Natural Resources Evaluation Technical Memorandum

Florida Department of Transportation

District Seven

SR 45 (US 41)

Limits of Project: South of Withlacoochee Trail Bridge to North of North Sportsmans Point

Citrus, Florida

Financial Management Number: 257165-4

ETDM Number: N/A

Date: June 2023

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.

Natural Resources Evaluation
Technical Memorandum

SR 45 (US 41) from South of Withlacoochee Trail Bridge to North of North Sportsmans Point
Design and Right-of-Way Re-evaluation
Work Program Item Segment #257165-4-43-01

Citrus County, Florida

Prepared for:

Florida Department of Transportation
District Seven
District Environmental Management Office
11201 North McKinley Drive
Tampa, Fl 33612

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.

June 2023

EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) is proposing improvements to State Road (SR) 45 (US 41) from south of Withlacoochee Trail Bridge to north of North Sportsmans Point in Citrus County, Florida (Work Program Item Segment (WPIS) 257165-4-43-01). The proposed improvements consist of widening SR 45 (US 41) from its current two-lane rural section to a four-lane urban section for a distance of approximately 1.2 miles.

A Type II Categorical Exclusion (CE) was approved in 1996 for SR 45 (US 41) from SR 44 to the West Marion County Line (WPIS 237811-1) that included this project. A Design Change (DC) Re-evaluation of the project was conducted and approved in 1999 under WPIS 257165-1. A DC/Right-of-Way (ROW) Re-evaluation is currently underway based on 45% design plans for this segment (WPIS 257165-4) of SR 45 (US 41).

This Natural Resources Evaluation (NRE) Technical Memorandum was prepared in support of the current Re-evaluation and documents the potential for protected species, wetlands and other surface waters (OSWs), and Essential Fish Habitat (EFH) involvement for the proposed improvements. The limit of disturbance for the proposed improvements, including the Stormwater Management Facilities (SMFs) and Floodplain Compensation (FPC) sites, is referred to as the project action area throughout the report. To evaluate land use, a buffer of 300' was utilized from the centerline of SR 45 (US 41). The project action area with the buffer is referred to as the study area.

Protected Species and Habitat

The study area was assessed for the presence of and suitable habitat for federal and state protected species in accordance with 50 Code of Federal Regulations (CFR) Part 402 of the Endangered Species Act (ESA) of 1973, as amended, Chapter 5B-40: *Preservation of Native Flora of Florida*, Florida Administrative Code (FAC), Chapter 68A-27: *Rules Relating to Endangered or Threatened Species* (FAC), and *Part 2, Chapter 16-Protected Species and Habitat* of the FDOT Project Development and Environment (PD&E) Manual.

No federally listed plant species were determined to have the potential to occur in the study area based on a review of the Florida Natural Areas Inventory (FNAI) and the US Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) databases. Additionally, no federally listed plant species were observed in or adjacent to the project action area during field reviews conducted in April, May, and June 2023. Therefore, the proposed improvements are anticipated to have ***"no effect"*** on federally protected plant species. Thirteen state-listed plant species that potentially occur in Citrus County were evaluated. Twelve of the state-listed plant species were determined to have no potential to occur in the project action area due to a lack of suitable habitat and no documented observations. Potentially appropriate habitat for the Florida spiny pod (*Matelea floridana*) is present in the study area. However, there is no documented observations in the study area and none were observed during field reviews in the project action area. If the Florida spiny pod or other protected plant species are observed prior to construction, appropriate coordination will occur with the Florida Department of

Agriculture and Consumer Services (FDACS). Therefore, there is **no effect anticipated** for state-listed plant species by the proposed project improvements.

The USFWS IPaC indicates the project limits are within the range for the loggerhead sea turtle (*Caretta caretta*); however, no suitable habitat is within the project limit. Therefore, the project will have "***no effect***" on the loggerhead sea turtle.

Table ES-1 below provides a summary of federal- and state-listed faunal species that have the potential to occur in the area with an effect determination for the proposed project action area. Only species officially listed as endangered or threatened by the USFWS or Florida Fish and Wildlife Conservation Commission (FWC) are given an effect determination.

Table ES-1 Protected Faunal Species Potentially Occurring in the Project Action Area

Scientific Name	Common Name	Federal Status	State Status	Effect Determination
Athene cunicularia floridana	Florida Burrowing Owl	-	ST	No Effect Anticipated
Laterallus jamaicensis jamaicensis	Eastern Black Rail	FT	FT	No Effect
Grus americana	Whooping Crane	EXPN	--	-
Picoides borealis	Red-Cockaded Woodpecker	FE	FE	No Effect
Aphelocoma coerulescens	Florida Scrub-Jay	FT	FT	No Effect
Egretta caerulea	Little Blue Heron	-	ST	No Adverse Effect Anticipated
Falco sparverius paulus	Southeastern American Kestrel	-	ST	No Effect Anticipated
Grus canadensis pratensis	Florida Sandhill Crane	-	ST	No Adverse Effect Anticipated
Haliaeetus leucocephalus	Bald Eagle	MBTA+	-	-
Drymarchon couperi	Eastern Indigo Snake	FT	FT	MANLAA
Stilosoma extenuatum	Short-Tailed Snake	-	ST	No Effect Anticipated
Gopherus polyphemus	Gopher Tortoise	-	ST	No Adverse Effect Anticipated
Danaus pleixppus	Monarch Butterfly	C	-	-
Ursus americanus floridanus	Florida Black Bear	-	FBBMP	-

Legend: FE-Federally-Designated Endangered; FT-Federally-Designated Threatened; ST -State-Designated Threatened; C-Candidate; EXPN-Non-Essential Experimental Population; MBTA-Migratory Bird Treaty Act; MANLAA-may affect, but not likely to adversely affect; +-Also protected under the Bald and Golden Eagle Protection Act (BGEPA); FBBMP-Florida Black Bear Management Plan

The proposed improvements are within the USFWS Consultation Area for the red-cockaded woodpecker (RCW) (*Picoides borealis*) and the Florida scrub-jay (*Aphelocoma coerulescens*). However, there is no suitable habitat for the RCW or Florida scrub-jay in the project action area. The lack of suitable habitat was based on database reviews, field surveys, and a lack of historical or current

observations of either species in the study area. Therefore, the proposed improvements are anticipated to have "***no effect***" on the RCW or Florida scrub-jay.

The USFWS *Eastern Indigo Snake Programmatic Effect Determination Key* (revised August 2013) was used to determine that the proposed improvement "***may affect, but is not likely to adversely affect***" the eastern indigo snake.

Although no longer listed, the bald eagle (*Haliaeetus leucocephalus*) is protected by the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA), and the project was evaluated for the presence of bald eagle nests. The project action area is not within the 660-foot(ft) protection zone of any bald eagle nest. The bridge crossing over the Withlacoochee State Trail was evaluated for the presence of roosting bats which are protected by under 68A-4.001 (FAC) and 68A-9.010 (FAC). No bats or evidence of bats was observed. The Florida black bear (*Ursus americanus floridanus*) was delisted by FWC in June 2012, but is protected and managed under the Florida Black Bear Management Plan. The FWC distribution map indicates that the study area is in the "occasional" range of the Florida black bear; however, there are no historical or current observations of the Florida black bear in the study area.

There is no USFWS designated Critical Habitat within the study area.

Wetlands and Other Surface Waters

Pursuant to Presidential Executive Order 11990 entitled *Protection of Wetlands*, (May 1977), the US Department of Transportation (USDOT) developed a policy, *Preservation of the Nation's Wetlands* (USDOT Order 5660.1A), dated August 24, 1978, which requires all federally funded highway projects to protect wetlands to the fullest extent possible. In accordance with this policy, as well as *Part 2, Chapter 9 – Wetlands and Other Surface Waters* of the FDOT PD&E Manual, the proposed project action area was evaluated for potential impacts to wetlands and OSWs.

Database and field reviews were conducted to determine if wetlands and OSWs were within the project action area. Wetland and OSW impacts are limited to 0.08 acre (ac) of herbaceous or shrub wetland impact and 0.07 ac of OSW impact, resulting from the placement of three outfall pipes. Total functional loss was estimated at 0.038 units based on an analysis using the Uniform Mitigation Assessment Methodology (UMAM). No mitigation is anticipated to be required for the outfall impacts which are considered de minimis, with any loss of wetland function anticipated to be replaced by the proposed SMFs for the project.

Essential Fish Habitat

The proposed improvement was evaluated for EFH in accordance *with Part 2, Chapter 17- Essential Fish Habitat* of the FDOT PD&E Manual and the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) of 1996. The EFH analysis assesses waters and substrate necessary to fish for spawning, breeding, feeding, and development to maturity. There are no estuarine or marine waters in the project action area that provide EFH. Therefore, there will be no involvement with EFH for the proposed improvement.

Table of Contents

DC and ROW Re-Evaluation Map

Tables

Appendices

1 INTRODUCTION

1.1 Project Description

The Florida Department of Transportation (FDOT) is proposing the widening of State Road (SR) 45 (US 41) from south of Withlacoochee Trail Bridge to north of North Sportsmans Point in Citrus County, Florida (Work Program Item Segment (WPIS) 257165-4-43-01). Project location maps are provided in **Appendix A**. The proposed improvements consist of widening SR 45 (US 41) from its current two-lane rural section to a four-lane urban section for a distance of approximately 1.2 miles.

As per the 45% design plans, the proposed roadway will include two 11-foot (ft) travel lanes, a 6-ft bike lane, and a 6-ft sidewalk in both directions separated by an 18 to 22-ft raised median with a design speed of 40 miles per hour (mph). Improvements will also include replacing the Withlacoochee Trail Bridge and providing pedestrian and bicycle access from both the north and south approach to the trail from SR 45 (US 41). The width of the Withlacoochee Trail Bridge will increase from 97.66 ft to 106.33 ft.

The project has been designed in accordance with state water quality criteria, pursuant to Clean Water Act Section 401 Water Quality Certification, and best management practices (BMPs) will be implemented during construction to avoid water quality degradation. The stormwater management system will utilize ponds to meet the Southwest Florida Water Management District (SWFWMD) permitting requirements for treatment and attenuation. The stormwater management system is currently being designed. Proposed stormwater management facilities (SMFs) and potential floodplain compensation (FPC) sites as shown on the 45% design plans were included in this evaluation. Two SMFs were considered – SMF 4 on the east side of SR 45 (US 41) at Bruce Street and SMF 5c on the east side of SR 45 (US 41), approximately 40 ft north of North Sportsmans Point. Two parcels being considered as FPC sites were also evaluated. The first is located on the west side of SR 45 (US 41), south of Andrew Street. The second FPC site is located on the east side of SR 45 (US 41) at Carl Street. The SMFs and proposed FPC site parcels are shown on **Appendix B, Figures 3, 4, and 5**. The Photo Exhibit in **Appendix C** provides photographs of the proposed SMF 5c and the two FPC sites. Note that SMF 4 is within the same parcel as the second FPC site. The stormwater management system is anticipated to be submitted in July 2023 for review by the SWFWMD.

The limit of disturbance for the proposed improvements, including the SMFs and FPC sites, is referred to as the project action area throughout the report. To evaluate land use and potential protected species habitat, a buffer of 300’ was utilized from the centerline of SR 45 (US 41). The project action area with the buffer is referred to as the study area.

1.2 Project History

A Type 2 Categorical Exclusion (CE) document was approved by the Federal Highway Administration (FHWA) on February 21, 1996 for SR 45 (US 41) from SR 44 to the West Marion County line under WPIS 237811-1, a total of 16.87 miles. A Design Change (DC) Re-evaluation (WPIS 257165-1) was approved

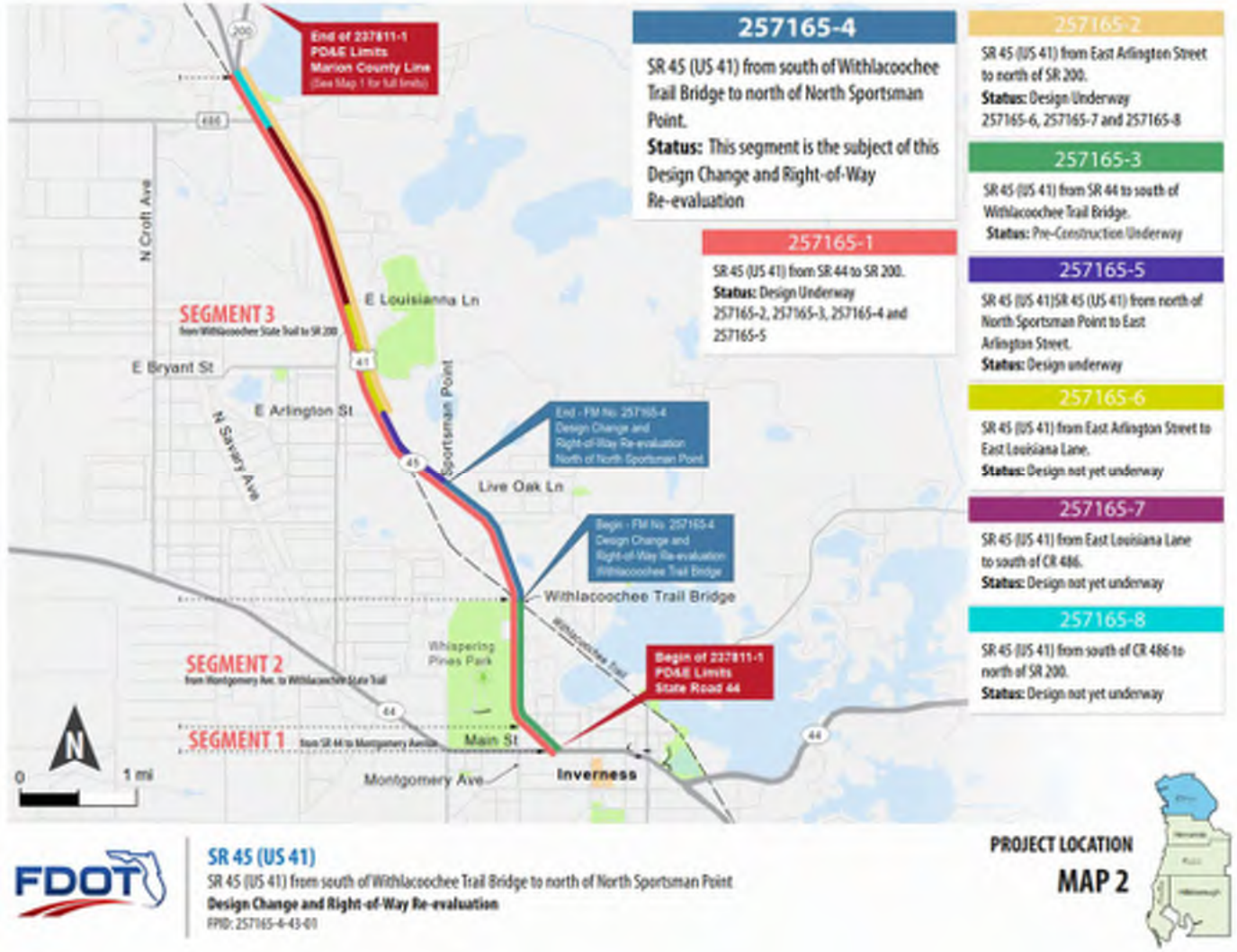
on August 4, 1999, which divided the project into three segments for the purposes of analyzing design alternatives, shifting the alignment from the east side of SR 45 (US 41) to the west side of SR 45 (US 41), and modifying the intersection at SR 200. The limits of the three segments included in the 1999 DC Re-evaluation are as follows: Segment 1: SR 44 to Montgomery Avenue, Segment 2: Montgomery Avenue to the Withlacoochee State Trail, and Segment 3: Withlacoochee State Trail (WST) to SR 200. The 1999 Re-evaluation included 38 SMF alternatives, many of which were eliminated as design progressed for each of the segments as the preferred alternatives were selected.

The current DC/Right-of-Way (ROW) Re-evaluation evaluates changes to the approved typical section within Segment 3 of the 1999 DC Re-evaluation from south of the WST to north of North Sportmans Point (WPIS 257165-4) that are included in the current 45% design plans. A map showing the Re-evaluation segments is provided below as **DC and ROW Re-evaluation Map 2**. The typical section for the 45% Plans considered in the current DC/ROW Re-evaluation is a four-lane divided urban roadway with a total proposed ROW width of 100 ft minimum, whereas the 1999 DC Re-evaluation typical section is a four-lane divided urban section with a total ROW of 100 ft. The median width now varies from 18 ft to 22 ft, whereas the 1999 DC Re-evaluation shows a 22 ft median. The width of the travel lanes was reduced from 12 ft to 11 ft, the border area increased from 11.6 ft to 12 ft, and the bike lane increased from 4 ft to 6 ft wide. The total pavement width remains unchanged. The width of the sidewalks increased from 5 ft to 6 ft.

The total width of the Withlacoochee Trail Bridge has been increased by 8.66 ft from 97.66 ft to 106.33 ft. The median width is now 29 ft, which is a 7 ft increase from the 1999 DC Re-evaluation. As with the roadway, changes on the bridge include a reduction of the width of the travel lanes from 12 ft to 11 ft, and an increase of the width of the sidewalks from 5 ft to 6 ft. The bike lane on the bridge increased from 6.6 ft to 8.3 ft wide.

Two SMFs and two FPC site parcels were selected as the preferred alternatives for this segment and are considered in the current DC/ROW Re-evaluation. The two SMFs and two FPC sites have been further designed and will be evaluated in the SWFWMD permit application to be submitted in July 2023.

DC and ROW Re-evaluation Map 2.



1.3 Purpose of the Project

SR 45 (US 41) is a major north-south road connecting Inverness at SR 44 to Dunnellon in Marion County. This route serves both local traffic and interregional movements. As one of the major routes in Citrus County, SR 45 travel demand is anticipated to increase and thus exceed its capacity. The purpose of the project is to reduce congestion and provide better conditions for the movement of safety vehicles, such as fire engines and ambulances, to prevent an increase in accidents which would be likely to occur if congestion worsens, and to improve pedestrian and bicyclists access and movement.

1.4 Purpose of Report

The purpose of this Natural Resources Evaluation (NRE) Technical Memorandum is to document the natural resources analysis performed to support decisions related to the evaluation of the project Preferred Alternative and to summarize potential impacts to wetlands and other surface waters

(OSWs), federal and state protected species, and Essential Fish Habitat(EFH). Measures considered to avoid, minimize, and mitigation for potential impacts resulting from the proposed project are also discussed. This NRE Technical Memorandum was conducted in accordance with the Project Development and Environment (PD&E) manual and applicable State and Federal natural resources regulations.

There are no estuarine or marine waters in the project action area that would provide EFH. Therefore, there will be no involvement with EFH for the proposed improvement.

1.5 Project Location

The proposed project is located in Sections 6 and 7 of Township 19 South, Range 20 East and Section 1 of Township 19 South, Range 19 East (**Appendix A, Figure 1-Project Quadrangle Map**) in Citrus County. The approximate latitude/longitude coordinates begin at 28.849534/-82.344623 and end at 28.863323/-82.354264. The project is located in Inverness, Florida. (See **Appendix A, Figure 2 – Project Location Map**)

2 EXISTING ENVIRONMENTAL CONDITIONS

2.1 Existing Land Use

For evaluating the existing land use, a 300-ft buffer was created from the centerline of SR 45 (US 41) on each side of the roadway and around the SMFs and FPC sites. The area within the 300-ft buffer is referred to as the study area. Desktop and document reviews were conducted for the study area using the SWFWMD land use database and current aerial images. The FDOT Florida Land Use, Cover and Forms Classification System (FLUCFCS) Map is provided in **Appendix B, Figure 3**. Field evaluations were conducted for the study area on April 13, May 3, and June 13, 2023 to confirm the FLUCFCS codes and to better define wetland and OSW boundaries. The SWFWMD FLUCFCS map did not indicate the area comprised of roadway (FLUCFCS 8140). The map was modified to indicate the paved surface of the road, shoulders, and slopes as roads and highways (FLUCFCS 8140).

Table 2-1 provides a summary of the existing land use within the study area.

Table 2-1 Existing Land Use in the Study Area

Land Use Type	FLUCFCS Code	Acreage within the Study Area	Percent of Total Acreage
Residential (Low Density)	1100	1.70	1.51
Residential (Medium Density)	1200	12.32	10.92
Residential (High Density)	1300	0.27	0.24
Commercial	1400	26.12	23.16
Industrial	1500	8.52	7.56
Extractive	1600	0.53	0.47
Institutional	1700	4.24	3.76

Land Use Type	FLUCFCS Code	Acreage within the Study Area	Percent of Total Acreage
Open Land	1900	11.02	9.77
Cropland and Pastureland	2100	2.35	2.08
Upland Hardwood-Coniferous Mix	4340	34.49	30.59
Lakes	5200	0.33	0.29
Streams and Lake Swamps	6150	0.27	0.24
Freshwater Marsh	6410	0.48	0.43
Wet Prairie	6430	2.34	2.08
Roads and Highways	8140	7.78	6.90
TOTAL		**112.76**	**100**

The land use within the study area consists of primarily of developed lands [(Residential (12.67%), Commercial (23.16%), Industrial (7.56%), Extractive (0.47%), Institutional (3.76%), and Transportation (6.90%)]. Open, undeveloped land (Urban Open) (9.77%), cropland and pastureland (2.08%), mixed upland forest (30.59%), lakes (0.29%), and wetlands (Streams and Lake Swamps, Freshwater Marsh, Wet Prairie) (2.75%) are also within the project study area.

2.2 Natural and Biological Features

Available habitat for protected species, potential wetland and OSW involvement, and current land usage was evaluated by reviewing aerial imagery and pertinent available data sources including soils data from the US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), 2020 SWFWMD FLUCFCS data, and the US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI). A FLUCFCS Map showing land uses in the study area is provided as **Appendix B, Figure 3.** The soils map and USFWS NWI map used to evaluate the project action area are provided **Appendix B, Figure 4** and **Appendix B, Figure 5**, respectively.

The FDOT conducted field inspections on April 13, May 3, and June 13, 2023 to verify wetland and OSW jurisdictional boundaries, evaluate wetland characteristics, survey seasonal high-water levels, and determine potential wildlife habitat and usage. The wetland and OSWs boundary delineations were done in accordance with Chapter 62-340 of the Florida Administrative Code (FAC), the *Corps of Engineers Wetlands Delineation Manual (Technical Report Y-87-1)*, and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (2008). Upland hardwood-coniferous mixed forested areas were evaluated for the potential to provide foraging or nesting habitat for the red-cockaded woodpecker(RCW).

