave
Across-slope shape: Linear, 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

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: 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

Pompano

Percent of map unit: 1 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), Slough (R155XY011FL)
Hydric soil rating: Yes

10—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: Farmland of unique importance

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: Flatwoods on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
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: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
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: 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

Oldsmar

Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): 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

Valkaria

Percent of map unit: 4 percent
Landform: Drainageways on flatwoods 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

11—Tequesta muck, drained

Map Unit Setting

National map unit symbol: 1kskc
Elevation: 10 to 60 feet
Mean annual precipitation: 42 to 50 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

Tequesta, drained, and similar soils: 86 percent
Minor components: 14 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tequesta, Drained

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Stratified sandy and loamy marine deposits

Typical profile

Oa - 0 to 9 inches: muck
A - 9 to 24 inches: fine sand
Eg - 24 to 36 inches: fine sand
Btg - 36 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: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 to 12 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: Low (about 5.8 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

Floridana, depressional
Percent of map unit: 4 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): 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)
Hydric soil rating: Yes

Basinger, depressional
Percent of map unit: 4 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

Gator
Percent of map unit: 3 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

Sanibel
Percent of map unit: 3 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

14—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: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, convex
Across-slope shape: Concave, linear
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: 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: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Pompano
Percent of map unit: 4 percent
Landform: Drainageways on marine terraces, flats 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

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: 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

Anclote
Percent of map unit: 1 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip

Down-slope shape: Convex, concave
Across-slope shape: Linear, 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

Felda

Percent of map unit: 1 percent
Landform: Flats 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: 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

15—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: Farmland of unique importance

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: Flatwoods on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
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: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Description of Pineda, Wet

Setting

Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
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: Flats 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: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
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: Linear, 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), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

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

Valkaria

Percent of map unit: 2 percent
Landform: Drainageways on flats on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
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), Slough (R155XY011FL)
Hydric soil rating: Yes

Cypress lake

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, convex
Across-slope shape: Concave, linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

16—Floridana fine sand, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2sm53
Elevation: 0 to 90 feet
Mean annual precipitation: 42 to 64 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

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

A - 0 to 19 inches: fine sand
Eg - 19 to 25 inches: fine sand
Btg - 25 to 80 inches: fine 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: 10 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 6.5 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: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Minor Components

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

Riviera

Percent of map unit: 3 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

Anclote

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Convex, concave
Across-slope shape: Linear, 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

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

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: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
Hydric soil rating: Yes

36—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: Farmland of unique importance

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: Convex, linear
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: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
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: 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

Pineda

Percent of map unit: 4 percent
Landform: Flats 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: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Felda

Percent of map unit: 4 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: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
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: 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

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

3—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: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
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

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

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

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

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 Upland Mesic Flatwoods and Hammocks on Rises and Knolls
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 Upland Mesic Flatwoods and Hammocks on Rises and Knolls
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 Upland Mesic Flatwoods and Hammocks on Rises and Knolls
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 Upland Mesic Flatwoods and Hammocks on Rises and Knolls
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

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

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

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

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

13—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: Farmland of unique importance

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: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
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: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
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: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

15—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 Hardwood Hammocks
Forage suitability group: Loamy and clayey soils on flats of hydric or mesic lowlands (G155XB341FL)
Other vegetative classification: Loamy and clayey soils on flats of hydric or mesic lowlands (G155XB341FL), Wetland Hardwood Hammock (R155XY012FL), 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: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
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: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL), Freshwater Marshes and Ponds (R155XY010FL)
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: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
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: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
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 Upland Mesic Flatwoods and Hammocks on Rises and Knolls
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G155XB131FL), Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

17—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: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
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: 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

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: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), Slough (R155XY011FL)
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

18—Kaliga muck, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tzw6
Elevation: 0 to 130 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: Farmland of unique importance

Map Unit Composition

Kaliga and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kaliga

Setting

Landform: Depressions on flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave

Across-slope shape: Concave, linear
Parent material: Herbaceous organic material over loamy marine deposits

Typical profile

Oa - 0 to 25 inches: muck
C1 - 25 to 35 inches: fine sandy loam
C2 - 35 to 60 inches: sandy clay loam
C3 - 60 to 80 inches: sandy clay 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
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 15.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
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: Organic soils in depressions and on flood plains (G155XB645FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Minor Components

Samsula

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: 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: 4 percent
Landform: Depressions 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

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

Chobee

Percent of map unit: 4 percent
Landform: Depressions on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R155XY090FL - Loamy and Clayey 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

Placid

Percent of map unit: 3 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

19—Hicoria mucky sand, depressional

Map Unit Setting

National map unit symbol: 1jfwd
Elevation: 10 to 100 feet
Mean annual precipitation: 47 to 55 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 277 to 307 days
Farmland classification: Not prime farmland

Map Unit Composition

Hicoria and similar soils: 87 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hicoria

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 4 inches: mucky sand
E - 4 to 21 inches: fine sand
Btg - 21 to 52 inches: fine sandy loam
BCg - 52 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 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 0.57 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 8.1 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: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Minor Components

Felda, depressional

Percent of map unit: 4 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): 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)
Hydric soil rating: Yes

Placid, depressional
Percent of map unit: 3 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

Sanibel
Percent of map unit: 3 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

Tequesta
Percent of map unit: 3 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

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

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

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

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

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

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

24—Pineda sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x1nb
Elevation: 0 to 100 feet
Mean annual precipitation: 47 to 58 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: 85 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, 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: sand
E - 5 to 19 inches: sand
Bw - 19 to 35 inches: sand
Btg/E - 35 to 38 inches: sandy loam
Btg - 38 to 60 inches: sandy loam
Cg - 60 to 80 inches: loamy 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 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 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/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), Slough (R155XY011FL)
Hydric soil rating: Yes

Minor Components

Malabar

Percent of map unit: 6 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

Wabasso

Percent of map unit: 5 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

Valkaria

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: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
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: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

26—Tequesta muck, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tzwx
Elevation: 0 to 40 feet
Mean annual precipitation: 47 to 61 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 360 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Tequesta and similar soils: 87 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tequesta

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 12 inches: muck
A - 12 to 25 inches: fine sand
Eg - 25 to 44 inches: fine sand
Btg/E - 44 to 56 inches: fine sandy loam
Btg - 56 to 72 inches: fine sandy loam
2Ck - 72 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): Moderately high to high (0.60 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: High (about 9.4 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 (G156AC645FL)
Other vegetative classification: Freshwater Marshes and Ponds (R156BY010FL), Organic soils in depressions and on flood plains (G156AC645FL)
Hydric soil rating: Yes

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

Holopaw

Percent of map unit: 3 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear, convex
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), Slough (R155XY011FL)
Hydric soil rating: Yes

Sanibel

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
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

Kaliga

Percent of map unit: 3 percent
Landform: Depressions on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave, linear
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

30—Oldsmar fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2sm4t
Elevation: 0 to 100 feet
Mean annual precipitation: 44 to 64 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

Oldsmar and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oldsmar

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): 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 35 inches: fine sand
Bh - 35 to 50 inches: fine sand
Btg - 50 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: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Minor Components

Malabar

Percent of map unit: 5 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

Nettles

Percent of map unit: 3 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)
Hydric soil rating: No

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

Pineda

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: 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

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: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

31—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: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL), Freshwater Marshes and Ponds (R155XY010FL)
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: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL), 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: 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

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: Freshwater Marshes and Ponds (R154XY010FL), Loamy and clayey soils on stream terraces, flood plains, or in depressions (G154XB345FL)
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

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

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

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: Organic soils in depressions and on flood plains (G155XB645FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

32—Arents, very steep

Map Unit Setting

National map unit symbol: 1jfws
Elevation: 0 to 150 feet
Mean annual precipitation: 47 to 55 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 277 to 307 days
Farmland classification: Not prime farmland

Map Unit Composition

Arents and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arents

Setting

Landform: Rises on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Altered marine deposits

Typical profile

C - 0 to 80 inches: variable

Properties and qualities

Slope: 45 to 65 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
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: More than 80 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 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Other vegetative classification: Forage suitability group not assigned (G155XB999FL)
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

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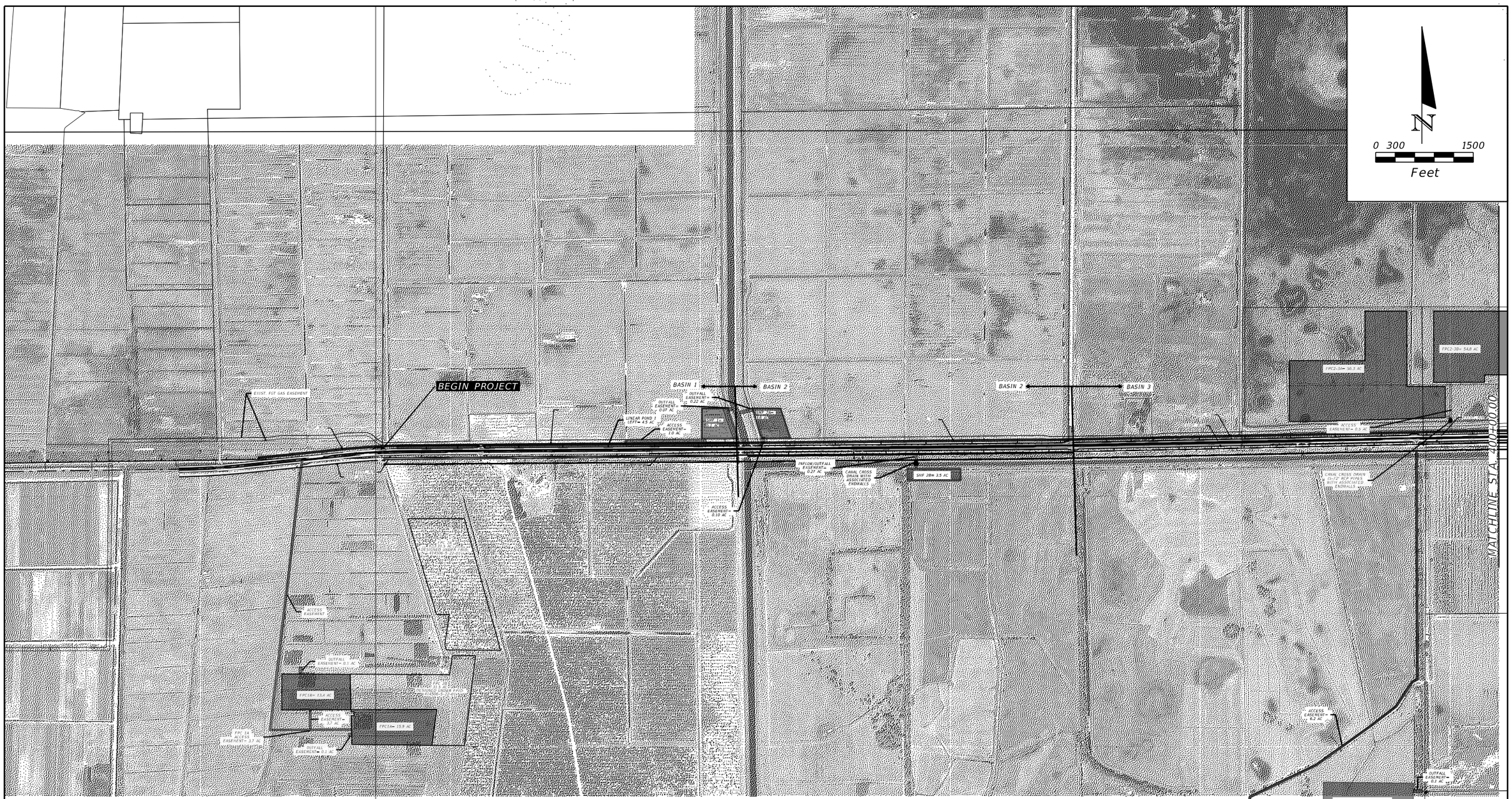
APPENDIX I

Exhibits



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kisinger Campo & Associates Corp.
201 N. Franklin Street, Suite 900
Tampa, Florida 33602

I-1

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	HIGHLANDS	449851-1-22-01

MASTER ALTERNATIVES EXHIBIT

SHEET NO.

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Tampa, Florida 33602

I-2

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	HIGHLANDS	449851-1-22-01

MASTER ALTERNATIVES EXHIBIT

SHEET NO.

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I-3

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	HIGHLANDS	449851-1-22-01

FPC ALTERNATIVES EXHIBIT 1

SHEET NO.

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I-4

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SR 70	HIGHLANDS	449851-1-22-01

FPC ALTERNATIVES EXHIBIT 2

SHEET NO.

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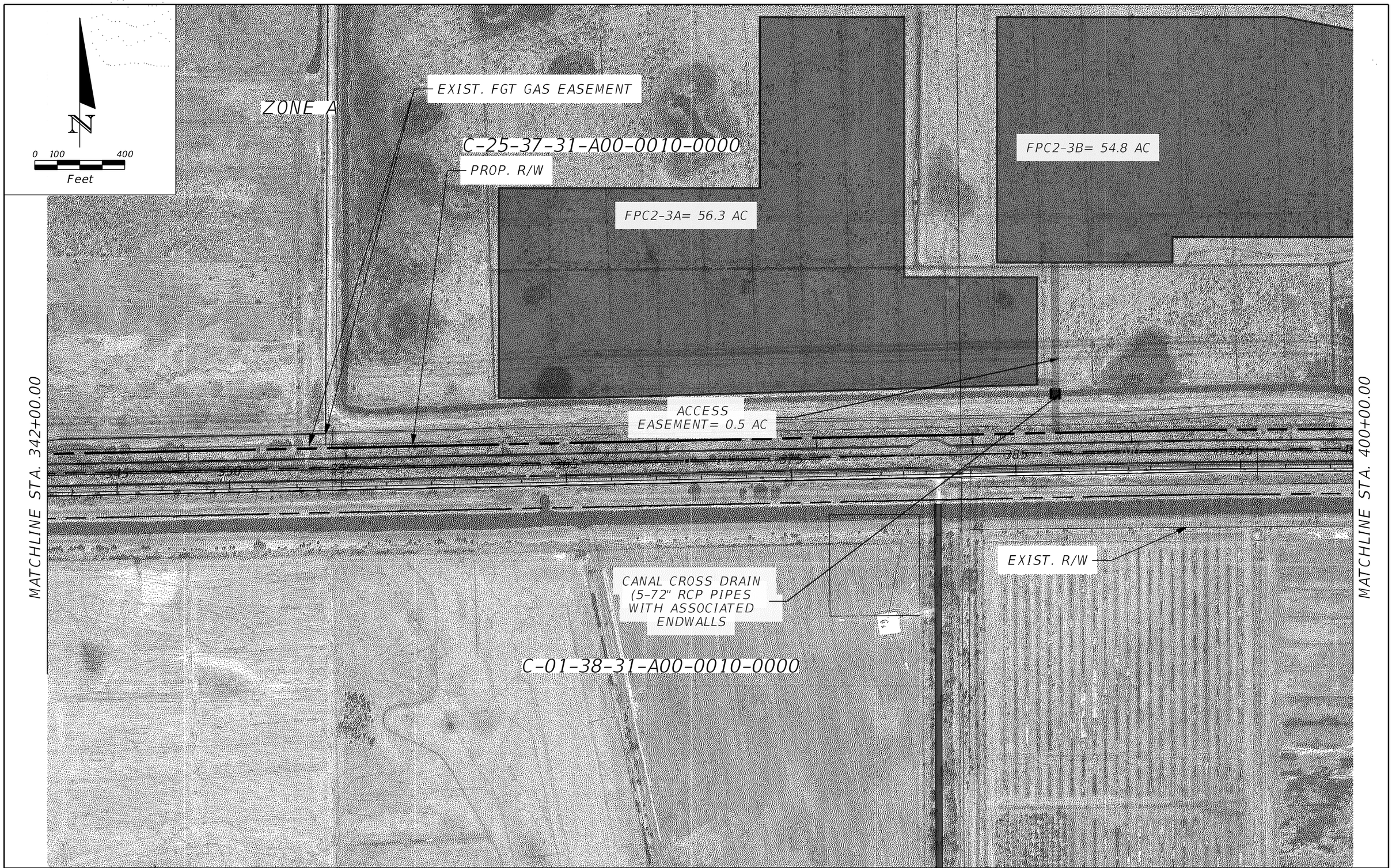

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I-5

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DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	HIGHLANDS	449851-1-22-01

FPC ALTERNATIVES EXHIBIT 3

SHEET NO.

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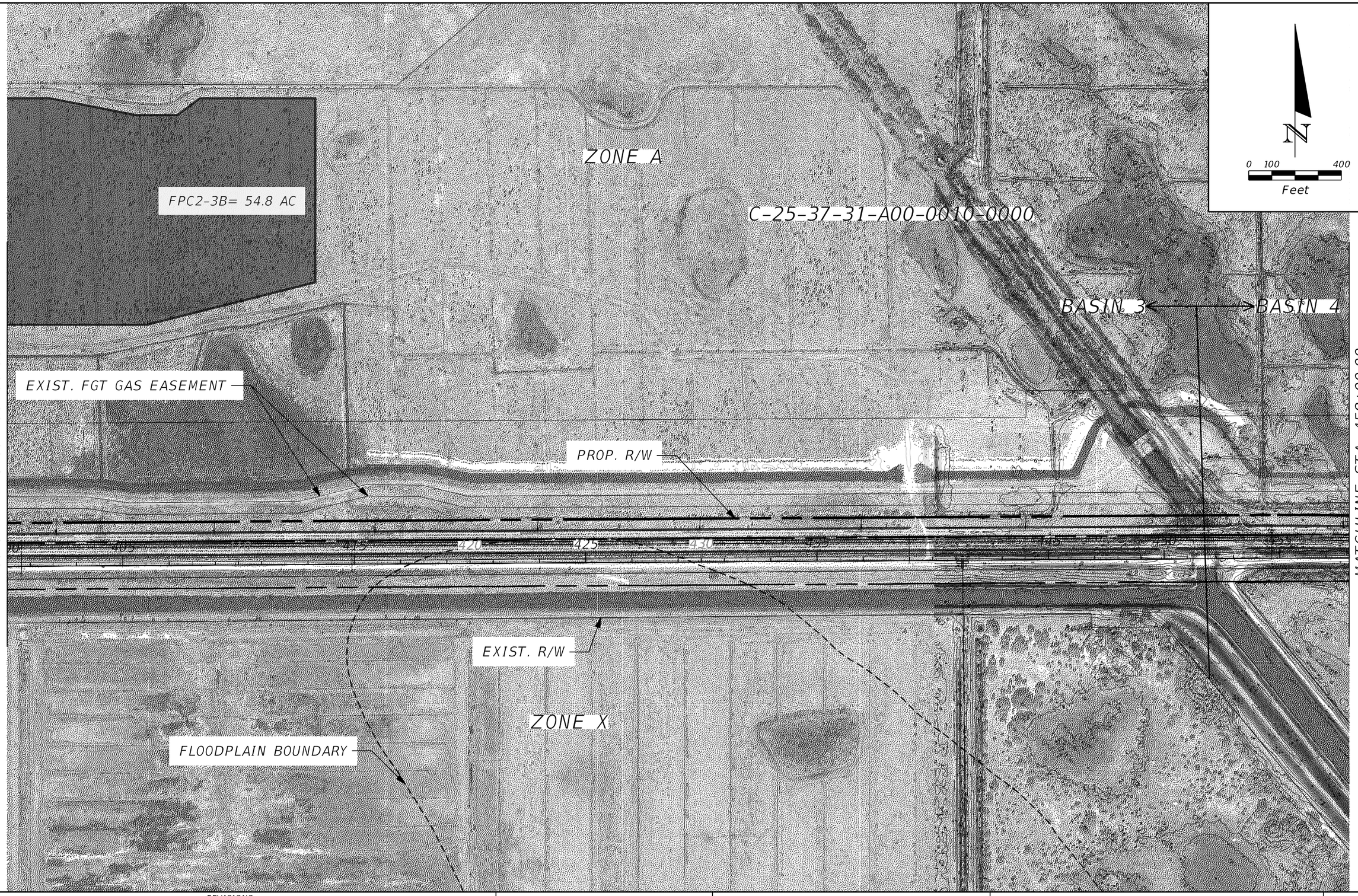

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I-6

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	HIGHLANDS	449851-1-22-01

FPC ALTERNATIVES EXHIBIT 4

SHEET NO.

$USER$ $DATE$ $TIME$ $MODELNAME$ C:\Users\abasil\KCA\6202212 SR70 Lonesome-CR721 - Documents\Engineering\Pond Siting Report\DRMPRD004.dgn

ACCESS EASEMENT= 0.1 AC

ZONE A

BASIN 4

BASIN 5

EXIST. R/W

EXIST. FGT GAS EASEMENT

485 475 485 495 500 505

N

0 100 400

Feet

ACCEESS EASEMENT= 0.1 AC

PROP. R/W

FPC4A= 14 AC

FPC4B= 17.2 AC

FPC5A= 11.8 AC

ACCESS EASEMENT= 0.2 AC

ACCESS EASEMENT= 2.1 AC

FPC5B= 11.6 AC

MATCHLINE STA. 458+00.00

MATCHLINE STA. 516+00.00

A05-38-32-A00-0010-0020

OUTFALL EASEMENT= 0.1 AC

OUTFALL R/W= 0.1 AC

OUTFALL EASEMENT= 0.04 AC

OUTFALL R/W = 0.10 AC

ZONE X

A04-38-32-A00-0010-0040

FLOODPLAIN BOUNDARY

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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I-7

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	HIGHLANDS	449851-1-22-01

FPC ALTERNATIVES EXHIBIT 5

SHEET NO.

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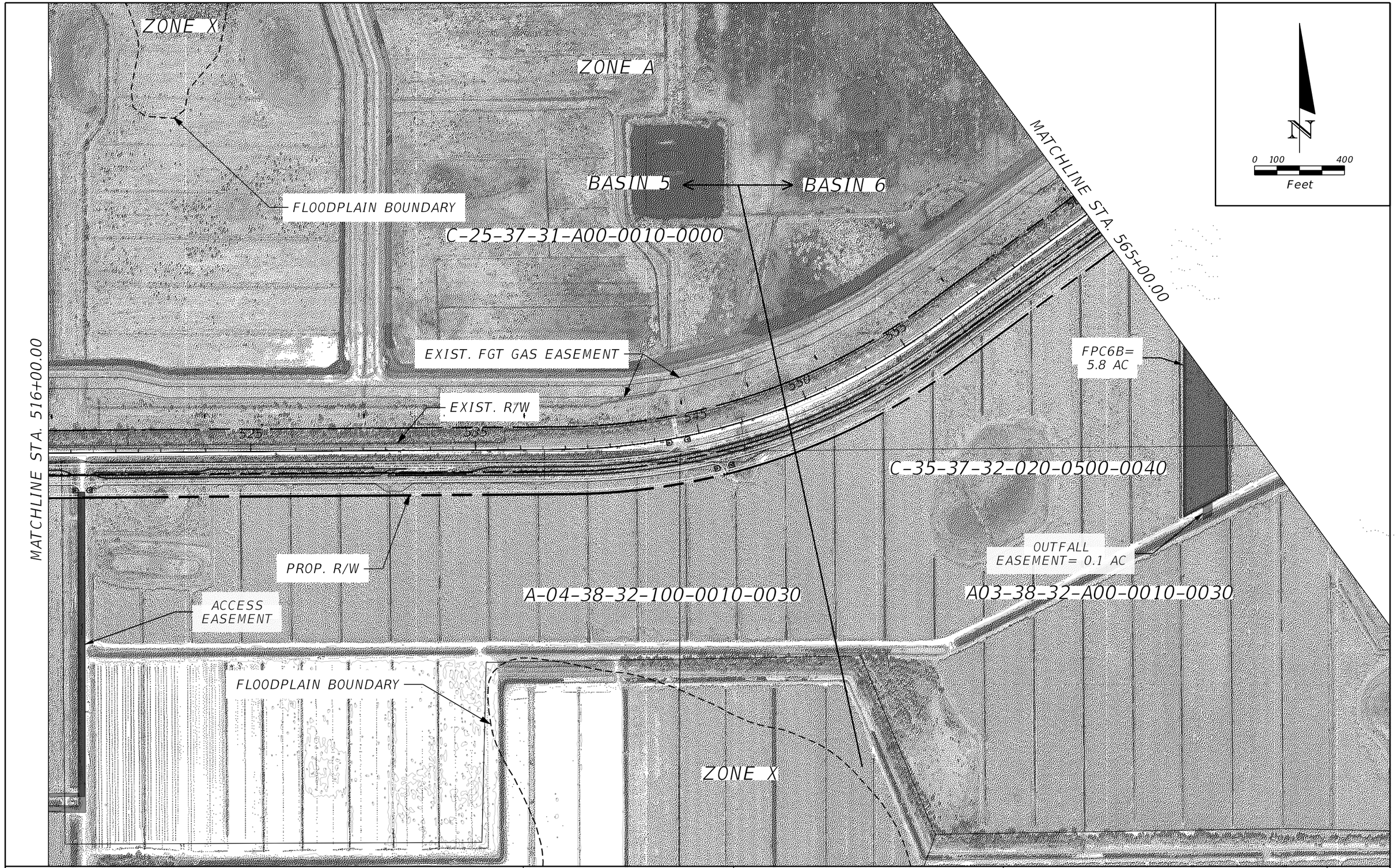

REVISIONS			
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Kisinger Campo & Associates Corp.
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I-8

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	HIGHLANDS	449851-1-22-01

FPC ALTERNATIVES EXHIBIT 6

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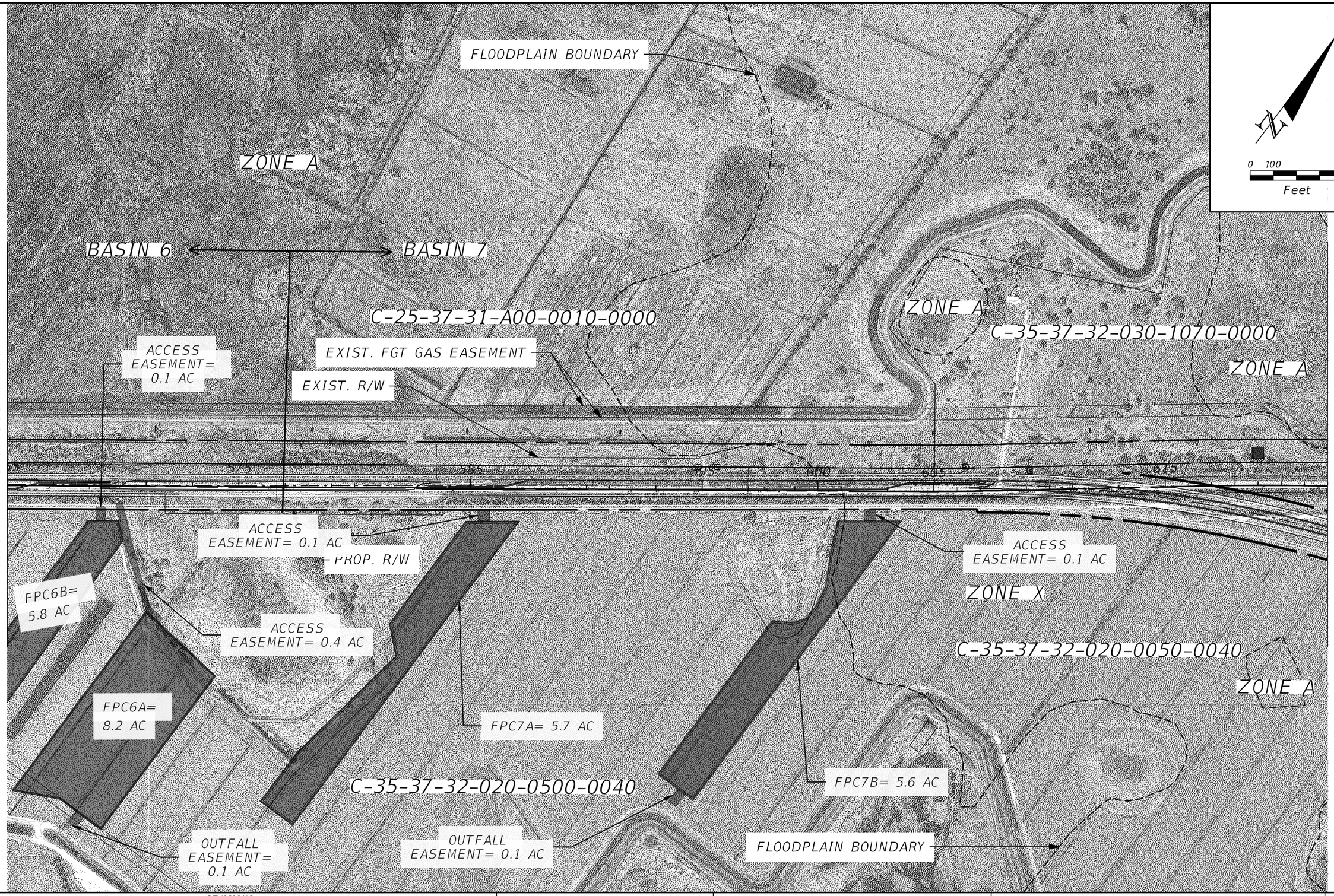

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FPC ALTERNATIVES EXHIBIT 7

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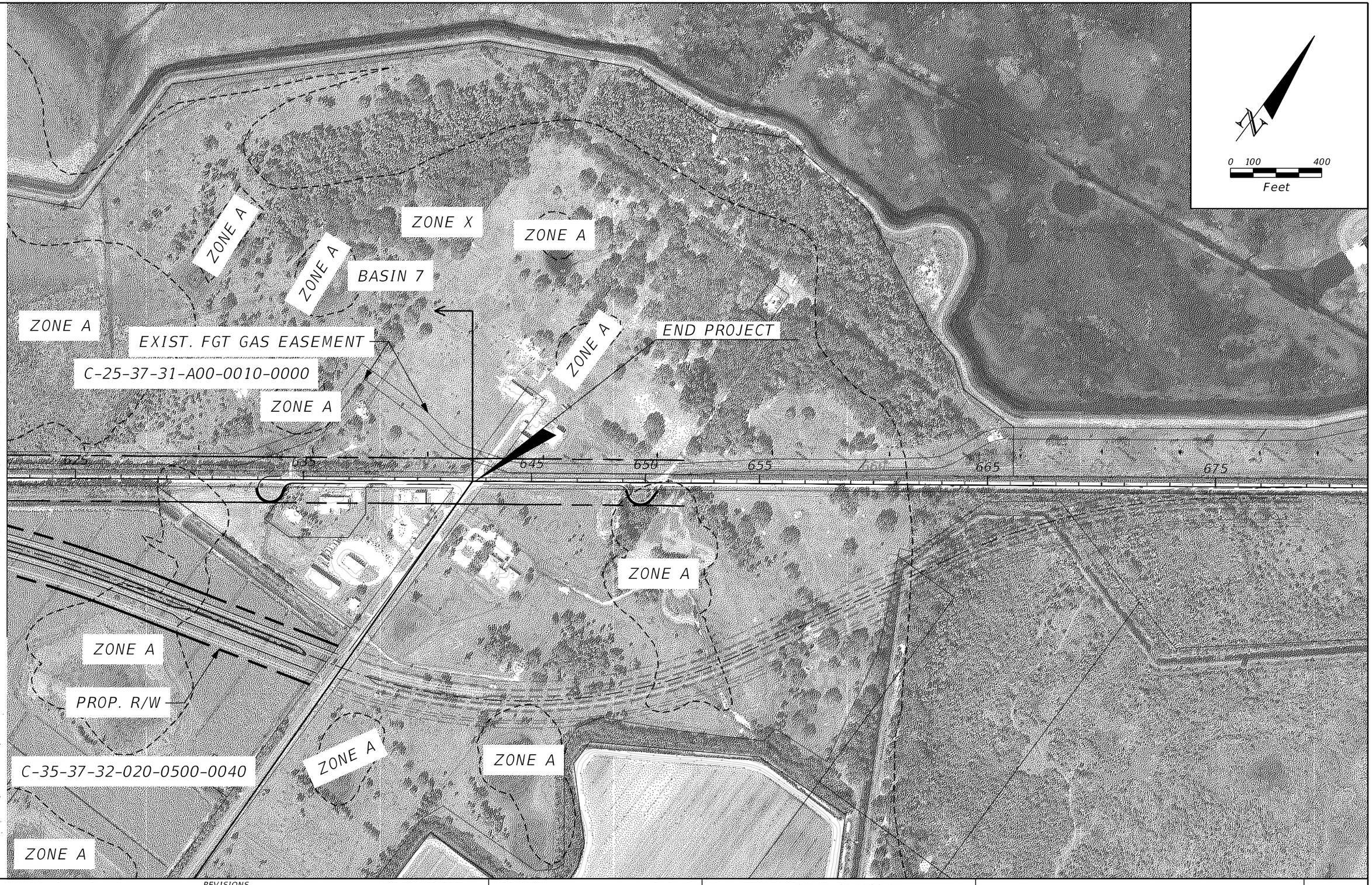

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FPC ALTERNATIVES
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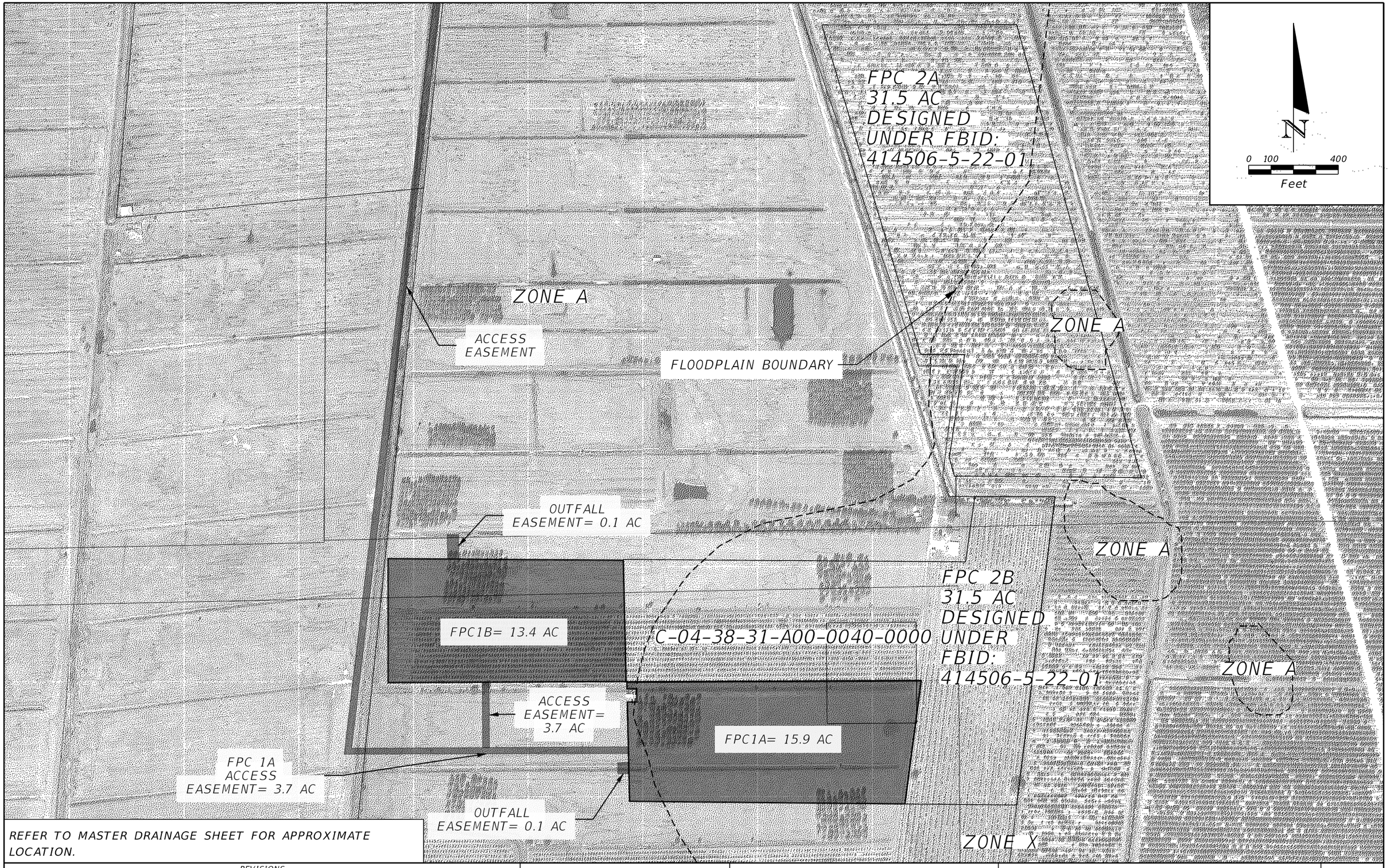

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FPC ALTERNATIVES EXHIBIT 9

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SR 70	HIGHLANDS	449851-1-22-01

SMF ALTERNATIVES EXHIBIT 2

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I-14

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SR 70	HIGHLANDS	449851-1-22-01

SMF ALTERNATIVES EXHIBIT 3

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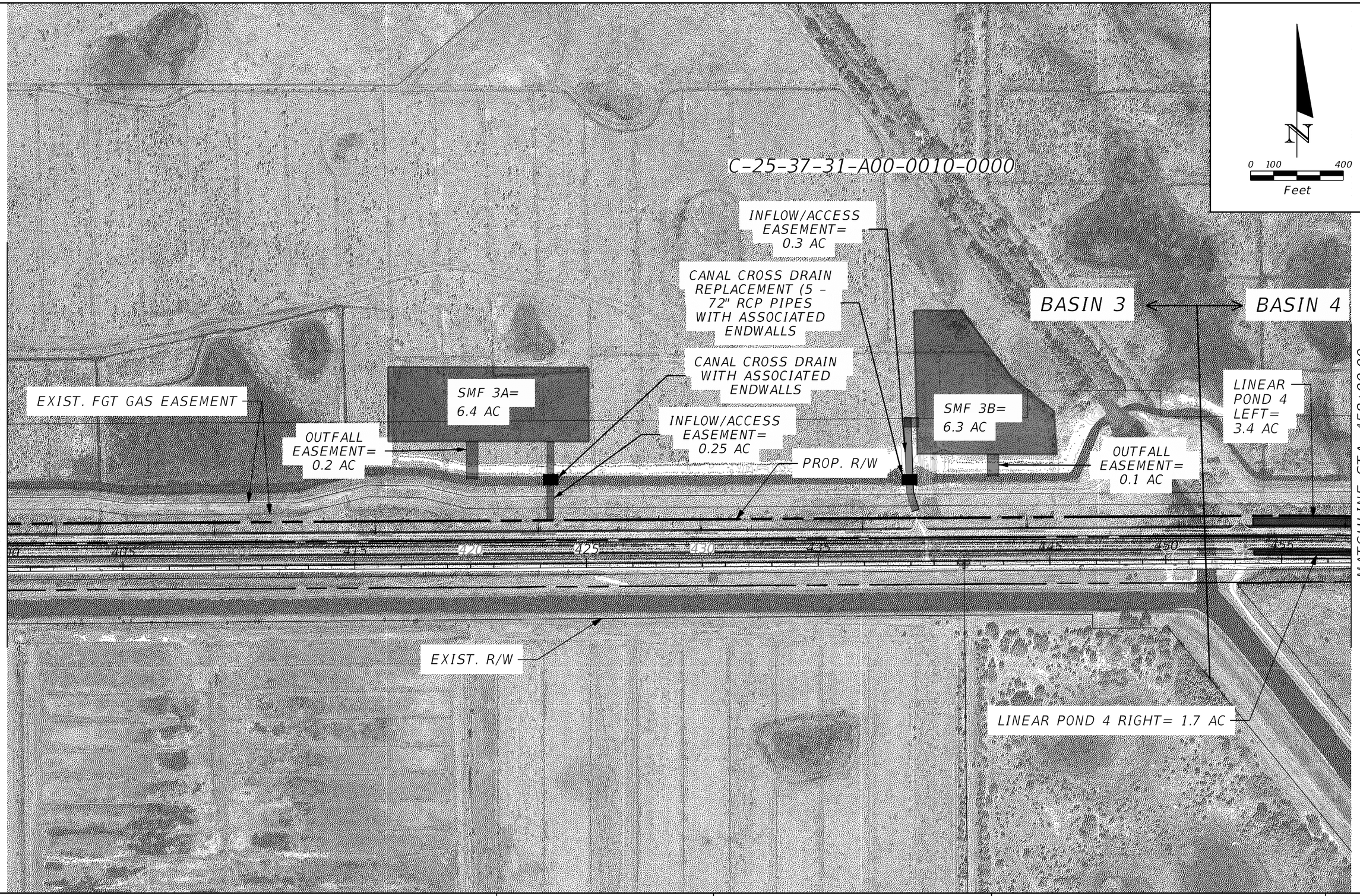

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I-15

STATE OF FLORIDA
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	HIGHLANDS	449851-1-22-01

SMF ALTERNATIVES EXHIBIT 4

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C-25-37-31-A00-0010-0000

EXIST. FGT GAS EASEMENT

LINEAR POND 4
LEFT= 3.4 AC

LINEAR POND 5
LEFT= 4.8 AC

EXIST. R/W

475 485 495 500 505

SMF 4= 3.4 AC

SMF 5= 5.6 AC

PROP. R/W

OUTFALL
EASEMENT=
0.1 AC

LINEAR POND 4
RIGHT= 1.7 AC

OUTFALL
EASEMENT=
0.02 AC

N

0 100 400
Feet

MATCHLINE STA. 458+00.00

A05-38-32-A00-0010-0020

ACCESS
EASEMENT=
2.3 AC

ACCESS
EASEMENT

MATCHLINE STA. 516+00.00

ZONE X

REGIONAL POND B
= 25.2 AC

A04-38-32-A00-0010-0040

OUTFALL
EASEMENT=
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	HIGHLANDS	449851-1-22-01

SMF ALTERNATIVES EXHIBIT 5

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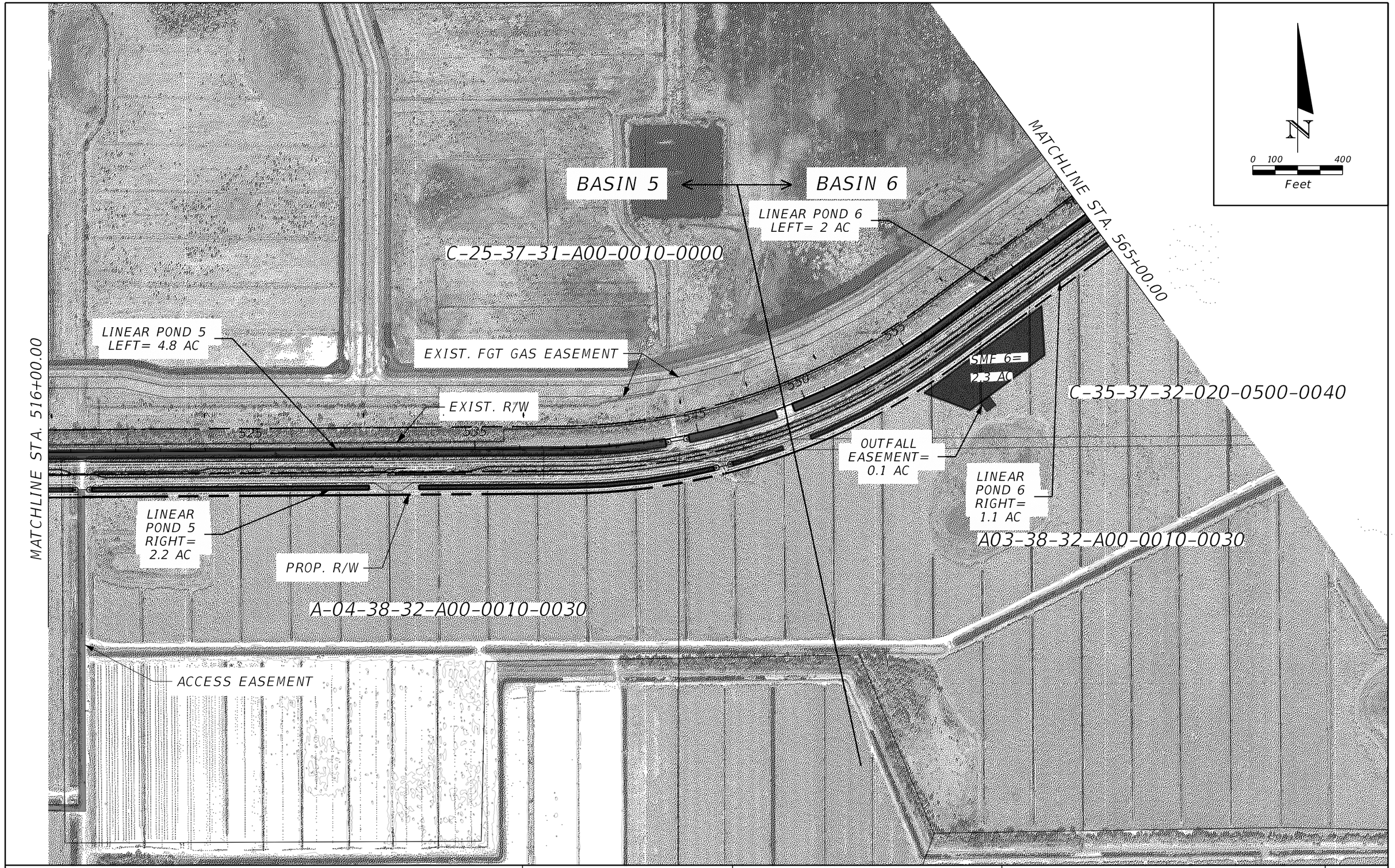

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SMF ALTERNATIVES EXHIBIT 6

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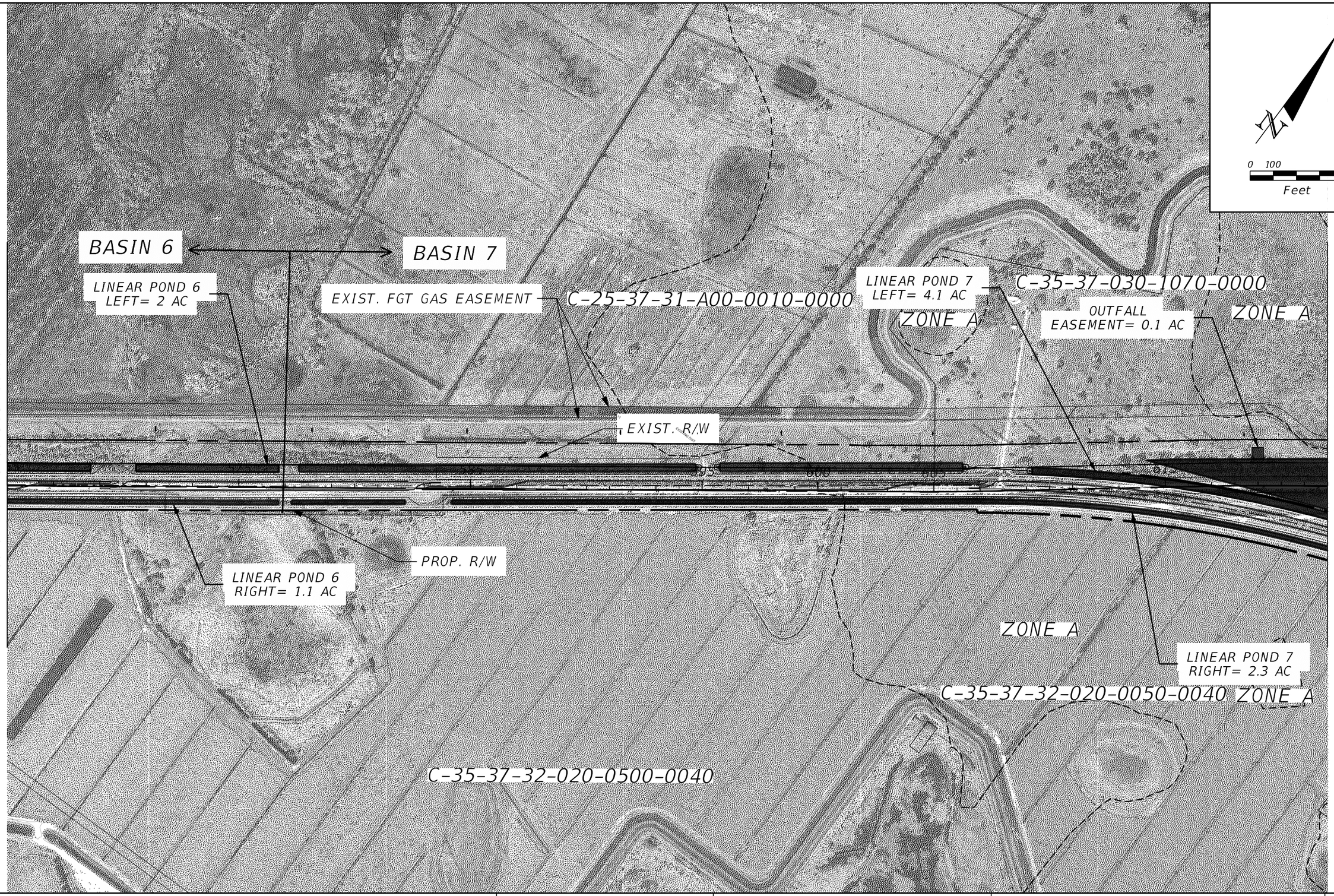