2.2.1 Upland Communities

Approximately half (54.52%) of the study area is comprised of developed upland areas including Commercial use (FLUCFCS 1400), Low Density Residential areas (FLUCFCS 1100), Medium Density Residential areas (FLUCFCS 1200), High Density Residential areas (FLUCFCS 1300), Industrial (FLUCFCS

1500), Extractive (FLUCFCS 1600), Institutional (FLUCFCS 1700) and Roads and Highways (FLUCFCS 8140). The study area from Andrew Street north to North Sportsmans Point is comprised primarily of the identified developed land uses.

Undeveloped upland use comprises 45.48% of the study area and consists of upland hardwood-conifer mixed forests (FLUCFCS 4340), open urban land (FLUCFCS 1900), and cropland and pastureland (FLUCFCS 2100) as described below.

2.2.1.1 Urban Open Land (FLUCFCS 1900)

Open urban land includes undeveloped land within urban areas and inactive land with street patterns but without structures. Open land typically does not exhibit any indication of intended use. It may be in a transitional state and ultimately will be developed into a typical urban land use. Urban open land comprises 11.02 acres (ac) of the total study area.

2.2.1.2 Cropland and Pastureland (FLUCFCS 2100)

Cropland and pastureland is agricultural land which is managed for the production of row or field crops and improved, unimproved, or woodland pastures. Cropland and Pastureland was only identified in the northwest corner of SMF 5c, adjacent to Connell Lake. This land use comprises 2.35 ac of the study area.

2.2.1.3 Upland Mixed Forests (FLUCFCS 434)

Upland mixed forests are forested areas in which neither upland conifers nor hardwoods achieve a 66 percent canopy dominance. Upland mixed forests (FLUCFCS 4340) are located south of the WST to the west and north of the WST to the east. Upland mixed forest is also located within the proposed FPC parcel east of SR 45 at Carl Street and within the SMF 5c parcel as well as a small parcel on the west side of SR 45 across from North Sportsmans Point. Upland mixed forests comprise 34.49 ac of the study area.

2.2.2 Wetland and Other Surface Water Communities

The existing SR 45 (US 41) is located on the eastern edge of the Brooksville Ridge. The Tsala Apopka Lakes are located east of the project but are not impacted by the project. A NRCS Soils Map that identifies hydric soils can be found in **Appendix B, Figure 4.** The USFWS NWI Map is provided in **Appendix B, Figure 5** that shows wetlands and OSWs within or in the vicinity of the project action area. A Wetlands and OSW Location Map is provided as **Appendix D, Figure 6.** The Photo Exhibit in **Appendix C** provides photos of the wetlands and OSWs anticipated to be impacted by the project**.**

Three OSWs were identified within the study area- Parsley Lake, White Lake, and Connell Lake. Three wetlands [identified as Streams and Lake Swamps (6150), Freshwater Marsh (641), and Wet Prairie (6430) by SWFWMD FLUCFCS data] are located within the study area adjacent to and associated with the three OSWs. The identified OSWs and wetlands are described below.

2.2.2.1 Descriptions of Surface Water/Wetland

Parsley Lake (SW 1)

Location:	Adjacent to Station 1170 to 1171 (approximate)
USFWS NWI Code:	PUBH
FLUCFCS Code:	5200 – Lakes
NRCS Soil Type:	99-water

Parsley Lake is located on the east side of SR 45 (US 41), south of SMF 4. Parsley Lake is identified as Palustrine, Unconsolidated Bottom, Permanently Flooded (PUBH) on the NWI map and is also identified as Surface Water (SW) 1 in this document. The lake is surrounded by a freshwater marsh wetland on its shoreline and by upland; it does not connect directly to Waters of the US. This OSW is not jurisdictional under Section 404 of the Clean Water Act due to its lack of connection or adjacency to Waters of the US. Impacts to SW 1 are not anticipated.

Parsley Lake Shoreline - Wetland 1 (WL 1)

Location:	Adjacent to Station 1170 to 1171 (approximate)
USFWS NWI Code:	PEMF
FLUCFCS Code:	6410 – Freshwater Marsh
NRCS Soil Type:	5-Basinger fine sand, 0 to 2 percent slopes

The shoreline of Parsley Lake was identified as Wetland 1 (WL 1) and classified as freshwater marsh (FLUCFCS 6410) by the environmental scientist who reviewed the area. The wetland area identified is not within the NWI mapped boundary; however, it would be classified as a Palustrine, Emergent, Semi-permanently Flooded (PEMF) system utilizing NWI coding. Vegetation noted in WL 1 included predominantly Baldwin's nutrush (*Scleria baldwinii*) and maidencane (*Panicum hemitomon*) with limited (5% or less) representation by flatsedge (*Cyperus spp.*), Baldwin's spikerush (*Eleocharis baldwinii*), creeping primrose willow (*Ludwigia repens*), and marsh pennywort (*Hydrocotyle umbellata*). Soils were identified by the NRCS map as Basinger fine sand, 0 to 2 percent (hydric). This wetland is not jurisdictional under Section 404 of the Clean Water Act due to its lack of connection or adjacency to Waters of the US. Impacts to WL 1 are limited to the construction of an outfall connection to SMF 4.

White Lake (SW 2)

Location:	Station 1191+30 (Approximate)
USFWS NWI Code:	PAB3H
FLUCFCS Code:	5200 – Lakes
NRCS Soil Type:	99-water

White Lake is located west side of SR 45 (US 41), adjacent to the commercial properties that border the west side of SR 45 (US 41). White Lake is identified on the NWI map as Palustrine, Aquatic Bed, Rooted Vascular, Permanently Flooded (PAB3H). White Lake is also identified as Surface Water (SW) 2 in this document. The lake is surrounded by upland areas and does not connect directly to Waters of the US. This OSW is not jurisdictional under Section 404 of the Clean Water Act due to its lack of connection to and adjacency to Waters of the US. Impacts to SW 2 are not anticipated.

White Lake Shoreline – Wetland 2 (WL 2)

Location:	Station 1191+30 (approximate)
USFWS NWI Code:	PSS1
FLUCFCS Code:	6310– Shrub Wetland
NRCS Soil Type:	2-Adamsville fine sand, 0 to 2 percent slopes

The shoreline of White Lake which will be impacted was identified as Wetland 2 (WL 2) and classified as shrub wetland (FLUCFCS 6310) by the environmental scientist who reviewed the area. The area within the project action area adjacent to White Lake is not mapped as a wetland on the NWI map; however, it would be classified as Palustrine, Scrub-Shrub, Broad-Leaved Deciduous (PSS1) utilizing NWI coding. Vegetation noted in WL 2 included Carolina willow (*Salix caroliniana*) and Peruvian primrose willow (*Ludwigia peruviana*). Soils were identified by the NRCS map as Adamsville fine sand, 0 to 2 percent slopes (hydric). WL 2 is surrounded by upland areas and does not connect directly to Waters of the US. This wetland is not jurisdictional under Section 404 of the Clean Water Act due to its lack of connection to and adjacency to Waters of the US. Impacts to WL 2 are limited to the construction of an outfall connection to the roadway at Station 1191+30 (approximate).

Connell Lake (SW 3)

Location:	Adjacent to Station 1208 to 1212 (approximate)
USFWS NWI Code:	L1UBH
FLUCFCS Code:	5200 – Lakes
NRCS Soil Type:	99-water

Connell Lake is located on the east side of SR 45 (US 41), adjacent to SMF 5c. The lake is identified on the NWI map as Lacustrine, Limnetic, Unconsolidated Bottom, Permanently Flooded (L1UBH). Connell Lake is also identified as Surface Water (SW) 3 in this document. The lake is surrounded by upland areas and does not connect directly to Waters of the US. This OSW is not jurisdictional under Section 404 of the Clean Water Act due to its lack of connection to Waters of the US. Impacts to SW 3 are limited to the construction of an outfall connection to SMF 5c.

Connell Lake Shoreline - Wetland 3 (WL 3)

Location:	Adjacent to Station 1208 to 1212 (approximate)
USFWS NWI Code:	L2AB3H
FLUCFCS Code:	6440 – Aquatic Emergent Wetland
NRCS Soil Type:	11-Tavares fine sand, 0 to 5 percent slopes 15-Lake fine sand, 0 to 8 percent slopes

The shoreline of Connell Lake which will be impacted was identified as Wetland 3 (WL 3) and classified as aquatic emergent wetland (FLUCFCS 6440) by the environmental scientist who reviewed the area. It is indicated as a Lacustrine, Littoral, Aquatic Bed, Rooted Vascular, Permanently Flooded wetland (L2AB3H) on the NWI map, consistent with the FLUCFCS code designation. Vegetation noted in WL 3 included American white waterlily (*Nymphaea odorata*), Peruvian primrose willow, Mexican primrose willow (*Ludwigia octovalvis*), blue waterhyssop (*Bacopa caroliniana*), buttonbush (*Cephalanthus occidentalis*), and lance-leaved arrowhead (*Sagittaria lancifolia).* Soils were identified by the NRCS map

as Tavares fine sand, 0 to 5 percent slopes (non-hydric) and Lake fine sand, 0 to 5 percent slopes (non-hydric). This wetland is not jurisdictional under Section 404 of the Clean Water Act due to its lack of connection or adjacency to Waters of the US. Impacts to WL 3 are limited to the construction of an outfall connection to SMF 5c.

2.3 Soils

Soils within the proposed project action area were evaluated using the NRCS *Soil Survey of Citrus County* (Web Soil Survey, accessed May 2023). The soil types found within the proposed improvement are provided below in **Table 2-3.** The prevalent soil types in the proposed improvement are Adamsville fine sand, 0 to 2 percent slopes, Tavares fine sand, 0 to 5 percent slopes, and Lake Fine Sand, 0 to 5 percent slopes or 5 to 8 percent slopes. Basinger fine sand, 0 to 2 percent slopes is present at the outfall connection for SMF 4 but only comprises 0.17% of the soils in the project action area. Adamsville fine sand, 0 to 2 percent slopes and Basinger fine sand, 0 to 2 percent slopes are classified as hydric. The remaining soils in the project action area are non-hydric. A NRCS Soils Map that identifies hydric soils can be found in **Appendix B, Figure 4.**

Table 2-3 Soils in the Proposed Project Action Area

Map Soil Unit	Soil Description	Hydric	Acreage in Proposed Improvement	Percent of Total Acreage
2	Adamsville Fine Sand, 0 to 2 Percent Slopes	Yes	19.09	53.31
5	Basinger fine sand, 0 to 2 Percent Slopes	Yes	0.06	0.17
11	Tavares Fine Sand, 0 to 5 Percent Slopes	No	8.15	22.76
14	Lake fine sand, 0 to 5 Percent Slopes	No	8.41	23.49
15	Lake fine sand, 0 to 8 Percent Slopes	No	<0.001	<0.001
99	Water	N/A	0.10	0.28
TOTAL			**35.81**	**100**

3 PROTECTED SPECIES AND HABITAT

3.1 Methodology

The study area was evaluated for the presence of protected species and their habitat, in addition to USFWS-designated Critical Habitat in accordance with 50 Code of Federal Regulations (CFR) Part 402 of the Endangered Species Act (ESA) of 1973, as amended; Chapter 5B-40: *Preservation of Native Flora of Florida*, (FAC); Chapter 68A-27: *Rules Relating to Endangered or Threatened Species* (FAC); the Migratory Bird Treaty Act (MBTA) of 1918; and *Part 2, Chapter 16 - Protected Species and Habitat* of the FDOT PD&E Manual.

The following resources were utilized for this assessment:

- USFWS GIS Databases

- FDOT FLUCFCS, 3rd edition 1999
- SWFWMD Land Use Data (2020)
- Aerial derived photographs (2019)
- Florida Natural Areas Inventory (FNAI), Citrus County, Florida
- USFWS Information for Planning and Consultation (IPaC)
- Florida Geographic Data Library (FGDL)
- Florida Geographic Information Office (FGIO)
- Audubon Florida EagleWatch Nest Application (2023)
- Cornell Lab of Ornithology eBird database (2023)

The evaluated species for the project action area are discussed below. The list of potential species was preliminarily identified with a data search of the FNAI biodiversity matrix and the USFWS IPaC database. A review of both databases was conducted in April 2023. Historical recorded occurrences of potential species was reviewed, if available, on the FGDL and FGIO databases with locations shown on the Species Documented Occurrence Map (**Appendix E, Figure 7**). The species with the potential to occur in the project action area based on habitat types present are listed in **Table 3-1** below with the likelihood of occurrence rated as low, moderate, high, or none.

The ratings are defined as follows:

- **NONE –** indicates that the species is known to occur in Citrus County, no suitable habitat is present in the project action area and/or immediately adjacent areas, historic recorded occurrences were not indicated in the area, surveys have confirmed a lack of presence, and/or the species is precluded from the area based on its habits or life history.
- **LOW -** indicates that the species is known to occur in Citrus County, suitable habitat is limited in the project action area and/or immediately adjacent areas, historic recorded occurrences were not indicated in the area, and/or the species is unlikely based on what is known about its habits or life history.
- **MODERATE -** indicates the species is known to occur in Citrus County, suitable habitat for that species is present in the proposed improvement and/or immediately adjacent areas, but the species has not been observed in past studies, past or current field surveys, or documented on the database. Species with a moderate rating may require Standard Construction Precautions during construction or additional surveys in construction. Standard Construction Precautions anticipated to be implemented for the project are provided in **Appendix F.**
- **HIGH -** indicates the species occurs in Citrus County, is suspected within the project action area based on known ranges and existence of sufficient preferred habitat in the project action area and/or immediately adjacent areas and has been previously observed or documented in the vicinity.

Table 3-1 Potentially Occurring Protected Species in the SR 45 (US 41) Project Action Area

SPECIES	COMMON NAME	FEDERAL LISTING (USFWS/ FDACS)	STATE LISTING (FWC)	HABITAT	PROBABILITY OF PRESENCE OR OCCURRENCE
BIRDS					
Athene cunicularia floridana	Florida Burrowing Owl	-	ST	Dry prairies, open grassland, open land	Low
Laterallus jamaicensis jamaicensis	Eastern Black Rail	FT	FT	Freshwater or saltwater marshes with dense vegetative cover	None
Grus americana	Whooping Crane	EXPN	FE	Shallow marshes, open grasslands	Low
Picoides borealis	Red-Cockaded Woodpecker	FE	FE	Open mature pine woodlands with a diversity of grass, forb and shrub species. Pine flatwoods, mixed longleaf and slash pine forests. Prefer mature pines.	None
Aphelocoma coerulescens	Florida Scrub-Jay	FT	FT	Scattered, often small and isolated patches of sand pine scrub, xeric oak scrub, and scrubby flatwoods	None
Egretta caerulea	Little Blue Heron	-	ST	Estuarine, lacustrine, riverine, tidal marsh, tidal swamp	Low
Grus canadensis pratensis	Florida Sandhill Crane	-	ST	Dry prairies, freshwater marshes, wet prairies	Low
Falco sparverius paulus	Southeastern American Kestrel	-	ST	Open fields and pastures with snags	Low
Haliaeetus leucocephalus	Bald Eagle	MBTA+	-	Estuarine, lacustrine, riverine, tidal marsh, tidal swamp	Low
REPTILES					
Drymarchon couperi	Eastern Indigo Snake	FT	FT	Various upland and some wetland habitats, associated with gopher tortoise burrows	High
Stilosoma extenuatum	Short-tailed Snake	-	ST	Sandy soils in longleaf pine stands and xeric oak sandhills, scrub, xeric hammocks.	None
Gopherus polyphemus	Gopher Tortoise	-	ST	Xeric upland habitats, roadside grassed areas adjacent to natural habitats	High
MAMMALS					
Ursus americanus floridanus	Florida Black Bear	-	FBBMP	Highly variable (flatwoods, swamps, scrub oak, bayheads); prefer dense understory.	Low
INSECTS					
Danaus plexippus	Monarch Butterfly	C	-	Fields, roadside, open area, wet areas with milkweed and/or other flowering plants.	Low

SPECIES	COMMON NAME	FEDERAL LISTING (USFWS/ FDACS)	STATE LISTING (FWC)	HABITAT	PROBABILITY OF PRESENCE OR OCCURRENCE
PLANTS					
Agrimonia incisa	Incised Groove-Bur	-	ST	Fire maintained sandhill, upland pine, and mixed woodland. Open pine woods, old roads, edges of hardwood forest or mesic habitats	None
Asplenium verecundum	Modest spleenwort	-	SE	Rockland hammocks, sinkholes, limestone outcrops	None
Centrosema arenicola	Sand Butterfly Pea	-	SE	Sandhill, scrubby flatwoods, dry upland woods; fire maintained	None
Matelea floridana	Florida Spiny Pod	-	SE	Sandhill, upland pine, dry hammocks; fire maintained	Low
Montropsis reynoldsiae	Pygmy Pipes	-	SE	Upland hardwood forests, sand pine and oak scrub.	None
Nemastylis floridana	Celestial Lily	-	SE	Wet flatwoods, prairies, marshes, cabbage palm hammock edges.	None
Nolina atopocarpa	Florida Beargrass	-	ST	Grassy areas of mesic and wet flatwoods	None
Pteroglossaspis ecristata	Giant Orchid	-	ST	Sandhill, scrub, pine flatwoods, pine rocklands, old fields	None
Pycnanthemum floridanum	Florida Mountain-Mint	-	ST	In sandhill communities in moist areas; roadside ditches, shade intolerant	None
Salix floridana	Florida Willow	-	SE	Wet, mucky soils in bottomland forests, hydric hammocks, swamps, edges of streams	None
Spigelia loganioides	Pinkroot	-	SE	Floodplain forests, upland and hydric hardwood hammocks over limestone	None
Stylisma abdita	Scrub Stylisma	-	SE	Dry sandy soils in scrub and sandhills.	None
Triphora craigheadii	Craighead's Nodding-Caps	-	SE	Mesic hardwood hammocks	None

FE-Federally-Designated Endangered; FT-Federally-Designated Threatened; EXPN-Experimental, Non-Essential Population; ST – State-Designated Threatened; C-Candidate Species; MBTA- Migratory Bird Treaty Act; +- also protected under the Bald and Golden Eagle Protection Act (BGEPA); FWC-Florida Fish and Wildlife Conservation Commission; USFWS-US Fish and Wildlife Service; FBBMP-Florida Black Bear Management Plan; FDACS-Florida Department of Agriculture and Consumer Services

.

3.2 Previous Agency Coordination

The 1996 Type II CE and the 1999 Re-evaluation concluded there was no potential significant impact or effect to protected species from the proposed improvements. Coordination with the Florida Fish and Wildlife Conservation Commission (FWC) for this project is anticipated to occur in July 2023 when the SWFWMD permit application is submitted.

3.3 Federally Listed Faunal Species

In November 2010, the FWC established an imperiled species rule which states that all species listed by the USFWS and National Marine Fisheries Service (NMFS) that occur in Florida are also included on the Florida Endangered and Threatened Species List as Federally-designated Endangered, Federally-designated Threatened, Federally-designated Due to Similarity of Appearance, or Federally-designated Non-Essential Experimental population species. Thus, all federally listed species evaluated below are also state-listed species protected by the FWC. The USFWS IPaC provided the federal listed species with the potential to occur in the vicinity of the project limits. Historical species observation data was provided by the Florida Geographic Data Library (FGDL); Florida Geographic Information Office (FGIO); Audubon Florida EagleWatch Nest Application(2023); Cornell Lab of Ornithology eBird database (2023), FNAI data, and FWC databases.

With the exception of the loggerhead sea turtle (*Caretta caretta*), all the listed species provided by the USFWS IPaC have habitat represented or have been observed in vicinity to the project and are provided below. Since the loggerhead sea turtle has no potential to occur in the vicinity of the project or within the project limits, the project will have "*no effect*" on the loggerhead sea turtle.

3.3.1 Eastern Black Rail

The eastern black rail (*Laterallus jamaicensis jamaicensis*) is federally listed as threatened. The eastern black rail was listed following the 1999 Re-evaluation so was not previously evaluated. This species can be found in salt and brackish marshes as well as densely vegetated upper tidal marshes along the Gulf coast from Florida to Texas. The eastern black rail has been documented in inland marshes of the Florida peninsula. The eastern black rail's preferred habitat is within grasses of marshes that have dense, emergent cover.

A review of the eBird database (https://eBird.org/home) indicated no observations of the eastern black rail in the study area, and none were observed during field reviews conducted in the project action area. The proposed project action area does not have areas of marsh with dense, emergent grasses that would provide suitable habitat for the rail. Because the proposed project action area lacks suitable habitat for the species, the probability of occurrence of the species is considered "none". Therefore, the proposed improvements will have ***"no effect"*** on the eastern black rail.

3.3.2 Florida Scrub-Jay

The Florida scrub-jay (*Aphelocoma coerulescens)* is an endemic species to Florida and federally listed as threatened. The project is within the USFWS Florida Scrub-jay Consultation Area. Scrub-jays are limited to patches of sand pine scrub, xeric oak scrub, and scrubby flatwoods occurring along well-drained, sandy ridges. There is no suitable habitat that is located within the study area, and there are no recorded historic observations of the Florida scrub-jay in the study area as indicated in the FGDL database (sourced from FWC and eBird data). (Refer to the Species Documented Occurrence Map, **Appendix E, Figure 7**). It is noted the FGDL data available was from 2018 or earlier. The FNAI range maps included no Florida scrub-jay presence in the study area. No scrub-jays or suitable habitat for the species was observed in field reviews conducted in the project action area in April 2023, nor have scrub-jays been observed or recorded in or immediately adjacent to the proposed improvement or broader study area. Because there is no suitable habitat or observations of the species in the project action area or study area, the probability of occurrence of the species is considered "none". Therefore, the project will have "***no effect***" on the Florida scrub-jay.

3.3.3 Red-Cockaded Woodpecker

The RCW (*Picoides borealis)* is federally listed as endangered. The project is within the USFWS RCW Consultation Area. RCWs typically are found in mature old growth, open-understory pine forests, excavating nesting cavities in living, mature pine trees [generally older than 80 years old and minimum of 10 inches in diameter at breast height (dbh)]. Longleaf pines (*Pinus palustris*) are commonly preferred but the RCW also utilizes other pine species.