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SR 70	HIGHLANDS	449851-1-22-01

SMF ALTERNATIVES EXHIBIT 7

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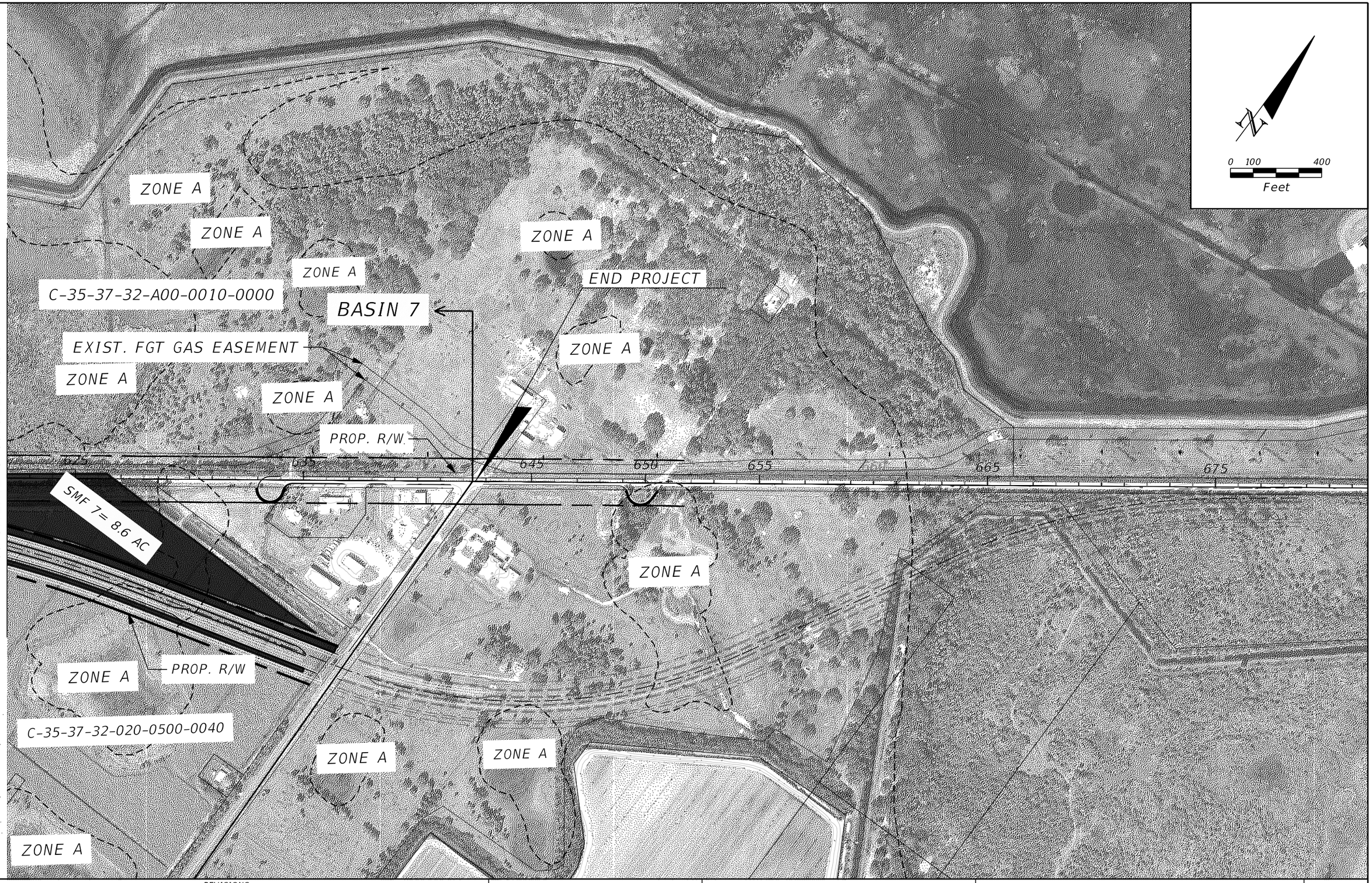

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I-19

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SR 70	HIGHLANDS	449851-1-22-01

SMF ALTERNATIVES EXHIBIT 8

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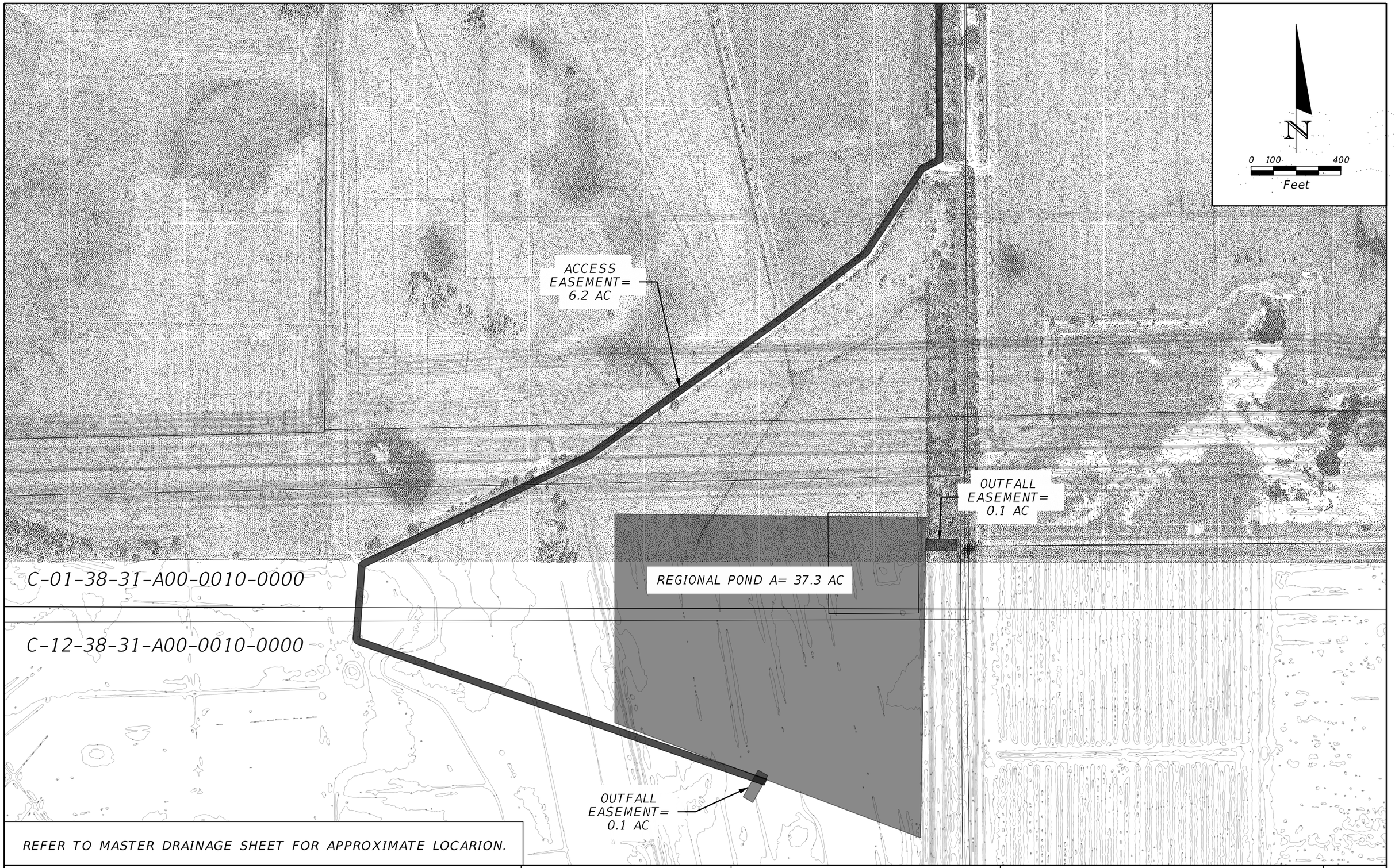

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SR 70	HIGHLANDS	449851-1-22-01

SMF ALTERNATIVES EXHIBIT 9

SHEET NO.

APPENDIX J

Preliminary Cultural Resource Assessment Probability Analysis for Proposed Pond Sites

PRELIMINARY CULTURAL RESOURCE ASSESSMENT PROBABILITY ANALYSIS

PROPOSED POND SITES

STATE ROAD (SR) 70 FROM LONESOME ISLAND ROAD TO SOUTHERN LEG OF COUNTY ROAD (CR) 721

HIGHLANDS COUNTY, FLORIDA

FPID No.: 449851-1
Federal Project No.: TBD

Prepared for:

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

July 2024

PRELIMINARY CULTURAL RESOURCE ASSESSMENT PROBABILITY ANALYSIS

PROPOSED POND SITES

STATE ROAD (SR) 70 FROM LONESOME ISLAND ROAD TO THE SOUTHERN LEG OF COUNTY ROAD (CR) 721

HIGHLANDS COUNTY, FLORIDA

FPID No.: 449851-1
Federal Project No.: TBD

Prepared for:

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

Prepared by:

Archaeological Consultants, Inc.
8110 Blaikie Court, Suite A
Sarasota, Florida 34240

In association with:

American Consulting Engineers of Florida, LLC.
2818 Cypress Ridge Boulevard, Suite 200,
Wesley Chapel, Florida 33544

July 2024

1.0 INTRODUCTION

The Florida Department of Transportation (FDOT), District One is conducting a Project Development and Environment (PD&E) study to address traffic safety conditions on State Road (SR) 70 from Lonesome Island Road to the southern leg of County Road (CR) 721 within Highlands County, Florida. This roadway project proposes the widening of a two-lane facility up to a four-lane, divided facility and/or the inclusion of operational improvements along 7.6 miles of SR 70. The project was reviewed through the Environmental Screening Tool (EST) as part of the Efficient Transportation Decision Making (ETDM) Programming Screen Phase (ETDM #14490; FDOT 2023).

This desktop analysis was conducted by Archaeological Consultants, Inc. (ACI), in association with American Consulting Engineers of Florida, LLC, on behalf of FDOT, as part of the SR 70 Improvements. As part of the study, 32 pond site alternatives are being evaluated. These include 12 Floodplain Compensation Areas (FPC), nine (9) Stormwater Management Facilities (SMF), nine (9) Linear Ponds (LIN), and two (2) Regional Ponds (REG). The widening for SR 70 will occur within Highlands County; however, the proposed pond sites are located in Highlands and Glades Counties.

The purpose of this study was to determine, preliminarily, if any significant or potentially significant cultural resources, including archaeological sites and historic resources, will be impacted by the proposed SMF and FPC sites associated with drainage improvements associated with the alignment improvements to SR 70 (**Figure 1**). Known or potentially significant cultural resources are defined as those sites that are listed, determined eligible, or considered potentially eligible for listing in the National Register of Historic Places (NRHP). All work was conducted in compliance with the provisions of the *National Historic Preservation Act of 1966* (Public Law 89-665), as amended, and the implementing regulations 36 CFR 800, as well as with the provisions contained in the revised Chapter 267, *Florida Statutes* (*FS*).

The study methodology included a review of Florida Master Site File (FMSF) records, NRHP listings, relevant Cultural Resource Assessment Survey (CRAS) reports, the ETDM Project Report #14490 (FDOT 2023), the U.S. Department of Agriculture's (USDA) *Soil Survey of Highlands County, Florida* (USDA 1989), as well as the United States Geological Survey (USGS) Brighton and Brighton NW quadrangle maps (USGS 1953a, b).

The preliminary study indicated that one previously recorded pre-Contact period archaeological site (8HG01279) is within pond site SMF 3B and six additional ones are located within one-half mile of the proposed pond sites. Five of these sites (8HG00894; 8HG00897; 8HG01077; 8HG01279; 8HG01287) are pre-Contact middens, one with associated mounds (8HG01279). Two of these sites (8HG00894; 8HG00897) are dated to the Late Archaic period with 8HG00894 also having a later Twentieth Century American component. Two terrestrial sites (8HG01078; 8HG01079) also date to Twentieth Century America. Only sites 8HG01279 (Brighton Valley 04) and 8HG01287 (Brighton Valley 05) were determined eligible for listing in the NRHP by the State Historic Preservation Officer (SHPO); the other five sites have either not been evaluated by the SHPO or were deemed has having insufficient information to make a determination. In addition, a review of the ETDM (#14490; FDOT 2023) revealed that the project will have minimal effects on pre-Contact and historic period archaeological sites. As a result of the background research, the pond sites were determined to have environmental features typical of those sometimes associated with pre-Contact site locations thus, the pond sites were determined to have a variable archaeological probability.

The historical background research, including a review of the FMSF and the NRHP digital databases, revealed that one historic linear resource (8HG01125) has been previously recorded within the 150-foot (ft) buffer to the proposed pond sites and easements. The 400-ft previously recorded segment of Harney Pond Canal (8HG01125) and an unrecorded segment are immediately adjacent to SMF 1 and

Linear Pond on the north side of SR 70. The SHPO found there was insufficient information to determine the eligibility for the historic linear resource for the NRHP. In addition, an unrecorded segment of the previously recorded C-39A Canal (8GL00476) is located immediately adjacent to proposed pond site SMF 2B. The SHPO found there was insufficient information to determine eligibility for listing in the NRHP. A review of relevant historic USGS quadrangle maps, historic aerial photographs, and the Highlands and Glades County property appraisers' website data revealed the potential for 25 new historic resources 45 years of age or older (constructed in 1979 or earlier) within the 150-ft buffer of each proposed pond site and easement (McIntyre 2024; Ward 2024). These include 24 Linear Resources, constructed between circa (ca.) 1920 and ca. 1970, and one ca. 1970 building. The linear resources found in the proposed pond areas are associated with irrigation and field channels or Branch or distributary canals and are not a main canal. The canal systems within the project area are common examples of agricultural drainage systems found throughout Florida.

As a result of the desktop analysis, only one pre-Contact period archaeological site, the Brighton Valley 04 Site (8HG01279), is located within a proposed pond site. The resource is located in the northern portion of proposed SMF-3B. The site is a Pre-Contact shell midden/mound that was determined eligible for listing in the NRHP by the SHPO. As such, it is recommended that SMF-3B should be avoided due to the presence of the NRHP eligible pre-Contact period archeological site (8HG01279). With regards to historic resources, it does not appear that any of the proposed ponds, easements, or pond outfalls should be avoided. Following the selection of preferred pond sites, systematic archaeological field survey is recommended in accordance with the guidelines and standards promulgated by the FDOT and Florida Division of Historical Resources (FDHR). Even if the selected pond sites are considered to have a low potential, they should be surveyed and judgmentally tested. Furthermore, due the presence of historic resources in relation to the proposed pond sites, a historical/architectural field survey is also recommended.

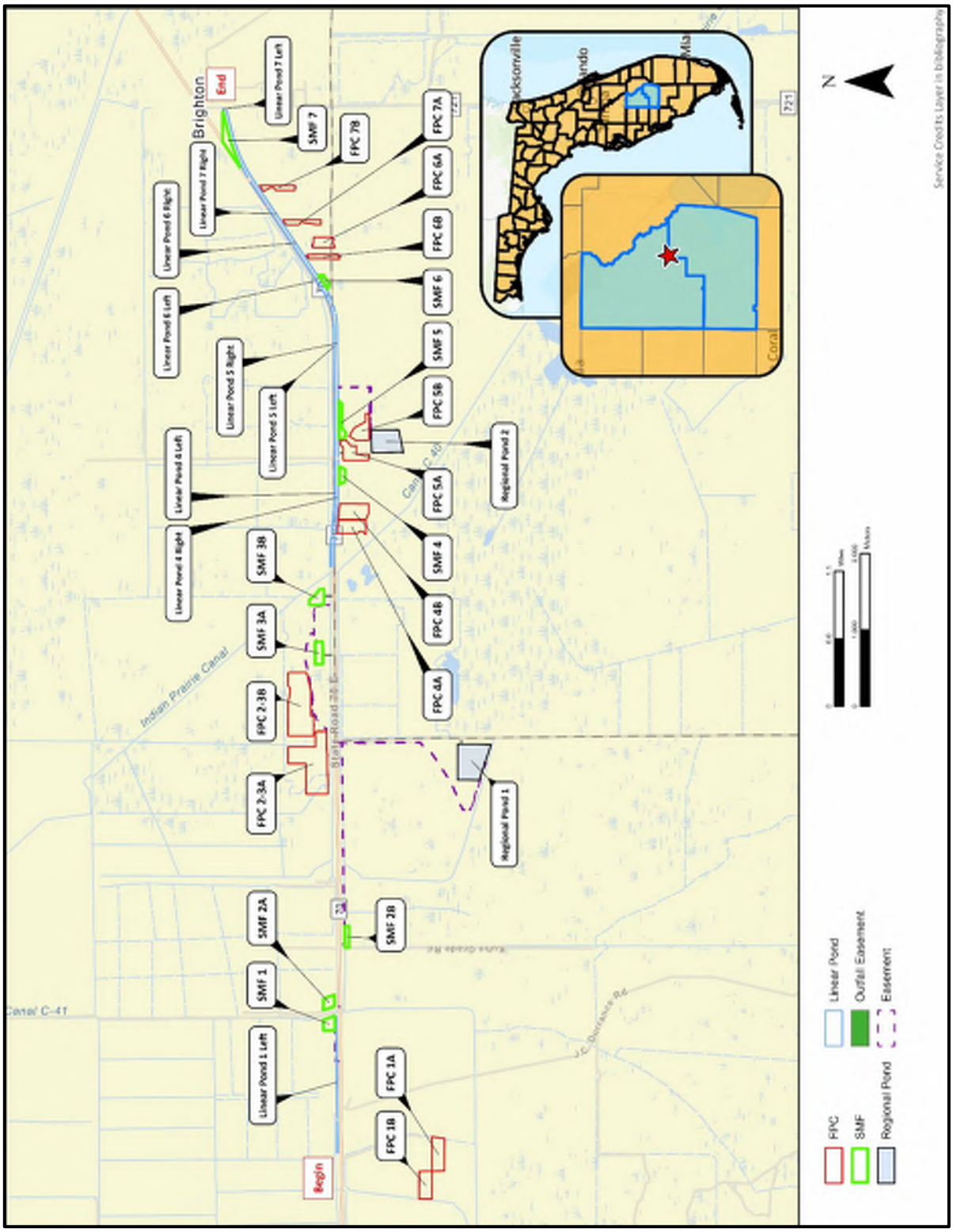

Figure 1. Location of the proposed pond sites.

2.0 DESCRIPTION OF KNOWN ARCHAEOLOGICAL SITES AND HISTORIC RESOURCES POTENTIAL

Archaeological Sites: A review of the FMSF digital database (July 2024) indicated that there is one previously recorded pre-Contact period archaeological site (8HG01279) within pond site SMF 3B and six additional ones located within one-half mile of the proposed pond sites (**Figures 2-3**). 8HG01279. Five of these sites (8HG00894; 8HG00897; 8HG01077; 8HG01279; 8HG01287) are pre-Contact middens, one with associated mounds (8HG01279). Two of these sites (8HG00894; 8HG00897) are dated to the Late Archaic period with 8HG00894 also having a later Twentieth Century American component. Two terrestrial sites (8HG01078; 8HG01079) also date to Twentieth Century America. Sites 8HG00894 and 8HG00897 were recorded during a survey of the Brighton Sugarcane project parcel conducted by the Archaeological and Historic Conservancy in 1997 (Carr et al. 1997). Sites 8HG01077, 8HG01078, and 8HG01079 were recorded during a cultural resource evaluation for the development of a feedstock farming operation in 2011 (Bradley et al. 2011). The last two sites, 8HG01279 and 8HG01287, were recorded during a survey for the Brighton Valley Water Management Project conducted by Cardno in 2015 (Ambrosino 2015). Only sites 8HG01279 (Brighton Valley 04) and 8HG01287 (Brighton Valley 05) were determined eligible for listing in the NRHP by the SHPO; the other five sites have either not been evaluated by the SHPO or were deemed has having insufficient information to make a determination. Site 8HG01279 contained over 150 artifacts that included faunal remains (mammal bone, snake vertebrae, turtle shell), a chert flake, and a ceramic sherd, **Table 1** lists further details of each site.

Table 1. Previously recorded archaeological sites within one-half mile of the proposed ponds. Green indicates site is within a pond site.

Site No.	Site Name	Site Type	Culture	SHPO Eval
8HG00894	Brighton Sugarcane #22	Pre-Contact midden(s); agriculture/farm structure	Late Archaic; Twentieth century American	No eval
8HG00897	Brighton Sugarcane #25	Pre-Contact midden(s)	Late Archaic; Twentieth century American	No eval
8HG01077	Arced Landform Site	Pre-Contact habitation; subsurface features	Pre-Contact	Insufficient info
8HG01078	STA Historic #1	Land-terrestrial	Twentieth century American	Insufficient info
8HG01079	STA Historic #2	Land-terrestrial	Twentieth century American	Insufficient info
8HG01279	Brighton Valley 04	Pre-Contact shell midden/mound(s); ceramic scatter	Pre-Contact	Eligible
8HG01287	Bright Valley 05	Pre-Contact midden(s)	Pre-Contact	Eligible

Other surveys in the area (**Figure 4**) include those conducted for private developers (Carr et al. 1997; Bradley et al. 2011; Hunter and Schenker 2009a, 2009b; Smith 2008a), cell towers (Bowen et al. 2012), bridges (Browning and Wiedenfeld 1988; Janus Research 1996), Wetland Reserve Projects (Ambrosino 2015; Bertine 2016, 2018; Dickinson and Wayne 2012; Dunn 2013, 2015; Smith 2011), and utilities (Barse et al. 2009; Coughlin et al. 2010; Janus Research/R. Christopher Goodwin 2008). All these surveys resulted in negative results.

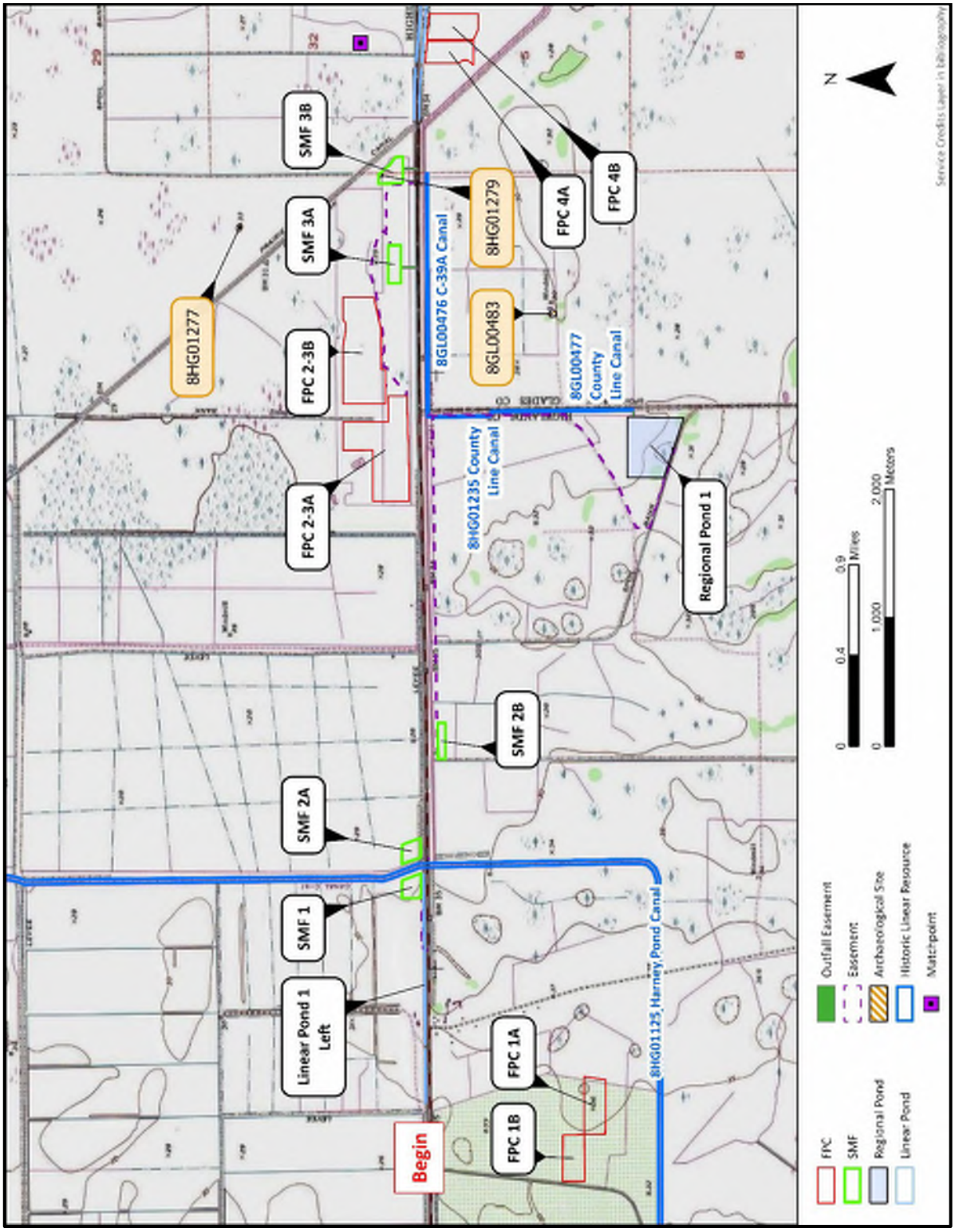

Figure 2. Environmental setting and previously recorded cultural resources in and within one-half mile of the proposed pond sites.

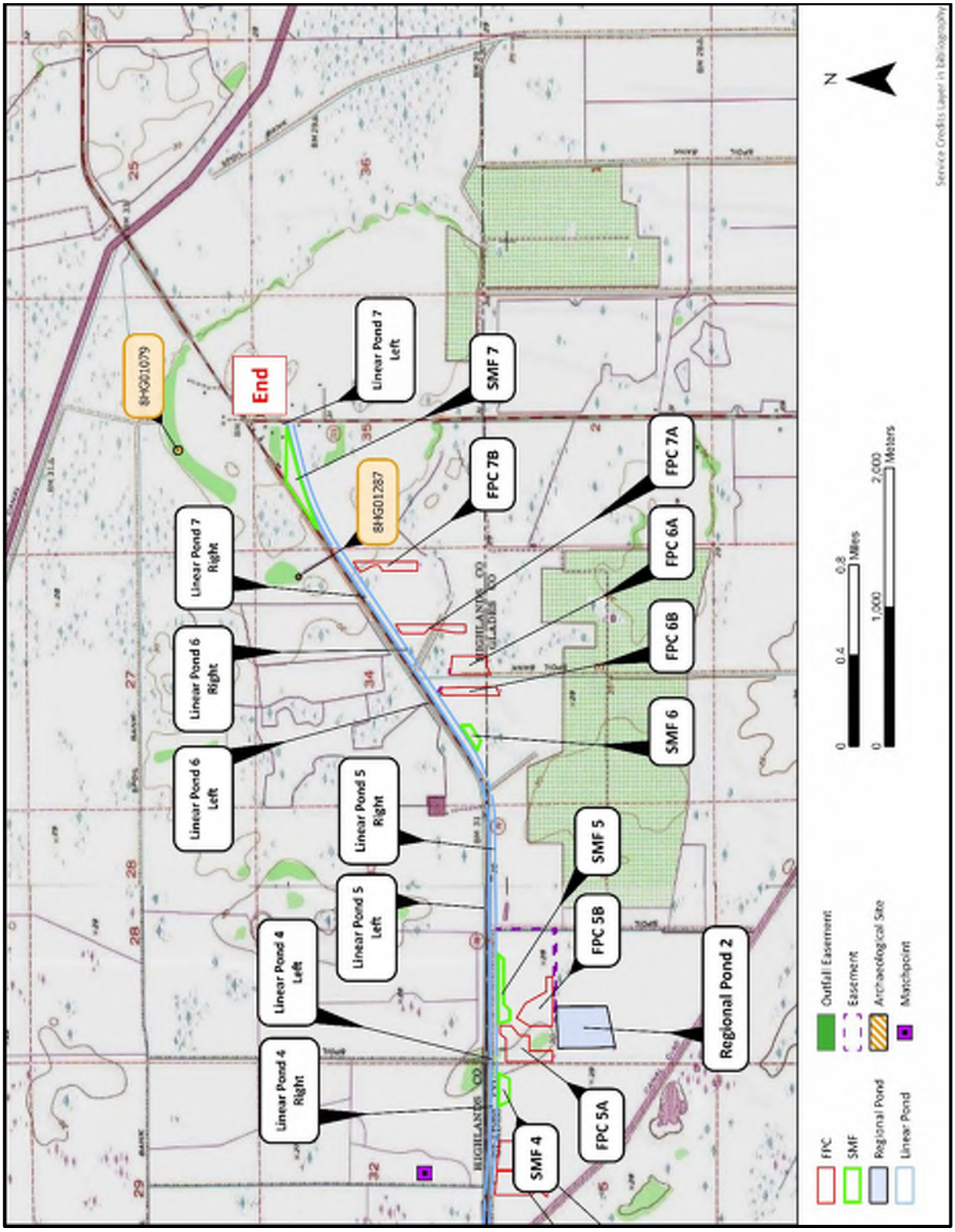

Figure 3. Environmental setting and previously recorded cultural resources within one-half mile of the proposed pond sites.

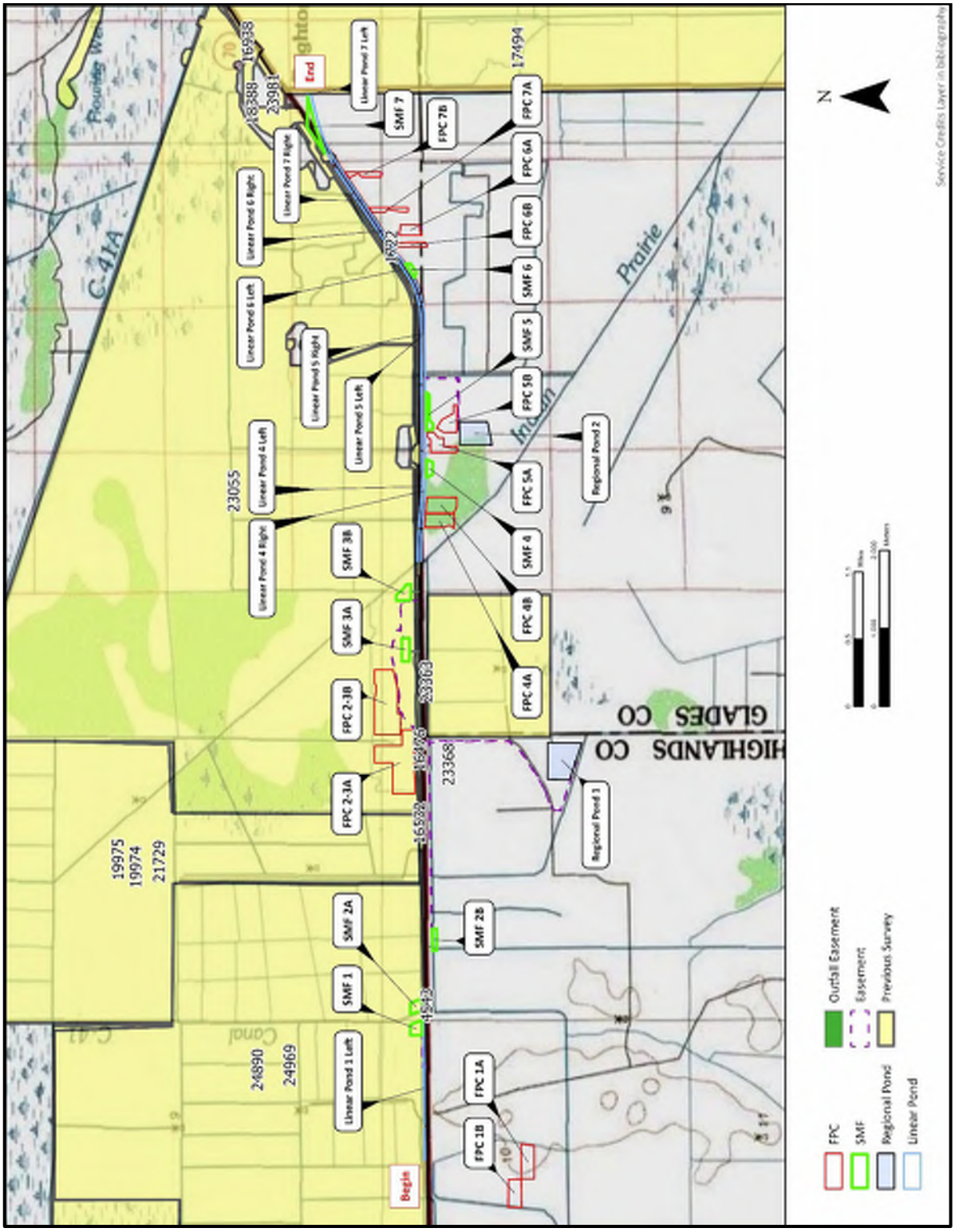

Figure 4. Previous surveys conducted in close proximity to the proposed pond sites.

As archaeologists have long realized, Indigenous populations did not select their habitation sites and special activity areas in a random fashion. Rather, many environmental factors had a direct influence upon site location selection. Among these variables are soil types and drainage distance to freshwater, relative topography, and proximity to food and other resources including stone and clay. Within the general area, it has been repeatedly demonstrated that archaeological sites are most often located near

a permanent or semi-permanent source of potable water. In general, prehistoric sites are found on better drained soils and at the better drained upland margins of wetland features such as swamps, sinkholes, lakes, and ponds. Also, site locations often occur where a diversity of natural habitats could be exploited expeditiously. The current soil data (USDA 1989) indicate that the soils within the proposed pond sites are all poorly or very poorly drained (**Figure 5**).

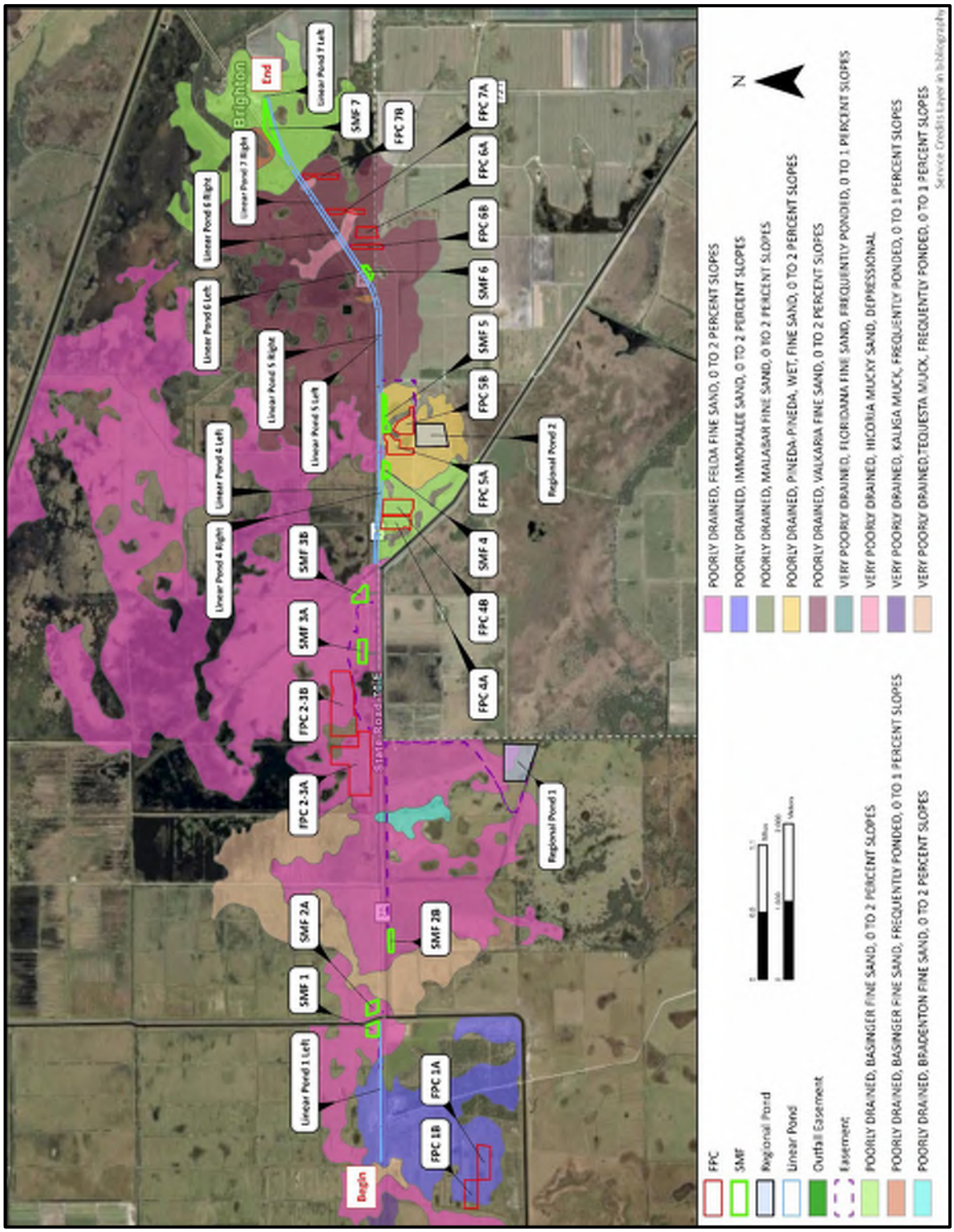

Figure 5. Soil types within the proposed pond sites (USDA 1989).

However, this model is not wholly applicable to pre-Contact southern Florida, where a flat landscape and extensive areas covered by slow-moving water are characteristic, while elevated, well-drained landscapes are in very limited supply. Instead, as research has shown, the key to site location in the project vicinity lies in an understanding of the environment prior to land modifications (canals, agricultural ditches, clear cutting, etc.), and the identification of landscape signatures visible today in existing data (aerial photographs, historic maps, GIS imagery, on-the-ground inspection, and others) that, in combination with elevation and soil data, can be used to identify site probability areas for archaeological survey. A survey strategy for use in southern Florida was prepared for the Army Corps of Engineers (ACOE), the Comprehensive Everglades Restoration Plan (CERP) model (Smith 2008). It provides a detailed discussion of site location techniques in southern Florida, which are not detailed here, but were utilized to evaluate the archaeological potential of the proposed pond sites.

As noted in the CERP, much of southern Florida, including land within the proposed pond sites, have undergone multiple changes as the result of ditching, berm construction, clearing, agriculture, and the timber, citrus, and cattle industries. Thus, some of the original land features have been altered. Research in the vicinity of the proposed pond sites has proven that survey in such areas is most successful when it uses a research design that identifies the location of hammocks and tree islands that existed near ponds, sloughs, or other water sources. The tools used in the development of such a survey strategy include the historic aerial photograph from the 1940s to 1970s, supplemented by various maps (soil, vegetation, historic, etc.), as available. Through these methods, ACI was able to locate targets visible on historic aerials (ponds, tree islands, ridge formations, and the like). *The Preliminary Revision to the Existing South Florida Archaeological Context* (Janus Research 2008), prepared as a companion to the CERP survey strategy, noted that almost every tree island hammock in the interior of southern Florida had the potential to contain an archaeological site, and most sites were black dirt, accretionary middens (Janus Research 2008:9).

The pond sites fall within the subregion referred to as Okeechobee, which includes Lake Okeechobee and its basin (Smith 2008: 71-76). Within this subregion the pre-Contact sites would be situated on small areas of raised elevation. On these small patches of higher elevation, there are limestone depressions that collect water and have either a concentration of young cypress situated in the lowest area of the depression, or willow trees will surround the depression (Smith 2008: 72; Figure 49). Given the generally wet and seasonally inundated nature of the proposed pond sites, it was unlikely that pre-Contact year-round village sites would be found; rather sites would be small, short-term camp sites represented by middens, mounds, and/or artifact scatters.

In keeping with the CERP model several historic maps were reviewed. The forts of southern Florida rarely met the size and permanency of forts such as Brooke, King, and Mellon to the north. Captain MacKay and Lieutenant Blake mapped the forts, depots, and trails of Florida in 1839 on a map titled *Map of the Seat of the War in Florida* (Mackay and Blake 1839). **Figure 6** shows that the project is surrounded by several trails that lead to nearby Fort Basinger to the northeast and Fort Center to the south. There are additional trails to the west of Fisheating Creek where Fort Center is located and to the west of the Kissimmee River, where lies Fort Basinger. Similarly, Lieut. J.C. Ives produced a *Military Map of The Peninsula of Florida South of Tampa Bay* in 1856 (Ives 1856), which similarly shows the project surrounded by several military tails with Fort Basinger and Fort Center being the two closest forts (**Figure 7**). The 1873 Plat also does not show historic roads in the area, but it does show the project running through sawgrass marsh and a forested area known as Marvins Island, as well as cabbage hammock to the south (**Figure 8).** In 1930, Roy Nash published a map documenting the location of known permanent Seminole camps (Nash 1930); this shows three camps located to the south, just northwest of Lake Okeechobee, that belonged to Billie Osceola, Charlie buster, and George Osceola (**Figure 9**).

Figure 6. Map of the seat of War 1839.

Figure 7. Ives' 1856 map of military forts and trails.

Figure 8. 1870 Plat showing the proposed pond sites.

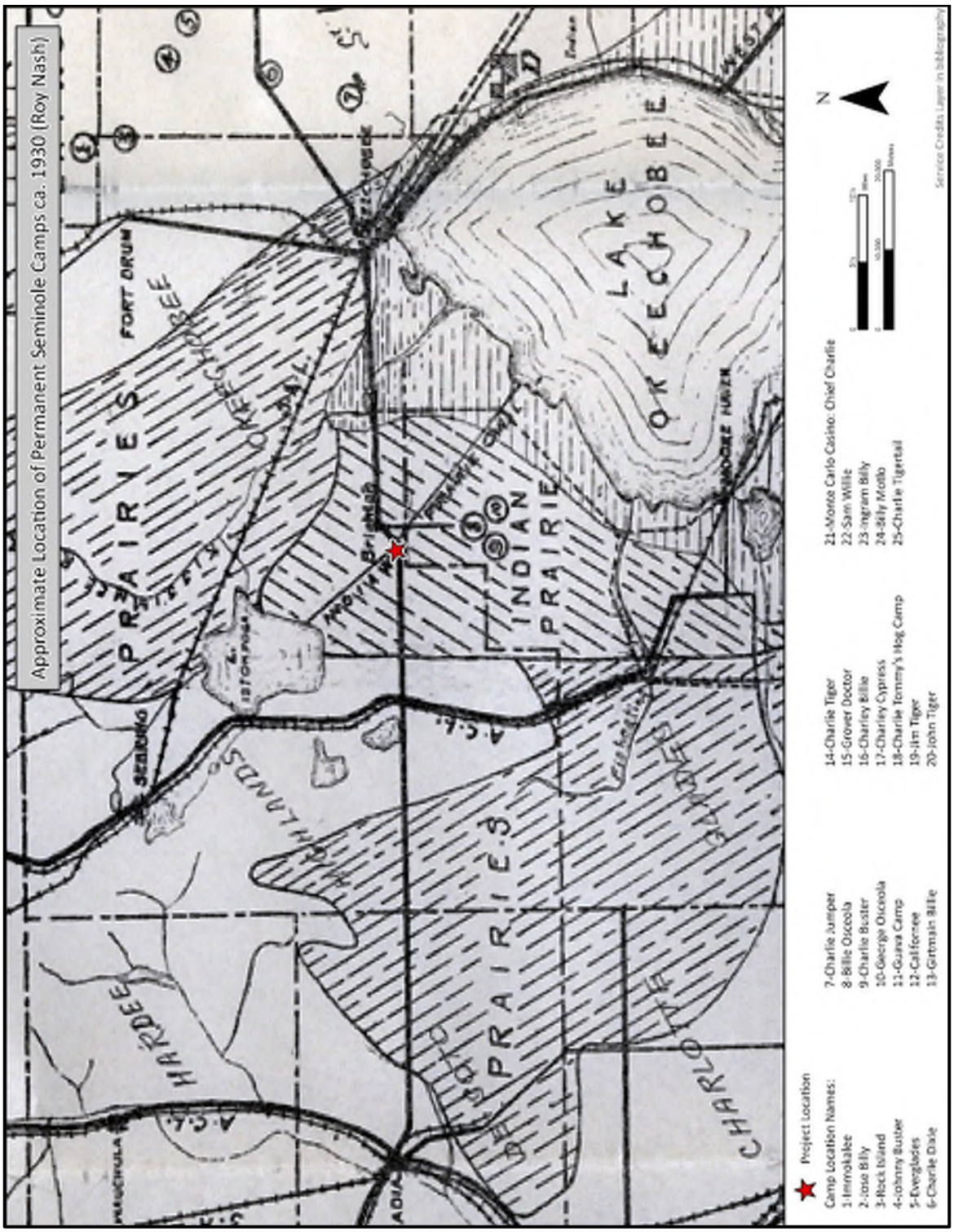

Figure 9. 1930 Map of the Approximate Location of Permanent Seminole Camps.

In addition, LiDAR maps were reviewed to determine the presence of possible tree islands that are proximate or within any of the proposed ponds, which are indicated by areas of higher elevation. Four areas of higher elevation were noted within Linear Pond 1 Left, SMF 5, between Linear Pond 7 Left and Right (near FPC 7A) and within SMF 7 (**Figure 10**). These areas were overlaid on aerial photograph closeups to review the historic conditions around the elevated areas. The elevations within and proximate to each pond area appears to have been disturbed due to development of residential and/or agricultural tracts, as well as the development of road trails and canals, although all but the elevation in SMF 5 appear to be nearby wetland pond areas (**Figures 11-14**). These areas have potential for being tree islands. A review of the historic aerial photographs suggests that several wetland ponds and areas were located to the north and south of the project from the late 1940s to early 1950s (**Figure 15**). Some of these ponds are still noted to exist throughout, though many areas north of the project appear to have little to no wetland ponds or areas by the 1970s, with some suggested to have disappeared due to agricultural development. This suggests a moderate to high potential for the discovery of archaeological sites due to the historic presence of water which was vital for the location of settlements and camps. Although, the disturbance caused by activities related to both residential and agricultural development may have removed or relocated evidence of settlements elsewhere. Thus, based on this preliminary research, the proposed pond sites have a variable (low to high) archaeological potential (**Table 2**).

Table 2. Archaeological potential of pond sites; green indicates a site within the pond.