There are areas identified by the SWFWMD FLUCFCS map (**Appendix B, Figure 3**) as mixed hardwood-coniferous forest in the project action area. These areas provide the only potential foraging or nesting habitat for the red-cockaded woodpecker. The FLUCFCS Map shows the locations where the areas identified as mixed hardwood-coniferous forest (FLUCFCS 4340) are located. These areas were reviewed in the April 2023 field survey to determine their suitability for the RCW as well as to provide a presence/absence survey. Individual longleaf pines were inspected for potential cavities. The dominant tree canopy is comprised of live oak (*Quercus virginiana*) and laurel oak (*Quercus laurifolia)*, with less than 20 percent canopy comprised of longleaf pines. The subcanopy and understory were very dense. Subcanopy and understory vegetation included young live oaks and laurel oaks, American beautyberry (*Callicarpa americana*), grape vine (*Vitus rotundifolia*), and *Smilax spp.*

Although RCW have been observed within Citrus County, the nearest observation is approximately 2.84 miles from the project action area (refer to the Species Documented Occurrence Map, **Appendix E, Figure 7**).

The field survey, conducted in accordance with Appendix A of the Red-Cockaded Woodpecker Recovery Plan, verified that there is no suitable habitat that is located within or adjacent to the proposed project action area based on:

1) A low coverage and availability of mature pines (less than 20% pine species);
2) A dense understory that is typically not preferred by RCWs;
3) A lack of observations of RCWs or evidence of RCWs during the field survey;
4) A lack of historic documentation or observations of RCWs in the study area; and
5) No fire maintenance has been conducted in the area to maintain a habitat suitable for RCW.

Because there is no suitable habitat or observations of the species in the project or study area, the probability of occurrence of the species is considered "none". Therefore, the project will have "***no effect***" on the RCW.

3.3.4 Whooping Crane

The whooping crane in Florida is a Federally-designated non-essential experimental population which is defined as a population that has been established within its historical range under Section 10(j) of the ESA to aid in its recovery. The USFWS has determined a non-essential population is not necessary for the continued existence of the species. Whooping cranes utilize a variety of habitats including coast marshes and estuaries, inland marshes, lakes, open ponds, shallow bays, salt marsh, pastures and agricultural fields, and sand or tidal flats.

Whooping cranes occurred naturally in the eastern United States until the mid-twentieth century with records of whooping cranes in Florida until the 1930s. However, the only natural whooping crane nesting population currently is located in Wood Buffalo National Park (Canada) that winters in Aransas National Wildlife Refuge (Texas). The 2011 Five-Year Review of the Whooping Crane (USFWS) identified four populations of whooping cranes, two of which are in Florida. There is a non-migratory population in Central Florida that the FWC introduced between 1993 and 2005. This effort was stopped in 2008 due to survival and reproduction problems. The FWC Fish and Wildlife Research Institute (FWRI) is also involved in a multi-agency project to restore migratory whooping cranes to the eastern United States. Between 2001 and 2017, cranes were taught a migration route using ultra-light aircraft from Wisconsin to Florida.

The USFWS IPaC listed the whooping crane as potentially occurring within the study area. However, there are no historical observations of the whooping crane in the study area; the closest sightings include one individual crane made in 2017, approximately 1.2 miles away in Inverness, Florida, and a cluster of sightings in 2017, approximately 3.63 miles southeast of the study area. Between 2018 and 2023, the frequency map from the eBird website indicate no sightings in the study area with the closest being over 7.8 miles away in Lecanto to the west and 7.6 miles away near Floral City to the south (www.eBird.org). The probability of whooping cranes being within the study area is considered low based on these past sightings and nearest known populations (primarily being in Kissimmee, Florida to the southeast and Chassahowitzka Wildlife Management Area to the west).

As per USFWS IPaC, for the purpose of consultation, non-essential experimental populations are treated as threatened species on National Wildlife Refuge and National Park land, requiring consultation under Section 7(a)(2) of the ESA. However, for non-federal lands, they are treated as proposed species that do not require consultation. Therefore, consultation of the whooping crane is

not required at this time based on their status, low probability of occurrence and lack of historical observations in the project action area.

3.3.5 Eastern Indigo Snake

Eastern indigo snakes are federally listed as threatened. The eastern indigo snake occurs in a wide variety of habitats, including forested uplands, dry prairies, and wetlands. They are known to use gopher tortoise burrows or other holes and cavities as refugia. No critical habitat for the eastern indigo snake has been designated by the USFWS.

No eastern indigo snakes were observed during field surveys and the nearest observation of an eastern indigo snake is approximately 2 miles away. Suitable habitat for this species occurs within and adjacent to the project action area. However, the project action area does not have habitat that would be considered xeric and supports less than 25 potentially occupied tortoise burrows. Should more than 25 gopher tortoise burrows (active and inactive) be identified within the proposed improvement by the 100% gopher tortoise survey to occur prior to construction, the FDOT will initiate ESA Section 7 Consultation with the USFWS. The potential for occurrence is considered "high". To assure the protection of this species during construction, the FDOT will implement the most recent USFWS *Standard Protection Measures for the Eastern Indigo Snake* (**Appendix F**). If an indigo snake is encountered, the snake will be allowed to vacate the area prior to additional manipulation in the area. Holes, cavities, and snake refugia other than gopher tortoise burrows will be inspected each morning before planned manipulation of the site, and no work will commence until the snake has vacated the vicinity of the proposed work. The *Eastern Indigo Snake Programmatic Effect Determination Key* (revised August 2013) (**Appendix G**) was utilized to make the effect determination for this species. Based on the key, the proposed improvements "***may affect, but are not likely to adversely affect***" the eastern indigo snake (**A->B->C->D->E->MANLAA**).

3.3.6 Monarch Butterfly

The monarch butterfly (*Danaus plexippus*) was identified as a candidate species for protections under the ESA by the USFWS on May 3, 2022. It is not yet proposed for listing and does not have designated Critical Habitat. Within North America, the monarch butterfly is a highly migratory species which typically winters in Mexico. This species requires a diversity of blooming nectar resources but of particular importance is milkweed (*Asclepias spp.*). Swamp milkweed (*Asclepias incarnata*) is a microhabitat requirement for this species to both deposit eggs and as a larval nutrition source. Swamp milkweed is typically found in wetland habitats, including wet ditches (USFWS ECOS, 2023). However, swamp milkweed was not observed during field reviews of wetland areas in the project action area. Although there are some shallow roadside swales, there are no wet roadside ditches in the project action area, and the roadside is largely mowed and maintained. The project action area where the outfalls will connect to adjacent wetland areas was inspected for swamp milkweed; swamp milkweed was not observed in those areas. It is possible that milkweed may be present but was not observed during the field surveys. However, the potential for occurrence of the monarch butterfly is considered low based on the limited suitable habitat and the lack of observations of the host plant.

As this species is currently a candidate species and not currently proposed for listing, consultation for this species is not required at this time. Further impact assessment for the species and a formal federal effect determination for the monarch butterfly may be required in the future should it be listed.

3.4 State-Listed Faunal Species

All federally designated species are considered protected by the State. Faunal species which are not federally listed but are state-listed with the potential to occur in the study area are described below.

3.4.1 Little Blue Heron

The little blue heron (*Egretta caerulea*) is a state-listed threatened species. Nesting occurs in a variety of habitats from freshwater forested wetlands to mangrove islands, with the majority of the listed species utilizing larger trees.

Wetlands and surface waters that provide foraging potential for these species include freshwater marshes, wet prairie, herbaceous ditches/swales, ponds, and riverine systems. The FNAI report generated for the project area does not include the little blue heron as a potentially occurring species. However, limited historical sightings are recorded on the eBird database (https://ebird.org/home) in the vicinity of the project although not within the project action area. There will be no permanent impacts to nesting areas or rookeries as they are not located within the project action area or study area. Historically observed wading bird rookery locations are shown on the Species Documented Occurrence Map (**Appendix E, Figure 7**). Potential foraging areas are located on the shorelines of Connell Lake and Parsley Lake. However, wetland impact is limited to the installation of outfalls, estimated at 0.05 ac at the two lake locations. This foraging habitat loss is anticipated to be replaced with the construction of the adjacent SMFs and/or FPC sites. Therefore, there is **no adverse effect anticipated** to the little blue heron as a result of the proposed improvements.

3.4.2 Florida Sandhill Crane

The Florida sandhill crane (*Grus canadensis pratensis*) is listed as a state-listed threatened species. This species is commonly found in wet prairies, marshy lake regions, low-lying pastures (including improved pastures), and shallow water open areas. Foraging areas for the sandhill crane include hydric pine flatwoods, pastures and prairies, as well as upland grassed areas.

Limited suitable foraging habitat for the sandhill crane exists within the proposed project action area. No sandhill cranes nesting locations or suitable habitat for nesting were observed during field observations in the project action area. The probability of occurrence for the Florida sandhill crane within the project action area is considered to be “low”. Impacts to foraging habitat is anticipated to be minimal. Therefore, there is **no adverse effect anticipated** to the Florida sandhill crane as a result of the proposed improvements.

3.4.3 Florida Burrowing Owl

The Florida burrowing owl (*Athene cunicularia floridana*) is a state-listed threatened species. Burrowing owls live in open treeless areas such as native prairies, golf courses, agricultural fields, and vacant lots. Although they typically dig their own burrows, they may also use armadillo or gopher tortoise burrows.

No burrowing owls are documented in the vicinity of the study area, and none were observed during the April 2023 field reviews. In addition, there have been no sightings of burrowing owls recorded in the eBird database (https://ebird.org/home). Limited, suboptimal habitat for this species may exist within the open land identified in the proposed improvement for this species. The probability of occurrence for the Florida burrowing owl is considered to be "low". If burrowing owls are observed prior to construction, proper coordination will be conducted with the FWC. Based on a lack of presence documented during the field review, and the provision to coordinate should they be observed prior to construction, there is **no effect anticipated** to the Florida burrowing owl as a result of the proposed improvements.

3.4.4 Southeastern American Kestrel

The southeastern American kestrel (*Falco sparverius paulus*) is a state-threatened species. Optimal habitat consists of open fields and pastures with snags for perching and nesting. Suitable habitat for foraging and nesting for the southeastern American kestrel is very limited within the project study area. During field evaluations, no kestrels or any nest sites were observed. The probability of occurrence is considered to be "low". There is **no effect anticipated** to the southeastern American kestrel.

3.4.5 Short-tailed Snake

The short-tailed snake (*Stilosoma extenuatum*) is a state-listed threatened species. The short-tailed snake primarily inhabits areas of sandy soils in longleaf pine stands and xeric oak sandhills, scrub, and xeric hammocks. There is no suitable habitat for the short-tailed snake present in the study area. The probability of occurrence is considered to be "none". Therefore, there is **no effect anticipated** to the short-tailed snake as a result of the proposed improvements.

3.4.6 Gopher Tortoise

The gopher tortoise (*Gopherus polyphemus*) is a state-listed threatened species. The gopher tortoise occurs in sandhill (pine-turkey oak associations), sand pine scrub, xeric hammock, pine flatwoods, dry prairie, coastal grasslands and dunes and mixed hardwood pine communities. Roadsides and open urban areas may support gopher tortoises.

Mixed hardwood pine communities, clearings, roadsides with suitable soils, and urban areas are located along the corridor, and gopher tortoise burrows were observed during field reviews. Six potentially occupied(PO) gopher tortoise burrows were observed in FPC site located on the west side of SR 45 (US 41) and south of Andrew Street during general wildlife field reviews. These burrows were within a FPC site parcel, but the current design does not indicate construction activity within 25 ft of the identified burrows. No other PO gopher tortoise burrows were observed in the project action area. The six PO gopher tortoise burrow locations observed in the FPC site are shown on the Gopher Tortoise Potentially Occupied Burrow Locations Map in **Appendix E, Figure 8.** The probability of occurrence is considered to be "high". Any construction activities, including installation of silt fence and staging of materials and equipment, that occur within 25 feet of a potentially occupied gopher tortoise burrow will require coordination with FWC and relocation of these tortoises to a FWC approved recipient site. Prior to construction, the FDOT will conduct the appropriate 100% gopher

tortoise survey, coordinate with the FWC to permit and relocate any gopher tortoises located within 25 feet of the project's limits of construction, and provide compensation as required through that permitting process. With the commitment to survey, coordinate and/or permit as needed, and to relocate gopher tortoises as required, there is **no adverse effect anticipated** to the gopher tortoise as a result of the proposed improvements.

3.5 Other Protected Faunal Species

3.5.1 Bald Eagle

Although the bald eagle (*Haliaeetus leucocephalus*) is no longer federally listed and afforded protection by the ESA of 1973, protection for the species is provided through the Migratory Birds Program per the MBTA and Bald and Golden Eagle Protection Act (BGEPA). Bald eagles are also no longer state-listed. Bald eagles most commonly inhabit areas near the coast, bays, rivers, lakes or other open bodies of water. They nest in tall trees, typically live pines, which usually have open views to their surroundings. Eagles are also known to utilize artificial structures and other types of tall trees for nesting. There are no documented nests within 660 feet of the study area according to the Audubon Florida EagleWatch database and the eBird database. No nests were identified within the proposed improvement during field reviews. However, surveys should be conducted for the bald eagle to assure that none have moved into the project action area prior to construction.

The USFWS determined that bald eagle nesting activities are not adversely affected by construction activities greater than 660 feet away from the nest. As outlined in the USFWS's Bald Eagle Monitoring Guidelines (2007), monitoring of construction and nesting activities is therefore not warranted for projects involving construction beyond 660 feet of an active bald eagle nest during nesting season. Nesting season in Florida is from October 1 through May 15, although nesting may occur earlier or later than this period, especially in areas of south Florida. The USFWS Monitoring Guidelines will be followed if any nests are observed within the project's limits of construction; however, currently, no nesting trees or other potential nesting sites are located within 660 feet of the project study limits. Refer to the Species Documented Occurrence Map in **Appendix E, Figure 7** for bald eagle nest locations recorded previously in surrounding areas (2021).

3.5.2 Bats

Although there are no listed bat species indicated on FNAI, the USFWS IPaC, or in historical records as occurring in this area, bats are protected under 68A-4.001 (FAC). Since bats are particularly vulnerable to disturbance and harm while roosting in man-made structures such as bridges, protections for bats in structures are also included in 68A-9.010 (FAC). The SR 45 (US 41) bridge crossing over the Withlacoochee Trail was inspected for the presence of bats in the April 13, 2023 field review. There was no evidence of bats utilizing the structure for roosting in that inspection.

3.5.3 Florida Black Bear

The Florida black bear (*Ursus americanus floridanus*) was delisted as a state threatened species in June 2012. However, it is still afforded protection by the FWC Florida Black Bear Management Plan. Although not indicated as occurring in the area in the FNAI database, the FWC Florida Black Bear Range Map

indicates that the project action area is within the "occasional bear range", defined as an area in which bears occur irregularly, but their presence is not unexpected due to the proximity to Frequent or Common bear ranges. The Florida black bear was not observed historically or during recent field reviews in the area. However, because it is within the "occasional bear range", the FDOT will require contractors to remove garbage daily from the construction site or use bear proof containers for securing of food and other debris from the project work area to prevent these items from becoming an attractant for the Florida black bear. Any interactions will be reported to the FWC Wildlife Alert hotline 888-404-FWCC (3922). Refer to the Species Documented Occurrence Map in **Appendix E, Figure 7** for Florida black bear recorded occurrence data points.

3.6 Protected Plant Species

No federally listed plant species are anticipated to occur based on the FNAI biodiversity matrix, USFWS IPaC database, and USFWS distribution and range data. The proposed improvements will have ***"no effect"*** on federally listed plant species.

Thirteen plant species listed by the Florida Department of Agricultural and Consumer Services (FDACS) were identified on the FNAI biodiversity matrix with the potential to occur within Citrus County. The plant species potentially occurring in the vicinity of the proposed improvement with their associated habitat requirements are provided in **Table 3-1** above.

Of the thirteen plant species included on the FNAI list as potentially occurring in the project action area, twelve species were eliminated from consideration due to a lack of appropriate habitat in the project action area and lack of documented occurrence. The following six species require sandhill or scrub type habitat, rocklands, xeric pine woods, and/or fire maintenance: incised groove bur (*Agrimonia incisa*), modest spleenwort (*Asplenium verecundum),* sand butterfly pea (*Centrosema arenicola*), giant orchid (*Pteroglossaspis ecristata*), scrub stylisma (*Stylisma abdita*), and pygmy pipes (*Montropsis reynoldsiae).* The remaining six species require wet or mesic habitat not present in the project action area: celestial lily (*Nemastylis floridana*), Florida beargrass (*Nolina atopocarpa*), Florida mountain-mint (*Pycnanthemum floridanum*), Florida willow (*Salix floridana),* pinkroot (*Spigelia loganioides*), and Craighead's nodding-caps (*Triphora craigheadii*). Additionally, no listed plant species were observed in the field reviews conducted for the project in April, May, and June of 2023.

The study area is comprised of approximately 31 percent mixed hardwood forest which provides appropriate habitat for the Florida spiny pod. Therefore, the Florida spiny pod was considered to have the potential to occur in the study area.

Florida Spiny Pod (*Matelea floridana*)

The Florida spiny pod is a twisting perennial vine with clusters of flowers ranging in color from greenish-yellow to deep maroon, blooming in spring and early summer. The most vigorous flowering populations are found in areas of recent canopy-opening disturbance. This species is found in hardwood or mixed forested areas from fairly moist woods to dry environments. This species was not observed during field reviews, and there are not documented occurrences within the project action area. However, species-

specific surveys were not conducted. The FDOT will conduct surveys for the Florida spiny pod prior to construction. If this species or any other protected plant species is observed, the FDOT will coordinate with the FDACS and Florida Native Plant Society or similar organization to facilitate the relocation of protected plants within the project footprint.

Therefore, there is **no effect anticipated** to state-listed plant species as a result of the proposed improvements.

3.7 Critical Habitat

The study area was assessed for Critical Habitat designated by Congress in 17 CFR 35.1532. Review of the USFWS's available GIS data indicates there is no designated Critical Habitat within the project limits or surrounding areas; therefore, the proposed project will have **no involvement** with Critical Habitat.

3.8 Avoidance and Minimization

The proposed improvements include widening the two-lane facility to a four-lane facility with two associated SMFs and two FPC sites. For state-listed wading birds and the Florida sandhill crane, impacts to foraging habitat is limited to less than 0.15 ac; proposed SMFs and FPC sites are anticipated to replace foraging habitat impacted. Protective construction measures will be utilized for the eastern indigo snake, and surveys with associated permitting and relocation as needed will avoid adverse effect to the gopher tortoise and its commensals.

4 WETLAND AND OSW EVALUATION

4.1 Methodology

Pursuant to Presidential Executive Order 11990 entitled *Protection of Wetlands*, (May 1977), the USDOT has developed a policy, *Preservation of the Nation's Wetlands* (USDOT Order 5660.1A), dated August 24, 1978, which requires all federally funded highway projects to protect wetlands to the fullest extent possible. In accordance with this policy, as well as *Part 2, Chapter 9 – Wetlands and Other Surface Waters* of the FDOT PD&E Manual, the proposed improvement was evaluated for potential impacts to wetlands and surface waters.

Background research conducted to identify the wetland communities occurring within the study area included review of the USFWS NWI (USFWS 2020), FLUCFCS data from the SWFWMD (SWFWMD 2020), the NRCS Soil Survey for Florida (NRCS 2020), and aerial photography interpretation (2023). Data verification was conducted during field reconnaissance surveys performed on April, May, and June of 2023.

Wetland and OSW boundaries were approximated in both a desktop and field evaluation in conformance with the federal and state criteria promulgated in the *Corps of Engineers Wetlands Delineation Manual* [US Army Corps of Engineers (USACE) 1987], the *Regional Supplement to the Corps*

of Engineers Wetlands Delineation Manual: Atlantic and Gulf Coastal Plain Region, Version 2 (USACE 2010), and the *Florida Wetlands Delineation Manual* (Gilbert et. al 1995).

A map depicting wetland and surface water features occurring within the proposed project action area are provided in **Appendix D, Figure 6**. In addition, a USFWS NWI map is provided as **Appendix B, Figure 5.** Photographs of wetlands and surface waters are provided in the Photo Exhibit in **Appendix C**.

4.2 Impact Evaluation

Based on the proposed ROW and limits of construction, impacts to wetlands are limited to the outfall connections that will connect SMF 5c to Connell Lake, SMF 4 to Parsley Lake, and a cross drain to White Lake on the west side of US 41 (SR 45) at approximately Station 1191+30. Impacts to shoreline wetlands at these three locations are limited to 0.08 ac of wetland and 0.07 ac to OSWs as detailed in Table 4-2 below.

Table 4-2 Wetland and OSW Impact in the Project Action Area

Wetland or Surface Water ID	Wetland or Surface Water Habitat	FLUCFCS	Anticipated Permanent Impact (ACRE)
WL 1	Freshwater Marsh	6410	0.03
WL 2	Shrub Wetland	6310	0.02
WL 3	Aquatic Emergent Wetland	6440	0.03
SW 3	Open Lake/Pond Habitat	5200	0.07
	TOTAL IMPACTS (ac)		0.15

There are no other impacts to wetlands or OSWs anticipated. Secondary impacts are not anticipated as the installation of the outfall should not affect wildlife access to the remaining shoreline or wetland, water environment should be improved with the SMFs proposed, and the de minimis impact to the shoreline is not anticipated to result in vegetative community change to the adjacent wetlands or lake.

4.3 Avoidance and Minimization

Pursuant to Executive Order 11990, *Protection of Wetlands*, federal actions should avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands and avoid direct or indirect impacts in wetlands wherever there is a practicable alternative. There is limited impact (0.08 ac) to wetlands and OSWs (0.07 ac) that will result from the proposed improvement. The outfall connections are required for the proper function of the ponds and for preventing flooding of the road and adjacent properties. BMPs will be utilized to protect the adjacent lake and wetlands during the construction of the outfalls.

4.4 Wetland Functional Analysis and Mitigation

In February 2004, the FDEP adopted 373.414 (18) FS into rule via 62-345 (FAC) to develop and adopt a statewide Uniform Mitigation Assessment Methodology (UMAM) to determine the amount of mitigation required to offset impacts to wetlands and OSWs. UMAM is a standardized procedure for assessing the functions (expressed as a percentage compared to a natural, undisturbed wetland) provided by wetlands and OSWs, and the amount those functions are reduced or lost by a proposed impact. This amount the functions are reduced or lost is referred to as Functional Loss (FL). The UMAM methodology is also used to quantify the amount of mitigation necessary to offset the FL of the impact. This can be expressed in acres or as credits from a mitigation bank or regional mitigation provider.

UMAM functional assessments were prepared for Wetlands 1, 2, and 3 that estimated FL from the outfall construction at the three locations. The total potential FL was estimated at 0.038 units.

Table 4-4 Wetland and OSW UMAM Score and Functional Loss Estimate

Wetland or Surface Water ID	Wetland or Surface Water Habitat	FLUCFCS	Anticipated Permanent Impact (ACRE)	UMAM Delta Score	Functional Loss Estimate (UMAM)
WL 1	Freshwater Marsh	6410	0.03	0.50	0.015
WL 2	Shrub Wetland	6310	0.02	0.43	0.009
WL 3	Aquatic Emergent Wetland	6440	0.03	0.47	0.014
	TOTAL IMPACTS (ac)		0.15		0.038

The de minimis loss is anticipated to be replaced by the functional gain in water quality that will occur with the construction of the SMFs, and mitigation is not anticipated to be required. The UMAM data forms for the wetlands are provided as **Appendix H.**

4.5 Indirect and Cumulative Effects

Indirect impacts are impacts caused by the action but occur later in time or farther removed in distance but are still reasonably foreseeable. The roadway network is well established. Therefore, the project is not anticipated to stimulate growth or other development in the area but will provide more efficient and safe transportation. BMPs will be utilized to reduce or avoid indirect impacts from construction activities to offsite wetlands, OSWs, or properties.

Cumulative impacts are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. The project is an improvement to an existing road. Wetland impact is limited to 0.08 ac from the installation of outfalls. Any function lost from the installation of the outfall is anticipated to be replaced by the proposed SMFs. Cumulative impacts are therefore not anticipated.

5 ANTICIPATED PERMITS

The Florida Department of Environmental Protection (FDEP) and SWFWMD regulate wetlands and surface waters within the study area. However, because Connell Lake, White Lake, and Parsley Lake are isolated systems, the lakes/ponds and associated shoreline/wetlands are not considered jurisdictional under the State Section 404 permit administered by the FDEP. An application for a SWFWMD Environmental Resource Permit (ERP) will be submitted in July 2023. FDEP, through a delegation from USEPA, also regulates stormwater discharges from the construction sites. It is currently anticipated that the following permits will be required for this project. Although gopher tortoise burrows were observed in the study area, they were not within 25' of the proposed project action area. The PO burrows were located within a proposed FPC site, in an area not currently anticipated to be required for construction. Therefore, a FWC Gopher Tortoise Relocation Permit is not anticipated to be required. However, a 100% gopher tortoise survey will be conducted 90 days prior to construction. If gopher tortoises or their burrows are observed within 25' of proposed construction activities, a FWC Gopher Tortoise Relocation Permit will be acquired, and the gopher tortoises relocated as per FWC guidelines.

PERMITS	**ISSUING AGENCY**
ERP	SWFWMD
National Pollutant Discharge Elimination System (NPDES) Permit- applied for by the contractor	FDEP
Gopher Tortoise Relocation Permit (To Be Determined)	FWC

6 CONCLUSIONS AND COMMITMENTS

6.1 Protected Species and Habitat

The study area was assessed for the presence of federally and state-listed species as well as other protected species and USFWS Critical Habitat. The species considered to potentially occur in the study area are listed below with their probability of involvement and the effect determination for each. The loggerhead sea turtle was included on IPaC but as there is no marine or estuarine habitat within or in the vicinity of the study area, the project will have "*no effect*" on the loggerhead sea turtle, and it was not included in detailed evaluations.

Table 6-1 Potential Protected Faunal Species Status, Involvement, and Effect Determination SR 45 (US 41) Segment 4 Project Action Area

Scientific Name	Common Name	Federal Status	State Status	Probability of Involvement	Effect Determination Proposed Improvement
Athene cunicularia floridana	Florida Burrowing Owl	-	ST	Low	No Effect Anticipated
Laterallus jamaicensis jamaicensis	Eastern Black Rail	FT	FT	None	No Effect
Grus americana	Whooping Crane	EXPN	F-EXPN	Low	-
Picoides borealis	Red-Cockaded Woodpecker	FE	FE	None	No Effect
Aphelocoma coerulescens	Florida Scrub-Jay	FT	FT	None	No Effect
Egretta caerulea	Little Blue Heron	-	ST	Low	No Adverse Effect Anticipated
Grus canadensis pratensis	Florida Sandhill Crane	-	ST	Low	No Adverse Effect Anticipated
Falco sparverius paulus	Southeastern American Kestrel		ST	Low	No Effect Anticipated
Haliaeetus leucocephalus	Bald Eagle	MBTA+	--	Low	-
Drymarchon couperi	Eastern Indigo Snake	FT	FT	High	MANLAA
Stilosoma extenuatum	Short-Tailed Snake	-	ST	None	No Effect Anticipated
Gopherus polyphemus	Gopher Tortoise	-	ST	High	No Adverse Effect Anticipated
Ursus americanus floridanus	Florida Black Bear	-	FBBMP	Low	-
Danaus plexippus	Monarch Butterfly	C	-	Low	-

FE-Federally-Designated Endangered; FT-Federally-Designated Threatened; EXPN -Experimental, Non-Essential Population; ST -State-Designated Threatened; C-Candidate Species; MANLAA-May Affect, Not Likely to Adversely Affect; Migratory Bird Treaty Act (MBTA); +Bald and Golden Eagle Protection Act (BGEPA); FBBMP- Florida Black Bear Management Plan

There are no federally protected plant species anticipated to occur in the project action area. Of the thirteen state protected plant species that were included on the FNAI list as potentially occurring in the County, twelve species were eliminated from consideration for the project action area due to a lack of appropriate habitat in the project action area or SMFs. There is potentially appropriate habitat for the Florida spiny pod, although there are no historical observations in the project action area. Additionally, no listed plant species were observed in the field review conducted for the project in April, May, and June 2023. Therefore, there is **"*no effect*"** to federally protected plant species and **no effect anticipated** to state protected plant species as a result of the proposed improvements.

Although no longer listed, the bald eagle is protected under the BGEPA and the MBTA, and the project was evaluated for the presence of bald eagle nests. The project action area is not within the 660-ft protection zone of any bald eagle nest. The bridge crossing over the WST was evaluated for the presence of roosting bats which are protected by under 68A-4.001 (FAC) and 68A-9.010 (FAC). No bats or evidence of bats was observed. The Florida black bear was delisted by FWC in June 2012 but is protected and managed under the Florida Black Bear Management Plan. The FWC distribution map

indicates that project area may have an "occasional" presence of the Florida black bear; however, there are no historical or current observations of the Florida black bear in the study area. Appropriate conservation measures will be implemented for protection of the Florida black bear.

There is no USFWS designated Critical Habitat within or adjacent to the project action area.

6.2 Wetland and OSWs

Based on the proposed ROW and limits of construction, impacts to wetlands are limited to the outfall connections from SMF 4 to Parsley Lake, a roadway cross drain at White Lake, and from SMF 5c to Connell Lake. Impacts are limited to 0.08 ac to the wetlands found on the shorelines of the three lakes and 0.07 ac of OSW at Connell Lake from these outfalls. There are no other impacts to wetlands or OSWs anticipated. Secondary impacts are not anticipated as the installation of the outfalls should not affect wildlife access to the remaining shoreline or wetland, water environment should be improved with the SMFs proposed, and the de minimis impact to the shoreline is not anticipated to result in vegetative community change to the adjacent wetlands or lake. Functional loss was estimated using UMAM at 0.038 units. Mitigation is not anticipated to be required due to the de minimis impact and because the construction of SMFs associated with the project should replace the minimal loss of function.

Table 6-2 Wetland and OSW Impact Summary Table

Wetland or Surface Water ID	Wetland or Surface Water Habitat	FLUCFCS	Anticipated Permanent Impact (ACRE)	Functional Loss Estimate (UMAM)
WL 1	Freshwater Marsh	6410	0.03	0.015
WL 2	Shrub Wetland	6310	0.02	0.009
WL 3	Aquatic Emergent Wetland	6440	0.03	0.014
SW 3	Open Lake/Pond Habitat	5200	0.07	N/A
	TOTAL IMPACTS (ac)		0.15	0.038

6.3 Implementation Measures

- The FDOT will conduct a survey for gopher tortoises and coordinate with the FWC as appropriate based on the survey. Should gopher tortoise burrows be located within the proposed improvement, the FDOT will coordinate with the FWC to obtain necessary permits and to relocate tortoises as required.
- The FDOT will review the project prior to construction for the presence of burrowing owls and bald eagle nests within areas of suitable habitat. If present, the FDOT will conduct coordination with FWC or USFWS as needed.

- Erosion and sediment controls and other BMPs will be implemented prior to construction, and maintained during and after construction, to prevent adverse impacts to adjacent water resources and properties.

6.4 Commitments

In order to assure that adverse impacts to listed species and suitable habitat within the project's construction limits will not occur, the FDOT will abide by standard protection measures in addition to the following commitments:

- The FDOT will survey for the Florida spiny pod in areas with potential suitable habitat prior to construction. If this species or any other protected plant species is observed, the FDOT will coordinate with the FDACS and the Florida Native Plant Society or similar organization to facilitate the relocation of protected plants within the project footprint.
- The FDOT will conduct a survey for potentially occupied (active or inactive) gopher tortoise burrows prior to construction. If more than 25 gopher tortoise burrows are identified to be impacted by the project, the FDOT will initiate ESA Section 7 Consultation with the USFWS. The most recent version of the USFWS *Standard Protection Measures for the Eastern Indigo Snake* will be utilized during site preparation and construction. All gopher tortoise burrows, active or inactive, will be evacuated prior to site manipulation in the vicinity of the burrow. If an indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. If excavating potentially occupied burrows, the excavation method should minimize the potential for injury of an indigo snake. Holes, cavities, and snake refugia other than gopher tortoise burrows will be inspected each morning before planned site manipulation of a particular area, and, if occupied by an indigo snake, no work shall commence until the snake has vacated the vicinity of the proposed work.

7 REFERENCES

Audubon Florida. 2021. Audubon Florida EagleWatch Nest App. Audubon Center for Birds of Prey. Maitland, Florida. **https://cbop.audubon.org/conservation/about-eaglewatch-program/** Last access April 2023.

Cowardin, L.M., Carter, V., Golet, F.C., and LaRoe, E.T. 1979. *Classification of Deepwater Habitats of the United States, FWS/OBS-79/31*. U.S. Fish and Wildlife Service. Washington, D.C.

eBird. 2023. eBird: An outline database of bird distribution and abundance (Web Application). eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: **http://www.ebird.org.** Last accessed June 2023.

Florida Association of Environmental Soil Scientists. 2007. *Hydric Soils of Florida Handbook*, 4th Edition, Gainesville, FL.

Florida Department of Transportation. January 1999. *Florida Land Use, Cover and Forms Classification System*. Surveying and Mapping Thematic Mapping Section. Tallahassee, Florida. 91 pp. (GIS data from SWFWMD)

Florida Department of Transportation. July 2020. *Project Development and Environment Manual* (PD&E Manual) Part 2, Chapters 9, 16, and 17.

Florida Fish and Wildlife Conservation Commission. December 2018. *Florida's Endangered and Threatened Species*. Florida Fish and Wildlife Conservation Commission. Tallahassee, Florida.

Florida Fish and Wildlife Conservation Commission. Wildlife and Habitat Databases. **http://geodata.myfwc.com/**

Florida Geographic Data Library. Wildlife and Habitat Databases**. Florida Geographic Data Library Data Download (fgdl.org).** Accessed October 2022 and June 2023.

Florida Geographic Information Office (FGIS). Biology Data. **Florida Geospatial Open Data Portal (floridagio.gov).** Accessed October 2022 and June 2023.

Florida Natural Areas Inventory and Florida Department of Natural Resources, 1990. *Guide to the Natural Communities of*. Tallahassee, FL.

Gilbert, K. M., J. D. Tobe, R. W. Cantrell, M. E. Sweeley, and J. R. Cooper. 1995. *The Florida Wetlands Delineation Manual.*

Natural Resource Conservation Service. **https://websoilsurvey.nrcs.usda.gov/app**. Accessed April 2023 for Citrus County.

Southwest Florida Water Management District. 2022. GIS Land Use Mapping. Located at **https://data-swfwmd.opendata.arcgis.com/**.

US Army Corps of Engineers. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0).* U.S. Army Corps of Engineers, Engineer Research and Development Center. Vicksburg, Mississippi.

US Army Corps of Engineers (Jacksonville District). 1987. *Corps of Engineers' Wetlands Delineation Manual, Technical Report Y-87-10*. U.S. Army Corps of Engineers. Jacksonville, Florida. 319 pp.

US Fish and Wildlife Service. 2017. *National Wetlands Inventory Polygons in Florida – Surface Waters and Wetlands (Version 2)*. October 1, 2017. U. S. Fish and Wildlife Service. Washington, D. C.

US Fish and Wildlife Service. Environmental Conservation Online System (ECOS) Species Profile: Monarch Butterfly (*Danaus plexippus*). https://ecos.fws.gov/ecp/species/9743. Accessed June 2023.

US Fish and Wildlife Service. Environmental Conservation Online System (ECOS) Species Profile: Whooping Crane (*Grus americana*). https://ecos.fws.gov/ecp/species/758. Accessed June 2023.

US Fish and Wildlife Service. 2011.Five-Year Review of the Whooping Crane. https://www.fws.gove/species/whooping-crane-grus-americana.

US Fish and Wildlife Service Information for Planning and Consultation (IPaC). Accessed online May and June 2023.

Wunderlin, R. P. 1982. *Guide to the Vascular Plants of Central Florida*. University Presses of Florida. Gainesville, Florida.

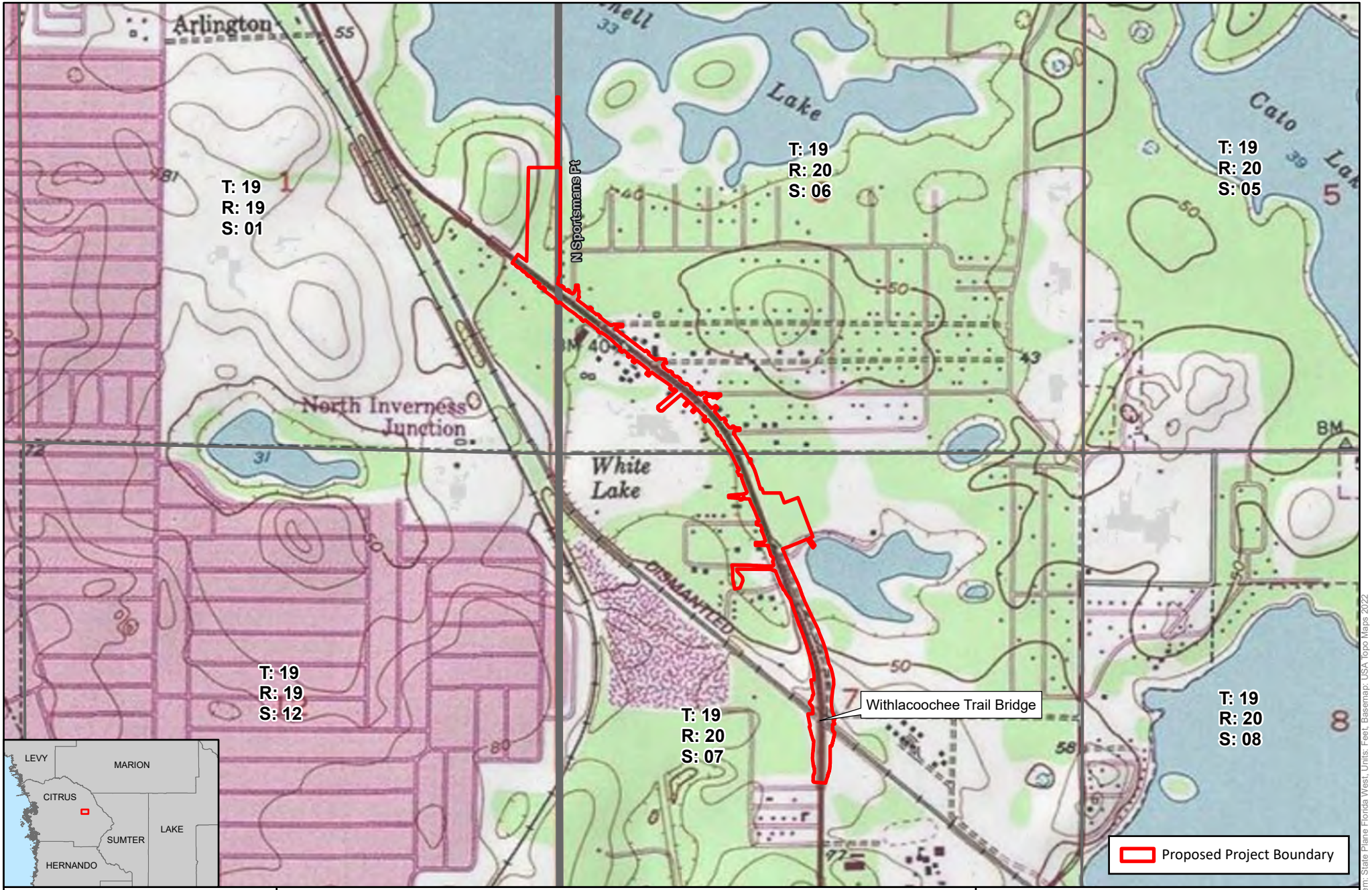
Wunderlin, R. P., B. F. Hansen, A. R. Franck, and F. B. Essig. 2016. Atlas of Florida Plants. **http://florida.plantatlas.usf.edu** [S. M. Landry and K. N. Campbell (application development), USF Water Institute.] Institute for Systemic Botany, University of South Florida. Tampa, Florida.

Appendix A

PROJECT LOCATION MAPS

Figure 1 - Project Quadrangle Map

Figure 2 - Project Location Map



FDOT

SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

Figure 1
Project Quadrangle Map

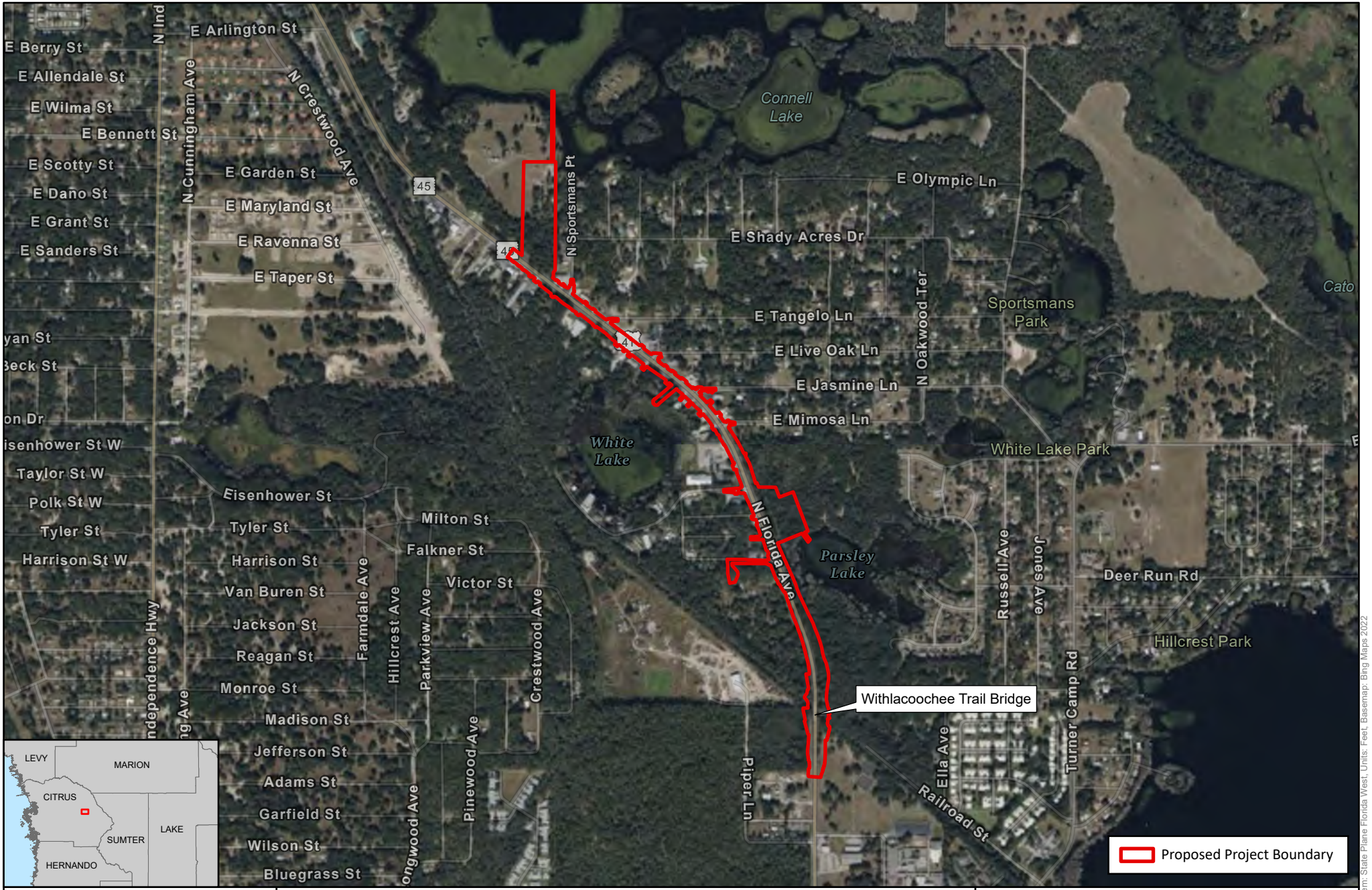
0 650 1,300
Feet

Basemap: USGS (United States Geological Society) 2022

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: USA Topo Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_Quad_topo_v2.aprx
WHIT6392 6/23/2023

USGS, National Geographic, i-cubed. USA Topo Maps. March 2022. 1:15,600; generated by Atkins; using ArcMap. <http://services.arcgisonline.com/ArcGIS/rest/services/USA_Topo_Maps/MapServer> (23 June 2023)



FDOT

SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

Figure 2
Project Location Map

0 650 1,300
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_Vicinity_aerial_v2.aprx
WHIT6392 6/28/2023

Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe.
Bing Maps Aerial. 2022. 1:15,600; generated by Atkins; using ArcMap. < http://www.bing.com/maps> (28 June 2023)