Ponds (ac)	ZAP*	Comments
FPC1A (15.9)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; on slight elevation near historically wet area/historic pond in the east
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
FPC1B (13.4)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; on a slight elevation
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
FPC2-3A (56.3)	Low to Moderate	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; near a historically wet area/historic pond(s) and adjacent drainage canal
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
FPC2-3B (54.8)	Low to Moderate	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; near a historically wet area/historic pond(s)
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
FPC4A (14.0)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; near a historically wet area/historic pond; near drainage canal(s); within agricultural field with ponds
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
FPC4B (17.2)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; on a slight elevation near a historically wet area/historic pond; near drainage canal(s); within agricultural field with ponds
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
FPC5A (11.8)	Low to Moderate	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; within slight elevation near historically wet area/historic pond(s)
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
FPC5B (11.6)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
FPC6A (8.2)	Low to Moderate	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; near historically wet area/historic pond
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
FPC6B (5.8)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; road running through
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site

Ponds (ac)	ZAP*	Comments
FPC7A (5.7)	Low to Moderate	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; with/near historically wet area/historic pond with trail
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
FPC7B (5.6)	Low to Moderate	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; within slight elevation near historically wet area/historic pond
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
SMF1 (5.4)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; adjacent drainageway within agricultural field
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
SMF2A (4.8)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; adjacent drainageway within agricultural field
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
SMF2B (3.5)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; adjacent drainageway with trail running through the southeast corner
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
SMF3A (6.4)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; within agricultural field and adjacent drainage canal
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
SMF3B (6.3)	Low-High	Pre-Contact Archaeological: 8HG01279 is within the northern portion; within agricultural field; adjacent drainage canal; near historically wet area/historic pond(s)
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
SMF4 (3.4)	Low to Moderate	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; within slight elevation near historically wet area/historic pond
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
SMF5 (5.0)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
SMF6 (2.3)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
SMF7 (8.6)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; near slight elevation with trails
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
LIN1L (4.5)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; on slight elevation adjacent agricultural fields
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
LIN4L (3.4)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; within slight elevation
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
LIN4R (1.7)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; within slight elevation in agricultural field
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
LIN5L (4.8)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
LIN5R (2.3)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
LIN6L (2.1)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
LIN6R (1.1)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site

Ponds (ac)	ZAP*	Comments
LIN7L (4.2)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; within slight elevation
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
LIN7R (2.4)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; within slight elevation
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
REG1 (37.3)	Low to Moderate	Pre-Contact Archaeological: no previously recorded sites within or adjacent to pond site; within slight elevation with historically wet area/historic pond in the south and canals coming through in the north and east,
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site
REG2 (25.2)	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to pond site
	Low	Historic Archaeological: no previously recorded sites within or adjacent to pond site

* Zone of Archaeological Potential

Historic Resources: The segment of State Road 70 which runs through the project corridor was constructed in the 1920s. The roadway was originally part of State Road 8, an east-west route which connected to State Road 18 to the west and traversed east terminating in Fort Pierce. The roadway was reorganized and renamed State Road 70 in 1945. The built environment in which the proposed pond sites are located has historically been rural and sparsely populated. Historic aerials dating to the 1940s show a series of canals used for flood control, due to the geography and location near Lake Okeechobee, and canals for agricultural purposes (USDA 1948). By the mid-twentieth century, the region was under management of the Central and Southern Florida (C&SF) Flood Control District. The district, now called the South Florida Water Management District (SFWMD), was created as a response to severe flooding in the Kissimmee River Valley following a hurricane in 1947. Starting in the 1950s, there was an increase in agricultural production in the region, with most agriculture focusing on oranges and cattle. Due to the rise in orange groves and cattle ranches, more canals were constructed for the purposes of irrigation and drainage. The area today still has numerous orange groves and cattle ranches, but with a greater emphasis on cattle than in the past. In the 1960s, the C&SF modified the native Kissimmee-Okeechobee-Everglades system extensively throughout South Florida, including construction of interceptor canals and water control structures to achieve flood control in the Upper and Lower Kissimmee Basin. The area in which the proposed ponds are located is within the Lower Kissimmee Basin.

Background research indicated that one historic linear resource (8HG01125) has been previously recorded within the 150-ft buffer to the proposed pond sites and easements (**Figure 2**). The recorded segment of Harney Pond Canal (8HG01125) and an unrecorded segment are immediately adjacent to SMF 1 and Linear Pond 1 Left on the north side of SR 70. This portion of Harney Pond Canal was constructed in ca. 1940 for drainage and flood control and is part of the Kissimmee Lower Basin. The canal connects to the Slough Ditch Canal C-41A in the north and empties into Lake Okeechobee. An approximate 400-ft segment of Harney Pond Canal (8HG01125) was previously recorded within the 150-ft buffer area during the *Cultural Resource Assessment Survey of the Florida Gas Transmission Company (FGT) Phase VIII Expansion: Loop 10 and Extension: Station 27 to Arcadia Greenfield 3: Arcadia to Station 29* conducted by Janus Research in 2008 (Janus Research 2008; Survey No. 16476). The surveyor considered the linear resource to be eligible for listing in the NRHP under Criterion A for its connection to the development of Florida and Criterion C for its significance as an engineering structure; however, the SHPO found there was insufficient information to determine eligibility for listing in the NRHP.

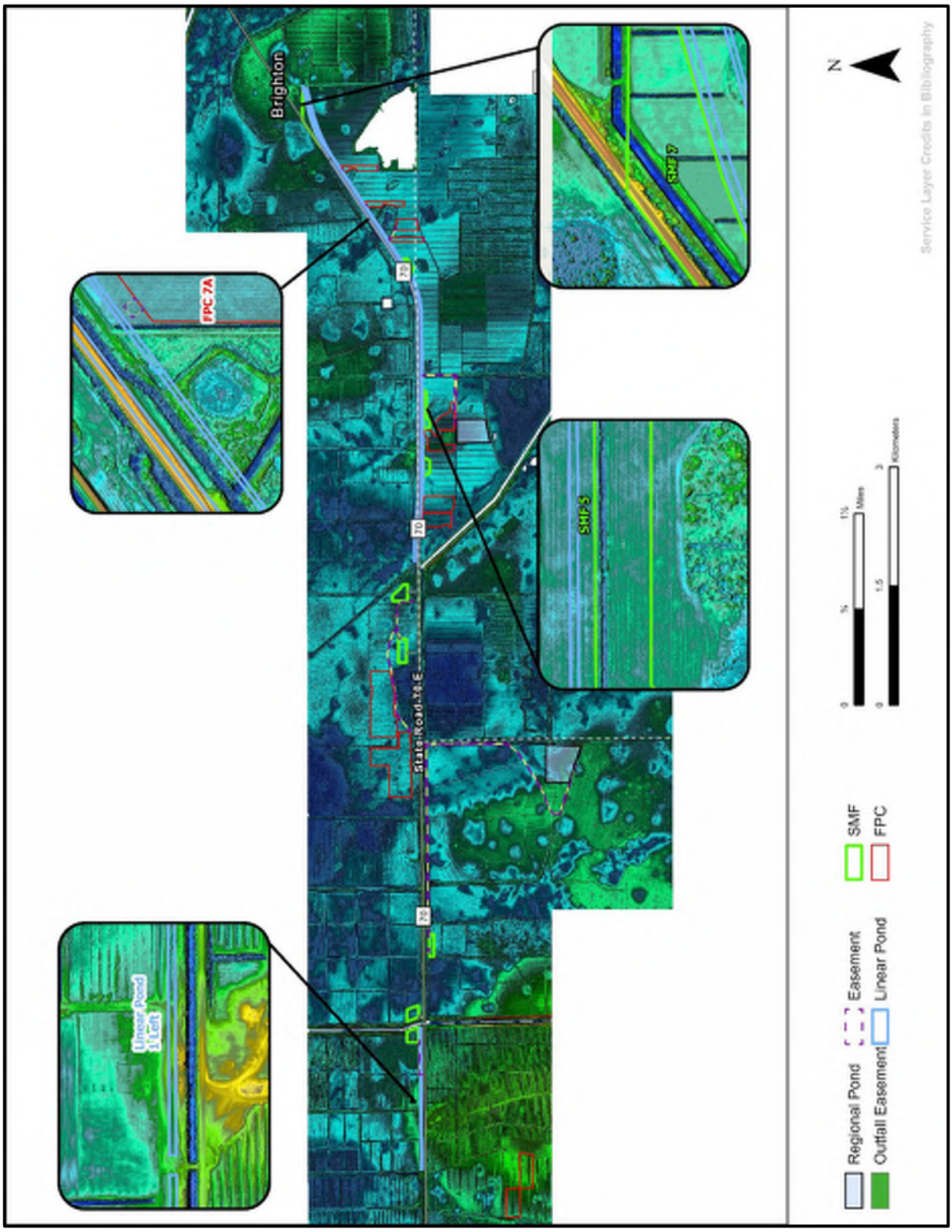

Figure 10. LiDAR map showing higher elevations throughout the proposed pond areas.

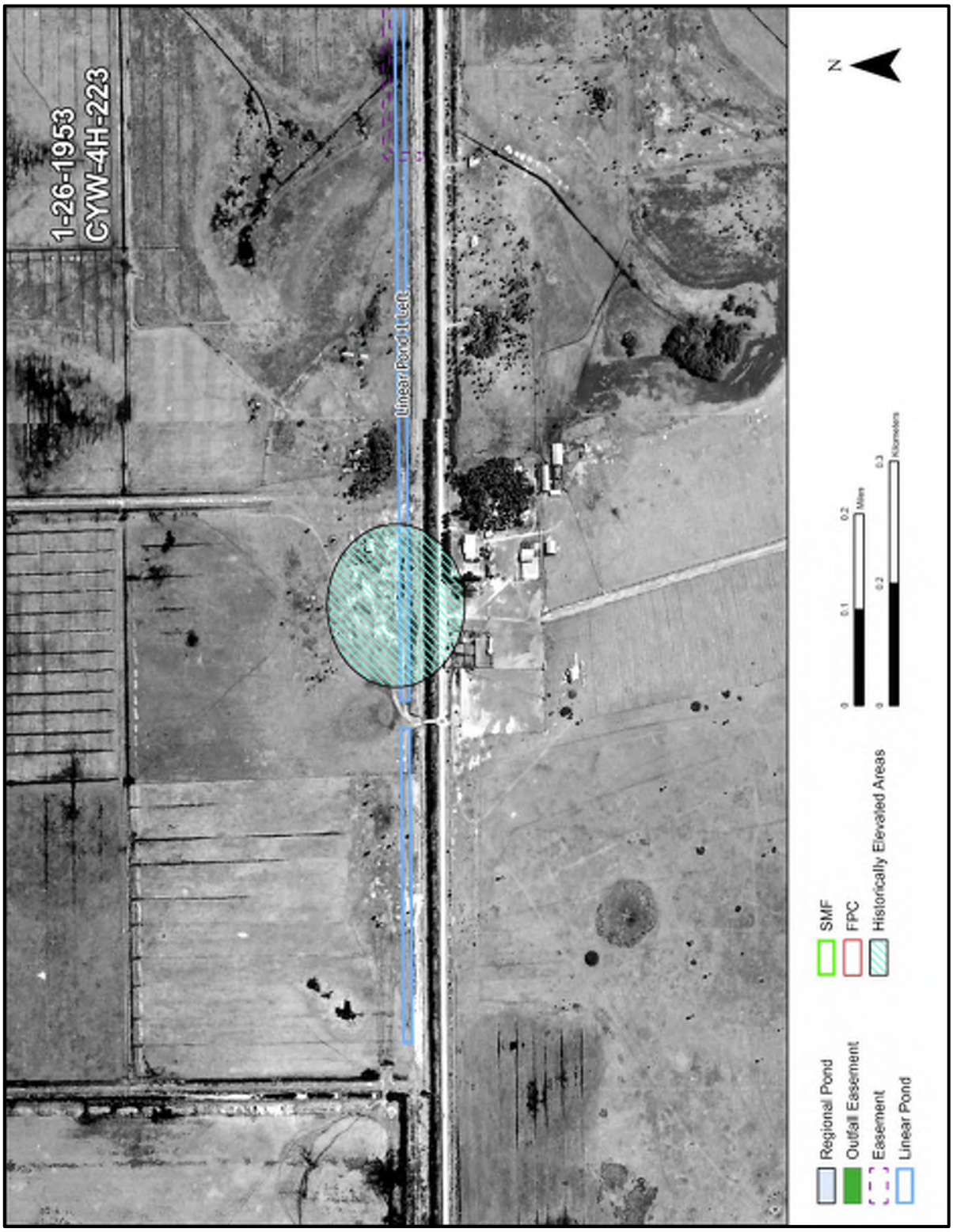

Figure 11. LiDAR location of higher elevation compared to 1953 aerial (USDA 1953). Note canal intrusion and disturbance by residence/agricultural development.

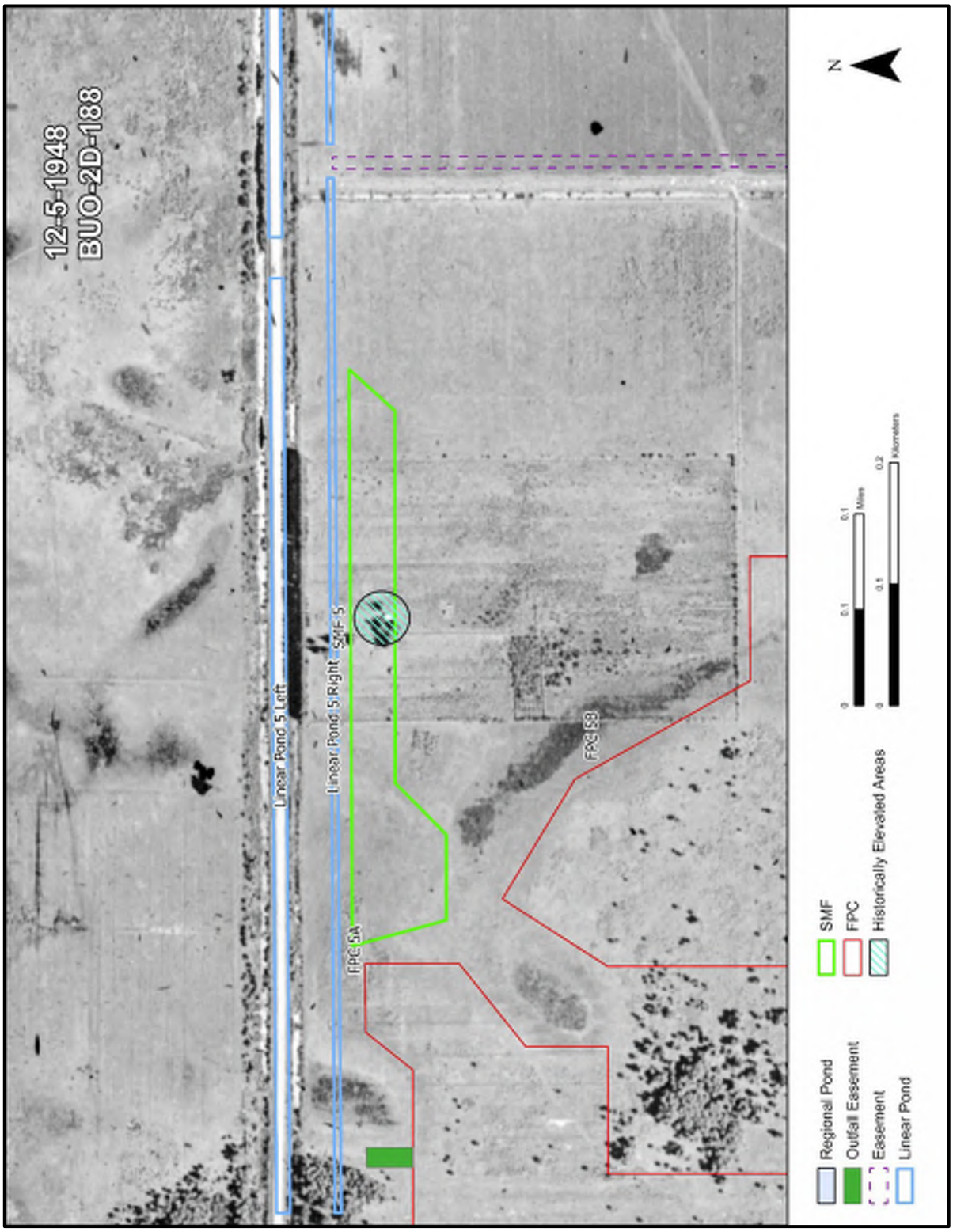

Figure 12. LiDAR location of higher elevation compared to 1948 aerial (USDA 1948).

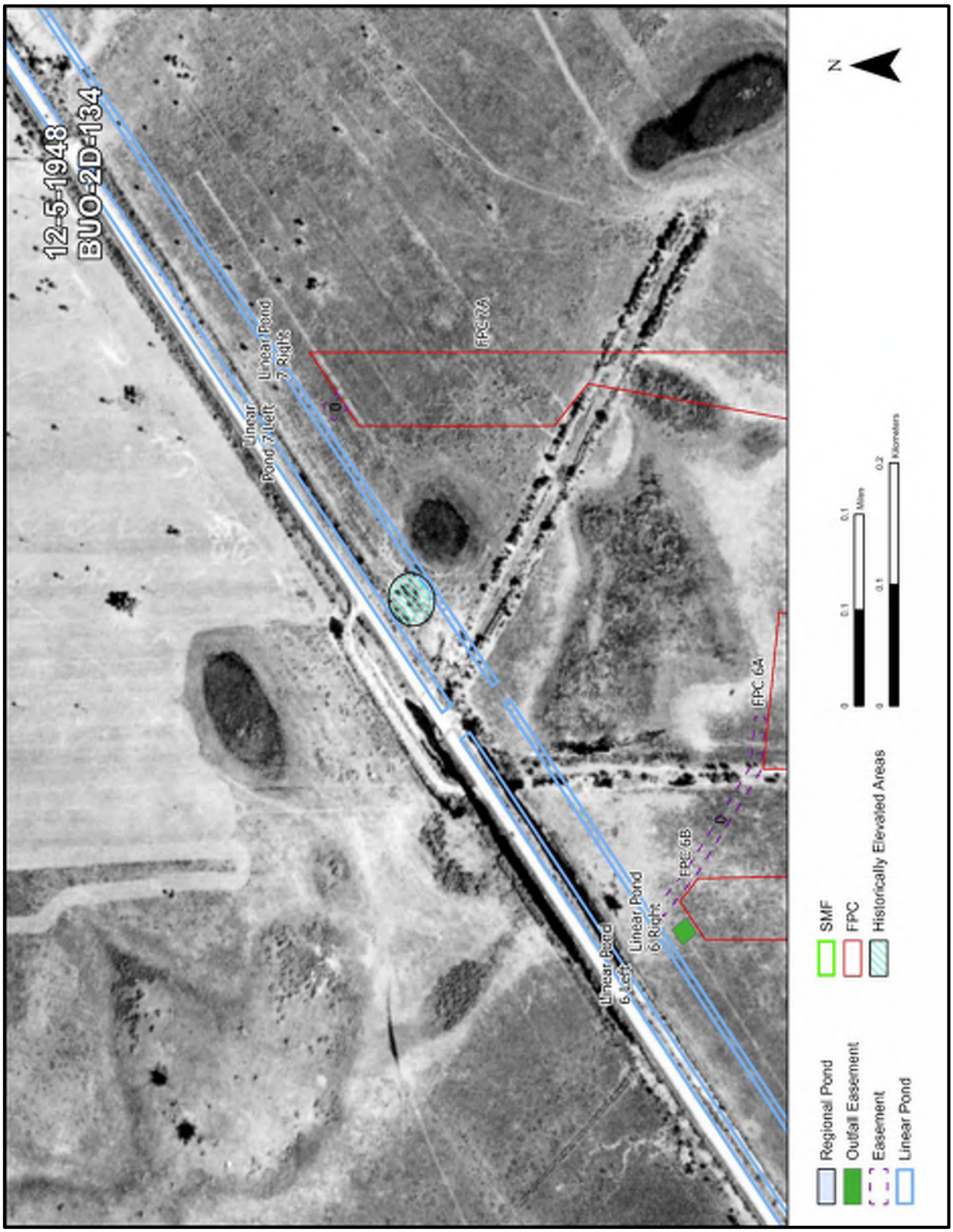

Figure 13. LiDAR location of higher elevation compared to 1948 aerial (USDA 1948). Note proximity to wetland pond.

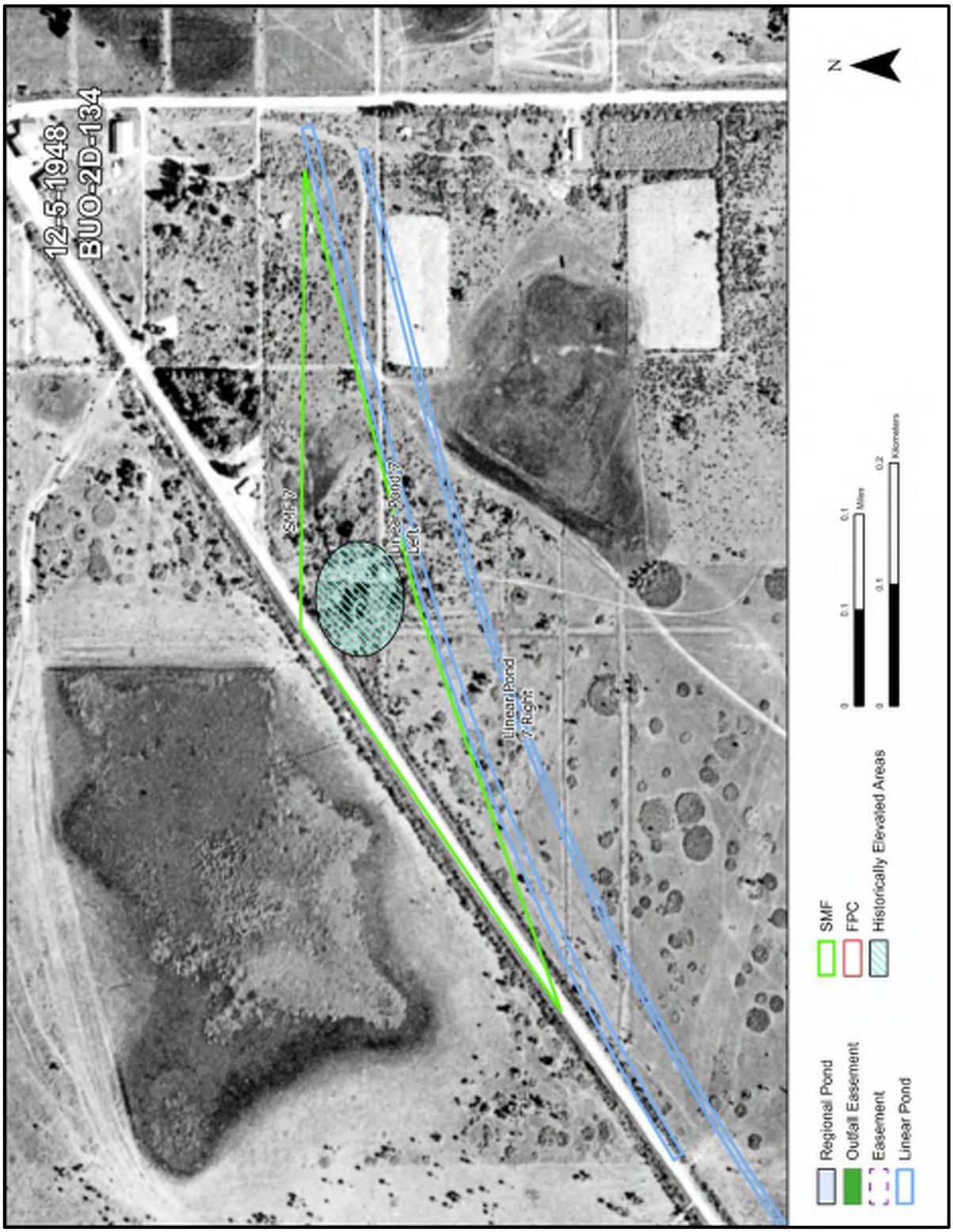

Figure 14. LiDAR location of higher elevation compared to 1948 aerial (USDA 1948). Note proximity to wetland pond and intrusion of road trails.