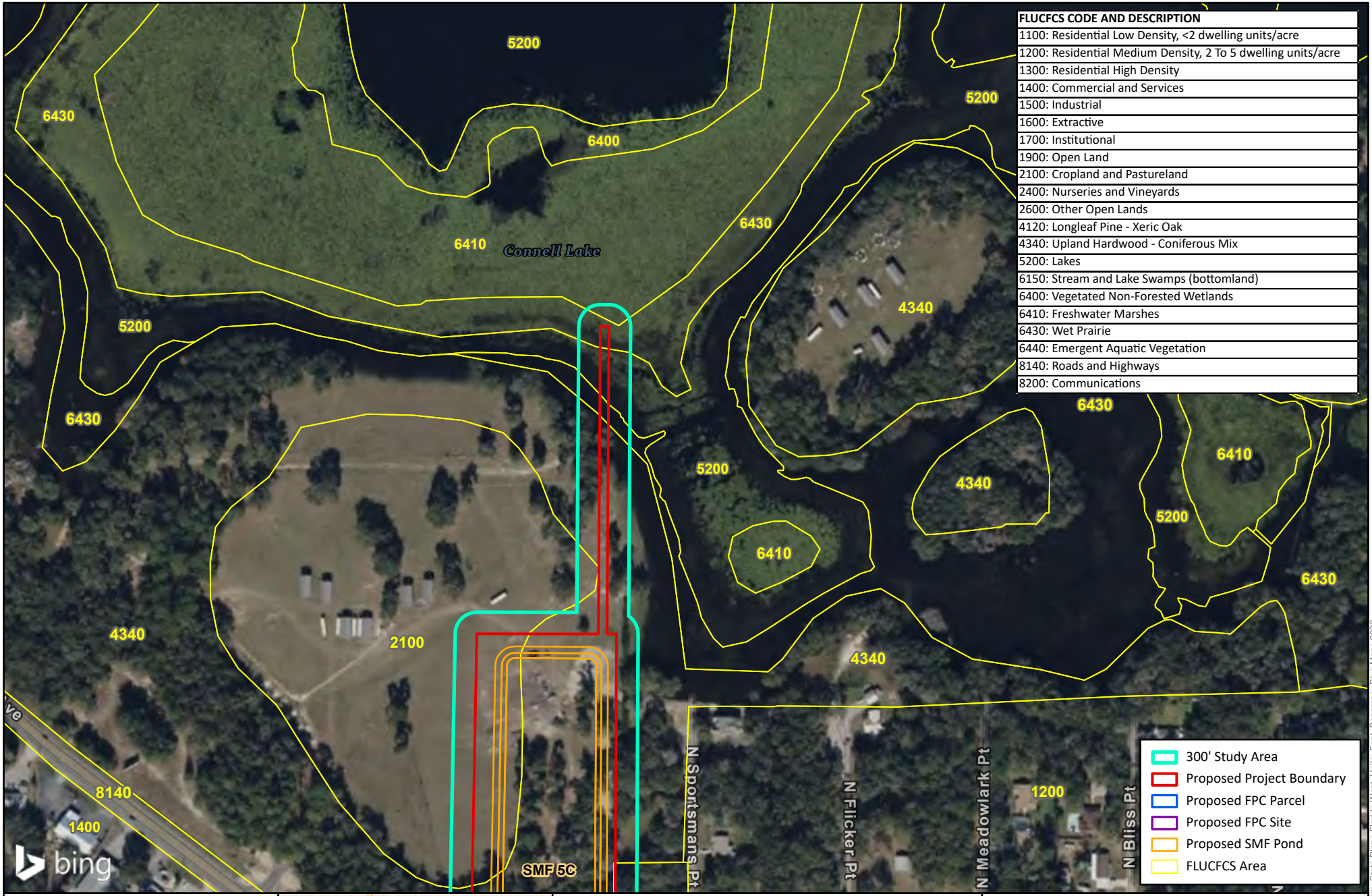
Appendix B

Resource Maps

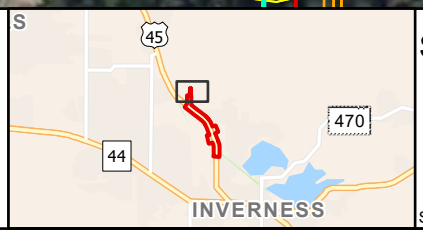
Figure 3 - Land Use (FLUCFCS) Map

Figure 4 - Hydric Soils Map

Figure 5 – USFWS National Wetlands Inventory (NWI) Map



FLUCFCS CODE AND DESCRIPTION
1100: Residential Low Density, <2 dwelling units/acre
1200: Residential Medium Density, 2 To 5 dwelling units/acre
1300: Residential High Density
1400: Commercial and Services
1500: Industrial
1600: Extractive
1700: Institutional
1900: Open Land
2100: Cropland and Pastureland
2400: Nurseries and Vineyards
2600: Other Open Lands
4120: Longleaf Pine - Xeric Oak
4340: Upland Hardwood - Coniferous Mix
5200: Lakes
6150: Stream and Lake Swamps (bottomland)
6400: Vegetated Non-Forested Wetlands
6410: Freshwater Marshes
6430: Wet Prairie
6440: Emergent Aquatic Vegetation
8140: Roads and Highways
8200: Communications



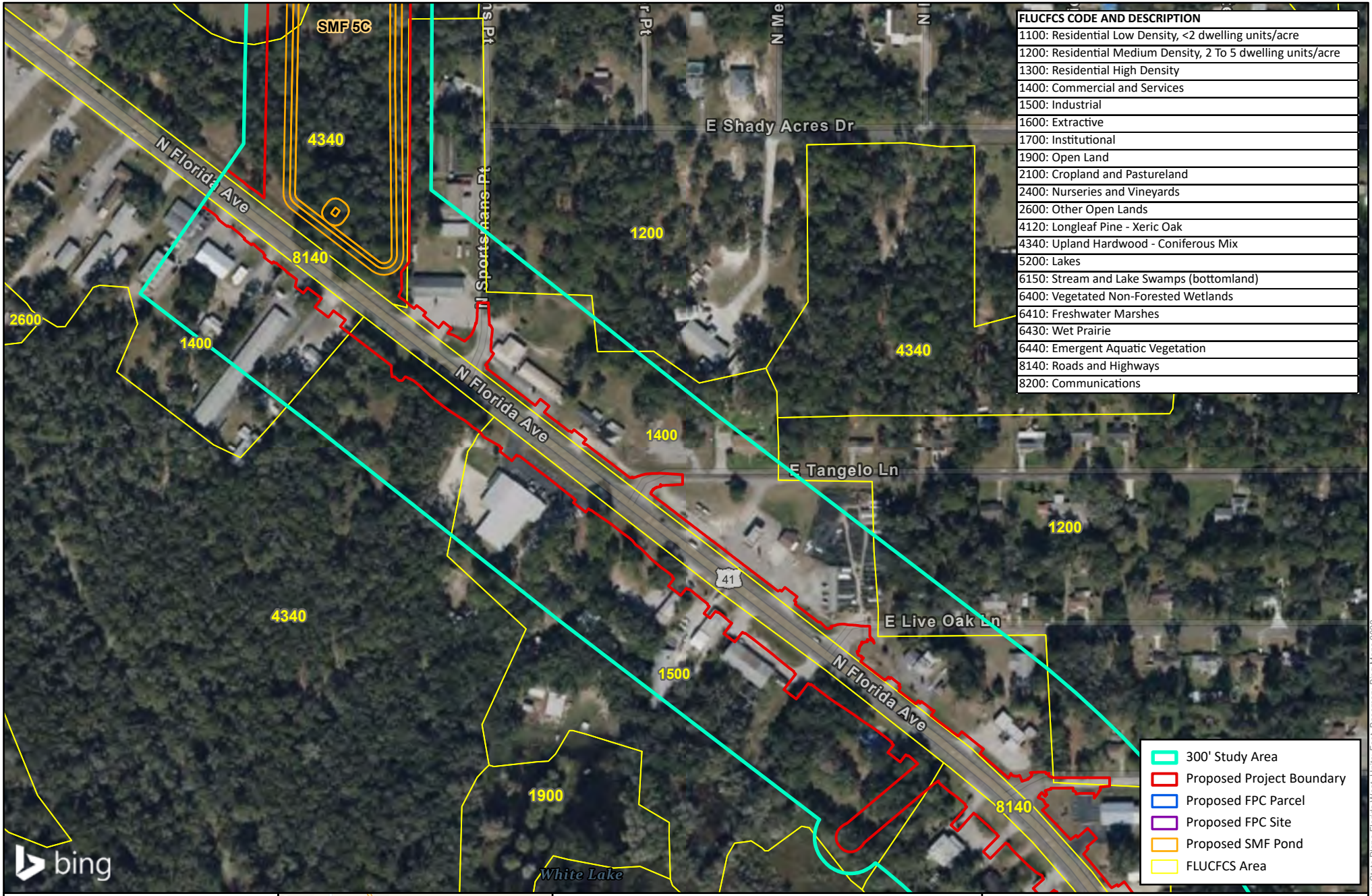
SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida
SWFWMD FLUCFCS: 2022; modified 2023 for project purposes

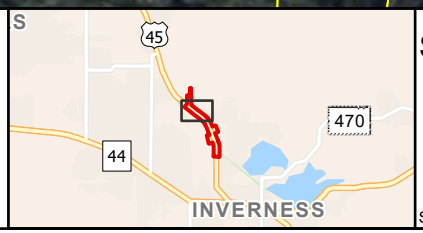
Figure 3
Florida Land Use, Cover, and Forms Classification System (FLUCFCS)
Page 1

0 150 300
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_FLUCFCS_aerial_v2.aprx
WHIT6392 6/28/2023





SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point

WPIS 257165-4

Citrus County, Florida

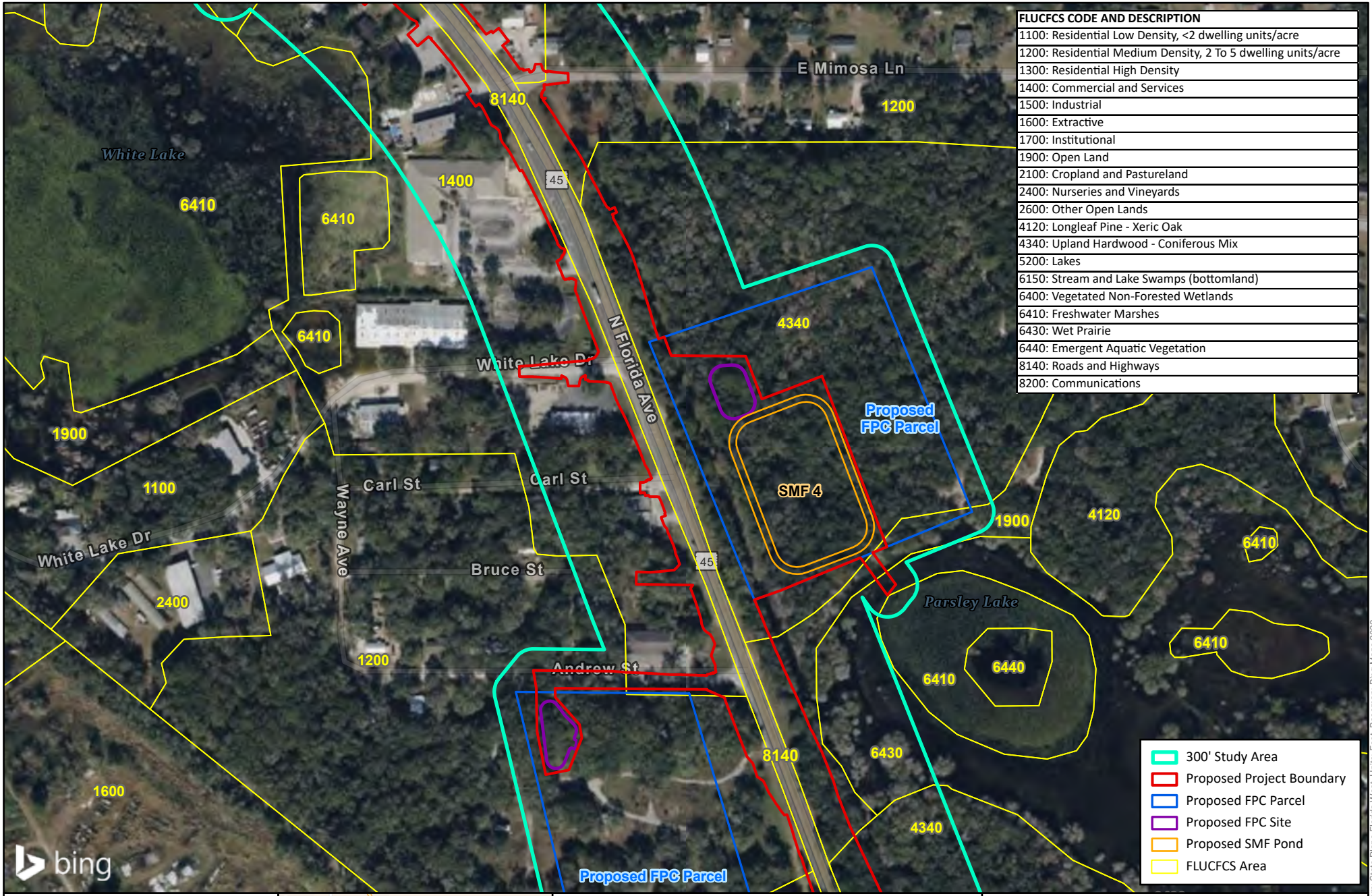
SWFWMD FLUCFCS: 2022; modified 2023 for project purposes

Figure 3
Florida Land Use, Cover, and Forms Classification System (FLUCFCS)
Page 2

0 150 300
Feet

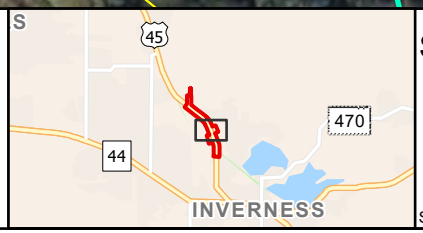
Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_FLUCFCS_aerial_v2.aprx
WHIT6392 6/28/2023



FLUCFCS CODE AND DESCRIPTION
1100: Residential Low Density, <2 dwelling units/acre
1200: Residential Medium Density, 2 To 5 dwelling units/acre
1300: Residential High Density
1400: Commercial and Services
1500: Industrial
1600: Extractive
1700: Institutional
1900: Open Land
2100: Cropland and Pastureland
2400: Nurseries and Vineyards
2600: Other Open Lands
4120: Longleaf Pine - Xeric Oak
4340: Upland Hardwood - Coniferous Mix
5200: Lakes
6150: Stream and Lake Swamps (bottomland)
6400: Vegetated Non-Forested Wetlands
6410: Freshwater Marshes
6430: Wet Prairie
6440: Emergent Aquatic Vegetation
8140: Roads and Highways
8200: Communications

300' Study Area
Proposed Project Boundary
Proposed FPC Parcel
Proposed FPC Site
Proposed SMF Pond
FLUCFCS Area



SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

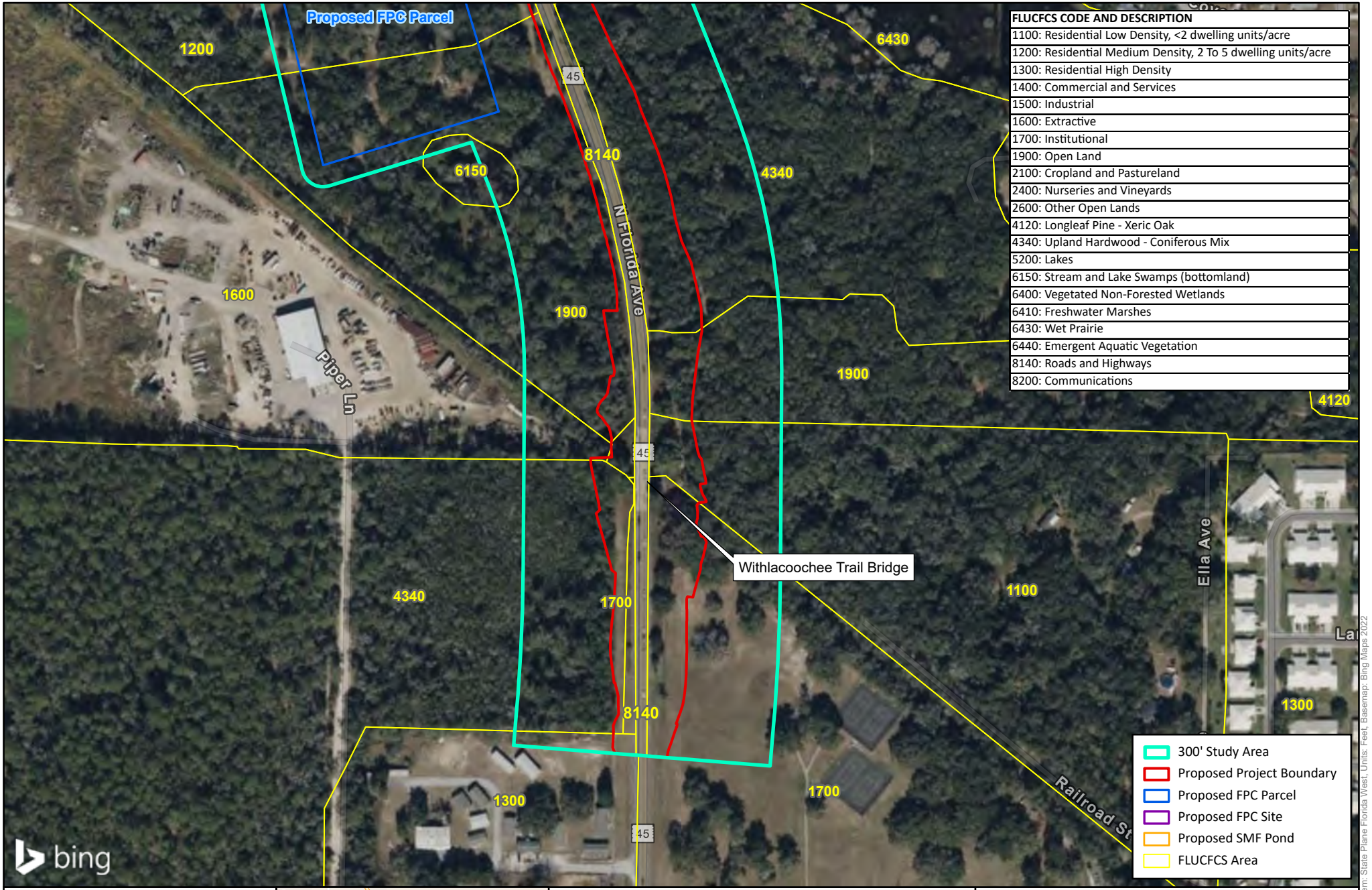
SWFWMD FLUCFCS: 2022; modified 2023 for project purposes

Figure 3
Florida Land Use, Cover, and Forms Classification System (FLUCFCS)
Page 3

0 150 300
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_FLUCFCS_aerial_v2.aprx
WHIT6392 6/28/2023



SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

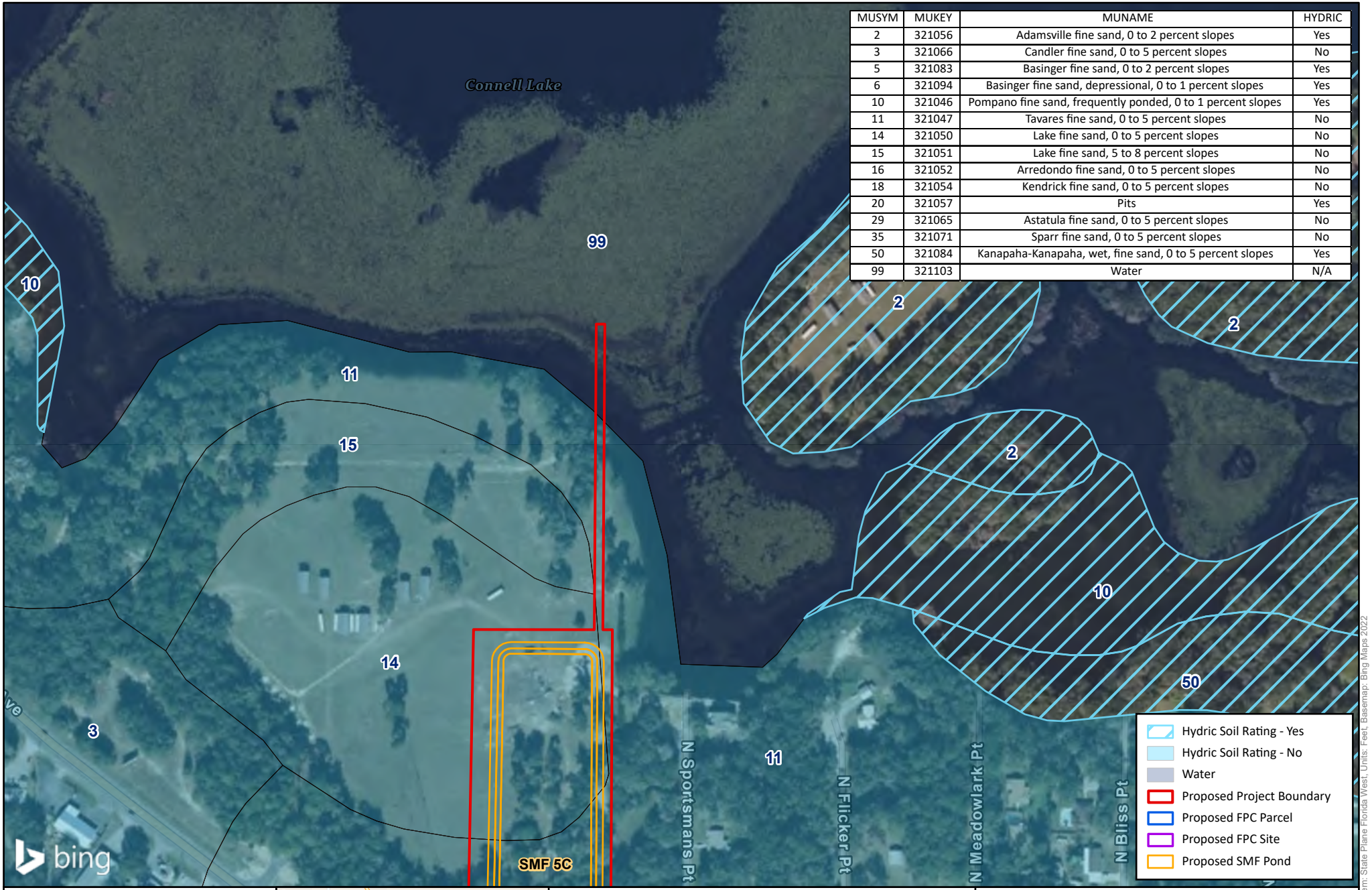
SWFWMD FLUCFCS: 2022; modified 2023 for project purposes