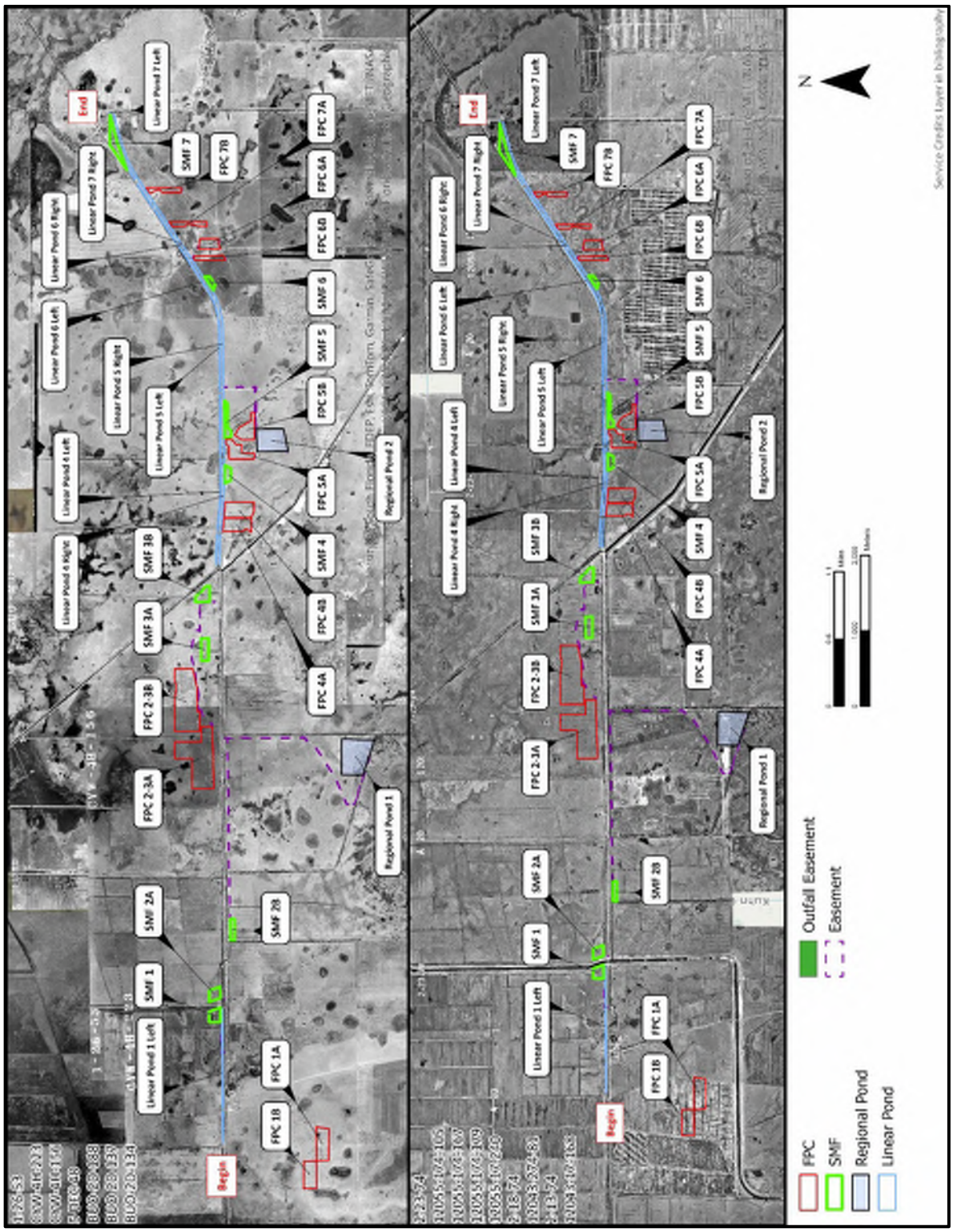

Figure 15. 1948, 1953, and 1974 aerial photographs. Note the relict wetland ponds that remain on the east end of the APE and the addition of agricultural fields heading to the west (FDOT 1974a, b, c; USDA 1948, 1953).

In addition, two unrecorded segments of the previously recorded C-39A Canal (8GL00476) and County Line Canal (8HG01235/8GL00477) are located immediately adjacent to or in close proximity to the proposed pond sites SMF 2B and Regional Pond 1 (**Figure 2 and Table 3**). These linear resources were constructed in ca. 1940 and are associated with drainage and flood control in the area. The C-39A Canal is considered a SR 70 Borrow Ditch and connects the Harney Pond Canal to the west and Indian Prairie Canal (C-40) to the east. The County Line Canal (8HG01235/8GL00477) is a branch canal that intersects C-39A south of SR 70 and extends southward until it empties into the Harney Pond Canal. The C-39A and County Line canals were recorded during the *Cultural Resource Assessment Survey, 4-D Citrus & Sod, INC. Glades County, Florida* conducted by South Arch, Inc. in 2012 (Bertine 2012; Survey No. 23368). The SHPO determined there was insufficient information for both canals to determine eligibility for listing in the NRHP in 2016. The C-39A Canal has only been recorded in Glades County and has not been recorded in Highlands County which is where the unrecorded segment is located adjacent to SMF 2B.

The potential for newly identified historic resources was determined by examining the appropriate USGS quadrangle maps, historic aerial imagery, and property appraiser records (McIntyre 2024; Ward 2024). Based on this preliminary research, there are approximately 25 newly identified historic resources, 45 years of age or older (constructed in 1979 or earlier), within and/or adjacent to the proposed pond sites and easements. These include 24 Linear Resources, constructed between ca. 1920 and ca. 1970, and one ca. 1970 building. A majority of the linear resources are common examples of agricultural drainage systems found throughout Florida. Most of the new drainage resources found in the proposed pond areas are associated with irrigation and field channels or Branch or distributary canals and are not a main canal. In addition, one linear resource that extends the full length of the project area is State Road 70. The roadway is a common example found throughout Florida. The building is located adjacent to Linear Pond 4 Right and FPC 5A on the south side of SR 70 and according to the Glades County Property Appraiser, the building was constructed in ca. 1970 and is likely of the Masonry Vernacular style (Ward 2024). See **Table 3** for a summary of the historic resources located within the proposed pond sites. Additionally, a review of the Veteran's Grave Registration, compiled in 1940-1941, indicated no cemeteries within or adjacent to the proposed pond sites and easements (Work Progress Administration 1941).

Table 3. Historic resources in relation to the proposed pond sites.

Proposed Pond Site and Easement	Style / Type	Year Built	Within or Adjacent
FPC1A	Linear Resource (field channel)	1958-1970	Within
FPC1B	Linear Resource (field channel)	1958-1970	Within
	Linear Resource (irrigation canal)	1940-1949	Adjacent
FPC2- 3A	Linear Resource (field channel)	1963-1968	Within
	Linear Resource (branch canal)	1944-1948	Adjacent
FPC2- 3B	Linear Resource (field channel)	1963-1968	Within
FPC4A	Linear Resource (drainage ditch)	ca. 1940	Adjacent
FPC4B	Linear Resource (drainage ditch)	ca. 1940	Adjacent
FPC5A	Building (Masonry Vernacular)	ca. 1970	Adjacent
FPC5B	N/A	N/A	N/A
FPC6A	Linear Resource (irrigation canal)	Pre 1948	Within
FPC6B	Linear Resource (irrigation canal)	Pre 1948	Within
FPC7A	Linear Resource (irrigation canal)	Pre 1948	Within
FPC7B	N/A	N/A	N/A
SMF1	Linear Resource (irrigation canal)	ca. 1940	Within
	Linear Resource (Harney Pond Canal 8HG01125)	ca. 1940	Adjacent
SMF2A	N/A	N/A	N/A

Proposed Pond Site and Easement	Style / Type	Year Built	Within or Adjacent
SMF2B	Linear Resource (irrigation canal)	ca. 1940	Within
	Linear Resource (irrigation canal)	1948-1953	Adjacent
	Linear Resource (unrecorded segment of C-39A Canal)	ca. 1940	Adjacent
SMF3A	Linear Resource (field channel)	1963-1968	Within
	Linear Resource (drainage ditch)	ca. 1940	Adjacent to outfall
SMF3B	Linear Resource (field channel)	1963-1968	Within
	Linear Resource (drainage ditch)	ca. 1940	Adjacent to outfall
SMF4	N/A	N/A	N/A
SMF5	N/A	N/A	N/A
SMF6	N/A	N/A	N/A
SMF7	Linear Resource (road)	ca. 1920s	Within
	Linear Resource (drainage ditch)	ca. 1940	Within
LIN1L	Linear Resource (irrigation canal)	ca. 1940	Within
	Linear Resource (drainage ditch)	ca. 1940	Adjacent
	Linear Resource (Harney Pond Canal 8HG01125)	ca. 1940	Adjacent
LIN4L	Linear Resource (road)	ca.1920s	Within
	Linear Resource (branch canal)	ca. 1940	Within
	Linear Resource (drainage ditch)	ca. 1940	Within
	Linear Resource (drainage ditch)	1963-1970	Within
LIN4R	Linear Resource (road)	ca.1920s	Within
	Linear Resource (drainage ditch)	ca. 1940	Within
	Linear Resource (drainage ditch)	ca. 1948	Within
	Building (Masonry Vernacular)	ca. 1970	Adjacent
LIN5L	Linear Resource (road)	ca. 1920s	Within
	Linear Resource (drainage ditch)	ca. 1940	Adjacent
	Linear Resource (drainage ditch)	ca. 1948	Adjacent
LIN5R	Linear Resource (drainage ditch)	ca. 1940	Adjacent
	Linear Resource (drainage ditch)	ca. 1948	Adjacent
LIN6L	Linear Resource (road)	ca. 1920s	1 within
	Linear Resource (drainage ditch)	ca. 1940	Adjacent
LIN6R	Linear Resource (drainage ditch)	ca. 1940	Adjacent
	Linear Resource (irrigation canal)	Pre 1948	Within
	Linear Resource (irrigation canal)	Pre 1948	Within
LIN7L	Linear Resource (road)	Pre 1920s	Within
	Linear Resource (drainage ditch)	ca. 1948	Within
LIN7R	Linear Resource (road)	Pre 1920s	Within
	Linear Resource (drainage ditch)	ca. 1948	Within
REG1	Linear Resource (minor distributary)	1953-1957	Within
	Linear Resource (irrigation canal)	1958-1962	Adjacent
	Linear Resource (branch canal)	ca. 1940	Adjacent
REG2	N/A	N/A	N/A

3.0 CONCLUSIONS AND RECOMMENDATIONS

In conclusion, only one Pre-Contact or historic period archaeological site is located in the proposed pond locations. The Brighton Valley 04 Site (8HG01279) is located within the northern portion of SMF-3B and is a Pre-Contact shell midden/mound that was determined eligible for listing in the NRHP by the SHPO. The other pond sites do not contain any previously recorded archaeological sites, but they have variable potential for discovery of new resources. As such, this preliminary research identified one proposed pond site that should be avoided, SMF-3B, due to the presence of 8HG01279, an NRHP eligible pre-Contact period archeological site. With regards to historic resources, it does not appear that any of the proposed ponds, easements, or pond outfalls should be avoided. The proposed ponds will not outfall into any major canals and the construction of the proposed ponds will not negatively impact the previously recorded or newly identified resources located in the project area. Following the selection of preferred pond sites, systematic archaeological field survey is recommended in accordance with the guidelines and standards promulgated by the FDOT and FDHR. Even if the selected pond sites are considered to have a low potential, they should be surveyed and judgmentally tested. Furthermore, due the presence of historic resources in relation to the proposed pond sites, a historical/architectural field survey is also recommended.

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APPENDIX K

Wetlands & Protected Species Memorandum

TO: **Curt Sprunger, P.E.**
Regional Stormwater Manager
Kisinger Campo & Associates (KCA)

FROM: **Martin Horwitz**
Sr. Environmental Scientist (KCA)

RE: **Wetland & Protected Species Potential Involvement for Preliminary Pond Sites**
SR 70 PD&E Study from Lonesome Island Road to Southern Leg of CR 721
Highlands County, Florida
FPID No.: 449851-1

Introduction

The purpose of this memo is to determine potential impacts to wetlands and protected species involvement associated with each stormwater management facility (SMF), linear pond site, floodplain compensation (FPC) site, and regional pond site being evaluated in the Pond Siting Report for the SR 70 PD&E Study from Lonesome Island Road to the Southern Leg of CR 721. A desktop review was completed for each potential pond site to determine estimated wetland impacts, estimated wetland mitigation costs, and potential protected species involvement.

The project limits are divided into seven drainage basins, Basin 1 through Basin 7. Potential pond sites in each basin include either SMFs, FPC sites and/or linear pond sites options. Additionally, two regional pond sites are being evaluated for the project.

Surrounding Land Uses

Land uses adjacent to the existing SR 70 roadway consist of commercial, agricultural, unimproved/improved pastures, utilities, low density residential, undeveloped upland habitats, wetland habitats, and surface waters (ditches and canals). Existing Natural Resource Conservation Service (NRCS) conservation easements are located on parcels north and south of SR 70. No proposed pond sites or regional ponds are located within boundaries of current NRCS conservation easements.

Wetland and Other Surface Waters

Based upon desktop assessments and site reviews, wetland and surface water limits were identified and estimated as occurring or having the potential to occur within potential pond sites. The project is in South Florida Water Management District (SFWMD) jurisdiction. Also, wetlands and surface waters are subject to U.S. Army Corps of Engineers (USACE) regulations for Waters of the U.S. (WOTUS). Impacts to WOTUS associated with the project will require a USACE Section 404 permit and impacts to SFWMD canals are subject to Section 408 review and approval. The project area is within the South Kissimmee mitigation basin and there is one approved mitigation bank service area covering the project limits. Lake Istokpoga Mitigation Bank has federal and state forested and herbaceous wetland mitigation bank credits. Wetland mitigation costs are estimated based on dual state and federal credit cost of $200,000. The mitigation bank credit cost is based on December 2025 prices and it is subject to change.

No wetland mitigation is anticipated for surface water (ditches and canals) impacts. For comparison purposes, **Table 1** includes each drainage basin and proposed pond site along with estimated other surface water (OSW) involvement (ditches and canals), estimated potential wetland impact acreage and estimated wetland mitigation costs for each pond site alternative reviewed.

Protected Wildlife and Habitat

Based upon in house assessments, site reviews, and species-specific surveys, several federal and state protected species were identified as occurring or having the potential to occur within potential pond sites.

The project limits are within the consultation area for the Florida grasshopper sparrow (*Ammodramus savannarum floridanus*), Florida scrub-jay (*Aphelocoma coerulescens*), Florida bonneted-bat (*Eumops floridanus*), Everglade snail kite (*Rostrhamus sociabilis plumbeus*) and crested caracara (*Caracara cheriway*). Additionally, the project area falls within the Florida black bear (*Ursus americanus floridanus*) South Central Bear Management Unit, and the western half of the project is within the Lake Wales Ridge Plants consultation area. Suitable habitat for the Florida grasshopper sparrow and Florida scrub-jay does not exist within the assessment area; therefore, it is anticipated that the proposed pond sites will have no involvement with these species.

A crested caracara survey was completed during the 2023 caracara nesting season and resulted in identification of five crested caracara nest along the project corridor at various distances from the existing SR 70 roadway. Additionally, general wildlife surveys were conducted along with a gopher tortoise survey in February 2024 and May 2024 in areas of proposed roadway improvements. Proposed pond sites located north and south of SR 70 have not been surveyed for gopher tortoises.

For comparison purposes, a None, Low, Medium, or High rating scale was used to evaluate the potential protected species involvement at each potential pond site (**Table 1**). Due to the project corridor having multiple documented occurrences of protected species, all potential pond sites were rated Medium or High risk.

Summary

The preferred pond sites will be further evaluated and included in the project's Natural Resources Evaluation (NRE) Report. The NRE will document the project's potential wetland and other surface water impacts associated with the Preferred Alternative and preferred pond sites along with the project's protected species involvement and effect determination for federal and state listed species with potential to occur in the project area.

Tables 1 provides OSW, wetland and protected species involvement for within each drainage basin and for each proposed pond site.

Table 1: Estimated Wetland, OSW, and Protected Species Involvement for Proposed Pond Sites

Proposed Pond Site	Potential OSW Impacts (Yes/No)	Estimated Wetland Impact Acreage	Estimated Wetland Mitigation Cost*	Anticipated Protected Species Involvement (None/Low/Medium/High)
Drainage Basin 1				
Linear Pond 1	Yes	0	$0	High (portion of pond within caracara nest secondary zone
SMF 1	Yes	0	$0	High (portion of pond within caracara nest secondary zone)
FPC 1A	Yes	0	$0	Medium
FPC 1B	Yes	0	$0	Medium
Drainage Basin 2				
SMF 2A	Yes	0	$0	High (portion of pond within caracara nest secondary zone)
SMF 2B	No	0	$0	High (portion of pond within caracara nest secondary zone
Drainage Basin 3				
SMF 3A	Yes	0	$0	High (portion of pond within caracara nest secondary zone)
SMF 3B	Yes	0	$0	High (portion of pond within caracara nest primary zone)
FPC 2-3A	Yes	1.39	$194,600	High (portion of pond within caracara nest secondary zone)
FPC 2-3B	Yes	0	$0	High (portion of pond within caracara nest secondary zone)
Regional Pond A	Yes	0	$0	Medium
Drainage Basin 4				
Linear Pond 4	Yes	0	$0	High (portion of pond within caracara nest secondary zone

Proposed Pond Site	Potential OSW Impacts (Yes/No)	Estimated Wetland Impact Acreage	Estimated Wetland Mitigation Cost*	Anticipated Protected Species Involvement (None/Low/Medium/High)
SMF 4	Yes	0.01	$1,400	Medium (portion of pond within caracara nest secondary zone
FPC 4A	Yes	0.96	$134,400	Medium (portion of pond within caracara nest secondary zone)
FPC 4B	Yes	1.10	$154,000	Medium (portion of pond within caracara nest secondary zone)
Drainage Basin 5				
Linear Pond 5	Yes	0.28	$39,200	High (portion of pond within caracara nest primary zone)
SMF 5	Yes	0.08	$11,200	High (portion of pond within caracara nest primary zone)
FPC 5A	Yes	0.01	$1,400	Medium (portion of pond within caracara nest secondary zone)
FPC 5B	Yes	0.15	$21,000	Medium (portion of pond within caracara nest secondary zone)
Regional Pond B	Yes	0	$0	Medium (portion of pond within caracara nest secondary zone)
Drainage Basin 6				
Linear Pond 6	Yes	0.26	$36,400	Medium (portion of pond within caracara nest secondary zone)
SMF 6	Yes	0	$0	Medium (portion of pond within caracara nest secondary zone)
FPC 6A	Yes	0	$0	High (portion of pond within caracara nest primary zone)

Proposed Pond Site	Potential OSW Impacts (Yes/No)	Estimated Wetland Impact Acreage	Estimated Wetland Mitigation Cost*	Anticipated Protected Species Involvement (None/Low/Medium/High)
FPC 6B	Yes	0	$0	High (portion of pond within caracara nest primary zone)
Drainage Basin 7				
Linear Pond 7	Yes	0	$0	High (portion of pond within caracara nest secondary zone)
SMF 7	Yes	0	$0	High (portion of pond within caracara nest secondary zone)
FPC 7A	Yes	0	$0	High (portion of pond within caracara nest primary zone)
FPC 7B	Yes	0	$0	High (portion of pond within caracara nest secondary zone)

Note: * A Uniform Mitigation Assessment Method (UMAM) Functional Loss (FL) is equal to 0.7 (estimated Delta) x the estimated wetland impact acreage. The FL was then multiplied by $200,000 to equal estimated wetland credit cost for each potential pond site. Wetland mitigation costs are subject to change during the permitting process and dependent on approved state and federal credits being available for sale.

APPENDIX L

Contamination Technical Memorandum

Technical Memorandum

Date: October 14, 2024
Project: State Road 70 PD&E Study from Lonesome Island Rd to CR 721S
Re: Contamination Screening Information for Alternative Drainage Sites

Introduction

All corridor properties within a half mile radius were evaluated to the extent necessary for potential contamination sources within or near the study area. Eighteen (18) were considered to have potential for contamination involvement. Based on review of available data, historical aerials, and field reviews, zero (0) sites were rated as **High** risk; fifteen (15) sites were rated as **Medium** risk; two (2) site was rated as **Low** risk; and one (1) sites were rated as **No** risk for potential contamination as shown in **Table 1** below.

Table 1 | Potential Contamination Site Ratings Based on Overall Project Roadway Improvements

Risk Rating	Number of Sites
No	1
Low	2
Medium	15
High	0
Total	18

Potential Impacts to Alternative Drainage Sites

Alternative Drainage sites have been screened for potential contamination involvement. This section provides a determination for potential contamination involvement in each alternative drainage site. The potential risk for each alternative drainage site was determined by a number of factors including the proximity to potential contamination sites, the risk rating for each contamination site, and field review observations.

During the July 2024 field review, alternative drainage sites were evaluated for potential contamination involvement. Reviews were conducted from FDOT ROW and on property where feasible. None of the alternative drainage sites showed indications for contamination involvement within their boundaries.

Based on a desktop review of the potential contamination sites identified in the project *Contamination Screening Evaluation Report* and the available information on the properties evaluated, it appears three (3) out of thirty-two (32) alternative drainage sites may have the potential for contamination involvement. The alternative drainage sites within 1,000 feet of at least one potential contamination site are discussed below. Information regarding potential contamination site proximity to the alternative drainage sites is summarized in **Table 2**. **Figures 1-6** depict the alternative pond sites and contamination sites in relation to the project study area.

- **Linear Pond 1 – Left** is 4.45 acres located at the westernmost section of the project. This alternative drainage site is approximately 399 feet away from contamination site 8 (Suspected Cattle Dip Vat) and 566 feet away from site 10 (Sunray Groves), rated as a **Medium** risk to roadway improvements for the project. It is also located within an active agricultural field (site 7), rated **Medium**. Due to

the contamination history of this potential contamination site, as well as the potential use of herbicides and pesticides for the active agricultural fields, Linear Pond 1 - Left is rated as a **Medium** risk for potential contamination involvement.

- Linear Pond 7 – Right is 2.43 acres located at the easternmost section of the project, south of the proposed improvements. This alternative drainage site is approximately 731 feet from potential contamination site 19 (Lykes Bros), rated **Medium**. It is also within active agricultural fields operated by Lykes Bros (site 17). Due to the contamination history of this potential contamination site, as well as the potential use of herbicides and pesticides for the active agricultural fields, Linear Pond 1 - Left is rated as a **Medium** risk for potential contamination involvement.

- SMF 7 is 8.62 acres located at the easternmost section of the project, south of the proposed improvements. This alternative drainage site is approximately 578 feet from potential contamination site 19 (Lykes Bros), rated **Medium**. It is also within active agricultural fields operated by Lykes Bros (site 17). Due to the contamination history of this potential contamination site, as well as the potential use of herbicides and pesticides for the active agricultural fields, Linear Pond 1 - Left is rated as a **Medium** risk for potential contamination involvement.

- Remaining Alternative Drainage Sites: All remaining alternative drainage sites are within active agricultural fields. These fields have the potential for herbicide and pesticide usage, which poses the potential for contamination involvement. These sites are ranked **Medium** risk; however, this contamination would not pose a significant risk to the function of these drainage sites. Based on this information, the remaining alternative drainage sites are rates as a **Low** risk for potential contamination involvement.

Table 2 | Potential Contamination Screening Summary for Alternative Drainage Sites

Alternative Drainage Sites	Risk Rating for Alternative Drainage Site	Potential Contamination Sites within 1,000 feet	Approximate Distance to Alternative Drainage Sites (feet)
Linear Pond 1 - Left	Medium	Site 8 – Medium	399
		Site 10 – Medium	566
		Site 11 – Medium	101
		Site 5 - Medium	0
FPC 1A	Low	Site 5 – Medium	0
FPC 1B	Low	Site 5 – Medium	0
SMF 1	Low	Site 7 – Medium	0
SMF 2A	Low	Site 7 – Medium	0
SMF 2B	Low	Site 15 - Medium	0
FPC 2-3A	Low	Site 17 – Medium	0
FPC 2-3B	Low	Site 17 – Medium	0
SMF 3A	Low	Site 17 – Medium	0
SMF 3B	Low	Site 17 – Medium	0
Linear Pond 4 – Left	Low	Site 17 – Medium	0
Linear Pond 4 - Right	Low	Site 17 – Medium	0
Linear Pond 5 – Left	Low	Site 17 – Medium	0
Linear Pond 5 - Right	Low	Site 17 – Medium	0

Linear Pond 6 – Left	Low	Site 17 – Medium	0
Linear Pond 6 - Right	Low	Site 17 – Medium	0
Linear Pond 7 – Left	Low	Site 17 – Medium	0
Linear Pond 7 – Right	Medium	Site 17 – Medium	0
		Site 19 – Medium	731
FPC 4A	Low	Site 17 – Medium	0
FPC 4B	Low	Site 17 – Medium	0
SMF 4	Low	Site 17 – Medium	0
FPC 5A	Low	Site 17 – Medium	0
FPC 5B	Low	Site 17 – Medium	0
Regional Pond 2	Low	Site 17 – Medium	0
SMF 5	Low	Site 17 – Medium	0
SMF 6	Low	Site 17 – Medium	0
FPC 6B	Low	Site 17 – Medium	0
FPC 6A	Low	Site 17 – Medium	0
FPC 7A	Low	Site 17 – Medium	0
FPC 7B	Low	Site 17 – Medium	0
SMF 7	Medium	Site 17 – Medium	0
		Site 19 - Medium	578

Figure 1 | Alternative Drainage Sites with Potential Contamination Sites

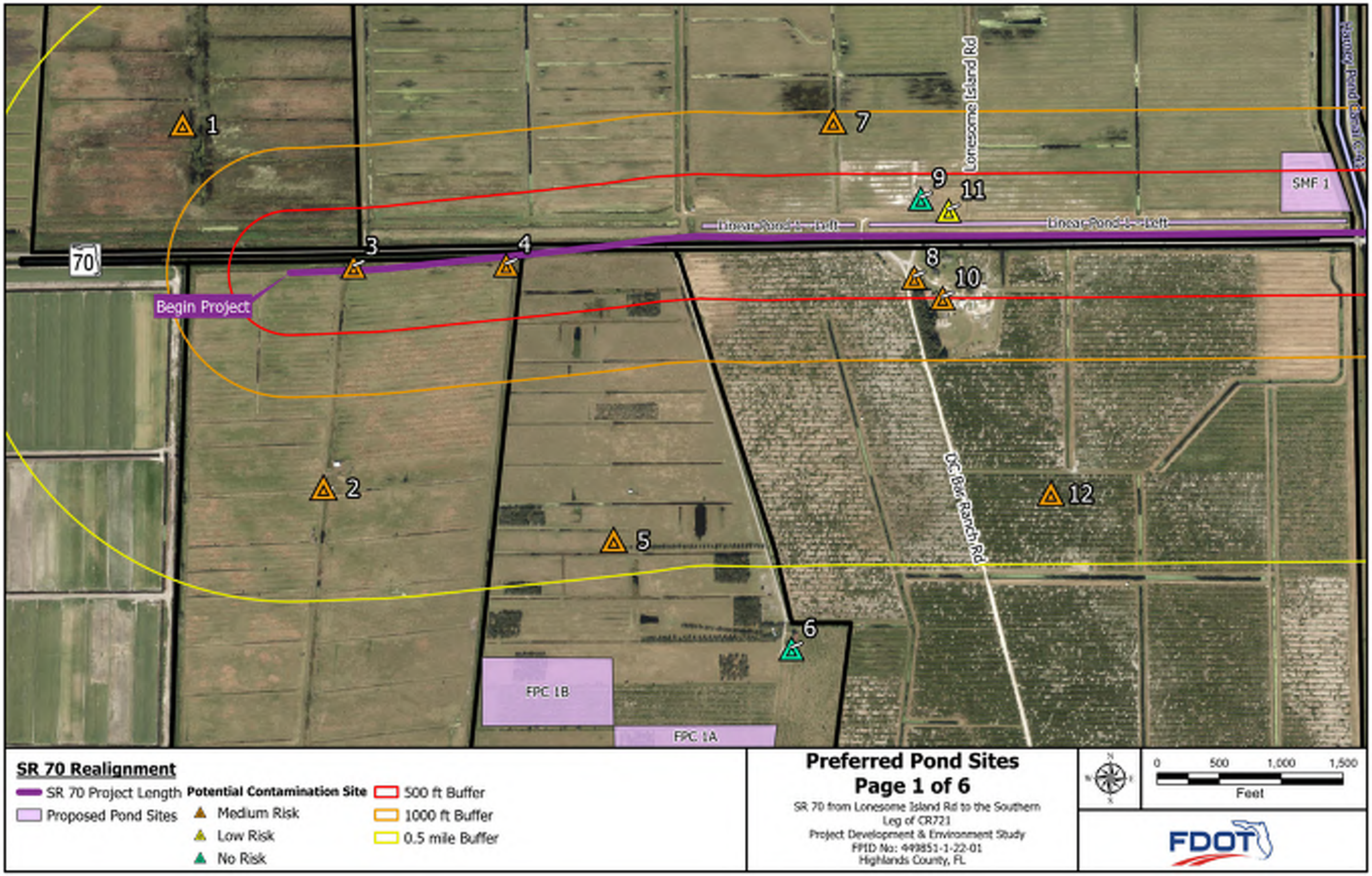


Figure 2 | Alternative Drainage Sites with Potential Contamination Sites

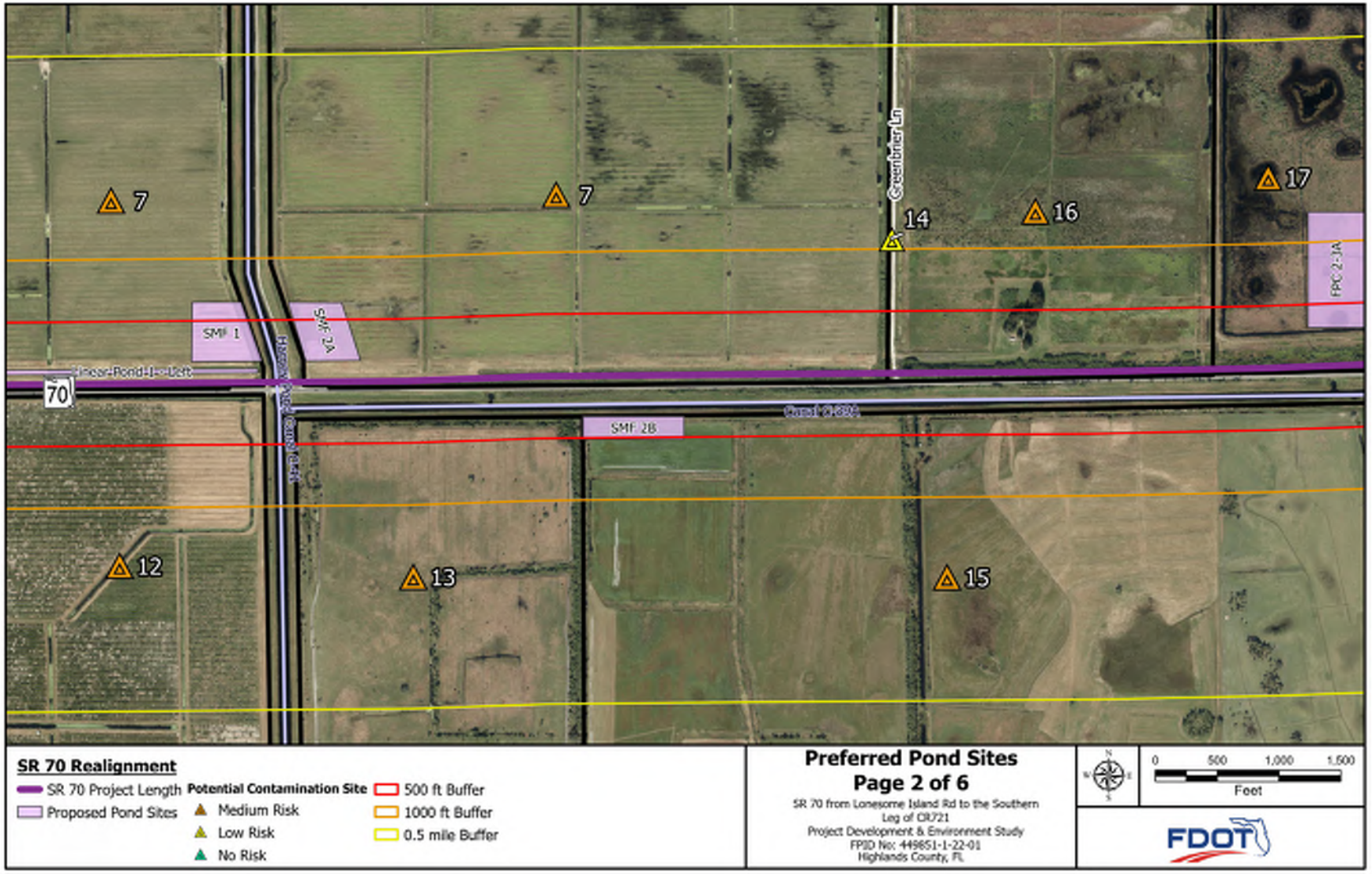


Figure 3 | Alternative Drainage Sites with Potential Contamination Sites

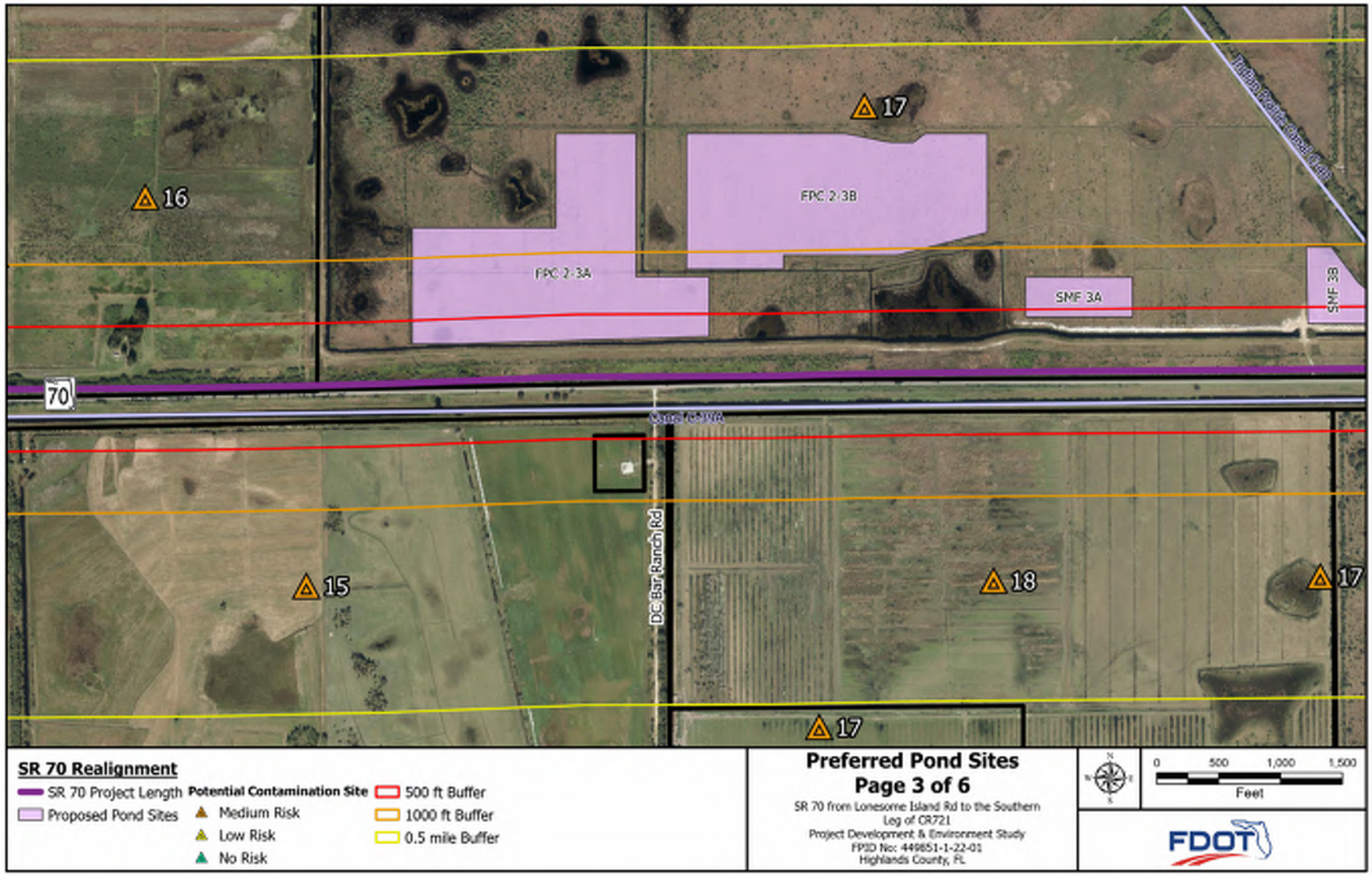


Figure 4 | Alternative Drainage Sites with Potential Contamination Sites

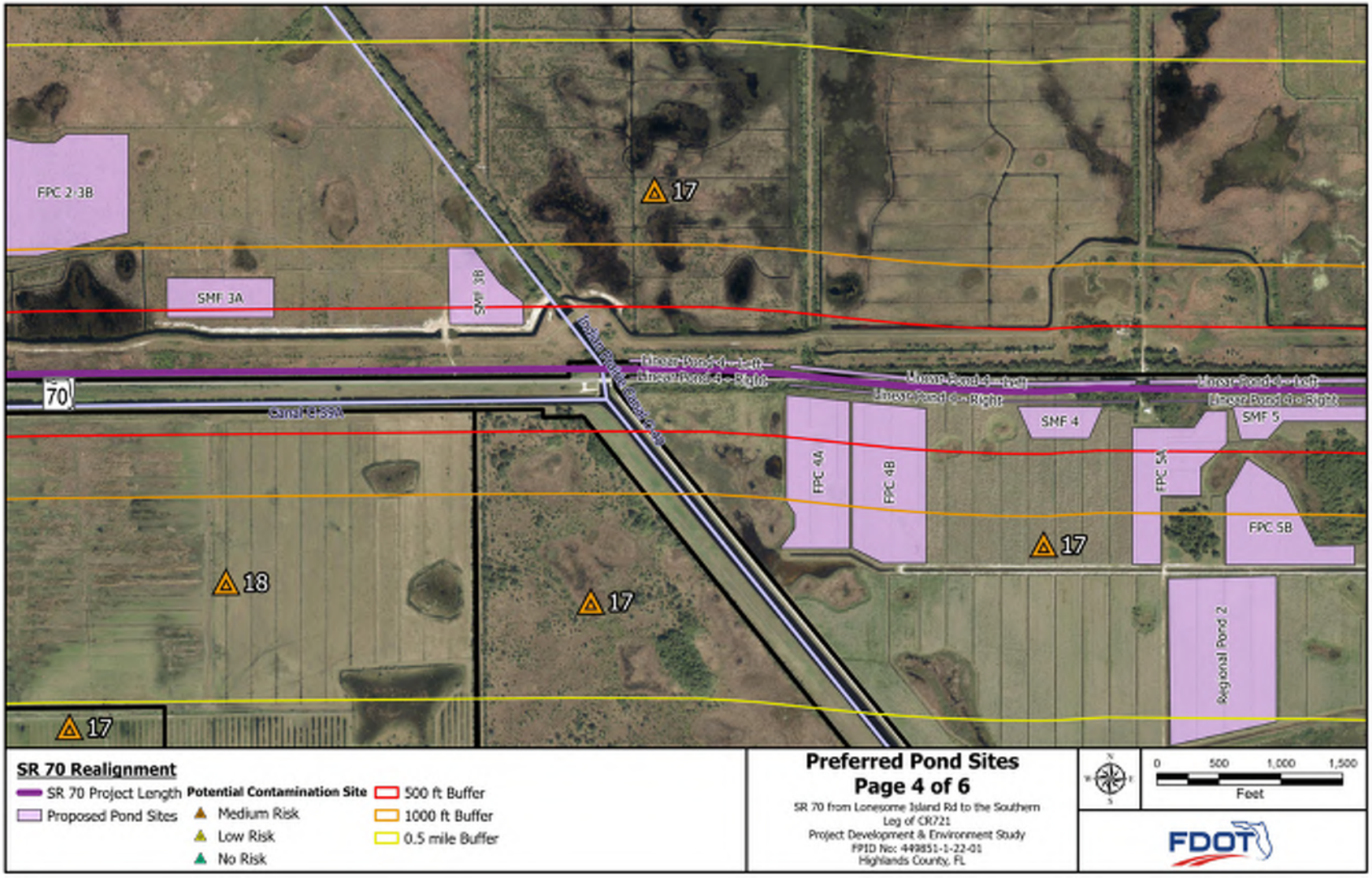


Figure 5 | Alternative Drainage Sites with Potential Contamination Sites

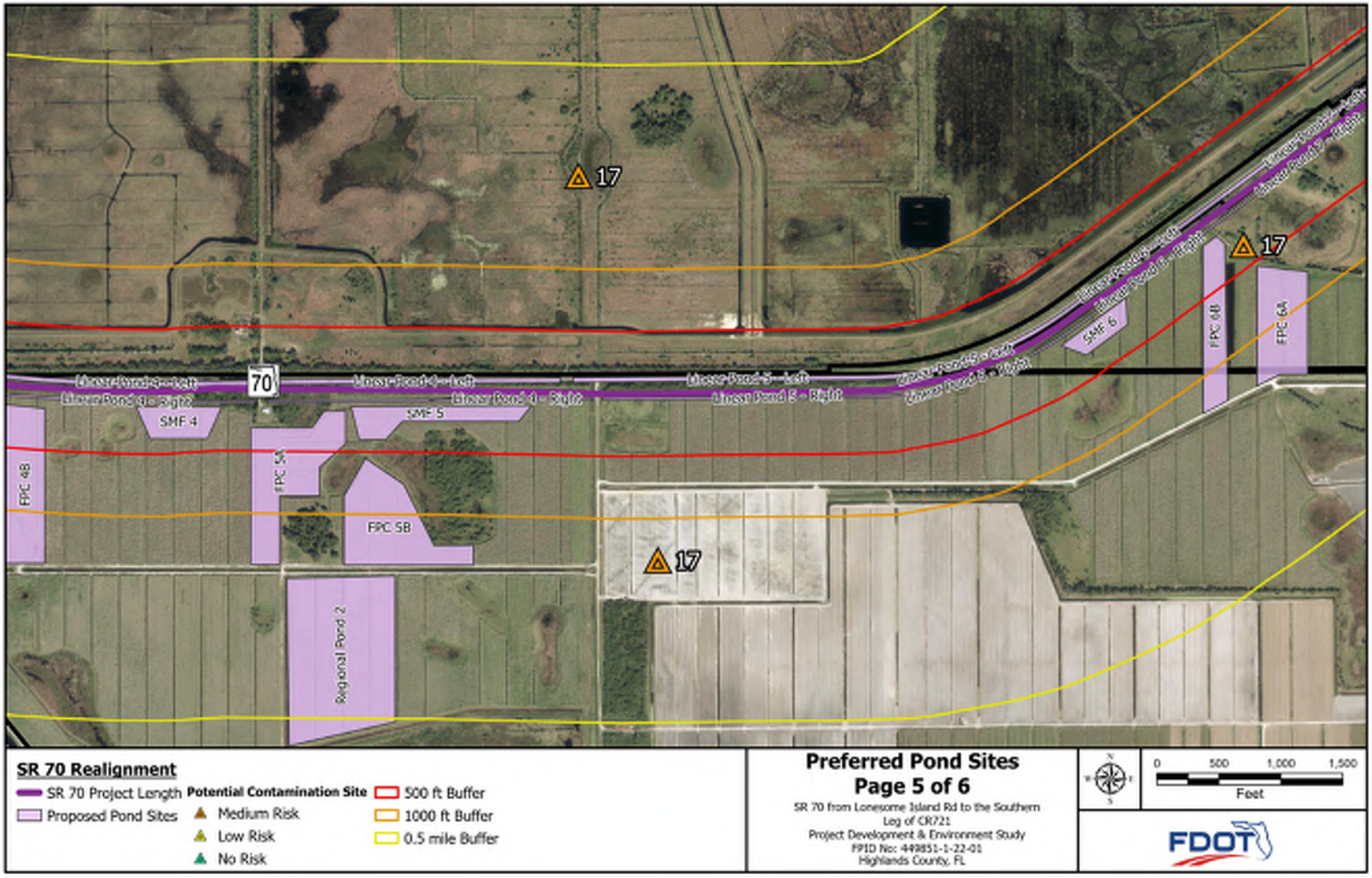
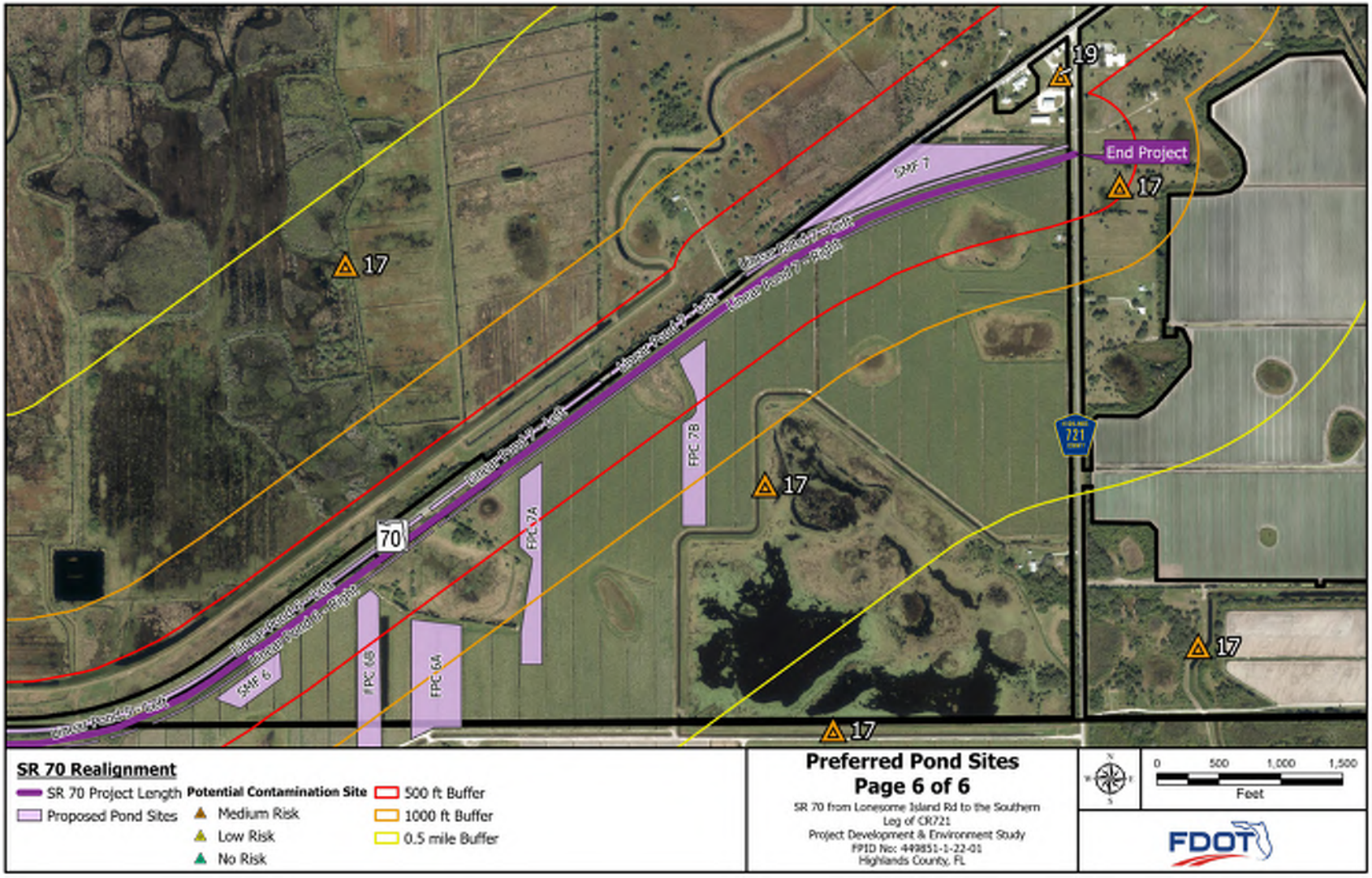


Figure 6 | Alternative Drainage Sites with Potential Contamination Sites



APPENDIX M

Alternative SMF & FPC Matrix

Table 1: SUMMARY TABLE FOR STORMWATER MANAGEMENT FACILITY SITE LOCATIONS

The following table summarizes each of the potential Stormwater Management Facility sites

Factors	Basin 1 Alternatives			Basin 2 Alternatives		Basin 3 Alternatives		Regional Alternative
	LIN 1L	SMF 1		SMF 2A	SMF 2B	SMF 3A	SMF 3B	REG A
Pond Location (Station)	460+00 to 514+00	**507+00 to 515+00**		**279+00 to 286+00**	303+00 to 312+00	**411+00 to 421+00**	434+00 to 441+00	360+00 to 381+00
Side (LT/ RT)	LT	**LT**		**LT**	RT	**LT**	LT	RT
Size (ac)	4.50	**5.10**		**4.60**	3.50	**6.40**	6.30	37.30
Avg. Ground Elev. (ft)	30.0	**30.0**		**28.0**	28.0	**28.0**	29.0	28.0
Est. SHWT Elev. (NAVD '88)	28.0	**29.0**		**26.0**	26.0	**27.0**	28.0	27.5
Soils Symbol	8 13 17	**13**		**13**	13	**13**	13	12 13
Soils Name	Immokalee Felda Malabar	**Felda**		**Felda**	Felda	**Felda**	Felda	Basinger Felda
Hydrologic Soil Group	B/D B/D A/D	**A/D**		**A/D**	A/D	**A/D**	A/D	A/D A/D
Land Use	Pasture	**Pasture**		**Pasture**	Pasture	**Pasture**	Pasture	Pasture
# Residences impacted	None	**None**		**None**	None	**None**	None	None
Recorded Archeological Sites	No	**No**		**No**	No	**No**	Yes (8HG01279)	No
Precontact Archeological Probability	Low	**Low**		**Low**	Low	**Low**	Low to High	Low to Moderate
Recorded Historic Structures/ Resources	None	**None**		**None**	None	**None**	8HG01279	None
Historic Archaeologic Potential	Low	**Low**		**Low**	Low	**Low**	Low	Low
Contamination Ranking	Medium	**Low**		**Low**	Low	**Low**	Low	None
Protected, T&E Species Ranking	High	**High**		**High**	High	**High**	High	Medium
Wetland Impact (acres)	0.00	**0.00**		**0.00**	0.00	**0.00**	0.00	0.00
Wetland Mitigation Cost*	$0	**$0**		**$0**	$0	**$0**	$0	$0
Easement Required	No	**Yes (1.07 ac)**		**Yes (0.32 ac)**	Yes (0.27 ac)	**Yes (0.45 ac)**	Yes (0.40 ac)	Yes (6.40 ac)
Number of Parcels	2	**2**		**1**	1	**1**	1	2
Partial (P) or Whole (W) Take	P	**P**		**P**	P	**P**	P	P
Floodplain Impact (Y/N)	Y	**Y**		**Y**	Y	**Y**	Y	Y
ROW Cost Estimate	$105,000	**$149,000**		**$110,000**	$164,000	**$181,000**	$160,000	$590,000
Additional Construction Cost Estimate	$286,228	**$115,550**		**$74,737**	$806,497	**$710,880**	$766,810	$629,046
Total Estimated Costs	$391,228	**$264,550**		**$184,737**	$970,497	**$891,880**	$926,810	$1,219,046
Ranking	2	**1**	Sub Ranking	**1**	2	**1**	2	N/A
			Grand Total Estimated Costs	**$1,076,617**				$1,219,046
			Final Ranking	**1**				2

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*Assume mitigation cost of $200,000 per acre

Table 1: SUMMARY TABLE FOR STORMWATER MANAGEMENT FACILITY LOCATIONS

The following table summarizes each of the potential Stormwater Management Facility sites

Factors	Basin 4 Alternatives			Basin 5 Alternatives					
	LIN 4	**LIN 4R**	**SMF 4**	**LIN 5L**	**LIN 5R**	**SMF 5**	**LIN 6L**	**LIN 6R**	**SMF 6**
Pond Location (Station)	448+00 to 490+00	448+00 to 490+00	**480+00 to 488+00**	490+00 to 549+00	490+00 to 549+00	**497+00 to 513+00**	549+00 to 577+00	549+00 to 577+00	**554+00 to 562+00**
Side (LT/ RT)	LT	RT	**RT**	LT	RT	**RT**	LT	RT	**RT**
Size (ac)	3.40	1.70	**3.40**	4.80	2.20	**5.60**	2.00	1.10	**2.30**
Avg. Ground Elev. (ft)	28.0	28.0	**29.0**	28.0	28.0	**28.0**	28.0	28.0	**28.0**
Est. SHWT Elev. (NAVD '88)	27.2	27.0	**27.0**	27.0	27.0	**27.0**	27.0	27.0	**27.0**
Soils Symbol	10 14	10 14	**14** **15**	4 10 15	4 10 15	**15** **16**	16 19	16 19	**16**
Soils Name	Felda Basinger	Felda Basinger	**Basinger** **Pineda-Pineda**	Valkaria Felda Pineda-Pineda	Valkaria Felda Pineda-Pineda	**Pineda-Pineda** **Floridana**	Valkaria Hicoria	Valkaria Hicoria	**Valkaria**
Hydrologic Soil Group	A/D A/D	A/D A/D	**A/D** **A/D**	A/D A/D A/D	A/D A/D A/D	**A/D** **C/D**	A/D C/D	A/D C/D	**A/D**
Land Use	Pasture	Pasture	**Pasture**	Pasture	Pasture	**Pasture**	FDOT R/W	FDOT R/W	**Cropland**
# Residences impacted	None	None	**None**	None	None	**None**	None	None	**None**
Recorded Archeological Sites	No	No	**No**	No	No	**No**	No	No	**No**
Precontact Archeological Probability	Low	Low	**Low to Moderate**	Low	Low	**Low**	Low	Low	**Low**
Recorded Historic Structures/ Resources	None	None	**None**	None	None	**None**	None	None	**None**
Historic Archaeologic Potential	Low	Low	**Low**	Low	Low	**Low**	Low	Low	**Low**
Contamination Ranking	Low	Low	**Low**	Low	Low	**Low**	Low	Low	**Low**
Protected, T&E Species Ranking	High	High	**Medium**	High	High	**High**	Medium	Medium	**Medium**
Wetland Impact (acres)	0.00	0.00	**0.00**	0.28	0.28	**0.08**	0.26	0.26	**0.00**
Wetland Mitigation Cost*	$0	$0	**$0**	$56,000	$56,000	**$16,000**	$52,000	$52,000	**$0**
Easement Required	No	No	**Yes (0.10 ac)**	No	No	**Yes (0.02 ac)**	No	No	**Yes (0.10 ac)**
Number of Parcels	4	2	**1**	3	3	**1**	1	1	**1**
Partial (P) or Whole (W) Take	P	P	**P**	P	P	**P**	P	P	**P**
Floodplain Impact (Y/N)	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**
ROW Cost Estimate	$92,000	$73,000	**$93,000**	$109,000	$75,000	**$111,000**	$0	$67,000	**$87,000**
Additional Construction Cost Estimate	N/A		**$32,925**	N/A		**$32,925**	N/A		**$27,416**
Total Estimated Costs	$165,000		**$125,925**	$296,000		**$159,925**	$171,000		**$114,416**
Sub Ranking	2		**1**	2		**1**	2		**1**
Grand Total Estimated Costs	**$697,146**								
Final Ranking	**1**								

*Assume mitigation cost of $200,000 per acre

Table 1: SUMMARY TABLE FOR STORMWATER MANAGEMENT FACILITY SITE LOCATIONS

The following table summarizes each of the potential Stormwater Management Facility sites

Factors	Basin 7 Alternatives			Regional Alternative
	LIN 7L	LIN 7R	SMF 7	REG B
Pond Location (Station)	**577+00 to 637+00**	**577+00 to 635+00**	614+00 to 636+00	492+00 to 501+00
Side (LT/ RT)	**LT**	**RT**	LT	RT
Size (ac)	**4.10**	**2.30**	8.60	25.20
Avg. Ground Elev. (ft)	**28.0**	**28.0**	30.0	28.0
Est. SHWT Elev. (NAVD '88)	**27.2**	**27.2**	28.0	27.0
Soils Symbol	**12 16 19**	**12 16 19**	12	15
Soils Name	**Basinger Valkaria Hicoria**	**Basinger Valkaria Hicoria**	Basinger	Pineda-Pineda
Hydrologic Soil Group	**A/D A/D C/D**	**A/D A/D C/D**	A/D	A/D
Land Use	**Pasture**	**Pasture**	Cropland	Pasture
# Residences impacted	**None**	**None**	None	None
Recorded Archeological Sites	**No**	**No**	No	No
Precontact Archeological Probability	**Low**	**Low**	Low	Low
Recorded Historic Structures/ Resources	**None**	**None**	None	None
Historic Archaeologic Potential	**Low**	**Low**	Low	Low
Contamination Ranking	**Low**	**Medium**	Medium	Low
Protected, T&E Species Ranking	**High**	**High**	High	Medium
Wetland Impact (acres)	**0.40**	**0.40**	0.00	0.00
Wetland Mitigation Cost*	**$80,000**	**$80,000**	$0	$0
Easement Required	**No**	**No**	Yes (0.10 ac)	Yes (2.40 ac)
Number of Parcels	**1**	**1**	1	1
Partial (P) or Whole (W) Take	**P**	**P**	P	P
Floodplain Impact (Y/N)	**Y**	**Y**	N	Y
ROW Cost Estimate	**$116,000**	**$86,000**	$324,000	$394,000
Additional Construction Cost Estimate	**N/A**		$38,434	$1,004,977
Total Estimated Costs	**$362,000**		$362,434	$1,398,977
Sub Ranking	**1**		2	N/A
Grand Total Estimated Costs	**$724,146**			$1,398,977
Final Ranking	**1**			2

*Assume mitigation cost of $200,000 per acre

Table 2: SUMMARY TABLE FOR FLOODPLAIN SITE LOCATIONS

The following table summarizes each of the potential floodplain sites

Factors	Basin 1 Alternatives		Basin 2-3 Alternatives		Basin 4 Alternatives	
	FPC 1A	FPC 1B	FPC 2-3A	FPC 2-3B	FPC 4A	FPC 4B
Pond Location (Station)	454+00 to 470+00	**443+50 to 454+00**	362+00 to 386+00	**384+00 to 409+00**	**461+00 to 467+00**	467+00 to 473+00
Side (LT/ RT)	RT	**RT**	LT	**LT**	**RT**	RT
Size (ac)	15.90	**13.40**	56.30	**54.80**	**14.00**	17.20
Avg. Ground Elev. (ft)	34.0	**34.0**	28.0	**28.0**	**27.0**	27.0
Est. SHWT Elev. (NAVD '88)	33.0	**33.0**	27.1 (lowered to 26.5)	**27.1 (lowered to 26.5)**	**26.5 (lowered to 25.5)**	26.5 (lowered to 25.5)
Soils Symbol	8	**8** **12**	12 13	**12** **13**	**14**	14
Soils Name	Immokalee	**Immokalee** **Basinger**	Basinger Felda	**Basinger** **Felda**	**Basinger**	Basinger
Hydrologic Soil Group	B/D	**B/D** **A/D**	A/D A/D	**A/D** **A/D**	**A/D**	A/D
Land Use	Pasture	**Pasture**	Pasture	**Pasture**	**Pasture**	Pasture
# Residences impacted	None	**None**	None	**None**	**None**	None
Recorded Archeological Sites	No	**No**	No	**No**	**No**	No
Precontact Archeological Probability	Low	**Low**	Low to Moderate	**Low to Moderate**	**Low**	Low
Recorded Historic Structures/ Resources	None	**None**	None	**None**	**None**	None
Historic Archaeologic Potential	Low	**Low**	Low	**Low**	**Low**	Low
Contamination Ranking	Low	**Low**	Low	**Low**	**Low**	Low
Protected, T&E Species Ranking	Medium	**Medium**	High	**High**	**Medium**	Medium
Wetland Impact (acres)	0.00	**0.00**	1.39	**0.00**	**0.78**	1.10
Wetland Mitigation Cost*	$0	**$0**	$278,000	**$0**	**$156,000**	$220,000
Easement Required	Yes (3.80 ac)	**Yes (3.80 ac)**	Yes (0.5 ac)	**Yes (0.5 ac)**	**Yes (0.11 ac)**	Yes (0.11 ac)
Number of Parcels	1	**1**	1	**1**	**1**	1
Partial (P) or Whole (W) Take	P	**P**	P	**P**	**P**	P
ROW Cost Estimate	$301,000	**$268,000**	$1,054,000	**$1,009,000**	**$243,000**	$265,000
Total Estimated Costs	$301,000	**$268,000**	$1,332,000	**$1,009,000**	**$399,000**	$485,000
Ranking	2	**1**	2	**1**	**1**	2

*Assume mitigation cost of $200,000 per acre

Table 2: SUMMARY TABLE FOR FLOODPLAIN SITE LOCATIONS

The following table summarizes each of the potential floodplain sites

Factors	Basin 5 Alternatives		Basin 6 Alternatives		Basin 7 Alternatives	
	FPC 5A	**FPC 5B**	**FPC 6A**	**FPC 6B**	**FPC 7A**	**FPC 7B**
Pond Location (Station)	**489+00 to 498+00**	497+00 to 508+00	565+00 to 575+00	**560+00 to 570+00**	575+00 to 588+00	**592+00 to 604+00**
Side (LT/ RT)	**RT**	RT	RT	**RT**	RT	**RT**
Size (ac)	**11.80**	11.60	8.20	**5.80**	5.70	**5.60**
Avg. Ground Elev. (ft)	**29.0**	29.0	27.0	**27.0**	28.0	**28.0**
Est. SHWT Elev. (NAVD '88)	**28.0 (lowered to 25.5)**	28.0 (lowered to 25.5)	26.0 (lowered to 25.5)	**26.0 (lowered to 25.5)**	27.0 (lowered to 25.5)	**27.0 (lowered to 25.5)**
Soils Symbol	**15**	15 16	16	**16**	16	**16**
Soils Name	**Pineda-Pineda**	Pineda-Pineda Floridana	Valkaria	**Valkaria**	Valkaria	**Valkaria**
Hydrologic Soil Group	**A/D**	A/D C/D	A/D	**A/D**	A/D	**A/D**
Land Use	**Pasture**	Pasture	Pasture/Cropland	**Pasture/Cropland**	Cropland	**Cropland**
# Residences impacted	**None**	None	None	**None**	None	**None**
Recorded Archeological Sites	**No**	No	No	**No**	No	**No**
Precontact Archeological Probability	**Low to Moderate**	Low	Low to Moderate	**Low**	Low to Moderate	**Low to Moderate**
Recorded Historic Structures/ Resources	**None**	None	None	**None**	None	**None**
Historic Archaeological Potential	**Low**	Low	Low	**Low**	Low	**Low**
Contamination Ranking	**Low**	Low	Low	**Low**	Low	**Low**
Protected, T&E Species Ranking	**Medium**	Medium	High	**High**	High	**High**
Wetland Impact (acres)	**0.01**	0.15	0.00	**0.00**	0.00	**0.00**
Wetland Mitigation Cost*	**$2,000**	$30,000	$0	**$0**	$0	**$0**
Easement Required	**Yes (0.30 ac)**	Yes (2.14 ac)	Yes (0.50 ac)	**Yes (0.11 ac)**	Yes (0.10 ac)	**Yes (0.11 ac)**
Number of Parcels	**2**	1	2	**2**	1	**1**
Partial (P) or Whole (W) Take	**P**	P	P	**P**	P	**P**
ROW Cost Estimate	**$198,000**	$219,000	$195,000	**$148,000**	$145,000	**$143,000**
Total Estimated Costs	**$200,000**	$249,000	$195,000	**$148,000**	$145,000	**$143,000**
Ranking	**1**	2	2	**1**	2	**1**

*Assume mitigation cost of $200,000 per acre

APPENDIX N

Additional Construction Cost Estimates

Kisinger Campo & Associates

By: MDR *Date:* 12/2/2025 *FPID:* 449851-1-22-01

COST ESTIMATE

LIN 1L				
Description	*Unit*	*Quantity*	*Unit Price*	*Cost*
Embankment	CY	39155.6	$7.31	$ 286,227.44
			TOTAL:	**$ 286,228**

*FDOT Historical Cost Current 12 Month Moving Area Averages: Area 09

*Embankment cost assumes 3 ft raise in roadway elevation in order to meet attenuation requirements

Kisinger Campo & Associates

By: MDR *Date:* 12/2/2025 *FPID:* 449851-1-22-01

COST ESTIMATE

SMF 1				
Description	*Unit*	*Quantity*	*Unit Price*	*Cost*
Pipe (Assume 48")	LF	165	$551.00	$ 90,915.00
Mitered End Section - Rnd 48"	EA	1	$14,485.00	$ 14,485.00
Manhole <10'	EA	1	$10,150.00	$ 10,150.00
			TOTAL:	**$ 115,550**

*FDOT Historical Cost Current 12 Month Moving Area Averages: Area 09

*Accounts for pipe system within inflow easement

Kisinger Campo & Associates

By: MDR *Date:* 12/2/2025 *FPID:* 449851-1-22-01

COST ESTIMATE

SMF 2A				
Description	*Unit*	*Quantity*	*Unit Price*	*Cost*
Pipe (Assume 36")	LF	165	$338.00	$ 55,770.00
Mitered End Section - Rnd 36"	EA	1	$8,817.00	$ 8,817.00
Manhole <10'	EA	1	$10,150.00	$ 10,150.00
			TOTAL:	**$ 74,737**

*FDOT Historical Cost Current 12 Month Moving Area Averages: Area 09

*Accounts for pipe system within inflow easement

Kisinger Campo & Associates

By: MDR *Date:* 12/2/2025 *FPID:* 449851-1-22-01

COST ESTIMATE

SMF 2B				
Description	*Unit*	*Quantity*	*Unit Price*	*Cost*
Pipe (Assume 36")	LF	185	$338.00	$ 62,530.00
Mitered End Section - Rnd 36"	EA	1	$8,817.00	$ 8,817.00
Manhole <10'	EA	1	$10,150.00	$ 10,150.00
Canal Cross Drains and Pond Inflow Pipe	LS	1	$725,000.00	$ 725,000.00
			TOTAL:	**$ 806,497**

*FDOT Historical Cost Current 12 Month Moving Area Averages: Area 09

*Accounts for pipe system within inflow easement

Kisinger Campo & Associates

By: MDR *Date:* 12/2/2025 *FPID:* 449851-1-22-01

COST ESTIMATE

SMF 3A				
Description	*Unit*	*Quantity*	*Unit Price*	*Cost*
Pipe (Assume 54")	LF	335	$658.00	$ 220,430.00
Mitered End Section - Rnd 54"	EA	1	$20,150.00	$ 20,150.00
Manhole <10'	EA	2	$10,150.00	$ 20,300.00
Canal Cross Drains and Pond Inflow Pipe	LS	1	$450,000.00	$ 450,000.00
			TOTAL:	**$ 710,880**

*FDOT Historical Cost Current 12 Month Moving Area Averages: Area 09

*Accounts for pipe system within inflow easement

Kisinger Campo & Associates

By: MDR *Date:* 12/2/2025 *FPID:* 449851-1-22-01

COST ESTIMATE

SMF 3B				
Description	*Unit*	*Quantity*	*Unit Price*	*Cost*
Pipe (Assume 54")	LF	420	$658.00	$ 276,360.00
Mitered End Section - Rnd 54"	EA	1	$20,150.00	$ 20,150.00
Manhole <10'	EA	2	$10,150.00	$ 20,300.00
Canal Cross Drains and Pond Inflow Pipe	LS	1	$450,000.00	$ 450,000.00
			TOTAL:	**$ 766,810**

*FDOT Historical Cost Current 12 Month Moving Area Averages: Area 09

*Accounts for pipe system within inflow easement

Kisinger Campo & Associates

By: MDR *Date:* 12/2/2025 *FPID:* 449851-1-22-01

COST ESTIMATE

SMF 4				
Description	*Unit*	*Quantity*	*Unit Price*	*Cost*
Pipe (Assume 42")	LF	25	$445.00	$ 11,125.00
Mitered End Section - Rnd 42"	EA	1	$11,650.00	$ 11,650.00
Manhole <10'	EA	1	$10,150.00	$ 10,150.00
			TOTAL:	**$ 32,925**

*FDOT Historical Cost Current 12 Month Moving Area Averages: Area 09

*Accounts for pipe system

Kisinger Campo & Associates

By: MDR *Date:* 12/2/2025 *FPID:* 449851-1-22-01

COST ESTIMATE

SMF 5				
Description	*Unit*	*Quantity*	*Unit Price*	*Cost*
Pipe (Assume 42")	LF	25	$445.00	$ 11,125.00
Mitered End Section - Rnd 42"	EA	1	$11,650.00	$ 11,650.00
Manhole <10'	EA	1	$10,150.00	$ 10,150.00
			TOTAL:	**$ 32,925**

*FDOT Historical Cost Current 12 Month Moving Area Averages: Area 09

*Accounts for pipe system

Kisinger Campo & Associates

By: MDR *Date:* 12/2/2025 *FPID:* 449851-1-22-01

COST ESTIMATE

SMF 6				
Description	*Unit*	*Quantity*	*Unit Price*	*Cost*
Pipe (Assume 36")	LF	25	$338.00	$ 8,450.00
Mitered End Section - Rnd 36"	EA	1	$8,816.00	$ 8,816.00
Manhole <10'	EA	1	$10,150.00	$ 10,150.00
			TOTAL:	**$ 27,416**

*FDOT Historical Cost Current 12 Month Moving Area Averages: Area 09

*Accounts for pipe system

Kisinger Campo & Associates

By: MDR *Date:* 12/2/2025 *FPID:* 449851-1-22-01

COST ESTIMATE

SMF 7				
Description	*Unit*	*Quantity*	*Unit Price*	*Cost*
Pipe (Assume 48")	LF	25	$552.00	$ 13,800.00
Mitered End Section - Rnd 48"	EA	1	$14,484.00	$ 14,484.00
Manhole <10'	EA	1	$10,150.00	$ 10,150.00
			TOTAL:	**$ 38,434**

*FDOT Historical Cost Current 12 Month Moving Area Averages: Area 09

*Accounts for pipe system

Kisinger Campo & Associates

By: MDR *Date:* 12/2/2025 *FPID:* 449851-1-22-01

COST ESTIMATE

REG A				
Description	*Unit*	*Quantity*	*Unit Price*	*Cost*
Regular Excavation	CY	52551.8	$11.97	$ 629,045.05
			TOTAL:	**$ 629,046**

*FDOT Historical Cost Current 12 Month Moving Area Averages: Area 09

*Accounts for creating attenuation volume for regional alternative

Kisinger Campo & Associates

By: MDR *Date:* 12/2/2025 *FPID:* 449851-1-22-01

COST ESTIMATE

REG B				
Description	*Unit*	*Quantity*	*Unit Price*	*Cost*
Regular Excavation	CY	83958	$11.97	$ 1,004,977.26
			TOTAL:	**$ 1,004,978**

*FDOT Historical Cost Current 12 Month Moving Area Averages: Area 09

*Accounts for creating attenuation volume for regional alternative