Figure 3
Florida Land Use, Cover, and Forms Classification System (FLUCFCS)
Page 4

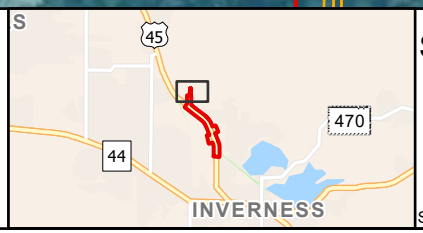
0 150 300
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_FLUCFCS_aerial_v2.aprx
WHIT6392 6/28/2023



MUSYM	MUKEY	MUNAME	HYDRIC
2	321056	Adamsville fine sand, 0 to 2 percent slopes	Yes
3	321066	Candler fine sand, 0 to 5 percent slopes	No
5	321083	Basinger fine sand, 0 to 2 percent slopes	Yes
6	321094	Basinger fine sand, depressional, 0 to 1 percent slopes	Yes
10	321046	Pompano fine sand, frequently ponded, 0 to 1 percent slopes	Yes
11	321047	Tavares fine sand, 0 to 5 percent slopes	No
14	321050	Lake fine sand, 0 to 5 percent slopes	No
15	321051	Lake fine sand, 5 to 8 percent slopes	No
16	321052	Arredondo fine sand, 0 to 5 percent slopes	No
18	321054	Kendrick fine sand, 0 to 5 percent slopes	No
20	321057	Pits	Yes
29	321065	Astatula fine sand, 0 to 5 percent slopes	No
35	321071	Sparr fine sand, 0 to 5 percent slopes	No
50	321084	Kanapaha-Kanapaha, wet, fine sand, 0 to 5 percent slopes	Yes
99	321103	Water	N/A



SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

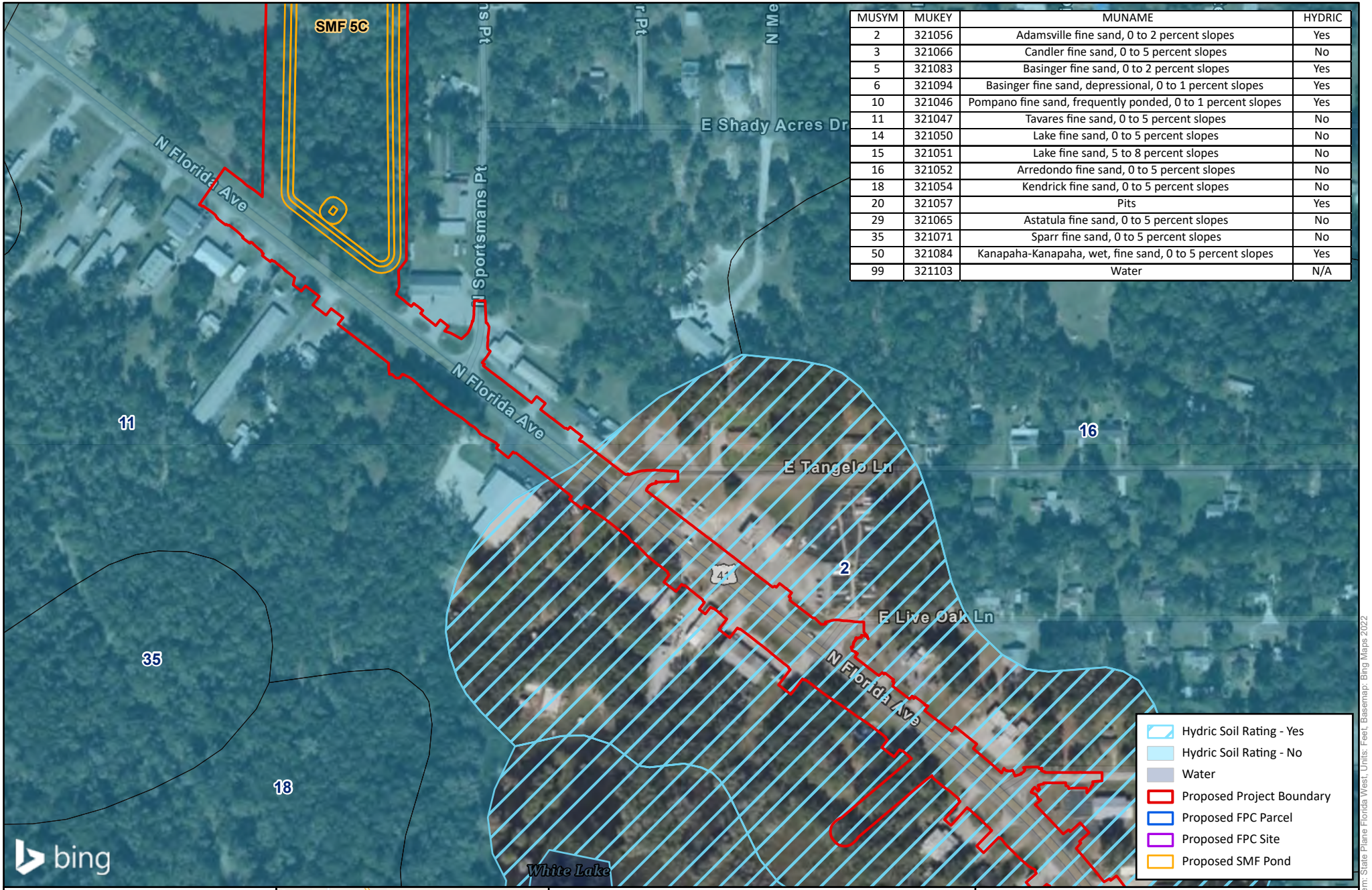
Soils: NRCS 2023

Figure 4
Hydric Soils Map
Page 1

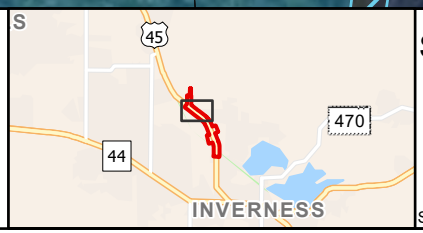
0 150 300
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_Soils_aerial_v2.aprx
WHIT6392 6/23/2023



MUSYM	MUKEY	MUNAME	HYDRIC
2	321056	Adamsville fine sand, 0 to 2 percent slopes	Yes
3	321066	Candler fine sand, 0 to 5 percent slopes	No
5	321083	Basinger fine sand, 0 to 2 percent slopes	Yes
6	321094	Basinger fine sand, depressional, 0 to 1 percent slopes	Yes
10	321046	Pompano fine sand, frequently ponded, 0 to 1 percent slopes	Yes
11	321047	Tavares fine sand, 0 to 5 percent slopes	No
14	321050	Lake fine sand, 0 to 5 percent slopes	No
15	321051	Lake fine sand, 5 to 8 percent slopes	No
16	321052	Arredondo fine sand, 0 to 5 percent slopes	No
18	321054	Kendrick fine sand, 0 to 5 percent slopes	No
20	321057	Pits	Yes
29	321065	Astatula fine sand, 0 to 5 percent slopes	No
35	321071	Sparr fine sand, 0 to 5 percent slopes	No
50	321084	Kanapaha-Kanapaha, wet, fine sand, 0 to 5 percent slopes	Yes
99	321103	Water	N/A



SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

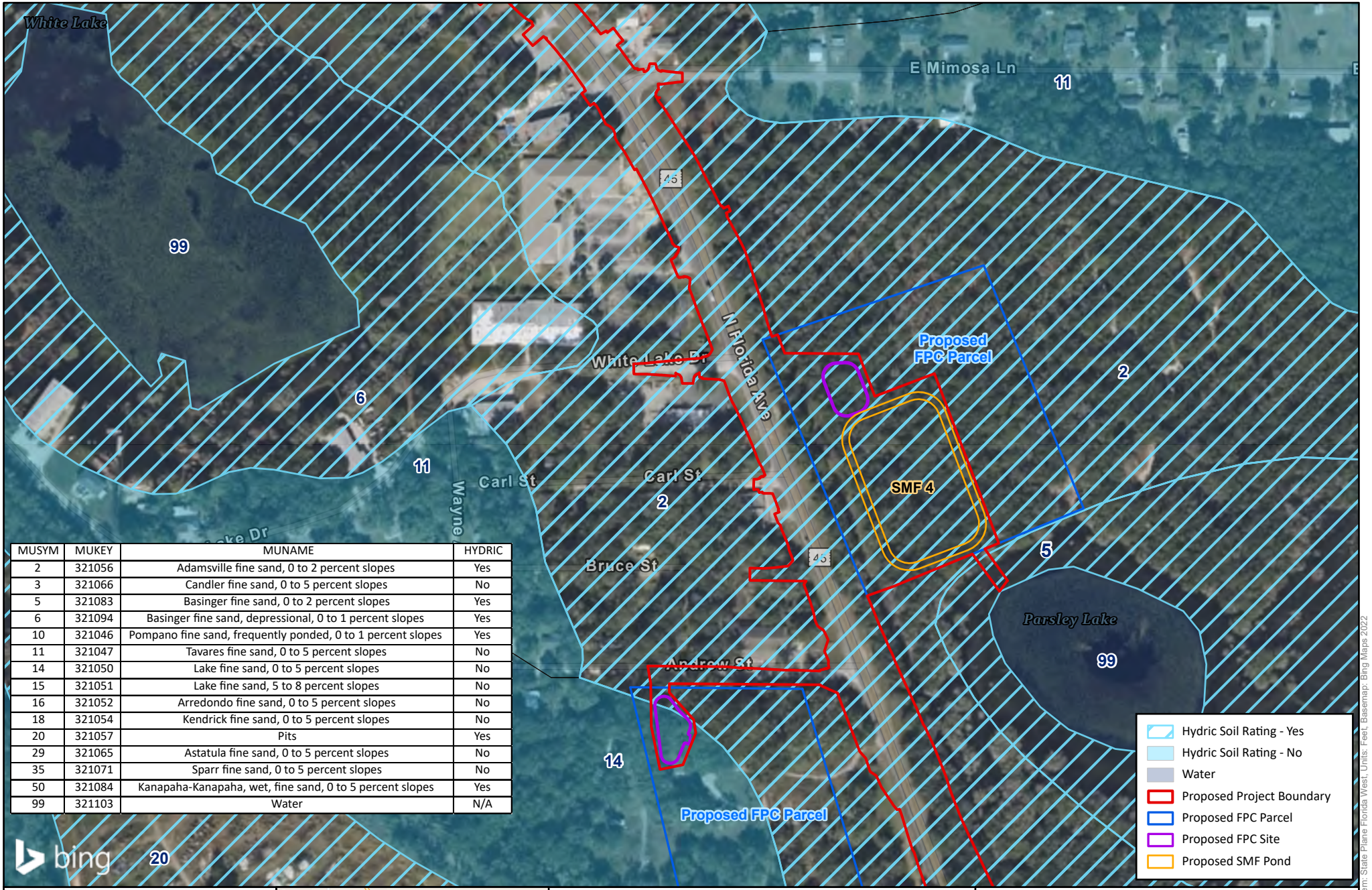
Soils: NRCS 2023

Figure 4
Hydric Soils Map
Page 2

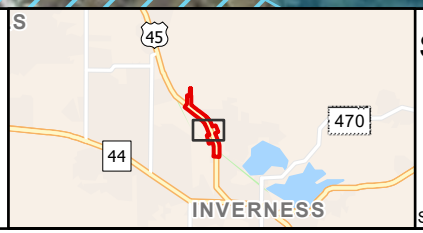
0 150 300
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_Soils_aerial_v2.aprx
WHIT6392 6/23/2023



MUSYM	MUKEY	MUNAME	HYDRIC
2	321056	Adamsville fine sand, 0 to 2 percent slopes	Yes
3	321066	Candler fine sand, 0 to 5 percent slopes	No
5	321083	Basinger fine sand, 0 to 2 percent slopes	Yes
6	321094	Basinger fine sand, depressional, 0 to 1 percent slopes	Yes
10	321046	Pompano fine sand, frequently ponded, 0 to 1 percent slopes	Yes
11	321047	Tavares fine sand, 0 to 5 percent slopes	No
14	321050	Lake fine sand, 0 to 5 percent slopes	No
15	321051	Lake fine sand, 5 to 8 percent slopes	No
16	321052	Arredondo fine sand, 0 to 5 percent slopes	No
18	321054	Kendrick fine sand, 0 to 5 percent slopes	No
20	321057	Pits	Yes
29	321065	Astatula fine sand, 0 to 5 percent slopes	No
35	321071	Sparr fine sand, 0 to 5 percent slopes	No
50	321084	Kanapaha-Kanapaha, wet, fine sand, 0 to 5 percent slopes	Yes
99	321103	Water	N/A



SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

Soils: NRCS 2023

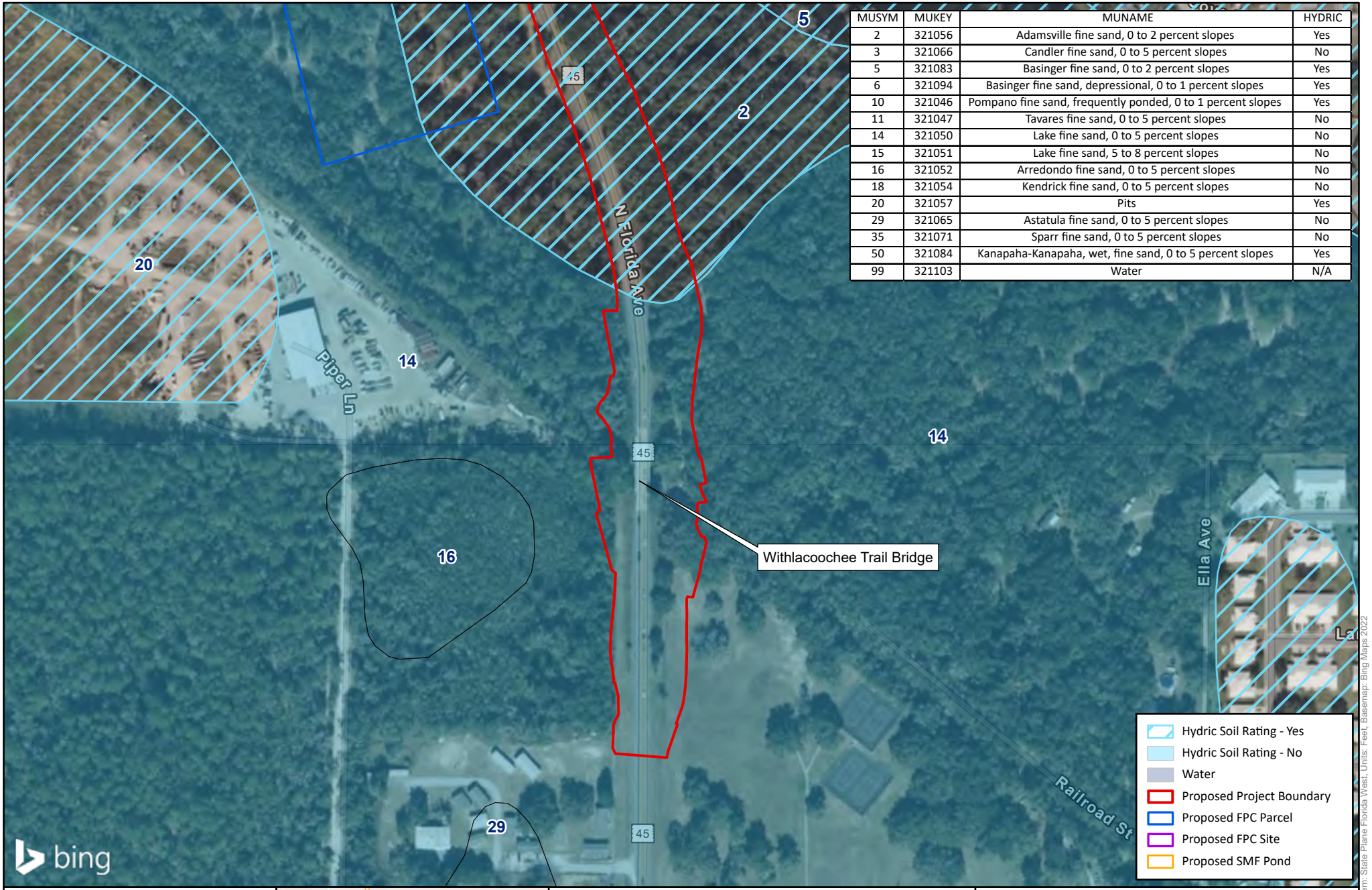
Figure 4
Hydric Soils Map
Page 3

0 150 300
Feet

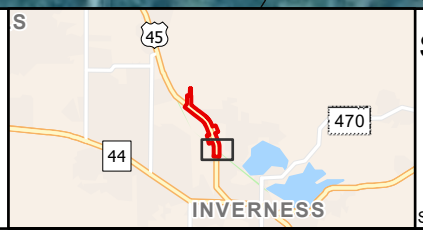
Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_Soils_aerial_v2.aprx
WHIT6392 6/28/2023

Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2022. 1:3,600; generated by Atkins; using ArcMap. < http://www.bing.com/maps> (28 June 2023)

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022



MUSYM	MUKEY	MUNAME	HYDRIC
2	321056	Adamsville fine sand, 0 to 2 percent slopes	Yes
3	321066	Candler fine sand, 0 to 5 percent slopes	No
5	321083	Basinger fine sand, 0 to 2 percent slopes	Yes
6	321094	Basinger fine sand, depressional, 0 to 1 percent slopes	Yes
10	321046	Pompano fine sand, frequently ponded, 0 to 1 percent slopes	Yes
11	321047	Tavares fine sand, 0 to 5 percent slopes	No
14	321050	Lake fine sand, 0 to 5 percent slopes	No
15	321051	Lake fine sand, 5 to 8 percent slopes	No
16	321052	Arredondo fine sand, 0 to 5 percent slopes	No
18	321054	Kendrick fine sand, 0 to 5 percent slopes	No
20	321057	Pits	Yes
29	321065	Astatula fine sand, 0 to 5 percent slopes	No
35	321071	Sparr fine sand, 0 to 5 percent slopes	No
50	321084	Kanapaha-Kanapaha, wet, fine sand, 0 to 5 percent slopes	Yes
99	321103	Water	N/A



SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

Soils: NRCS 2023

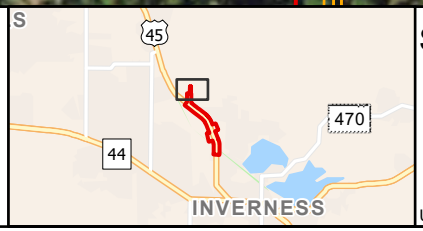
Figure 4
Hydric Soils Map
Page 4

0 150 300
Feet

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_Soils_aerial_v2.aprx
WHIT6392 6/23/2023

Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe.
Bing Maps Aerial. 2022. 1:3,600; generated by Atkins; using ArcMap. < http://www.bing.com/maps> (23 June 2023)

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022



SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

USFWS NWI Wetlands: 2023

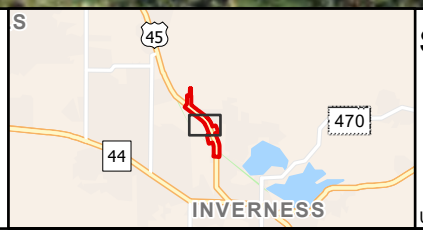
Figure 5
USFWS National Wetland Inventory (NWI) Map
Page 1

0 150 300
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_NWI_aerial_v2.aprx
WHIT6392 6/23/2023

Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2022. 1:3,600; generated by Atkins; using ArcMap. < http://www.bing.com/maps> (23 June 2023)



SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

USFWS NWI Wetlands: 2023

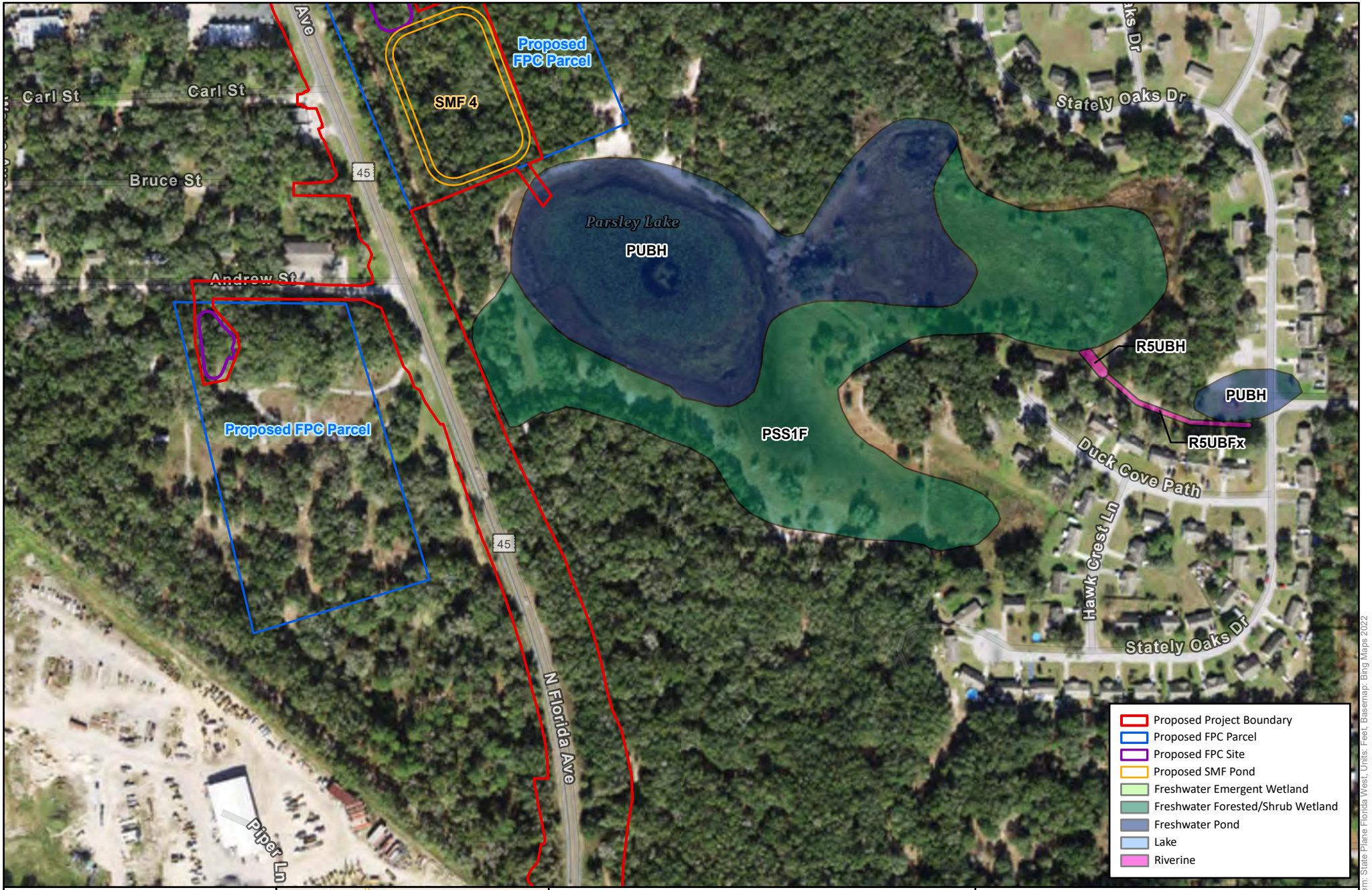
Figure 5
USFWS National Wetland Inventory (NWI) Map
Page 2

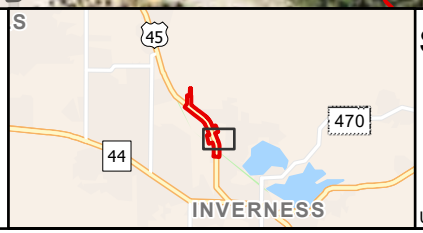
0 150 300
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_NWI_aerial_v2.aprx
WHIT6392 6/28/2023

Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2022. 1:3,600; generated by Atkins; using ArcMap. < http://www.bing.com/maps> (28 June 2023)





SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

USFWS NWI Wetlands: 2023

Figure 5
USFWS National Wetland Inventory (NWI) Map
Page 3

0 150 300
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_NWI_aerial_v2.aprx
WHIT6392 6/28/2023

Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2022. 1:3,600; generated by Atkins; using ArcMap. < http://www.bing.com/maps> (28 June 2023)

Appendix C

Photo Exhibit

PHOTO EXHIBIT
SR 45 (US 41) from Withlacoochee Trail Bridge to N of North Sportsmans Point
WPIS 257165-4

Stormwater Management Facility 5C, Eastern Portion of Site

Stormwater Management Facility 5C, Eastern Portion of Site

PHOTO EXHIBIT
SR 45 (US 41) from Withlacoochee Trail Bridge to N of North Sportsmans Point
WPIS 257165-4

Stormwater Management Facility 5C, Western Portion of Site

Connell Lake (SW 3) and Wetland 3, Adjacent to SMF 5C

PHOTO EXHIBIT
SR 45 (US 41) from Withlacoochee Trail Bridge to N of North Sportsmans Point
WPIS 257165-4

Bridge over Withlacoochee State Trail

Area Adjacent to Bridge Over Withlacoochee State Trail

PHOTO EXHIBIT
SR 45 (US 41) from Withlacoochee Trail Bridge to N of North Sportsmans Point
WPIS 257165-4

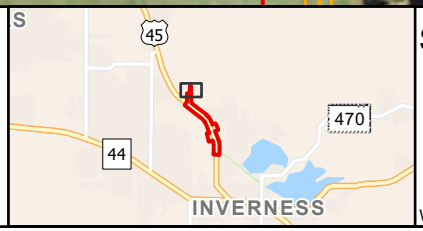
Parsley Lake (SW 1) and Wetland 1

PHOTO EXHIBIT
SR 45 (US 41) from Withlacoochee Trail Bridge to N of North Sportsmans Point
WPIS 257165-4

WL 2 (at White Lake)

Appendix D

Figure 6 - Wetlands and OSWs Location Map



SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

Wetland Delineation was performed April 2023

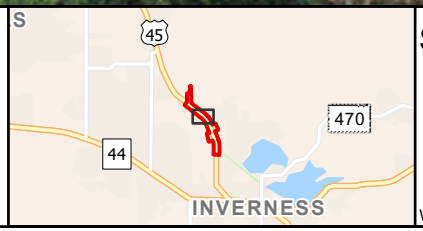
Figure 6
Wetland & Other Surface Waters Map
Page 1

0 100 200
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_Wet_aerial_v3.aprx
WHIT6392 6/28/2023

Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2022. 1:2,400; generated by Atkins; using ArcMap. < http://www.bing.com/maps> (28 June 2023)



SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

Wetland Delineation was performed April 2023

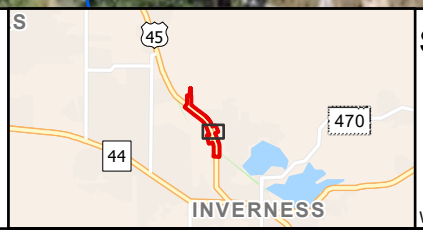
Figure 6
Wetland & Other Surface Waters Map
Page 2

0 100 200
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_Wet_aerial_v3.aprx
WHIT6392 6/28/2023

Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2022. 1:2,400; generated by Atkins; using ArcMap. < http://www.bing.com/maps> (28 June 2023)



SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

Wetland Delineation was performed April 2023

Figure 6
Wetland & Other Surface Waters Map
Page 3

0 100 200
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_Wet_aerial_v3.aprx
WHIT6392 6/28/2023

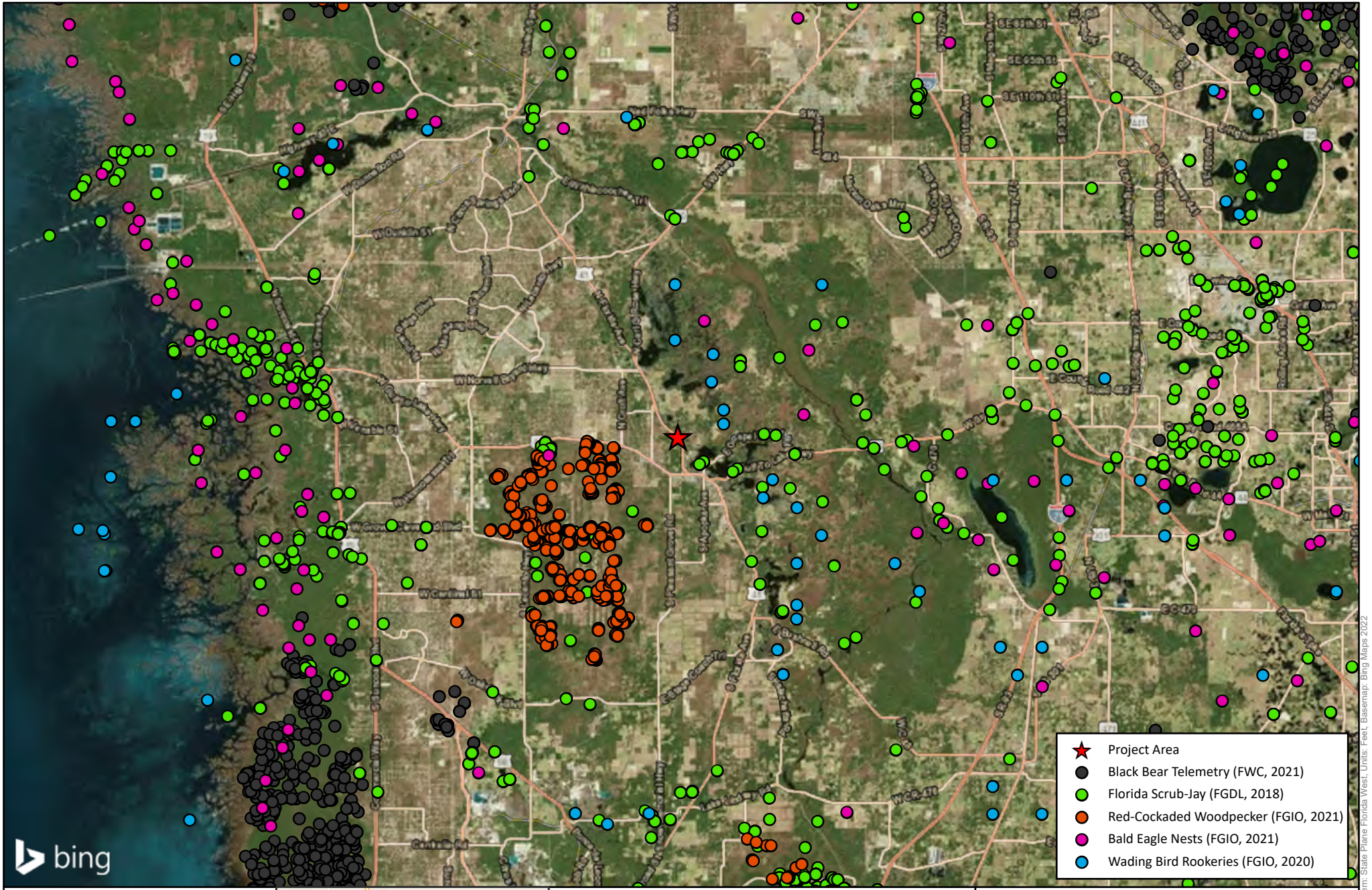
Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2022. 1:2,400; generated by Atkins; using ArcMap. < http://www.bing.com/maps> (28 June 2023)

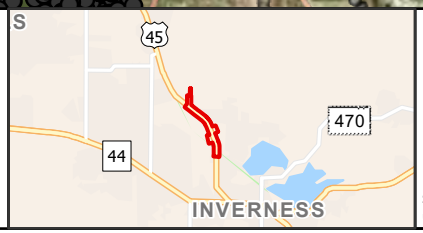
Appendix E

Species Maps

Figure 7 - Documented Species Occurrence Map

Figure 8 - Gopher Tortoise Potentially Occupied Burrows Location Map





SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

Sources: FGIO (Florida Geographic Information Office), updated 2020, 2021; FGDL (Florida Geographic Data Library), updated 2018; FWC (Florida Fish and Wildlife Conservation Commission), updated 2021.

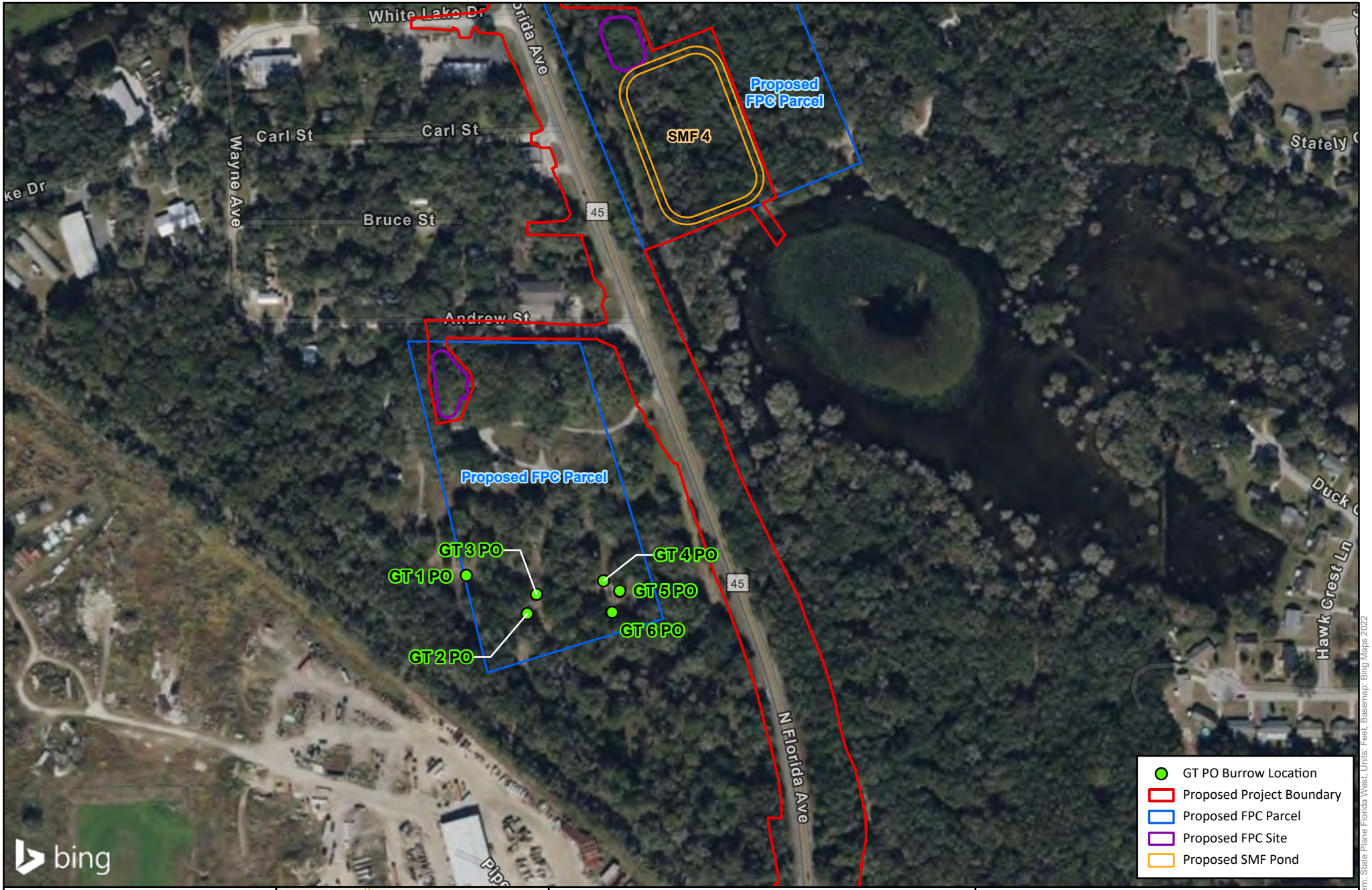
Figure 7
Species Documented Occurrence Map

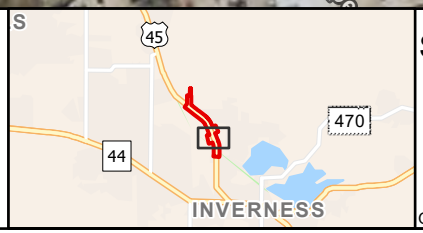
0 14,000 28,000
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_Species_aerial_v2.aprx
WHIT6392 6/23/2023

Microsoft Corporation, Earthstar Geographics LLC, GeoEye, Harris Corporation, NASA, and DigitalGlobe. Bing Maps Aerial. 2022. 1:336,000; generated by Atkins; using ArcMap. < http://www.bing.com/maps> (23 June 2023)





SR 45 (US 41) from South of Withlacoochee State Trail Bridge to North of North Sportsmans Point
WPIS 257165-4
Citrus County, Florida

Gopher Tortoise PO Burrows observed 4/13/2023 (Atkins)

Figure 8
Gopher Tortoise Potentially Occupied Burrow (GT PO Burrow) Locations

0 150 300
Feet

Datum: NAD 1983, Coordinate System: State Plane Florida West, Units: Feet, Basemap: Bing Maps 2022

Houston GIS Drive: N:\Clients\E_F\FDOT\100062704\geo\figs\SR45_Seg4_GT_aerial_v2.aprx
WHIT6392 6/23/2023

Appendix F

USFWS Standard Protection Measures for the Eastern Indigo Snake

STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE
U.S. Fish and Wildlife Service
August 12, 2013

The eastern indigo snake protection/education plan (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida for use by applicants and their construction personnel. At least **30 days prior** to any clearing/land alteration activities, the applicant shall notify the appropriate USFWS Field Office via e-mail that the Plan will be implemented as described below (North Florida Field Office: jaxregs@fws.gov; South Florida Field Office: verobeach@fws.gov; Panama City Field Office: panamacity@fws.gov). As long as the signatory of the e-mail certifies compliance with the below Plan (including use of the attached poster and brochure), no further written confirmation or "approval" from the USFWS is needed and the applicant may move forward with the project.

If the applicant decides to use an eastern indigo snake protection/education plan other than the approved Plan below, written confirmation or "approval" from the USFWS that the plan is adequate must be obtained. At least 30 days prior to any clearing/land alteration activities, the applicant shall submit their unique plan for review and approval. The USFWS will respond via e-mail, typically within 30 days of receiving the plan, either concurring that the plan is adequate or requesting additional information. A concurrence e-mail from the appropriate USFWS Field Office will fulfill approval requirements.

The Plan materials should consist of: 1) a combination of posters and pamphlets (see **Poster Information** section below); and 2) verbal educational instructions to construction personnel by supervisory or management personnel before any clearing/land alteration activities are initiated (see **Pre-Construction Activities** and **During Construction Activities** sections below).

POSTER INFORMATION

Posters with the following information shall be placed at strategic locations on the construction site and along any proposed access roads (a final poster for Plan compliance, to be printed on 11" x 17" or larger paper and laminated, is attached):

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, with individuals often reaching up to 8 feet in length. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. Frequently, they have orange to coral reddish coloration in the throat area, yet some specimens have been reported to only have cream coloration on the throat. These snakes are not typically aggressive and will attempt to crawl away when disturbed. Though indigo snakes rarely bite, they should NOT be handled.

SIMILAR SNAKES: The black racer is the only other solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin, thinner bodies, and WILL BITE if handled.

LIFE HISTORY: The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands

and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

PROTECTION UNDER FEDERAL AND STATE LAW: The eastern indigo snake is classified as a Threatened species by both the USFWS and the Florida Fish and Wildlife Conservation Commission. "Taking" of eastern indigo snakes is prohibited by the Endangered Species Act without a permit. "Take" is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of $25,000 for civil violations and up to $50,000 and/or imprisonment for criminal offenses, if convicted.

Only individuals currently authorized through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10(a)(1)(A) permit issued by the USFWS, to handle an eastern indigo snake are allowed to do so.

IF YOU SEE A <u>LIVE</u> EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and allow the live eastern indigo snake sufficient time to move away from the site without interference;
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

IF YOU SEE A <u>DEAD</u> EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

Telephone numbers of USFWS Florida Field Offices to be contacted if a live or dead eastern indigo snake is encountered:

North Florida Field Office – (904) 731-3336
Panama City Field Office – (850) 769-0552
South Florida Field Office – (772) 562-3909

PRE-CONSTRUCTION ACTIVITIES

1. The applicant or designated agent will post educational posters in the construction office and throughout the construction site, including any access roads. The posters must be clearly visible to all construction staff. A sample poster is attached.

2. Prior to the onset of construction activities, the applicant/designated agent will conduct a meeting with all construction staff (annually for multi-year projects) to discuss identification of the snake, its protected status, what to do if a snake is observed within the project area, and applicable penalties that may be imposed if state and/or federal regulations are violated. An educational brochure including color photographs of the snake will be given to each staff member in attendance and additional copies will be provided to the construction superintendent to make available in the onsite construction office (a final brochure for Plan compliance, to be printed double-sided on 8.5" x 11" paper and then properly folded, is attached). Photos of eastern indigo snakes may be accessed on USFWS and/or FWC websites.

3. Construction staff will be informed that in the event that an eastern indigo snake (live or dead) is observed on the project site during construction activities, all such activities are to cease until the established procedures are implemented according to the Plan, which includes notification of the appropriate USFWS Field Office. The contact information for the USFWS is provided on the referenced posters and brochures.

DURING CONSTRUCTION ACTIVITIES

1. During initial site clearing activities, an onsite observer may be utilized to determine whether habitat conditions suggest a reasonable probability of an eastern indigo snake sighting (example: discovery of snake sheds, tracks, lots of refugia and cavities present in the area of clearing activities, and presence of gopher tortoises and burrows).

2. If an eastern indigo snake is discovered during gopher tortoise relocation activities (i.e. burrow excavation), the USFWS shall be contacted within one business day to obtain further guidance which may result in further project consultation.

3. Periodically during construction activities, the applicant's designated agent should visit the project area to observe the condition of the posters and Plan materials, and replace them as needed. Construction personnel should be reminded of the instructions (above) as to what is expected if any eastern indigo snakes are seen.

POST CONSTRUCTION ACTIVITIES

Whether or not eastern indigo snakes are observed during construction activities, a monitoring report should be submitted to the appropriate USFWS Field Office within 60 days of project completion. The report can be sent electronically to the appropriate USFWS e-mail address listed on page one of this Plan.


Photo: Dirk Stevenson

ATTENTION:

THREATENED EASTERN INDIGO SNAKES MAY BE PRESENT ON THIS SITE!!!

IF YOU SEE A LIVE EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and allow the eastern indigo snake sufficient time to move away from the site without interference.
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant's designated agent, **and** the appropriate U.S. Fish and Wildlife Service (USFWS) office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

IF YOU SEE A DEAD EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

USFWS Florida Field Offices to be contacted if a live or dead eastern indigo snake is encountered:

North Florida Field Office – (904) 731-3336
Panama City Field Office – (850) 769-0552
South Florida Field Office – (772) 562-3909

Killing, harming, or harassing indigo snakes is strictly prohibited and punishable under State and Federal Law.

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, with individuals often reaching up to 8 feet in length. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. Frequently, they have orange to coral reddish coloration in the throat area, yet some specimens have been reported to only have cream coloration on the throat. These snakes are not typically aggressive and will attempt to crawl away when disturbed. Though indigo snakes rarely bite, they should NOT be handled.

SIMILAR SNAKES: The black racer is the only other solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin, thinner bodies, and WILL BITE if handled.

LIFE HISTORY: The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

PROTECTION: The eastern indigo snake is classified as a Threatened species by both the USFWS and the Florida Fish and Wildlife Conservation Commission. "Taking" of eastern indigo snakes is prohibited by the Endangered Species Act without a permit. "Take" is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of $25,000 for civil violations and up to $50,000 and/or imprisonment for criminal offenses, if convicted.

Only individuals currently authorized through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10(a)(1)(A) permit issued by the USFWS, to handle an eastern indigo snake are allowed to do so.

IF YOU SEE A LIVE EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and allow the eastern indigo snake sufficient time to move away from the site without interference.
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant's designated agent, **and** the appropriate U.S. Fish and Wildlife Service (USFWS) office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

IF YOU SEE A DEAD EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

USFWS Florida Field Offices to be contacted if a live or dead eastern indigo snake is encountered:

North Florida ES Office – (904) 731-3336
Panama City ES Office – (850) 769-0552
South Florida ES Office – (772) 562-3909

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, with individuals often reaching up to 8 feet in length. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. Frequently, they have orange to coral reddish coloration in the throat area, yet some specimens have been reported to only have cream coloration on the throat. These snakes are not typically aggressive and will attempt to crawl away when disturbed. Though indigo snakes rarely bite, they should NOT be handled.

SIMILAR SNAKES: The black racer is the only other solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin, thinner bodies, and WILL BITE if handled.

LIFE HISTORY: The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

Killing, harming, or harassing indigo snakes is strictly prohibited and punishable under State and Federal Law.

Only individuals currently authorized through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10(a)(1)(A) permit issued by the USFWS, to handle an eastern indigo snake are allowed to do so.

LEGAL STATUS: The eastern indigo snake is classified as a Threatened species by both the USFWS and the Florida Fish and Wildlife Conservation Commission. "Taking" of eastern indigo snakes is prohibited by the Endangered Species Act without a permit. "Take" is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of $25,000 for civil violations and up to $50,000 and/or imprisonment for criminal offenses, if convicted.

August 12, 2013

ATTENTION:

THREATENED EASTERN INDIGO SNAKES MAY BE PRESENT ON THIS SITE!!!

Photo: Dirk Stevenson

Please read the following information provided by the U.S. Fish and Wildlife Service to become familiar with standard protection measures for the eastern indigo snake.

Appendix G

USFWS Effect Determination Key

*Eastern Indigo Snake Effect Programmatic Effect Determination Key

United States Department of the Interior
U. S. FISH AND WILDLIFE SERVICE
7915 BAYMEADOWS WAY, SUITE 200
JACKSONVILLE, FLORIDA 32256-7517

IN REPLY REFER TO:
August 13, 2013

Colonel Alan M. Dodd, District Engineer
Department of the Army
Jacksonville District Corps of Engineers
P.O Box 4970
Jacksonville, Florida 32232-0019
(Attn: Mr. David S. Hobbie)

RE: Update Addendum to USFWS Concurrence Letter to U.S. Army Corps of Engineers Regarding Use of the Attached Eastern Indigo Snake Programmatic Effect Determination Key

Dear Colonel Dodd:

This letter is to amend the January 25, 2010, letter to the U.S. Army Corps of Engineers regarding the use of the attached eastern indigo snake programmatic effect determination key (key). It supersedes the update addendum issued January 5, 2012.

We have evaluated the original programmatic concurrence and find it suitable and appropriate to extend its use to the remainder of Florida covered by the Panama City Ecological Services Office.

On Page 2

The following replaces the last paragraph above the signatures:

"Thank you for your continued cooperation in the effort to conserve fish and wildlife resources. Any questions or comments should be directed to Annie Dziergowski (North Florida ESO) at 904-731-3089, Harold Mitchell (Panama City ESO) at 850-769-0552, or Victoria Foster (South Florida ESO) at 772-469-4269."

On Page 3

The following replaces both paragraphs under "Scope of the key":

"This key should be used only in the review of permit applications for effects determinations for the eastern indigo snake within the State of Florida, and not for other listed species or for aquatic resources such as Essential Fish Habitat (EFH)."

On Page 4

The following replaces the first paragraph under Conservation Measures:

"The Service routinely concurs with the Corps' "not likely to adversely affect" (NLAA) determination for individual project effects to the eastern indigo snake when assurances are given that

our *Standard Protection Measures for the Eastern Indigo Snake* (Service 2013) located at: http://www.fws.gov/northflorida/IndigoSnakes/indigo-snakes.htm will be used during project site preparation and project construction. There is no designated critical habitat for the eastern indigo snake."

On Page 4 and Page 5 (Couplet D)

The following replaces D. under Conservation Measures:

D. The project will impact less than 25 acres of xeric habitat (scrub, sandhill, or scrubby flatwoods) or less than 25 active and inactive gopher tortoise burrows……*go to* E

The project will impact more than 25 acres of xeric habitat (scrub, sandhill, or scrubby flatwoods) or more than 25 active and inactive gopher tortoise burrows and consultation with the Service is requested[2]…… *"may affect"*

On Page 5

The following replaces footnote #3:

"[3]If excavating potentially occupied burrows, active or inactive, individuals must first obtain state authorization via a FWC Authorized Gopher Tortoise Agent permit. The excavation method selected should also minimize the potential for injury of an indigo snake. Applicants should follow the excavation guidance provided within the most current Gopher Tortoise Permitting Guidelines found at http://myfwc.com/gophertortoise ."

Thank you for making these amendments concerning the Eastern Indigo Snake Key. If you have any questions, please contact Jodie Smithem of my staff at the address on the letterhead, by email at jodie_smithem@fws.gov, or by calling (904)731-3134.

Sincerely,

Dawn Jennings
Acting Field Supervisor

cc:
Panama City Ecological Services Field Office, Panama City, FL
South Florida Ecological Services Field Office, Vero Beach, FL

United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

January 25, 2010

David S. Hobbie
Chief, Regulatory Division
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Service Federal Activity Code: 41420-2009-FA-0642
Service Consultation Code: 41420-2009-I-0467
41910-2010-I-0045
Subject: North and South Florida Ecological Services Field Offices Programmatic Concurrence for Use of Original Eastern Indigo Snake Key(s) Until Further Notice

Dear Mr. Hobbie:

The U.S. Fish and Wildlife Service's (Service) South and North Florida Ecological Services Field Offices (FO), through consultation with the U.S. Army Corps of Engineers Jacksonville District (Corps), propose revision to both Programmatic concurrence letters/keys for the federally threatened Eastern Indigo Snake (*Drymarchon corais couperi*), (indigo snake), and now provide one key for both FO's. The original programmatic key was issued by the South Florida FO on November 9, 2007. The North Florida FO issued a revised version of the original key on September 18, 2008. Both keys were similar in content, but reflected differences in geographic work areas between the two Field Offices. The enclosed key satisfies each office's responsibilities under the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C.1531 *et seq.*).

Footnote number 3 in the original keys indicated "A member of the excavation team should be authorized for Incidental Take during excavation through either a section 10(a)(1)(A) permit issued by the Service or an incidental take permit issued by the Florida Fish and Wildlife Conservation Commission (FWC)." We have removed this reference to a Service issued Section 10(a)(1)(A) permit, as one is not necessary for this activity. We also referenced the FWC's revised April 2009 Gopher Tortoise Permitting Guidelines with a link to their website for updated excavation guidance, and have provided a website link to our Standard Protection Measures. All other conditions and criteria apply.

We believe the implementation of the attached key achieves our mutual goal for all users to make consistent effect determinations regarding this species. The use of this key for review of projects

located in all referenced counties in our respective geographic work areas leads the Service to concur with the Corps' determination of "may affect, not likely to adversely affect" (MANLAA) for the Eastern indigo snake. The biological rationale for the determinations is contained within the referenced documents and is submitted in accordance with section 7 of the Act.

Should circumstances change or new information become available regarding the eastern indigo snake or implementation of the key, the determinations may be reconsidered as deemed necessary.

Thank you for your continued cooperation in the effort to conserve fish and wildlife resources. Any questions or comments should be directed to either Allen Webb (Vero Beach) at 772-562-3909, extension 246, or Jay Herrington (Jacksonville) at 904-731-3326.

Sincerely,

Paul Souza
Field Supervisor
South Florida Ecological Services Office

David L. Hankla
Field Supervisor
North Florida Ecological Services Office

Enclosure

cc: electronic only
FWC, Tallahassee, Florida (Dr. Elsa Haubold)
Service, Jacksonville, Florida (Jay Herrington)
Service, Vero Beach, Florida (Sandra Sneckenberger)

Eastern Indigo Snake Programmatic Effect Determination Key

Scope of the key

This key should be used only in the review of permit applications for effects determinations within the North and South Florida Ecological Services Field Offices Geographic Areas of Responsibility (GAR), and not for other listed species or for aquatic resources such as Essential Fish Habitat (EFH). Counties within the **North** Florida GAR include Alachua, Baker, Bradford, Brevard, Citrus, Clay, Columbia, Dixie, Duval, Flagler, Gilchrist, Hamilton, Hernando, Hillsborough, Lafayette, Lake, Levy, Madison, Manatee, Marion, Nassau, Orange, Pasco, Pinellas, Putnam, St. Johns, Seminole, Sumter, Suwannee, Taylor, Union, and Volusia.

Counties in the **South** Florida GAR include Broward, Charlotte, Collier, De Soto, Glades, Hardee, Hendry, Highlands, Lee, Indian River, Martin, Miami-Dade, Monroe, Okeechobee, Osceola, Palm Beach, Polk, Sarasota, St. Lucie.

Habitat

Over most of its range, the eastern indigo snake frequents several habitat types, including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, and human-altered habitats (Service 1999). Eastern indigo snakes appear to need a mosaic of habitats to complete their life cycle. Wherever the eastern indigo snake occurs in xeric habitats, it is closely associated with the gopher tortoise *(Gopherus polyphemus),* the burrows of which provide shelter from winter cold and summer desiccation (Speake et al. 1978; Layne and Steiner 1996). Interspersion of tortoise-inhabited uplands and wetlands improves habitat quality for this species (Landers and Speake 1980; Auffenberg and Franz 1982).

In south Florida, agricultural sites, such as sugar cane fields, created in former wetland areas are occupied by eastern indigo snakes (Enge pers. comm. 2007). Formerly, indigo snakes would have only occupied higher elevation sites within the wetlands. The introduction of agriculture and its associated canal systems has resulted in an increase in rodents and other species of snakes that are prey for eastern indigo snakes. The result is that indigos occur at higher densities in these areas than they did historically.

Even though thermal stress may not be a limiting factor throughout the year in south Florida, indigo snakes still seek and use underground refugia. On the sandy central ridge of central Florida, eastern indigos use gopher tortoise burrows more (62 percent) than other underground refugia (Layne and Steiner 1996). Other underground refugia used include armadillo (*Dasypus novemcinctus*) burrows near citrus groves, cotton rat (*Sigmodon hispidus*) burrows, and land crab (*Cardisoma guanhumi*) burrows in coastal areas (Service 2006). Natural ground holes, hollows at the base of trees or shrubs, ground litter, trash piles, and crevices of rock-lined ditch walls are also used (Layne and Steiner 1996). These refugia are used most frequently where tortoise burrows are not available, principally in low-lying areas off the central and coastal ridges. In extreme south Florida (the Everglades and Florida Keys), indigo snakes are found in tropical

hardwood hammocks, pine rocklands, freshwater marshes, abandoned agricultural land, coastal prairie, mangrove swamps, and human-altered habitats (Steiner et al. 1983). It is suspected that they prefer hammocks and pine forests, because most observations occur in these habitats disproportionately to their presence in the landscape (Steiner et al. 1983). Hammocks may be important breeding areas as juveniles are typically found there. The eastern indigo snake is a snake-eater so the presence of other snake species may be a good indicator of habitat quality.

Conservation Measures

The Service routinely concurs with the Corps' "not likely to adversely affect" (NLAA) determination for individual project effects to the eastern indigo snake when assurances are given that our *Standard Protection Measures for the Eastern Indigo Snake* (Service 2004) located at: http://www.fws.gov/northflorida/IndigoSnakes/indigo-snakes will be used during project site preparation and project construction. There is no designated critical habitat for the eastern indigo snake.

In an effort to reduce correspondence in effect determinations and responses, the Service is providing an Eastern Indigo Snake Effect Determination Key, similar in utility to the West Indian Manatee Effect Determination Key and the Wood Stork Effect Determination Keys presently being utilized by the Corps. If the use of this key results in a Corps' determination of "no effect" for a particular project, the Service supports this determination. If the use of this Key results in a determination of NLAA, the Service concurs with this determination and no additional correspondence will be necessary[1]. This key is subject to revisitation as the Corps and Service deem necessary.

A. Project is not located in open water or salt marsh.....*go to* B

Project is located solely in open water or salt marsh.....*"no effect"*

B. Permit will be conditioned for use of the Service's *Standard Protection Measures For The Eastern Indigo Snake* during site preparation and project construction.....*go to* C

Permit will not be conditioned as above for the eastern indigo snake, or it is not known whether an applicant intends to use these measures and consultation with the Service is requested[2] .....*"may affect"*

C. There are gopher tortoise burrows, holes, cavities, or other refugia where a snake could be buried or trapped and injured during project activities .....*go to* D

There are no gopher tortoise burrows, holes, cavities, or other refugia where a snake could be buried or trapped and injured during project activities .....*"NLAA"*

D. The project will impact less than 25 acres of xeric habitat supporting less than 25 active and inactive gopher tortoise burrows.....*go to* E

The project will impact more than 25 acres of xeric habitat or more than 25 active and inactive gopher tortoise burrows and consultation with the Service is requested[2]..... *"may affect"*

E. Any permit will be conditioned such that all gopher tortoise burrows, active or inactive, will be evacuated prior to site manipulation in the vicinity of the burrow[3]. If an indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. Any permit will also be conditioned such that holes, cavities, and snake refugia other than gopher tortoise burrows will be inspected each morning before planned site manipulation of a particular area, and, if occupied by an indigo snake, no work will commence until the snake has vacated the vicinity of proposed work..... *"NLAA"*

Permit will not be conditioned as outlined above and consultation with the Service is requested[2] ..... *"may affect"*

---

[1]With an outcome of "no effect" or "NLAA" as outlined in this key, the requirements of section 7 of the Act are fulfilled for the eastern indigo snake and no further action is required.

[2]Consultation may be concluded informally or formally depending on project impacts.

[3] If burrow excavation is utilized, it should be performed by experienced personnel. The method used should minimize the potential for injury of an indigo snake. Applicants should follow the excavation guidance provided within the Florida Fish and Wildlife Conservation Commission's revised April 2009 Gopher Tortoise Permitting Guidelines located at **http://myfwc.com/License/Permits_ProtectedWildlife.htm#gophertortoise**. A member of the excavation team should be authorized for Incidental Take during excavation through an incidental take permit issued by the Florida Fish and Wildlife Conservation Commission.

Appendix H

UMAM Data Forms

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
FDOT D7 FPID 257165-4 SR 45/US 41 Roadway Project		Wetland 1 (WL 1)

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
641- Freshwater Marsh		Impact	0.03

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
existing pond/Parsley Lake		N/A

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Wetland 1 is located adjacent to existing upland forested vacant property on north/south side. Residential parcels located east of WL 1. SR 45/US 41 is located approximately 300 feet west of WL 1. Surface Water 1 (SW 1) is open water component (named as Parsley Lake). The wetland and surface water are surrounded by uplands and do not have adjacency or connection to other surface waters or wetlands.

Assessment area description

A minimal portion (0.02 acre) of WL 1 will have proposed impact from outfall from proposed pond site to the north (SMF 4)

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
SR 45/US 41 located west of Parsley lake, agricultural and rural residential properties, horse farms.	not unique to this area

Functions	Mitigation for previous permit/other historic use
direct drainage and water storage from adjacent properties, water quality improvement, bank stabilization, wildlife habitat (see below)	N/A

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
This category of wetland in its natural condition would support wading bird, waterfowl, songbird foraging and nesting and amphibian foraging, breeding, and nesting.	little blue heron (*Egretta caerulea*)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

white ibis (Eudocimus albus), great blue heron (*Ardea herodias*), red-winged blackbird (*Agelaius phoeniceus*). Note that there is no Core Foraging Area (CFA) for wood storks in the area.

Additional relevant factors:

herbaceous vegetation composition: maidencane (*Panicum hemitomon*), baldwin's nutrush (*Scleria baldwinii*), sedges (*Cyperus sp* .), hairgrass (*Eleocharis baldwinii)* , red ludwigia (*Ludwigia repens*), marsh pennywort (*Hydrocoytle umbellata*). Shrub composition: buttonbush (*Cephalanthus occidentalis*), melaleuca (*Melaleuca alterifolia*)

Assessment conducted by:	Assessment date(s):
Patrick Bates	6/13/2023

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
FDOT D7 FPID 257165-4 SR 45/US 41 Roadway project		Wetland 1 (WL 1)
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
DIRECT IMPACT	PB	6/13/2023

Scoring Guidance
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: 5 with: 0	Wetland is located east of SR 45/US 41. The proposed outfall impact is located along the shoreline of the north side of Parsley Lake (a small, shallow pond) and is proposed to have connection to SMF 4. Off road vehicle traffic apparent around WL 1 tob of bank. The wetland has wildlife utilization by wading birds and likely by small mammals, reptiles or amphibians. Surrounding landscape support is limited by residential properties to the east and SR 45 to the north.	
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: 5 with: 0	Wetland at existing pond likely provides water storage and some treatment. Water quality is likely impacted from direct run-off/sheet flow from surrounding agricultural and rural residential watershed and roadways. However, it maintains water sufficient to support typical freshwater marsh vegetation and aquatic emergent vegetation in the center of the pond.	
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: 5 with: 0	Wetland is primarily comprised of herbaceous vegetation consisting of native vegetation and minimal amount of nuisance/exotic vegetation. Impacted by disturbance from off-road vehicles.	

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres: 0.50	with: 0.0

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas	
FL = delta x acres =	0.015

Delta = [with-current]
-0.50

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
FDOT D7 FPID 257165-4 SR 45/US 41 Roadway Project		Wetland 2 (WL 2)

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
Scrub Shrub Wetland (631)		Impact	0.02

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
White Lake		N/A

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Wetland 2 (WL 2) is associated with White Lake to the west and is located adjacent to existing commercial and residential property on north/south/east side. SR 45/US 41 is located approximately 300 feet east of WL 2. White Lake and Wetland 2 are not connected to other surface waters or wetlands.

Assessment area description

A minimal portion of WL 2 will have proposed impact from outfall from proposed drainage system

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
SR 45/US 41 located east of existing White lake, agricultural and rural residential propertiesm commercial areas.	not unique to this area

Functions	Mitigation for previous permit/other historic use
Direct drainage and water storage from adjacent properties, water quality improvement, bank stabilization, wildlife habitat (see below)	N/A

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
This category of wetland in its natural condition would support wading bird, waterfowl, songbird foraging and nesting and amphibian foraging, breeding, nesting	little blue heron (*Egretta caerulea*)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

N/A

Additional relevant factors:

Shrub composition: primrose willow (*Ludwigia peruviana*), Carolina willow (*Salix caroliniana*). Note_ the area is not within the Core Foraging Area of the wood stork.

Assessment conducted by:	Assessment date(s):
Patrick Bates	6/13/2023

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
FDOT D7 FPID 257165-4 SR 45/US 41 Roadway project		Wetland 2 (WL 2)
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
DIRECT IMPACT	PB	6/13/2023

Scoring Guidance
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: 4 with: 0	Wetland is located west of SR 45/US 41. The proposed outfall impact is located along the top of bank along the east side of existing White lake and is proposed to have connection to FDOT drainage system. The area receives location and landscape support for wildlife from the adjacent White Lake but wildlife utilization is hindered by the presence of commercial properties and the roadway to the east, north and south of the wetland.	
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: 4 with: 0	Wetland at existing pond (White Lake) provides water storage. Water quality is impacted from direct run-off/sheet flow from surrounding commercial properties and roadway.	
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: 5 with: 0	Wetland is primarily comprised of shrub vegetation consisting of native vegetation and minimal amount of nuisance/exotic vegetation.	

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres: 0.433	with: 0.0

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas	
FL = delta x acres =	0.009

Delta = [with-current]
-0.43

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
FDOT D7 FPID 257165-4 SR 45/US 41 Roadway Project		Wetland 3 (WL 3)

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
6440-Aquatic Emergent Wetland		Impact	0.03

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Connell Lake		N/A

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Wetland 3 is located adjacent to exisitng agricultutal and rural residential parcels (north, east, south and west). A drainage outfall from proposed FDOT pond site is to connect with Connell Lake.

Assessment area description

A minimal portion of the Connell Lake shoreline will have proposed impact from outfall from proposed pond site

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
SR 45/US 41 located west of Connell Lake, agricultural and rural residential properties, cattle farm	not unique to this area

Functions	Mitigation for previous permit/other historic use
direct drainage and water storage from adjacent properties, water quality improvement, bank stabilization, wildlife habitat (see below)	N/A

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
This category of wetland in its natural condition would support wading bird, waterfowl, songbird foraging and nesting and amphibian foraging, breeding, nesting.	little blue heron (*Egretta caerulea*)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Species observed utilizing Wetland 1: mottled duck (*Anas fulvigula*)

Additional relevant factors:

shrub vegetation composition: buttonbush (*Cephalanthus occidentalis*), primrose willow (*Ludwigia peruviana*), torpedograss (*Panicum repens*), Mexican primorose willow (*Ludwigia octovalvis*), arrowhead (*Sagittaria lancifolia*), waterhyssop (*Bacopa caroliniana*), fragrant water lily (*Nyphaea odorata*). Note that the area is not within Core Foraging Area (CFA) range of any wood stork colony.

Assessment conducted by:	Assessment date(s):
Patrick Bates/Melanie Dalla Valle	4/13/2023

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
FDOT D7 FPID 257165-4 SR 45/US 41 Roadway project		Wetland 3 (WL 3)
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
DIRECT IMPACT	PB/MDV	4/13/2023

Scoring Guidance
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 5	with: 0	Wetland 3 is located adjacent to exisitng agricultural and rural residential parcels, SR 45/US 41 is located west of Connell Lake. The proposed outfall impact is located along the shoreline of the southwest side of Connell Lake and is proposed to have connection to FDOT SMF 5c. The adjacent pasture has cattle grazing. The shoreline has habitat support from the adjacent wetlands, pasture, and Lake Connell.
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 5	with: 0	Wetland 3 as part of Lake Connell provides water storage. Water quality is likely impacted from direct run-off/sheet flow from surrounding agricultural and rural residential watershed which has active cattle grazing. It is likely the shoreline/wetland recedes and expands with rainfall and the level of Lake Connell. However, it maintains sufficient water to provide for rooted vascular aquatic plants.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 4	with: 0	Wetland 3 is primarily comprised of herbaceous and aquatic vegetation consisting of native vegetation and moderate amount of nuisance/exotic vegetation.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres: 0.467	with: 0.0

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.014

Delta = [with-current]
-0.47

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =