FINAL

# NATURAL RESOURCES EVALUATION

Florida Department of Transportation

District 2

SR 16 PD&E Study

From International Golf Parkway to I-95

St. Johns County, Florida

Financial Management Number: 210447-5

ETDM Number: 14535

October 2024

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 Federal Highway Administration and FDOT.

**Final**

# Natural Resources Evaluation

## SR 16 Project Development and Environment (PD&E) Study

From International Golf Parkway to I-95

St. Johns County, Florida

Financial Project ID (FPID) Number: 210447-5

Efficient Transportation Decision Making (ETDM) Number: 14535


October 2024

Prepared by:

SES Environmental Resource Solutions LLC

ERS Job No. 23136

# TABLE OF CONTENTS

## LIST OF FIGURES



## LIST OF TABLES



## APPENDICES

# 1.0 Executive Summary

The Florida Department of Transportation, District 2 (FDOT) is conducting a Project Development and Environment (PD&E) Study for improvements to a 5.9-mile section of State Road (SR) 16 between International Golf Parkway (IGP) and Interstate 95 (I-95). Within the study limits, SR 16 is functionally classified as a rural principal arterial-other.

This study will evaluate widening the existing two-lane rural roadway to a four-lane divided urban roadway. In addition, multi-modal transportation improvements including continuous bicycle and pedestrian facilities will be evaluated. SR 16 has one existing bridge (Bridge Number 780064) over Turnbull Creek. The existing bridge will need to be replaced due to proposed profile changes.

The primary purpose of this project is to improve traffic mobility, reduce congestion, and address safety on SR 16 from IGP to I-95. The secondary purpose of the project is to accommodate planned developments.

The project study area for this report is defined as the roadway alignment, 17 pond site alternatives, one floodplain compensation area, and one drainage easement. The footprint of the Preferred Alternative lies within the project study area and is defined as the roadway alignment, Pond Site Alternatives 2C, 3C, and 4C, a ROW extension leading to Pond Site Alternative 2C, the floodplain compensation area south of Pond Site Alternative 2C, and a drainage easement near Pond Site Alternative 4A.

**Special Designations**

Geographic Information Systems (GIS) shapefile information regarding regulatory conservation easements (CEs) was obtained from the St. Johns River Water Management District (SJRWMD). Based on this information, there are eleven recorded CEs that occur close to or possibly within the project study area. Note that based on this preliminary data, Pond Site Alternative 2B appears to fall entirely within a CE, and that Pond Site Alternative 6A appears to contain a portion of another CE. None of these Pond Site Alternatives are included in the Preferred Alternative. CEs appear to occur close to the boundaries of Pond Site Alternatives 2C, the adjacent floodplain compensation area, 3C, and 4C, all of which are included in the Preferred Alternative. Additional work, including boundary location by a licensed surveyor and/or legal research into the location and status of easements, will be necessary to determine if recorded CEs will be impacted by the proposed project. No Aquatic Preserves, Wildlife Management Areas, or Outstanding Florida Waters, National Wildlife Refuges, or Wild and Scenic Rivers will be affected by the project.

**Listed Species, Protected Species, and Other Species That May Have Regulatory Significance**

No designated Critical Habitat is present in the project study area and therefore none will be affected by the project. A total of 38 species that are federally-listed, candidate or proposed species for federal listing, and/or state-listed were determined to have some probability of

occurrence in the project study area. All are referred to as "listed species" in this report. Federal statuses include not listed (N), candidate (C), under review (UR), proposed endangered (PE), and threatened (T). State statuses include federally threatened (FT), state endangered (SE), and state threatened (ST). Of the 38 species with the potential to occur in the project study area, two are federally-listed (one reptile species and one bird species) and 34 are state-listed (29 plant species, two reptile species, and three bird species). In addition, there is one candidate species of insect for federal listing and one mammal species proposed for federal listing. FDOT will adhere to several implementation measures and project commitments regarding listed plant and wildlife species. **Table ES-1** below summarizes the listed species with potential to occur within the project study area and their effect determinations.

**Table ES-1. Summary of Listed Species with Potential to Occur Within the Project Study Area and Their Effect Determinations**

| Scientific Name | Common Name | Federal Status | State Status | Probability of Occurrence in the Project Study Area | Effect Determination |
|---|---|---|---|---|---|
| **Plants** | | | | | |
| *Asarum arifolium (Hexastylis arifolia)* | Little Brown Jug | N | ST | Low | No Adverse Effect Anticipated |
| *Asclepias viridula* | Southern Milkweed | N | ST | Low | No Adverse Effect Anticipated |
| *Calopogon multiflorus* | Manyflowered Grasspink | N | ST | Low | No Adverse Effect Anticipated |
| *Calydorea coelestina* | Bartram's Ixia | N | SE | Low | No Adverse Effect Anticipated |
| *Carex chapmanii* | Chapman's sedge | N | ST | Low | No Adverse Effect Anticipated |
| *Coreopsis intergrifolia* | Ciliate Leaf Tickseed | N | SE | Low | No Adverse Effect Anticipated |
| *Gonolobus suberosus(= Matelea gonocarpus)* | Anglepod | N | ST | Low | No Adverse Effect Anticipated |
| *Helianthus carnosus* | Lake-side Sunflower | N | SE | Low | No Adverse Effect Anticipated |
| *Lilium catesbaei* | Pine Lily | N | ST | Moderate | No Adverse Effect Anticipated |
| *Litsea aestivalis* | Pondspiece | N | SE | Low | No Adverse Effect Anticipated |
| *Lobelia cardinalis* | Cardinalflower | N | ST | Moderate | No Adverse Effect Anticipated |
| *Lythrum curtissii* | Curtiss' Loosestrife | UR | SE | Low | No Adverse Effect Anticipated |

| Table ES-1. Summary of Listed Species with Potential to Occur Within the Project Study Area and Their Effect Determinations | | | | | |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | **Federal Status** | **State Status** | **Probability of Occurrence in the Project Study Area** | **Effect Determination** |
| *Nemastylis floridana* | Celestial Lily | N | SE | Low | No Adverse Effect Anticipated |
| *Nolina atopocarpa* | Florida Beargrass | N | ST | Low | No Adverse Effect Anticipated |
| *Orbexilum virgatum* | Pineland Leatherroot | N | SE | Low | No Adverse Effect Anticipated |
| *Pecluma plumula* | Plume Polypody | N | SE | Low | No Adverse Effect Anticipated |
| *Pinguicula caerulea* | Blueflower Butterwort | N | ST | Low | No Adverse Effect Anticipated |
| *Pinguicula lutea* | Yellow Butterwort | N | ST | Low | No Adverse Effect Anticipated |
| *Platanthera blephariglottis* var. *conspicua* | White Fringed Orchid | N | ST | Low | No Adverse Effect Anticipated |
| *Platanthera ciliaris* | Yellow Fringed Orchid | N | ST | Low | No Adverse Effect Anticipated |
| *Platanthera nivea* | Snowy Orchid | N | ST | Low | No Adverse Effect Anticipated |
| *Pogonia ophioglossoides* | Rose Pogonia | N | ST | Low | No Adverse Effect Anticipated |
| *Pycnanthemum floridanum* | Florida Mountain-mint | N | ST | Low | No Adverse Effect Anticipated |
| *Rudbeckia nitida* | St. Johns Blackeyed Susan | N | SE | Low | No Adverse Effect Anticipated |
| *Ruellia noctiflora* | Nightflowering Wild Petunia | N | SE | Low | No Adverse Effect Anticipated |
| *Sarracenia minor* | Hooded Pitcherplant | N | ST | High | No Adverse Effect Anticipated |
| *Verbesina heterophylla* | Variable-leaf Crownbeard | N | SE | Low | No Adverse Effect Anticipated |
| *Zephyranthes atamasca* var. *atamasca* | Rainlily | N | ST | High | No Adverse Effect Anticipated |
| *Zephyranthes atamasca* var. *treatiae* | Treat's Rainlily | N | ST | High | No Adverse Effect Anticipated |
| **Insects** | | | | | |
| *Danaus plexippus* | Monarch Butterfly | C | N | Moderate | N/A |

| Table ES-1. Summary of Listed Species with Potential to Occur Within the Project Study Area and Their Effect Determinations | | | | | |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | **Federal Status** | **State Status** | **Probability of Occurrence in the Project Study Area** | **Effect Determination** |
| **Reptiles** | | | | | |
| *Drymarchon corais couperi** | Eastern Indigo Snake | T | FT | Low | May Affect, Not Likely to Adversely Affect |
| *Gopherus polyphemus** | Gopher Tortoise | N | ST | Moderate | No Adverse Effect Anticipated |
| *Pituophis melanoleucus*** | Pine Snake | N | ST | Low | No Adverse Effect Anticipated |
| **Birds** | | | | | |
| *Egretta caerulea*** | Little Blue Heron | N | ST | High | No Adverse Effect Anticipated |
| *Egretta tricolor*** | Tricolored Heron | N | ST | Moderate | No Adverse Effect Anticipated |
| *Mycteria americana** | Wood Stork | T | FT | High | May Affect, Not Likely to Adversely Affect |
| *Platalea ajaja*** | Roseate Spoonbill | N | ST | Low | No Adverse Effect Anticipated |
| **Mammals** | | | | | |
| *Perimyotis subflavus* | Tricolored Bat | PE | N | Low | N/A |

A bald eagle nest is located within Pond Site Alternative 2C. This pond is currently considered part of the Preferred Alternative. This nest was documented as active and successful during the 2023-2024 nesting season. The current activity status of this nest will be determined before construction. If considered in use, FDOT will work with the U.S. Fish and Wildlife Service (USFWS) to determine if a permit will be required. Practicable design modifications will continue to be applied to reduce impacts to this nest. The parcel is likely sufficiently large enough to allow the pond to be redesigned to avoid directly impacting the nest and to stay out of its 330' primary zone.

### Wetlands and Other Surface Waters

Wetlands and surface waters were identified and evaluated within the entire project study area. However, only those that occur within the Preferred Alternative were assessed as potentially impacted by the project. The footprint of the Preferred Alternative lies within the project study area and is defined as the roadway alignment, Pond Site Alternatives 2C, 3C, and 4C, a ROW extension leading to Pond Site Alternative 2C, the floodplain compensation area south of Pond Site Alternative 2C, and a drainage easement near Pond Site Alternative 4A. For the purposes of this report, the conservative assumption is made that all wetlands and jurisdictional waters within the Preferred Alternative will be permanently impacted by the project. It is estimated that a total of 21.90 acres of vegetated wetlands and 1.25 acres of jurisdictional surface waters occur within

the Preferred Alternative and that all of these areas will be permanently impacted. It is estimated that the Preferred Alternative's permanent impacts will require wetland mitigation totaling 13.25 units of freshwater functional gain. At this time, mitigation credits are available from the following commercial sources: Fish Tail Swamp Mitigation Bank, Lake Swamp Mitigation Bank, St. Johns Mitigation Bank, St. Marks Pond Mitigation Bank, Star 4 Mitigation Bank, Town Branch Mitigation Bank, Tupelo Mitigation Bank, Brick Road Mitigation Bank, Fish Tail Swamp Mitigation Bank, Lake Swamp Mitigation Bank, St. Johns Mitigation Bank, and St. Marks Pond Mitigation Bank.

The required wetland mitigation credits could be sourced from one or more than one of the above-listed mitigation banks. FDOT will continue to consider all mitigation options to provide the necessary mitigation when the mitigation is required. The method and source of the necessary mitigation will be finalized during the permitting process. As the project progresses into the design phase, it is possible that not all wetlands and jurisdictional waters in the Preferred Alternative will be permanently and completely impacted. Temporary impacts, secondary impacts, and temporary work areas (if any) are not known at this time. Wetland impacts will be finalized during the permitting process.

Existing upland-cut roadside ditches are not specifically delineated or quantified in this report, and no existing wet retention stormwater ponds were identified. During the permitting phase, if existing non-jurisdictional canals, upland-cut ditches, and/or wet retention stormwater ponds are included in the final project, these waters should be considered non-jurisdictional and exempt from state and federal mitigation requirements.

Wetland impacts were evaluated in accordance with Executive Order 11990. A Wetlands Finding has been reached and it is as follows:

1. The proposed project will have no significant short-term or long-term adverse impacts to wetlands;
2. There is no practicable alternative to construction in wetlands; and
3. Measures have been taken to minimize harm to wetlands.

Wetland impacts which will result from the construction of this project will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and 33 U.S.C. §1344.

**Essential Fish Habitat**

The project study area does not contain Essential Fish Habitat (EFH) or Habitat Areas of Particular Concern (HAPCs). Therefore, no additional mitigation or agency coordination is necessary for impacts to these resources.

**Anticipated Permits**

If the bald eagle nest in Pond Site Alternative 2C is considered active and must be taken, then an Incidental Take Permit from USFWS will be required.

The project is expected to require either an Individual Environmental Resource Permit (ERP) from SJRWMD for the wetland impacts and stormwater system or be considered a modification to one or more existing ERPs. Federal wetland permitting is the responsibility of the U.S Army Corps of Engineers (USACE). The project may qualify for Regional General Permit (RGP) SAJ-92. If not, it will require a federal Individual Permit from USACE. Both agencies (SJRWMD and USACE) will require standard freshwater functional gain (such as in the form of mitigation bank credits) to offset the loss of ecological values.

# 2.0 Project Overview

## 2.1 Project Description

The Florida Department of Transportation, District 2 (FDOT) is conducting a Project Development and Environment (PD&E) Study for improvements to a 5.9-mile section of SR 16 from International Golf Parkway (IGP) to I-95 in St. Johns County, Florida.

This Natural Resources Evaluation (NRE) was prepared to document the natural resources analysis performed to support decisions related to the evaluation of project alternatives and to summarize potential impacts to wetlands, federal and state protected species, critical habitats, and Essential Fish Habitat (EFH). Measures considered to avoid, minimize, and mitigate potential impacts are also discussed.

The project corridor is depicted in **Figure 1** below. The entire project study area is depicted on a single page on **Exhibit 1** (**Appendix A**), while the project study area (including potential pond sites) is depicted in more detail on the multiple pages of **Exhibit 2** (**Appendix A**).

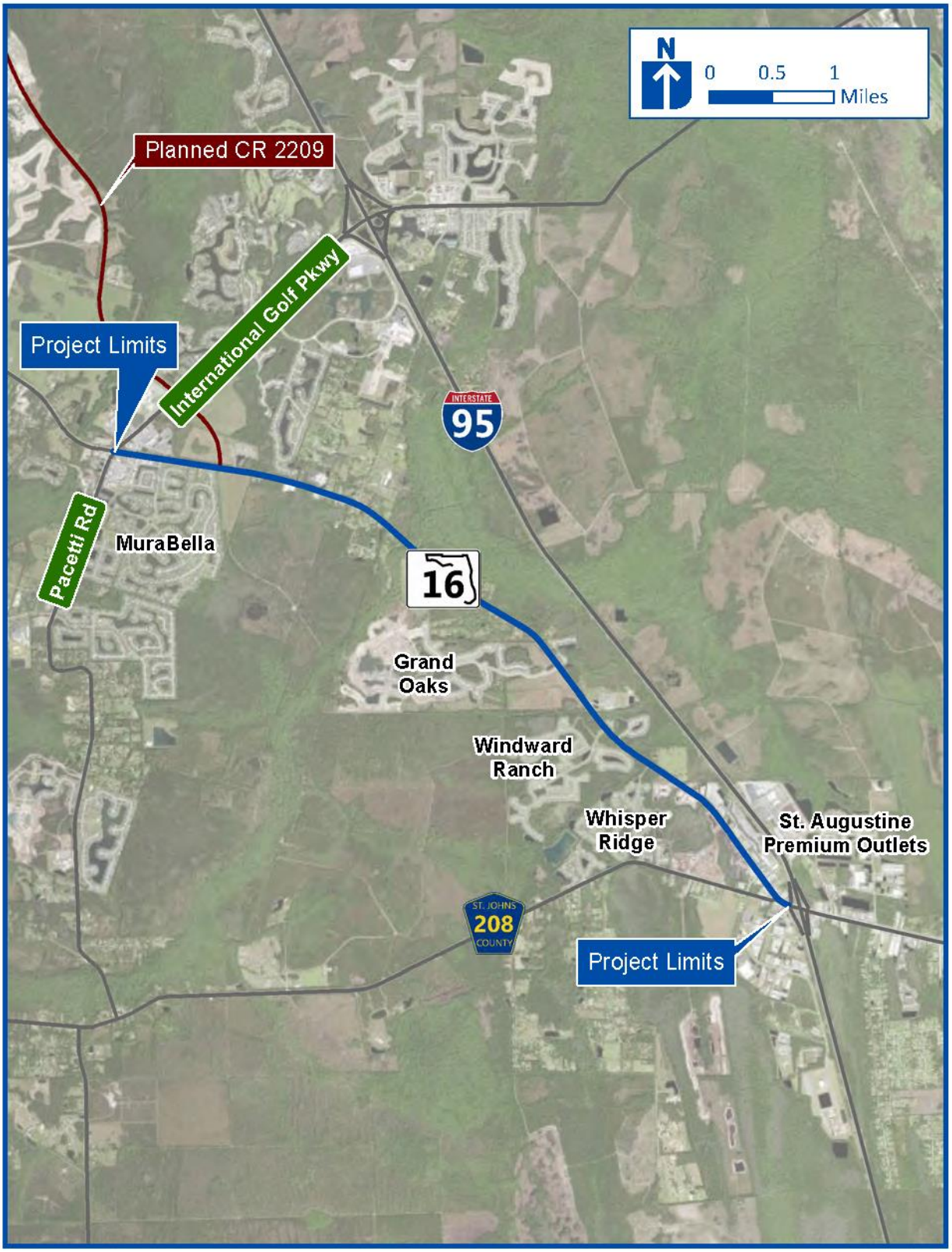



**Figure 1: Project Location Map**

Within the study limits, SR 16 is functionally classified as a rural principal arterial-other. The subject SR 16 corridor is divided into two sections that are distinguished by their existing typical section: Section 1: IGP to the St. Augustine Outlet Mall (**Figure 2**), and Section 2: St. Augustine Outlet Mall to I-95 (**Figure 4**). Between IGP and the St. Augustine Outlet Mall, approximately 5.1 miles, SR 16 is a two-lane undivided roadway with sporadic left turn lanes and no pedestrian or bicycle features. From the St. Augustine Outlet Mall to I-95, approximately 0.8 miles, SR 16 is a four-lane divided roadway with a sidewalk located on both sides of the road for approximately 0.5 miles, from the southern entrance of the St. Augustine Outlet Mall to I-95.

Section 1 is currently an undivided highway with one 12-foot lane in each direction and four-foot paved outside shoulders.

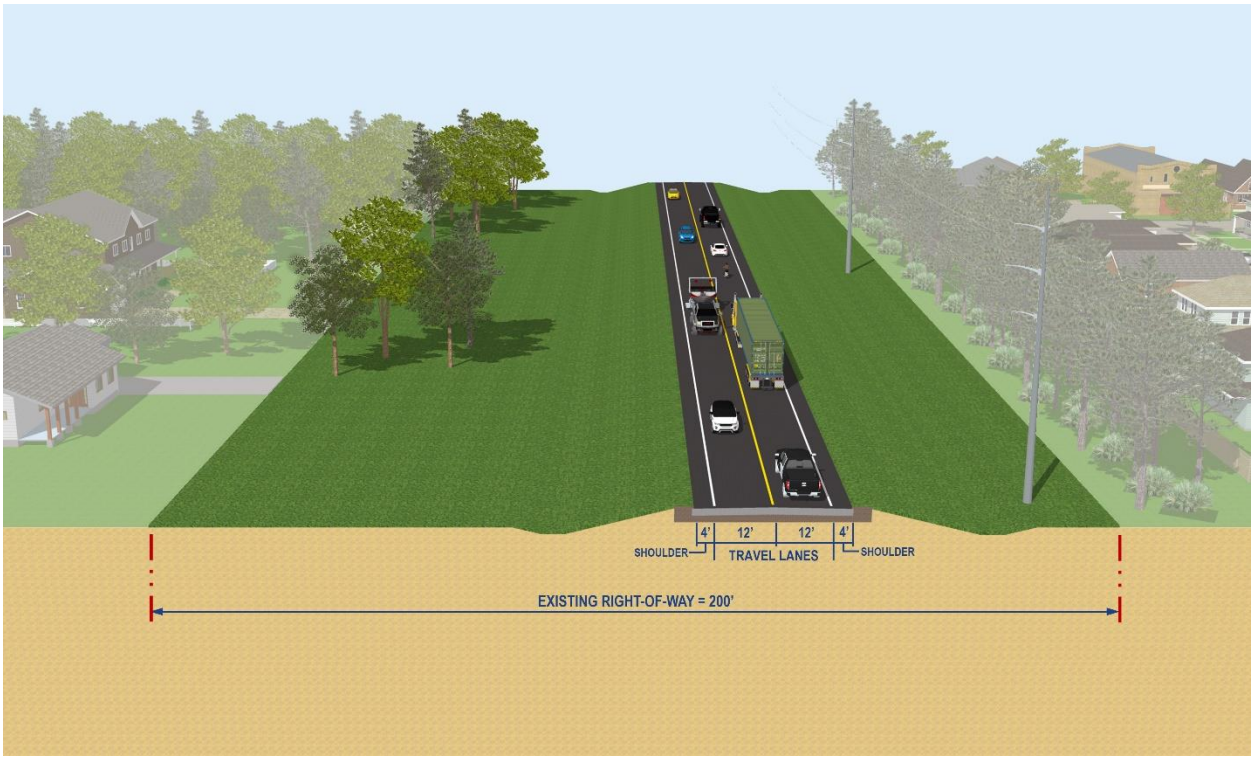



**Figure 2: Section 1 Existing Typical Section**

Section 1 includes a bridge over Turnbull Creek. The existing Turnbull Creek bridge section, as shown in **Figure 3**, is a single structure with two 12-foot lanes and 10-foot paved shoulders.

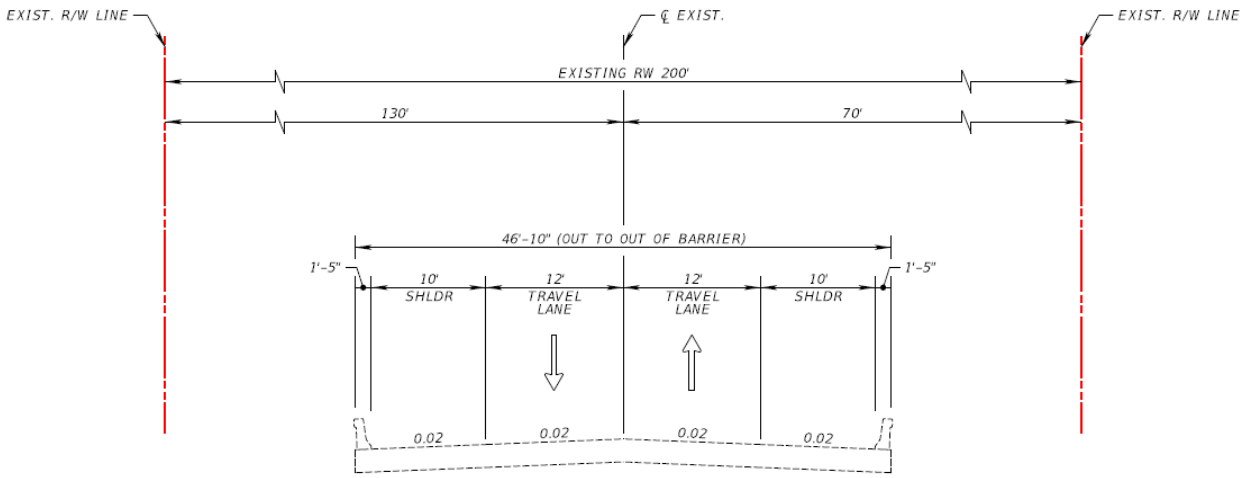



**Figure 3: Turnbull Creek Bridge Existing Typical Section**

Section 2 is currently a divided highway with two 12-foot lanes in each direction, four-foot paved outside shoulders, and a 22-foot grassed median.

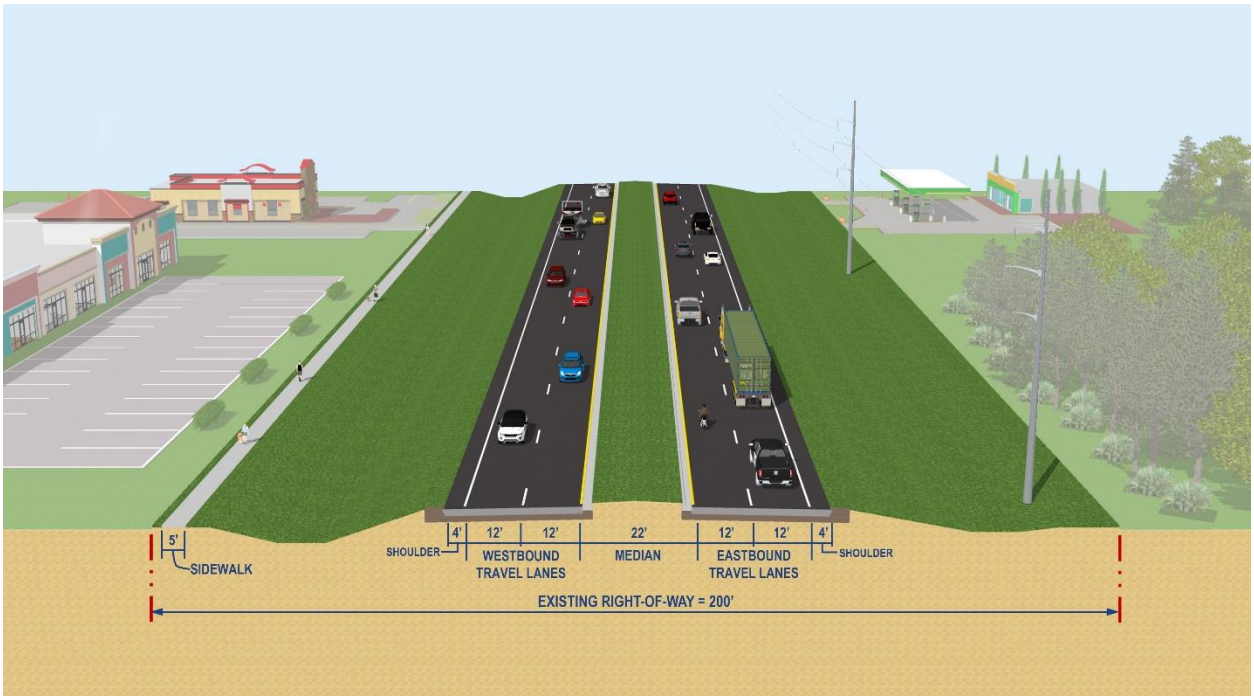



**Figure 4: Section 2 Existing Typical Section**

This study will evaluate widening the existing two-lane rural roadway to a four-lane divided urban roadway. In addition, multi-modal transportation improvements including continuous bicycle and pedestrian facilities will be evaluated. SR 16 has one existing bridge (Bridge number 780064) over Turnbull Creek. This bridge will need to be replaced due to the proposed profile changes.

The project study area includes a total of seventeen (17) stormwater pond site alternatives in six project basins – Pond Site Alternatives 1A, 1B, 1C, 1D, 2A, 2B, 2C, 3A, 3B, 3C, 4A, 4B, 4C, 5A, 5B,

6A, and 6B. The project study area also includes one floodplain compensation area adjacent to Pond Site Alternative 2C and a drainage easement near Pond Site Alternative 4A.

## 2.2 Purpose and Need

The purpose of this project is to improve traffic mobility, reduce congestion, and address safety on SR 16 from IGP to I-95. The project is needed to address traffic congestion and safety concerns. A secondary need for the project is to accommodate planned developments.

## 2.3 Alternatives Analysis

The subject SR 16 corridor is divided into two sections that are distinguished by their existing typical section: Section 1: IGP to the St. Augustine Outlet Mall, and Section 2: St. Augustine Outlet Mall to I-95. St. Johns County is upgrading the portion of SR 16 between IGP and the proposed CR 2209, approximately 0.75 miles. The proposed improvements described below will tie into the County's project.

The proposed typical section for Section 1 features a four-lane divided high-speed arterial with curb and gutter. The roadway consists of two 12-foot lanes in each direction with a four-foot paved inside shoulder and a 6.5-foot paved outside shoulder. The opposing lanes are divided by a 33.5-foot raised grassed median (including the inside shoulder width). A 12-foot-wide shared use path is proposed on both sides of SR 16. The proposed design speed is 55 miles per hour (mph). The existing right-of-way is approximately 200 feet and no additional right-of-way is required to accommodate the proposed typical section. **Figure 5** shows the proposed typical section for Section 1.

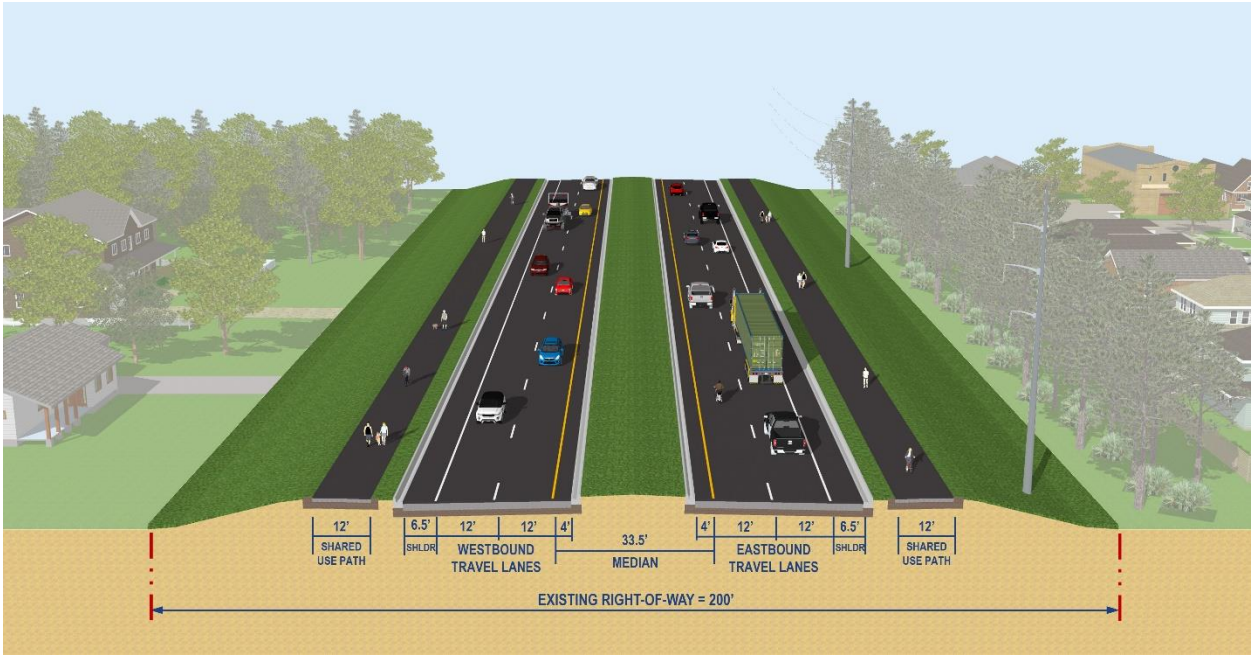



**Figure 5: Section 1 Proposed Typical Section**

SR 16 is currently a two-lane undivided roadway which would be classified as non-restrictive, meaning there are no median openings. Upgrading Section 1 to a four-lane divided facility will require the implementation of access management. The proposed access management classification is Class 3, which states directional median openings can be spaced at 1,320 feet and full median openings or signals may be spaced every 2,640 feet.

A total of seventeen (17) stormwater pond site alternatives (Pond Site Alternatives 1A, 1B, 1C, 1D, 2A, 2B, 2C, 3A, 3B, 3C, 4A, 4B, 3C, 5A, 5B, 6A, and 6B) are included in the six project basins in Section 1.

The proposed typical section of the Turnbull Creek bridge, as shown in **Figure 6**, includes two parallel bridge structures 20 feet apart. Each has two 12-foot travel lanes, a six-foot inside shoulder, a ten-foot outside shoulder, and a barrier-separated 16-foot shared use path.

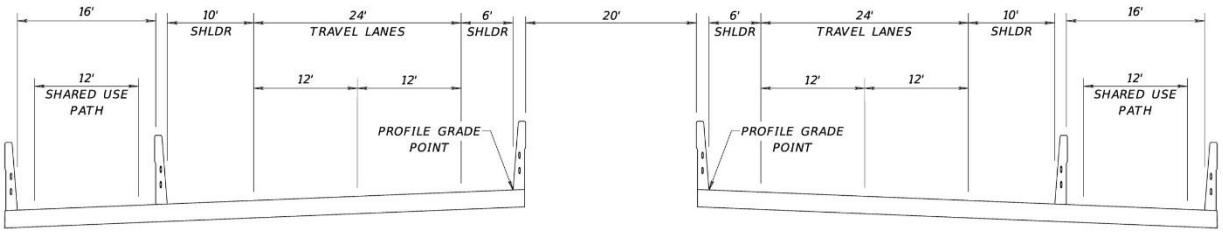



**Figure 6: Turnbull Creek Bridge Proposed Typical Section**

Section 2 is already four lanes in the existing condition and no additional capacity is recommended within this section. The shared use paths from Section 1 will be extended and tie into the existing sidewalk. Safety and operational improvements are being evaluated within this section of SR 16. Section 2 does not contain any stormwater pond site alternatives.

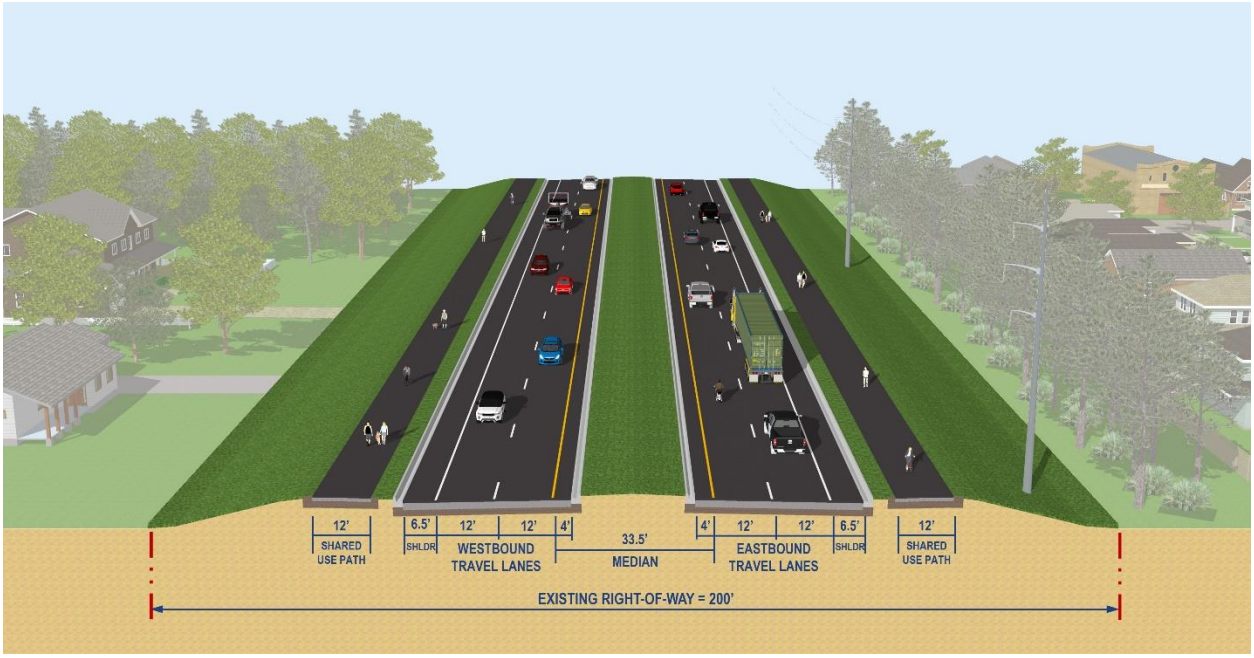



**Figure 7: Section 2 Proposed Typical Section**

## 2.4 Preferred Alternative

The project study area for the entire project (the roadway alignment, all 17 pond site alternatives, one floodplain compensation area, and one drainage easement) is depicted on **Exhibits 1-7** (**Appendix A**).

Within this project study area, a Preferred Alternative has been identified based on the selected preliminary design. The Preferred Alternative has been defined as the roadway alignment, Pond Site Alternatives 2C, 3C, and 4C, a ROW extension leading to Pond Site Alternative 2C, the floodplain compensation area south of Pond Site Alternative 2C, and a drainage easement near Pond Site Alternative 4A. Note that while Pond Site Alternative 4B is not included in the Preferred Alternative as a separate pond site, the area within Pond Site Alternative 4B is included within the larger Pond Site Alternative 4C which is part of the Preferred Alternative. The Preferred Alternative is depicted on **Exhibit 8** (**Appendix A**).

# 3.0 Existing Conditions

For the purposes of this NRE, the project study area was defined as the existing road right-of-way (ROW) between IGP and I-95 plus the boundaries of all of the stormwater pond site alternatives, floodplain compensation area, and a drainage easement (**Exhibit 1**, **Appendix A**).

The boundaries of jurisdictional wetlands, habitats, and land uses were determined during the site visits conducted on November 14, 15, and 17, 2023 and July 10, 2024.

Prior to the site visits, several sources of existing data were consulted. Data sources utilized included, but were not limited to, the following:

- Recent aerial photographs from ArcGIS Online;
- Soil survey mapping published by the U.S. Department of Agriculture - Natural Resources Conservation Service (USDA-NRCS);
- National Wetlands Inventory (NWI) mapping;
- Land use data from the St. Johns River Water Management District (SJRWMD); and
- Digital Elevation Models (DEMs).

## 3.1 Special Designations

### 3.1.1 Florida Aquatic Preserves

Florida Aquatic Preserves are regulated through the Florida Aquatic Reserve Act (F.A.C. 18-20) and mapped by the Florida Department of Environmental Protection (FDEP). There are no Aquatic Preserves within the project study area. See **Exhibit 3** (**Appendix A**).

### 3.1.2 Wild and Scenic Rivers and Rivers Listed on the Nationwide Rivers Inventory

In Florida, there are two designated rivers under the Wild and Scenic Rivers Act of 1968, as amended: the Loxahatchee River in Southeastern Florida and the Wekiva River just north of Orlando in Central Florida. Neither river occurs near the project study area.

### 3.1.3 National Wildlife Refuge System

The National Wildlife Refuge System is managed by USFWS. No portion of the project study area falls within a National Wildlife Refuge. See **Exhibit 3** (**Appendix A**).

### 3.1.4 Outstanding Florida Waters

According to the FDEP Outstanding Florida Water (OFW) boundary information (April 2019), no OFWs occur in the project study area. See **Exhibit 3** (**Appendix A**).

### 3.1.5 Conservation Easements

Recorded conservation easements (CEs) may restrict utilization of an encumbered area. If a CE is in place, it may be necessary to release or amend the easement in order to utilize encumbered property. For this reason, a CE is a special designation that is important to consider in the planning

phases of a project. CEs may be placed over wetlands and/or uplands and are more likely to occur on portions of proposed roadway projects where additional ROW is required for roadway widening or excavation of new stormwater ponds. Generally, existing roadway and pond ROWs are free from regulatory encumbrances.

Geographic Information System (GIS) shapefile information regarding regulatory CEs was obtained from SJRWMD. Based on this information, the recorded CEs that occur closest to or possibly within the project study area are, from west to east: Official Record (OR)/Book (BK) 2861/497 World Commerce Center, LLP; OR/BK 3008/232 World Commerce Center, LLP; OR/BK 3431/1232 St. Johns County; OR/BK 5210/1090 Day Late Enterprises, Inc.; OR/BK 3806/65 Neoverde-St. Johns, LLC; OR/BK 5024/205 Grand Oaks Community Development District; OR/BK 4530/313 KB Home Jacksonville LLC; OR/BK 3553/1476 Cavalry Baptist Church, Inc.; OR/BK 4115/413 Windward Ranch Homeowner's Association, Inc.; OR/BK 3942/1441 HRHR, Inc.; OR/BK 2427/1753 and Whisper Ridge, LLC. See **Exhibit 4** (**Appendix A**) for the approximate location of these CEs. Data sources available during the time of this report may not reflect all CEs that could exist throughout the project study area.

Note that based on this preliminary data, Pond Site Alternative 2B appears to fall entirely within the CE for Neoverde-St. Johns, and that Pond Site Alternative 6A appears to contain a portion of the Whisper Ridge CE. Note that none of these Pond Site Alternatives are included in the Preferred Alternative. CEs appear to occur close to the boundaries of Pond Site Alternatives 2C, the adjacent floodplain compensation area, 3C, and 4C, all of which are included in the Preferred Alternative. Portions of other CEs may fall within the project study area.

Further research must be conducted to verify the presence or absence of CEs. The boundaries of any CEs that are found to be within or near the project study area must be located by a licensed surveyor in order to fully determine if and where they fall within the project study area. If CEs are verified to occur over parts of the project study area, further research will be necessary to determine their status and what implications (if any) they will have on the project. If CEs are to be released as a part of the proposed action, additional mitigation costs will be required to recover the cost of removing a CE over encumbered wetlands.

## 3.2 Land Use/Cover

All habitats and land uses within the project study area were inspected and classified utilizing FDOT's Florida Land Use, Cover and Forms Classification System (FLUCFCS, 1999). Wetlands and waters were classified using both FLUCFCS and the Wetlands and Deepwater Habitats Classification System (the "USFWS Classification System"). Land use classifications mapped within the project study area are described below and total estimated acreages are given. They are depicted on **Exhibit 2** (**Appendix A**).

| Table 1. Summary of Habitats that Occur in the Project Study Area | | | | |
|---|---|---|---|---|
| **Habitat Type** | **FLUCFCS Code** | **USFWS Code** | **Acres** | **Approximate Percentage** |
| **Uplands** | | | | |
| Residential, Low Density | 110 | - | 1.13 | <1 |
| Open Land | 190 | - | 11.70 | 5 |
| Cropland and Pastureland | 210 | - | 17.54 | 7 |
| Other Open Lands (Rural) | 260 | - | 13.21 | 6 |
| Pine Flatwoods | 411 | - | 0.72 | <1 |
| Hardwood-conifer Mixed | 434 | - | 57.18 | 24 |
| Coniferous Plantations | 441 | - | 4.78 | 2 |
| Forest Regeneration Areas | 443 | - | 2.59 | 1 |
| Disturbed Land | 740 | - | 0.15 | <1 |
| Roads and Highways | 814 | - | 89.67 | 37 |
| **Surface Waters** | | | | |
| Upland-cut Ditches | 511 | R3UBx | 0.96 | <1 |
| **Wetlands and Jurisdictional Surface Waters** | | | | |
| Streams and Waterways | 510 | R3UBx | 0.46 | <1 |
| Wetland-cut Ditches | 512 | R3UBx | 0.79 | <1 |
| Lakes | 524 | L2UBx | 0.98 | <1 |
| Hydric Coniferous Plantations | 441H | PFO1/4m | 2.23 | <1 |
| Streams and Lake Swamps | 615 | PFO1/2/3E | 2.90 | 1 |
| Wetland Forested Mixed | 630 | PFO1/2/3/4 | 25.96 | 11 |
| Freshwater Marshes | 641 | PEM1E | 7.47 | 3 |
| Wet Prairies | 643 | PEM1B | 1.34 | <1 |

### 3.2.1 Uplands

**Residential (FLUCFCS 110; 1.13 acres±)**

An area of residential land use occurred within Pond Site Alternative 1A.

**Open Land (FLUCFCS 190; 11.70 acres±)**

Open land within developed areas with no evident purpose was classified as this land use type.

**Cropland and Pastureland (FLUCFCS 210; 17.54 acres±)**

Areas of open land used to pasture animals were classified as this land use type.

**Other Open Lands (Rural) (FLUCFCS 260; 13.21 acres±)**

This classification was used to designate open rural land where the intended use is unclear. Most of these areas were likely pine plantation in the past and were harvested but never replanted. Typical species included Bahiagrass (*Paspalum notatum*), goldenrods (*Solidago* spp.), flat-top goldenrods (*Euthamia* spp.) bracken fern (*Pteridium aquilinum*), sweetbroom (*Scoparia dulcis*), witchgrasses (*Dichanthelium* spp.), and blue maidencane (*Amphicarpum mulhenbergianum*).

**Pine Flatwoods (FLUCFCS 411; 0.72 acre±)**
Small areas of pine flatwoods land use occurred within the Pond Site Alternative 1C. Dominant species included slash pine (*Pinus elliottii*), saw palmetto (*Serenoa repens*), wax myrtle (*Morella cerifera*), gallberry (*Ilex glabra*), bracken fern, and witchgrasses.

**Hardwood – Coniferous Mixed (FLUCFCS 434; 57.18 acres±)**
This habitat type was the most common forested land use in the project study area. It was often not well distinguished from Pine Flatwoods. Dominant species included slash pine, live oak (*Quercus virginiana*), loblolly pine (*Pinus taeda*), laurel oak (*Q. laurifolia*), water oak (*Q. nigra*), black cherry (*Prunus serotina*), red maple (*Acer rubrum*), sabal palm (*Sabal palmetto*), saw palmetto, wax myrtle, gallberry, muscadine grape (*Vitis rotundifolia*), and greenbriers (*Smilax* spp.).

**Coniferous Plantations and Forest Regeneration Areas (FLUCFCS 441 and 443, respectively; 7.37 acres± total)**
Areas of upland pine silviculture occurred in several pond site alternatives. Pines were planted in rows and usually consisted of loblolly pine or slash pine. Upland areas where the planted trees were large enough to be a dominant feature were classified as Coniferous Plantations, and areas where the trees have been recently harvested or newly planted were classified as Forest Regeneration Areas. Associated species were similar to those in the natural upland habitat Pine Flatwoods described above.

**Disturbed Land (FLUCFCS 740; 0.15 acre±)**
Pond Site Alternative 1C was found to contain a spoil pile dominated by elephant ear (*Xanthosoma sagittifolium*), which was classified as disturbed land.

**Roads and Highways (FLUCFCS 814; 89.67 acres±)**
The existing SR 16 facility made up the majority of the project study area. It consisted of the paved travel lanes, maintained grassy upland road shoulders, grassy roadside swales, and grassy medians. Upland-cut roadside ditches were present in most areas, however delineating them as separate non-jurisdictional waters is beyond the scope of this preliminary study. During the permitting phase, all upland-cut ditches will be identified. Vegetation in the road shoulders was generally limited to grasses such as Bahiagrass and weedy forbs due to frequent maintenance. The existing SR 16 ROW is wide and includes several other land uses along the north side of the road, but is largely bound by the treeline along the south side of the road. Habitats other than the maintained highway-related land uses that occur within the ROW are classified and described separately.

### 3.2.2 Wetlands and Other Surface Waters

**Hydric Coniferous Plantations (FLUCFCS 441H, USFWS PFO/4m; 2.23 acres±)**
Areas of wetland pine silviculture occurred in Pond Site Alternatives 1D and 6A. This land use type is similar to upland Coniferous Plantations, but included sweetgum (*Liquidambar styraciflua*), loblolly bay (*Gordonia lasianthus*), red maple (*Acer rubrum*), dahoon holly (*Ilex cassine*), Virginia chain fern (*Woodwardia virginiana*), netted chain fern (*Woodwardia areolata*), and cinnamon fern (*Osmundastrum cinnamomeum*).

**Streams and Waterways (FLUCFCS 510, USFWS R3UBx; 0.46 acre±)**

The project study area included one area classified as this habitat type. An excavated section of Turnbull Creek occurred between Pond Site Alternatives 2 (A&B) and 3 (A&B). This creek channel area is flanked by Streams and Lake Swamps habitat (described below). Vegetation observed within the channel included cattail (*Typha latifolia*), spatterdock (*Nuphar advena*), waterlily (*Nymphaea odorata*), coastal plain willow (*Salix caroliniana*), saltbush, and primrose willows (*Ludwigia* spp.).

**Upland-cut Ditches (FLUCFCS 511, USFWS R3UBx; 0.96 acre±)**

Small upland-cut ditches occur in Pond Site Alternative 2C and the adjoining floodplain compensation area. Since these ditches were cut through uplands (uplands on both sides), they are considered Other Surface Waters rather than wetlands. Roadside upland-cut ditches are frequent along both sides of SR 16, but these roadside drainage features were not identified for this report. All upland-cut ditches will be identified during the permitting phase of the project. Ditches that have wetland on one side are included in the identified wetland polygons.

**Wetland-cut Ditches (FLUCFCS 512, USFWS R3UBx; 0.79 acre±)**

A large canal takes up most of the drainage easement that extends into Sixmile Swamp adjacent to Pond Site Alternative 4A. Since it is cut through wetlands it is considered a wetland-cut ditch and part of the surrounding jurisdictional wetland.

**Lakes (FLUCFCS 524, USFWS L2UBx; 0.98 acre±)**

Small lakes/ponds were found in Pond Site Alternatives 2A and 6B. These may have been excavated. Vegetation, when present, included waterlily, spadderdock, and primrose willows.

**Streams and Lake Swamps (Bottomland) (FLUCFCS 615, USFWS PFO1/2/3E; 2.90 acres±)**

This habitat type occurred in several places in the project study area, including as the floodplain on both sides of Turnbull Creek. Dominant canopy species included blackgum (*Nyssa biflora*), sweetgum, sabal palm, bald cypress (*Taxodium distichum*), loblolly pine, bluestem palm (*Sabal minor*), and sweetbay magnolia (*Magnolia virginiana*). Dominant groundcover vegetation included netted chain fern, cinnamon fern, royal fern (*Osmunda regalis*), bluestem palm (Sabal minor), and caric sedges (*Carex* spp.).

**Wetland Forested Mixed (FLUCFCS 630, USFWS PFO1/2/3/4; 25.96 acres±)**

Mixed forested wetlands were the most commonly encountered wetland habitat in the project study area. They tended to be disturbed, overgrown, and low to moderate in quality. Common species included slash pine, loblolly pine, bald cypress, sweetbay magnolia, loblolly bay, red maple, Chinese tallow (*Triadica sebifera*), wax myrtle, gallberry, sabal palm, bluestem palm, Virginia chain fern, cinnamon fern, sawgrass (*Cladium jamaicense*), and wetland sedges (*Rhynchospora* spp, *Carex* spp, and *Cyperus* spp.).

**Freshwater Marshes (FLUCFCS 641, USFWS PEM1E; 7.47 acres±)**

Freshwater marshes are characterized by a lack of canopy trees and a diversity of graminoid and forb species. Typical species included cattail, maidencane (*Panicum hemitomon*), torpedograss (*P.*

*repens*), bacopas (*Bacopa* spp.), mermaidweed (*Proserpinaca* spp.), pickerelweed (*Pontederia cordata*), arrowheads (*Sagittaria* spp.), primrose willows, yellow-eyed grasses (*Xyris* spp.), redroot (*Lachnanthes caroliana*), and buttonbush (*Cephalanthus occidentalis*).

**Wet Prairies (FLUCFCS 643, USFWS PEM1B; 1.34 acres±)**

Wet prairies are non-forested wetlands that are dominated by graminoid species such as grasses, sedges, and rushes. Commonly observed species included maidencane, broomsedges, rushes (*Juncus* spp.), hairsedges (*Eleocharis* spp.), wetland sedges, bacopas, dollarweed (*Hydrocotyle umbellata*), alligatorweed (*Alternanthera philoxeroides*), yellow-eyed grasses, and redroot.

### 3.2.3 Soils

Soil types within the project study area are depicted on **Exhibit 5** (**Appendix A**) and are included in the table below. Soil classifications are taken from the *Soil Survey of St. Johns County, Florida* (USDA-NRCS).

**Table 2. Summary of Soils that Occur in the Project Study Area**

| Soil Type | NRCS Code | NRCS Description | Hydric Status | Acres | Approximate Percentage |
|---|---|---|---|---|---|
| Myakka-Myakka, wet, fine sands, 0 to 2 percent slope | 3 | Sandy marine deposits, poorly drained, 6-18" to water table | Hydric | 10.82 | 4 |
| Pomona fine sand | 9 | Sandy and loamy marine deposits, poorly drained, 6-18" to water table | Sometimes hydric | 9.11 | 4 |
| Smyrna-Smyrna, wet, fine sand, 0 to 2 percent slopes | 11 | Sandy marine deposits, poorly drained, 6-18" to water table | Hydric | 12.83 | 5 |
| Ona-Ona, wet, fine sand, 0 to 2 percent slopes | 12 | Sandy marine deposits, poorly drained, 6-18" to water table | Hydric | 6.04 | 2 |
| St. Johns fine sand | 13 | Sandy marine deposits, poorly drained, 0-6" to water table | Sometimes hydric | 5.89 | 2 |
| Floridana fine sand, 0 to 2 percent slopes, frequently flooded | 18 | Sandy and loamy marine deposits, very poorly drained, 0" to water table | Hydric | 2.66 | 1 |
| Samsula muck, frequently ponded, 0 to 1 percent slopes | 26 | Herbaceous organic material/sandy marine deposits, very poorly drained, 0" to water table | Hydric | 0.57 | <1 |

| Table 2. Summary of Soils that Occur in the Project Study Area | | | | | |
|---|---|---|---|---|---|
| **Soil Type** | **NRCS Code** | **NRCS Description** | **Hydric Status** | **Acres** | **Approximate Percentage** |
| Wesconnett fine sand, frequently flooded | 30 | Sandy marine deposits, very poorly drained, 0" to water table | Hydric | 0.08 | <1 |
| Tocoi fine sand | 34 | Sandy marine deposits, poorly drained, 6-18" to water table | Sometimes hydric | 60.24 | 25 |
| Pottsburg fine sand | 40 | Sandy marine deposits, poorly drained, 6-18" to water table | Sometimes hydric | 8.95 | 4 |
| Tomoka muck, frequently ponded, 0 to 1 percent slopes | 41 | Herbaceous organic material/sandy and loamy marine deposits, very poorly drained, 0" to water table | Hydric | 0.02 | <1 |
| Sparr fine sand, 0 to 5 percent slopes | 44 | Sandy and loamy marine deposits, somewhat poorly drained, 18-42" to water table | Non-hydric | 2.86 | 1 |
| Holopaw fine sand | 46 | Sandy and loamy marine deposits, poorly drained, 6-18" to water table | Sometimes hydric | 18.99 | 8 |
| Holopaw fine sand, frequently flooded | 47 | Sandy and loamy marine deposits, very poorly drained, 0" to water table | Hydric | 10.28 | 4 |
| Winder fine sand, frequently flooded | 48 | Sandy and loamy marine deposits, poorly drained, 0-12" to water table | Hydric | 2.49 | 1 |
| St. Augustine Urban land complex | 51 | Sandy mine spoil or earthy fill, somewhat poorly drained, 18-36" to water table | Non-hydric | 5.36 | 2 |
| EauGallie fine sand | 58 | Sandy and loamy marine deposits, poorly drained, 6-18" to water table | Sometimes hydric | 33.91 | 14 |
| Floridana fine sand, o to 2 percent slopes | 62 | Sandy and loamy marine deposits, very poorly drained, 0" to water table | Sometimes hydric | 18.54 | 8 |
| Placid fine sand | 63 | Sandy marine deposits, very poorly drained, 0-6" to water table | Sometimes hydric | 20.69 | 9 |
| Riviera fine sand | 65 | Sandy and loamy marine deposits, poorly drained, 6-18" to water table | Sometimes hydric | 5.31 | 2 |
| Bakersville muck | 69 | Sandy and loamy marine deposits, very poorly drained, 0-12" to water table | Hydric | 6.12 | 3 |

### 3.2.4 Hydrologic Features

Wetlands and waters in the project study area occur in a landscape that generally drains to the south and west and may flow into systems associated with Sixmile Creek. SR 16 crosses Turnbull

Creek, and Turnbull Creek is an upstream tributary of Sixmile Creek. Sixmile Creek flows into the St. Johns River. Portions of the project study area occur in two SJRWMD drainage basins. A small portion of the project study area near I-95 lies within the Pellicer Creek & Matanzas River Basin, while the remainder of the project lies within the Sixmile & Julington Creeks Basin. The boundary between these basins is depicted on **Exhibit 2** (**Appendix A**).

The following water quality regulatory requirements will be adhered to during the planning and construction of the project:

- U.S. Environmental Protection Administration (USEPA):
  - Clean Water Act 303(d), United States Code
- USACE:
  - Clean Water Act 404(g), United States Code
- FDEP:
  - Water Resource Implementation Rule (Chapter 62-40, F.A.C.)
  - Regulations of Stormwater Discharge (Chapter 62-25, F.A.C.)
- SJRWMD:
  - Environmental Resource Permits (Chapter 62-330, F.A.C.)

# 4.0 Protected Species and Habitat

This project was evaluated for impacts to wildlife resources, including federally protected species, in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended; the Florida Endangered and Threatened Species Act, Section 379.2291, FS; Chapter 68A-27, F.A.C.; the Regulated Plant Index (Chapter 5B-40.0055, F.A.C., which is administered by the FDACS, Division of Plant Industry, pursuant to Chapter 5B-40, F.A.C.); and the Protected Species and Habitat chapter of the FDOT PD&E Manual. This report contains information pertaining to all federally-listed, candidate, and proposed species for listing, and state-listed species that may occur within the project study area. Unless otherwise noted, all of these are collectively referred to as "listed species" in this report. In addition, this report contains information regarding non-listed protected species that may occur within the project study area.

## 4.1 Methods

Literature reviews, agency database searches, agency coordination, and field surveys of potential habitat areas were conducted to identify listed species potentially occurring within the project study area.

This report addresses federally-listed, candidate, and proposed species for listing, species regulated by the USFWS and the National Marine Fisheries (NMFS), and state-listed species regulated by the FWC and the Florida Department of Agriculture and Consumer Services (FDACS; for state-listed plants). Only federally-listed species are afforded protection under the ESA at this time. Other species may be protected by state or local regulations. By state rule, federally-listed species are also considered state-listed species.

Information regarding listed species was derived from the following sources:

- USFWS' Environmental Consultation Online System (ECOS) https://ecos.fws.gov/ecp/
- USFWS' Information for Planning and Consultation (IPaC) https://ipac.ecosphere.fws.gov/
- Atlas of Florida Plants https://florida.plantatlas.usf.edu/
- Florida Natural Areas Inventory https://www.fnai.org/
- Audubon Center for Birds of Prey EagleWatch Program https://cbop.audubon.org/conservation/about-eaglewatch-program
- Preservation of Native Flora of Florida https://www.flrules.org/gateway/ChapterHome.asp?Chapter=5B-40
- FWC's Florida's Endangered and Threatened Species List https://myfwc.com/wildlifehabitats/wildlife/

The *Soil Survey of St. Johns County*; recent aerial photographs; GIS Land Cover and Land Use data; and field reconnaissance were utilized to classify habitat types within and adjacent to the project study area. Previously documented occurrences of wood storks, nesting locations, Core Foraging Areas (CFAs), and wading bird rookeries are depicted on **Exhibit 6** (**Appendix A**). Previously documented occurrences of protected fauna near the project study area are depicted on **Exhibit 7** (**Appendix A**).

A preliminary survey for listed species was conducted during site visits on November 14, 15, and 17, 2023 and July 10, 2024, by trained biologists using visual and aural methods. Listed wildlife species were identified by their remains, burrows, scat, shed skins, tracks, sightings, and/or their distinctive calls. The preliminary survey for listed species was conducted within the constraints of the project schedule and did not take into account blooming, nesting, or activity seasons specific to individual listed species. The probability of occurrence of each species is discussed below. An effect determination was made for each listed species based on the current understanding of the proposed project and its effects. These determinations were made using effect determination keys, where appropriate, and reasonable scientific judgement. Federal effect determinations were not made for candidate species as consultation for these species is not required at this time.

## 4.2 Survey Results

### 4.2.1 Probability of Occurrences, Observations, and Effect Determinations

Listed species known to occur in the county, but for which suitable habitat does not exist within the project study area and for which there have been no documented reports within one mile of the project study area were determined to have no probability of occurrence and will not be affected by this project. The majority of these species do not merit discussion in this report. The following listed species were determined to have no probability of occurrence but are discussed briefly in this report to clarify their evaluations.

The Black Creek crayfish (*Procambarus pictus*; a state-threatened species and a proposed species for listing by USFWS) is known to occur in St. Johns County but was determined to have no probability of occurrence in the project study area because it is not known to occur in Turnbull Creek. For the eastern black rail (*Laterallus jamaicensis*; a federally-threatened species), vegetative cover in the freshwater marsh and wet prairie habitats to provide suitable habitat for this species. Therefore, there is no probability of occurrence in project study area. The West Indian manatee (*Trichechus manatus*; a federally-threatened species) was also determined to have no probability of occurrence in the project study area because the portion of Turnbull Creek downstream of the SR 16 bridge is too shallow to allow this large species to access the project study area. These species will not be affected by this project and are not discussed further in this report.

A total of 38 listed species were determined to have some probability of occurrence within the project study area based on the presence of suitable habitat (**Table 3**). These species were assigned a probability of occurrence defined as follows:

- **Low** – Species that are known to occur in the county, but for which suitable habitat is limited in the project study area.
- **Moderate** – Species that are known to occur in the county, and whose suitable habitat is well-represented within the project study area, but no observations or positive indicators exist to verify their presence.
- **High** – Species that are known to occur in the county and are suspected to occur based on known ranges and existence of sufficient suitable habitat within the project study area, or species which have been previously observed or documented within the project area.

Species that were observed during the site inspections for this project are included in the High probability of occurrence.

**Table 3** also includes effect determinations for those listed species that may occur. Effect determinations are discussed as each species is considered individually. They include **No Adverse Effect is Anticipated** (NAEA); and **May Affect, Not Likely to Adversely Affect** (MANLAA).

Since the Preferred Alternative lies within and consists of most of the area of the project study area, the listed species that may occur, their probability of occurrence, and effect determinations are the same for the Preferred Alternative as for the project study area.

**Table 3. Listed Species with Potential to Occur Within the Project Study Area and Their Effect Determinations**

| Scientific Name | Common Name | Federal Status | State Status | Probability of Occurrence in the Project Study Area | Effect Determination |
|---|---|---|---|---|---|
| **Plants** | | | | | |
| *Asarum arifolium (Hexastylis arifolia)* | Little Brown Jug | N | ST | Low | NAEA |
| *Asclepias viridula* | Southern Milkweed | N | ST | Low | NAEA |
| *Calopogon multiflorus* | Manyflowered Grasspink | N | ST | Low | NAEA |
| *Calydorea coelestina* | Bartram's Ixia | N | SE | Low | NAEA |
| *Carex chapmanii* | Chapman's sedge | N | ST | Low | NAEA |
| *Coreopsis intergrifolia* | Ciliate Leaf Tickseed | N | SE | Low | NAEA |
| *Gonolobus suberosus(= Matelea gonocarpus)* | Anglepod | N | ST | Low | NAEA |
| *Helianthus carnosus* | Lake-side Sunflower | N | SE | Low | NAEA |
| *Lilium catesbaei* | Pine Lily | N | ST | Moderate | NAEA |
| *Litsea aestivalis* | Pondspiece | N | SE | Low | NAEA |
| *Lobelia cardinalis* | Cardinalflower | N | ST | Moderate | NAEA |
| *Lythrum curtissii* | Curtiss' Loosestrife | UR | SE | Low | NAEA |
| *Nemastylis floridana* | Celestial Lily | N | SE | Low | NAEA |

| Table 3. Listed Species with Potential to Occur Within the Project Study Area and Their Effect Determinations | | | | | |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | **Federal Status** | **State Status** | **Probability of Occurrence in the Project Study Area** | **Effect Determination** |
| *Nolina atopocarpa* | Florida Beargrass | N | ST | Low | NAEA |
| *Orbexilum virgatum* | Pineland Leatherroot | N | SE | Low | NAEA |
| *Pecluma plumula* | Plume Polypody | N | SE | Low | NAEA |
| *Pinguicula caerulea* | Blueflower Butterwort | N | ST | Low | NAEA |
| *Pinguicula lutea* | Yellow Butterwort | N | ST | Low | NAEA |
| *Platanthera blephariglottis* var. *conspicua* | White Fringed Orchid | N | ST | Low | NAEA |
| *Platanthera ciliaris* | Yellow Fringed Orchid | N | ST | Low | NAEA |
| *Platanthera nivea* | Snowy Orchid | N | ST | Low | NAEA |
| *Pogonia ophioglossoides* | Rose Pogonia | N | ST | Low | NAEA |
| *Pycnanthemum floridanum* | Florida Mountain-mint | N | ST | Low | NAEA |
| *Rudbeckia nitida* | St. Johns Blackeyed Susan | N | SE | Low | NAEA |
| *Ruellia noctiflora* | Nightflowering Wild Petunia | N | SE | Low | NAEA |
| *Sarracenia minor* | Hooded Pitcherplant | N | ST | High | NAEA |
| *Verbesina heterophylla* | Variable-leaf Crownbeard | N | SE | Low | NAEA |
| *Zephyranthes atamasca* var. *atamasca* | Rainlily | N | ST | High | NAEA |
| *Zephyranthes atamasca* var. *treatiae* | Treat's Rainlily | N | ST | High | NAEA |
| **Insects** | | | | | |
| *Danaus plexippus* | Monarch Butterfly | C | N | Moderate | N/A |

**Table 3. Listed Species with Potential to Occur Within the Project Study Area and Their Effect Determinations**

| Scientific Name | Common Name | Federal Status | State Status | Probability of Occurrence in the Project Study Area | Effect Determination |
|---|---|---|---|---|---|
| **Reptiles** | | | | | |
| *Drymarchon corais couperi** | Eastern Indigo Snake | T | FT | Low | MANLAA |
| *Gopherus polyphemus** | Gopher Tortoise | N | ST | Moderate | NAEA |
| *Pituophis melanoleucus*** | Pine Snake | N | ST | Low | NAEA |
| **Birds** | | | | | |
| *Egretta caerulea*** | Little Blue Heron | N | ST | High | NAEA |
| *Egretta tricolor*** | Tricolored Heron | N | ST | Moderate | NAEA |
| *Mycteria americana** | Wood Stork | T | FT | High | MANLAA |
| *Platalea ajaja*** | Roseate Spoonbill | N | ST | Low | NAEA |
| **Mammals** | | | | | |
| *Perimyotis subflavus* | Tricolored Bat | PE | N | Low | N/A |

**Legal Status and Notes**

**Federally-listed Species**

**C** = Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as endangered or threatened.

**E** = Endangered: species in danger of extinction throughout all or a significant portion of its range.

**T** = Threatened: species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

**PE** = Proposed endangered.

**N** = Not federally-listed.

**UR** = Not listed but under review.

***** = This species is included in a USFWS Recovery Plan.

Recovery plans can be found at: https://ecos.fws.gov/ecp/report/species-with-recovery-plans

**State-listed Species**

**SE** = State endangered.

**ST** = State threatened: species listed by the state that are likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

**FT** = Federally threatened: species federally listed as likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

****** = FWC has developed a specific Imperiled Species Management Plan for this species.

Imperiled species management plans can be found at: http://myfwc.com/wildlifehabitats/imperiled/management-plans/

### 4.2.2 Listed Species That May Occur Within the Project Study Area

#### 4.2.2.1 Federally-listed Species

##### 4.2.2.1.1 Critical Habitats

Based on the USFWS Critical Habitat mapper, there is no designated Critical Habitat within the project study area. Therefore, no Critical Habitat will be affected by the project.

##### 4.2.2.1.2 Federally-listed Plant Species

No federally-listed plant species were observed during the site inspections. No federally-listed plant species are known to occur in St. Johns County, and none were found to have any probability of occurrence within the project study area.

##### 4.2.2.1.3 Federally Listed Animal Species

**INSECTS**

**Monarch Butterfly** (*Danaus plexippus*) – This species is designated as a candidate species for federal listing by USFWS. Adult individuals of this species may reside in Florida year-round and breed in the state or may pass through the state while migrating back and forth from breeding grounds in other states or from wintering sites in Mexico. Breeding females require milkweeds (genus *Asclepias*) to lay their eggs on, and the larvae must feed on these milkweeds. The adults, like many other species of butterflies, rely on a variety of wildflowers as nectar food sources. No milkweeds were observed in the project study area; however, their presence cannot be ruled out. The project study area contains areas of grassy and weedy vegetation, and these areas have the potential to produce a variety of wildflowers upon which wandering (non-breeding) adult monarchs may feed. This species has been given a moderate probability of occurrence. No adult or larval individuals of this species were observed during the field investigation. The proposed project will not permanently eliminate all potential milkweed or wildflower habitats, nor will it alter the maintenance schedule to prevent flowering and seed set. Therefore, the project is unlikely to affect the monarch. If the monarch is listed by USFWS as threatened or endangered and the project may affect the species, FDOT commits to re-initiating consultation with USFWS to determine appropriate avoidance and minimization measures for protection of the newly listed species.

**REPTILES**

**Eastern Indigo Snake** (*Drymarchon corais couperi*) – The eastern indigo snake is a federally-threatened species that is linked to xeric habitats and gopher tortoise burrows, and forages in both uplands and wetlands. Indigo snakes prefer large tracts of undisturbed land. Most of the project study area consists of existing ROW. There has been no documented occurrence of this species within a 5-mile radius of the project study area (**Exhibit 7**; **Appendix A**). Habitat mapping and preliminary gopher tortoise surveys conducted during the site visits on November 14, 15, and 17, 2023 and July 10, 2024 found no xeric habitats in the project study area and no active or inactive gopher tortoise burrows. The project study area is located in a region of Florida that is

subject to the version of the USFWS' *Eastern Indigo Snake Programmatic Effect Determination Key* that was updated in August 2013.

The sequence followed in the effect determination key is as follows: A) The project is not located entirely in open water or saltmarsh, B) the permit will be conditioned for the use of USFWS' *Standard Protection Measures for the Eastern Indigo Snake*, C) there are holes or other refugia where a snake could be buried, D) the project will not affect more than 25 acres of xeric habitat or more than 25 active and inactive gopher tortoise burrows, and E) the permit will be conditioned such that all active or inactive gopher tortoise burrows will be excavated and any indigo snakes encountered will be allow to vacate the area. This sequence concludes that the project **may affect, but is not likely to adversely affect,** the eastern indigo snake. The effect determination key with the path highlighted is included in **Appendix B**. The USFWS' *Standard Protection Measures for the Eastern Indigo Snake* (**Appendix C**) will be implemented during construction of this project. No further consultation is required.

**BIRDS**

**Wood Stork** (*Mycteria americana*) – The wood stork, federally-listed as threatened, is a wetland-dependent wading bird. It nests and roosts in areas containing woody vegetation over standing water, preferably in cypress trees or mangroves. The wood stork ranges across the state, except for the western half of the panhandle. It routinely travels 6-25 miles to feeding sites and is known to fly between 60-80 miles to find food. It feeds in areas of calm and clear water that is between 2-16 inches deep. The wood stork requires areas that have long hydroperiods that allow for its prey to reproduce, and droughts that concentrate its prey into small pools making it easier to catch.

USFWS designates CFAs for each documented wood stork colony by region. St. Johns County is within the North Florida region which defines each CFA as a 13-mile radius surrounding the colony location. Wetlands and shallow waters within the regionally defined radii may be considered Suitable Foraging Habitat (SFH) for wood storks. The project study area is located within the CFA for the St. Augustine Alligator Farm wood stork colony, approximately 7.6 miles southeast of the project study area **Exhibit 6** (**Appendix A**). No wood storks were observed in the project study area, but they are highly likely to occur in the project study area's wetlands and waters where surface water is present but shallow. The project's potential effect on wood storks was evaluated using the USACE/USFWS *Effect Determination Key for the Wood Stork in Central and North Peninsular Florida* (2008). The sequence followed in the effect determination key is as follows: A) The project is more than 2,500 feet from a colony site, will impact SFH, B) the project will impact more than 0.5 acre of SFH, C) the project is located in a CFA. FDOT will provide SFH compensation within the service areas of FWS-approved mitigation banks. At this time, mitigation credits are available from the following mitigation banks: Fish Tail Swamp Mitigation Bank, Lake Swamp Mitigation Bank, St. Johns Mitigation Bank, St. Marks Pond Mitigation Bank, Star 4 Mitigation Bank, Town Branch Mitigation Bank, Tupelo Mitigation Bank, Brick Road Mitigation Bank, Fish Tail Swamp Mitigation Bank, Lake Swamp Mitigation Bank, St. Johns Mitigation Bank, and St. Marks Pond Mitigation Bank. Therefore, the project **may affect, but is not likely to adversely affect**,

the wood stork. The effect determination key with the path highlighted is included in **Appendix B**.

**MAMMALS**

**Tricolored Bat** (*Perimyotis subflavus*) – This species was recently proposed for listing as federally endangered (September 2022). In the Southeast, this is an uncommon species that is most likely to utilize culverts during the colder months and trees and Spanish moss (*Tillandsia usneoides*) in the warmer months. This species is rare in Florida and has been given a low probability of occurrence in the project study area. If the tricolored bat is listed by the USFWS as threatened or endangered and the project may affect the species, FDOT commits to re-initiating consultation with USFWS to determine appropriate avoidance and minimization measures for protection of the newly listed species.

#### 4.2.2.2 State-listed Species

##### 4.2.2.2.1 State-listed Plant Species

A total of 29 state-listed plant species were determined to have some probability of occurrence in the project study area. Probability of occurrence is based on rarity, quality of on-site habitats, and/or quantity of on-site habitats. Of these 29, 13 of them (the little brown jug, southern milkweed, manyflowered grasspink, Chapman's sedge, anglepod, Florida beargrass, blueflower butterwort, yellow butterwort, white fringed orchid, yellow fringed orchid, snowy orchid, rose pogonia, and Florida mountainmint) are state-listed as threatened and have been given a low probability of occurrence. A total of 11 (Bartram's ixia, ciliate leaf tickseed, lakeside sunflower, pondspice, Curtiss' loosestrife, celestial lily, pineland leatherroot, plume polypody, St. Johns blackeyed susan, nightflowering wild petunia, and variable-leaf crownbeard) are state-listed as endangered and have been given a moderate probability of occurrence. Two species (the pine lily and the cardinalflower) are state-listed as threatened and have been given a moderate probability of occurrence, while the final three species (the hooded pitcherplant, rainlily, and Treat's rainlily) are state-listed as threatened and have been given a high probability of occurrence. None of these state-listed plant species were observed in the project study area. Potential impacts to individual plants of any of these listed plant species will not affect the species as a whole. Therefore, **no adverse effect is anticipated** for state-listed plant species. Additional survey work for listed plant species is anticipated during the permitting phase.

##### 4.2.2.2.2 State-listed Animal Species

**REPTILES**

**Gopher Tortoise** (*Gopherus polyphemus*) – The gopher tortoise is a state-threatened species that inhabits xeric and mesic forests, fields, and disturbed areas. Habitat assessment and preliminary gopher tortoise surveys conducted during the site visits on November 14, 15, and 17, 2023 and July 10, 2024 identified habitats suitable for gopher tortoises. However, these surveys found no xeric habitats and no potentially occupied gopher tortoise burrows. In general, open undeveloped areas consisted of pastures and similar managed land uses, and forested uplands generally appeared to have high water tables making them unattractive to gopher tortoises. The gopher

tortoise has been given a low probability of occurrence in the project study area. Therefore, **no adverse effect is anticipated** for this state-listed species.

**Pine Snake** (*Pituophis melanoleucus*) - Similar to the eastern indigo snake, the state-threatened pine snake is linked to xeric habitats and to gopher tortoise burrows. This species is found throughout Florida, with suitable habitat including longleaf pine woodlands, xerophytic oak woodlands, sand pine scrub, pine flatwoods on well-drained soils, and old fields on former sandhill sites. The pine snake avoids hammocks and forests that have a thick canopy. It burrows through the ground and moves around using burrows left by pocket gophers (*Geomys* spp.) and gopher tortoises. While on-site uplands are suitable for this species, no pine snakes were observed. Therefore, **no adverse effect is anticipated** for this state-listed species.

**BIRDS**

**Wading Birds** – Three state-listed wading bird species may occur in the project study area: the **little blue heron** (*Egretta caerulea*), the **tricolored heron** (*Egretta tricolor*), and the **roseate spoonbill** (*Platalea ajaja*). These species, state-listed as threatened, may forage in wetlands and waters in the project study area when shallow water is present. These species typically nest in mixed-species colonies (rookeries). Rookery locations are documented by FWC and their activity status is tracked. See **Exhibit 6** (**Appendix A**) for documented rookery locations. The nearest documented wading bird rookery is located approximately 4.5 miles northeast of the project study area and was last documented as active in the 1970s by the FWC rookery survey. No undocumented rookeries were observed in the project study area during the site visits.

None of these species were observed during the site inspections. The little blue heron is equally likely to occur in inland wetlands/waters as in coastal ones, while the tricolored heron and roseate spoonbill increasingly prefer coastal wetlands/waters. The probability of occurrence was determined to be high for the little blue heron, moderate for the tricolored heron, and low for the roseate spoonbill. These wading birds are highly mobile species; if any individuals are present during construction, they can easily leave the area if disturbed. Therefore, **no adverse effect is anticipated** for these state-listed wading bird species.

### 4.2.3 Non-listed Protected Species and Additional Species That May be of Regulatory Significance

**Bald Eagle** (*Haliaeetus leucocephalus*) – While no longer considered a listed species under the ESA, the bald eagle is afforded protection under the Bald and Golden Eagle Protection Act (BGEPA) of 1940, as amended. **Exhibit 7** (**Appendix A**) depicts the locations of the documented bald eagle nests near the project. Although the bald eagle has been delisted, restrictions regarding work around their nests are still in place. These restrictions vary based on the time of year and distance from the nest. USFWS defines two buffer zones (the primary and secondary zones) from the central location of a nest. Activity restrictions are based on the distance from the nest. The primary activity zone is 330 feet from the nest and the secondary activity zone is 660 feet from the central location of the nest. Generally, if work is proposed within 660 feet of the nest, restrictions may be

applicable. If the nest is active and must be destroyed to construct the project, a permit from USFWS to take the nest will be required.

Documented bald eagle nest #SJ056 is located within the boundary of Pond Site Alternative 2C. The approximate nest location and its primary (330') and secondary (660') zones are depicted on **Exhibits 2E**, **2F**, and **2G** (**Appendix A**). Both of these zones affect Pond Site Alternative 2C, the ROW extension leading to it, and the adjacent floodplain compensation area. Note that all three of these features are included in the Preferred Alternative. This nest was last documented as active by the Audubon Center for Birds of Prey EagleWatch during the 2024 nesting season. This nest was observed for this report in July 2024 after the project study area had been expanded to include it. This site visit was conducted after the nesting season (October 1st through May 15th) and no eagles were observed. It was not possible to determine whether the nest will be used during future nesting seasons. The activity status of the nest will be determined prior to construction. If the nest is active and work is proposed near it, FDOT will coordinate with USFWS to determine whether the nest will be considered taken or if it can be preserved with work restrictions in place. If the nest can be preserved, work within the buffer zones must take place outside the nesting season (October 1st through May 15th) or nest occupation period, or qualified nest monitors must observe the eagles while work is taking place to ensure that the eagles are not disturbed. The details of work restrictions and nest monitoring requirements may vary and will be finalized in coordination with USFWS prior to the start of construction. If the nest must be considered taken, an Incidental Take Permit from USFWS will be obtained. Practicable design modifications will continue to be applied to reduce impacts to this nest. The parcel is likely sufficiently large enough to allow the pond to be redesigned to avoid directly impacting the nest and to stay out of its 330' primary zone. Nesting bald eagles will be afforded protection through the implementation of FDOT Special Provision 0070104-2.

**Non-listed Bats** – FWC regulates work that affects colonies of non-listed bats that may exist under bridges and inside culverts. The primary signs of bats include accumulation of guano, staining on vertical faces of the structure, and direct bat observations or hearing their vocalizations. In Florida, the most common bat species to utilize bridges are the Brazilian free-tailed bat (*Tadarida brasiliensis*) and the big brown bat (*Eptesicus fuscus*). The most common species to utilize culverts is the Southern myotis (*Myotis austroriparius*). All three of these are non-listed species. The accessible and visible portion of the underside of the Turnbull Creek bridge were briefly inspected but no clear signs of bat occupation were observed. Bats can occupy, reoccupy, or abandon a site at any time. The bridge and all culverts will be inspected for the presence of bats prior to construction. The removal of any bats is subject to rules in 68A-9.010, F.A.C. If bats are present in the bridge or in or culverts, FDOT will follow current agency protection measures and will employ exclusion measures as necessary. Therefore, the project is unlikely to affect bats.

## 4.3 Listed Species Mitigation (Conceptual)

If wetland mitigation is required for unavoidable permanent wetland impacts, it (mitigation) will offset the loss of wood stork foraging habitat. No additional mitigation to offset impacts to other

listed species is expected to be necessary. Potential impacts to listed species will be avoided and minimized to the maximum extent practicable.

# 5.0 Wetland Evaluation

In accordance with Executive Order 11990, *Protection of Wetlands*, dated May 24, 1977 and *Preservation of the Nation's Wetlands* (USDOT Order 5660.1A), dated August 24, 1978, a wetland evaluation was conducted for the proposed project. The project was evaluated for impacts to wetlands and other surface waters in accordance with the Wetlands and Other Surface Waters chapter of the FDOT PD&E Manual. The objectives were to identify, map, and evaluate potential wetland impacts that may be associated with the construction of the project, and to assess the function and value of wetlands potentially affected.

## 5.1 Methods

Wetlands within the project study area were identified and classified using definitions and guidelines contained in the FDOT's FLUCFCS Handbook (1999) and the USFWS Classification System. The USACE Wetland Delineation Manual (1987) and its regional supplements, the Florida Wetlands Delineation Manual (1995), and several field guides aided in the identification of project wetlands. The attributes of the three parameters of vegetative composition, hydrologic regime, and soil classification are used to determine the presence and type of wetland system.

## 5.2 Results

Wetlands and waters within the project study area were evaluated during the site visits on November 14, 15, and 17, 2023 and July 10, 2024. The boundaries of jurisdictional wetlands and waters within the project study area were estimated in accordance with Chapter 62-340, Florida Administrative Code (F.A.C.), and the U.S. Army Corps of Engineers' (USACE) 1987 Wetland Delineation Manual and its subsequent addendums. Five wetland habitat types and two jurisdictional water habitat types were identified in the project study area. The jurisdictional boundaries of all wetlands were flagged in the field and located using a Trimble GPS device. These boundaries include adjacent and abutting sections or roadside wetland-cut ditches when appropriate. Since all wetland boundaries have not been verified by the regulatory agencies or surveyed, they should be considered estimates. All jurisdictional wetland and water boundaries were based on conditions observed at the time of the site visit. They may not match jurisdictional boundaries made in the past for other projects that occur within what is now the project study area or reflect conditions that may occur in the future. Roadside upland-cut ditches occur in the project study area but were not estimated for this report. The boundaries of surface waters other than ditches were estimated for this report using aerial interpretation and limited ground-truthing. All wetland and other surface water boundaries and associated acreages given in this report should be considered estimates and will be finalized during the permitting process. The wetland and water habitat types that occur within the project study area are depicted on **Exhibit 2** (**Appendix A**) and described in detail below.

The SR 16 project study area passes through a rapidly developing landscape and several of the adjacent parcels have been recently cleared for residential subdivisions. Some cleared open and undeveloped land is still present, along with forested uplands, wetlands, and the crossing over Turnbull Creek.

The project study area contained several types of vegetated wetlands (forested and herbaceous wetland types) and four kinds of surface waters (streams, upland-cut ditches, wetland-cut canals, and lakes). An excavated section of Turnbull Creek between Pond Site Alternatives 2A/2B and Pond Site Alternatives 3A/3B is classified as a stream. The drainage easement near Pond Site Alternative 4A contains a large wetland-cut ditch, while smaller upland-cut ditches occur in the Pond Site Alternative 2C area (Pond 2C, the floodplain compensation area, and the ROW extension leading to both). Lakes included small waterbodies in Pond Site Alternatives 2A and 6B. At the time that this report was prepared, it was assumed that all wetlands, the wetland-cut ditch, and the lakes within the project study area are jurisdictional to and regulated by SJRWMD and that state wetland mitigation will be required for all impacts to these wetlands and jurisdictional waters. The upland-cut ditches are expected to be considered Other Surface Waters and to not require state wetland mitigation to impact. Final state jurisdiction status may vary and will be determined in conjunction with SJRWMD during the permitting phase.

A baseline characterization of the wetlands and jurisdictional waters within the project study area was performed. Each wetland's size, contiguity, vegetative structural diversity, edge relationships, wildlife habitat value, hydrologic functions, public use, and integrity were generally determined based on the wetland assessment procedures.

On August 29, 2023, the USEPA published revisions to the definition of Waters of the United States that clarified that federally jurisdictional waters and wetlands are limited to relatively permanent, standing or continuously flowing streams, oceans, rivers, and lakes, and those wetlands that are abutting or have a continuous standing or flowing surface water connection to them. As such, determining federal wetland jurisdiction currently requires locating, following, and verifying relatively permanent surface water connections to downstream waters for each individual wetland. Due to the extensive field work and agency coordination that this process requires, it is not possible to make these determinations at the preliminary stage of this report. Therefore, this report assumes that all wetlands, the wetland-cut ditch, and the lakes in the project study area will be federally-jurisdictional and require federal wetland mitigation to impact. The upland-cut ditches are not expected to require federal wetland mitigation to impact.

As detailed in **Section 5.7** of this report, the federal permitting authority of the project's wetlands is expected to be the responsibility of USACE. During the permitting phase, USACE will make a final determination of federal wetland jurisdiction and agency authority. Depending on the types of permits for which the project qualifies and the final temporary and permanent impact acreages, it is assumed that the project will require a federal permit from USACE, and that federal wetland mitigation will be required for impacts to all federally-jurisdictional waters and wetlands.

### 5.2.1 Existing Wetlands and Other Surface Waters

All wetlands and waters within the project study area were identified and assessed for this report. See **Exhibit 2** (**Appendix A**). A total of 78 individual wetland and jurisdictional surface water polygons totaling and estimated 39.90 acres of vegetated wetlands and 2.23 acres of jurisdictional surface waters occur within the project study area for the roadway footprint and all of the potential pond alternatives. **Table 4** summarizes the types and acreages of wetlands and waters that occur.

| Table 4. Summary of Wetlands and Jurisdictional Waters that Occur in the Project Study Area | | | |
|---|---|---|---|
| **Wetland/SW Type** | **FLUCFCS Code** | **USFWS Code** | **Acres** |
| **Jurisdictional Surface Waters** | | | |
| Streams and Waterways | 510 | R3UBx | 0.46 |
| Wetland-cut Ditches | 512 | R3UBx | 0.79 |
| Lakes | 524 | L2UBx | 0.98 |
| **Subtotal** | **-** | **-** | **2.23** |
| **Wetlands** | | | |
| Hydric Coniferous Plantations | 441H | PFO1/4m | 2.23 |
| Streams and Lake Swamps | 615 | PFO1/2/3E | 2.90 |
| Wetland Forested Mixed | 630 | PFO1/2/3/4 | 25.96 |
| Freshwater Marshes | 641 | PEM1E | 7.47 |
| Wet Prairies | 643 | PEM1B | 1.34 |
| **Subtotal** | **-** | **-** | **39.30** |
| **Grand Total** | **-** | **-** | **41.53** |

Small lakes/ponds (presumed to be jurisdictional surface waters) that may or may not have been excavated were found on two Pond Site Alternatives (2A and 8B) and were classified as Lakes. The drainage easement near Pond Site Alternative 4A contains a canal located within Six Mile Swamp. It was also presumed to be a jurisdictional surface water. The ditches located in the Pond 2C/floodplain compensation area and the associated ROW extension were upland-cut. Upland-cut roadside ditches were not delineated for this report, and no wet retention stormwater ponds were identified. During the permitting phase, if non-jurisdictional upland-cut ditches and/or wet retention stormwater ponds are included in the final project area, these waters should be considered non-jurisdictional and exempt from state and federal mitigation requirements. Stormwater ponds and upland-cut ditches are often replaced, relocated, or expanded as part of roadway improvement projects. Net impacts to these other surface waters, if any, will be quantified during the permitting process.

## 5.3 Wetland Assessment

All wetlands and other surface waters in the project study area were identified and evaluated for this report and are depicted on **Exhibit 2** (**Appendix A**). All of the wetlands and waters in the project study area may be considered both state and federally jurisdictional. Only the 59 wetlands and jurisdictional surface waters that occur within the Preferred Alternative are evaluated as potentially impacted by the project. See **Exhibit 8** (**Appendix A**) for a depiction of the wetlands and surface waters in the Preferred Alternative. For the purposes of this report, the conservative assumption is made that all wetlands and jurisdictional waters within the Preferred Alternative will be permanently impacted by the project. **Table 5** summarizes the acreage of each wetland and jurisdictional surface water type within the Preferred Alternative.

| Table 5. Summary of Wetlands and Jurisdictional Waters that Occur in the Preferred Alternative | | | |
|---|---|---|---|
| **Wetland/SW Type** | **FLUCFCS Code** | **USFWS Code** | **Acres** |
| **Jurisdictional Surface Waters** | | | |
| Streams and Waterways | 510 | R3UBx | 0.46 |
| Wetland-cut Ditches | 512 | R3UBx | 0.79 |
| **Subtotal** | **-** | **-** | **1.25** |
| **Wetlands** | | | |
| Streams and Lake Swamps | 615 | PFO1/2/3E | 2.44 |
| Wetland Forested Mixed | 630 | PFO1/2/3/4 | 14.81 |
| Freshwater Marshes | 641 | PEM1E | 3.16 |
| Wet Prairies | 643 | PEM1B | 0.49 |
| **Subtotal** | **-** | **-** | **20.90** |
| **Grand Total** | **-** | **-** | **22.15** |

**Table 6** summarizes the acreage of wetlands and jurisdictional surface waters that have been identified in each portion of the Preferred Alternative.

| Table 6. Summary of Wetlands and Jurisdictional Surface Waters in Each Portion of the Preferred Alternative | |
|---|---|
| **Portion of the Preferred Alternative** | **Approximate Acreage** |
| Existing road ROW | 12.57 |
| Pond 2C (including additional ROW leading to Pond 2C) | 0.05 |
| Floodplain Compensation Area | 0.13 |
| Pond 3C | 4.50 |
| Pond 4C (including the area in Pond 4B) | 3.12 |
| Drainage easement | 1.78 |

The Uniform Mitigation Assessment Method (UMAM) was used to estimate the amount of mitigation required to offset impacts to wetlands and jurisdictional waters. At the current preliminary level of study, it is not practical to generate a specific score for every individual wetland within the Preferred Alternative. Wetlands were evaluated by habitat type. Some individual wetlands contain more than one habitat type. During the permitting phase, each wetland will be scored individually, and the resulting individual scores may vary. For example, some wetlands, or portions of wetlands, may ultimately receive lower scores than indicated below if the impacted portions are confined to the wetland-cut ditch segments flanking the roadside that are subject to frequent disturbance and maintenance. All UMAM scores and functional losses given in this report are estimated and are subject to change during the permitting phase in conjunction with the regulatory agencies. The UMAM Summary Sheets are included in **Appendix D**. The estimated UMAM scores are shown in **Table 7**.

| Table 7. Summary of UMAM Scores by Wetland Type | |
|---|---|
| **Jurisdictional Wetland or Surface Water** | **UMAM Score** |
| **Jurisdictional Surface Water** | |
| Streams and Waterways | 0.70 |
| Wetland-cut Ditches | 0.70 |
| Lakes | 0.63 |
| **Wetland** | |
| Hydric Coniferous Plantations | 0.50 |
| Streams and Lake Swamps | 0.77 |
| Wetland Forested Mixed | 0.57 |
| Freshwater Marshes | 0.57 |
| Wet Prairies | 0.57 |

The functional loss incurred by each wetland impact is calculated by multiplying the UMAM score by the acreage of the wetland or jurisdictional water impact. Functional loss is offset by purchasing or generating an equal amount of functional gain. All estimated wetland impacts are expected to require freshwater forested wetland mitigation to offset the loss of standard wetland functional values.

Wetland impact assessment was conducted for the Preferred Alternative only. This is defined as the roadway alignment, Pond Site Alternatives 2C, 3C, and 4C, the floodplain compensation area south of Pond Site Alternative 2C, and the drainage easement near Pond Site Alternative 4A. Portions of the Preferred Alternative occur in two different drainage basins. The majority of the Preferred Alternative occurs in the Sixmile & Julington Creeks Basin, while a small portion of the project and only one wetland (Wetland 62; 0.25-acre) occurs in the Pellicer Creek & Matanzas River Basin. **Table 8** and **Table 9** summarize the expected UMAM mitigation requirements to offset the project's impacts to standard wetland functional values in each drainage basin.

| **Table 8. UMAM Functional Gain Expected to be Required for Impacts in the Sixmile & Julington Creeks Drainage Basin** | | | |
|---|---|---|---|
| **Type** | **Impacts (acres)** | **UMAM Score** | **Required Standard Freshwater Functional Gain** |
| Streams and Waterways | 0.46 | 0.70 | 0.33 |
| Wetland-cut Ditches | 0.79 | 0.70 | 0.56 |
| Streams and Lake Swamps | 2.19 | 0.77 | 1.68 |
| Wetland Forested Mixed | 14.81 | 0.57 | 8.40 |
| Freshwater Marshes | 3.16 | 0.57 | 1.80 |
| Wet Prairies | 0.49 | 0.57 | 0.28 |
| **Totals** | **21.90** | **-** | **13.05** |
| *NOTE: All figures in this table are taken from the attached UMAM Summary Sheets (**Appendix D**).* | | | |

| Table 9. UMAM Functional Gain Expected to be Required for Impacts in the Pellicer Creek & Matanzas River Drainage Basin | | | |
|---|---|---|---|
| **Type** | **Wetland Impacts (acres)** | **UMAM Score** | **Required Standard Freshwater Functional Gain** |
| Streams and Lake Swamps (Wetland 62) | 0.25 | 0.77 | 0.20 |
| *NOTE: All figures in this table are taken from the attached UMAM Summary Sheets (**Appendix C**).* | | | |

It is estimated that the wetlands and waterways in the Preferred Alternative will require a total of approximately 13.25 units of standard freshwater wetland functional gain to offset the impacts in both drainage basins.

## 5.4 Avoidance and Minimization

Wetland avoidance and minimization has been a priority throughout all phases of project development. Thirteen of the 17 stormwater pond site alternatives in the project study area have been eliminated from the Preferred Alternative, which results in the avoidance of significant potential wetland impacts. As the project advances through subsequent phases, additional avoidance and minimization of wetland impacts will continue to be considered to the maximum extent practicable. At this time, it is estimated that a total of 22.15 acres of wetlands and jurisdictional waters will be permanently impacted. Applicable Best Management Practices (BMPs) for erosion control and water quality considerations will be adhered to during the construction phase of the project. The use of BMPs (e.g., standard silt fencing, floating turbidity barriers, etc.) as necessary will protect the water quality of downstream systems.

## 5.5 Secondary and Cumulative Impacts

Secondary impacts may include increased noise, light penetration, and wildlife mortality beyond the limits of construction of a project. Secondary impacts vary from project to project, and the amount and extent of secondary impacts (if any) will be determined during the permitting process. If secondary impacts are determined to be incurred, additional mitigation may be required. The size, extent, and loss of function to adjacent wetlands will be determined during permitting and will vary based on surrounding land use, proposed work, and other factors.

Cumulative impacts are not assessed if mitigation is performed in the same basin in which the impacts are incurred. For convenience, the estimated wetland impacts and functional losses expected to be incurred in each of the two basins that the project occurs in are given separately in **Tables 8** and **9**. FDOT will provide mitigation, if required, for unavoidable permanent impacts within the basin in which the impacts are incurred if and when possible. Therefore, cumulative impacts are not expected and were not assessed.

## 5.6 Wetland Mitigation (Conceptual)

The permanent impact of all wetlands and waterways in the Preferred Alternative area will require a total of approximately 13.25 units of standard freshwater wetland functional gain to offset the

impacts in both drainage basins. This standard freshwater mitigation can be accomplished by purchasing mitigation bank credits from a bank or banks that serve the area in which the project is located. Since the SR 16 project is linear, the project may be allowed to utilize credits from a bank whose service area includes only part of the project if bank credits for the remaining area are not available from a bank serving that area. The exact amount and type of mitigation required for all impacts will be identified and negotiated with all applicable regulatory agencies when the project enters the design/permitting phase.

Mitigation generally has to be in-kind – forested credits for impacts to forested wetland types, and emergent credits for impacts to non-forested wetland types (for example, marshes and wet prairies). The final requirements for mitigation type for each impact area can only be determined during permitting, as the structure of an impact area may change (the canopy in a forested area may be cleared or an emergent area may develop a canopy) and may also vary based on regulatory agency preferences and/or current availability of mitigation credit types. Due to these variables, the expected freshwater credit requirements given in this report are not broken down into forested vs. emergent. At this time, mitigation credits are available from the following commercial sources serving the two basins in which the Preferred Alternative is located:

- Sixmile & Julington Creeks Nested Basin – Fish Tail Swamp Mitigation Bank, Lake Swamp Mitigation Bank, St. Johns Mitigation Bank, St. Marks Pond Mitigation Bank, Star 4 Mitigation Bank, Town Branch Mitigation Bank, and Tupelo Mitigation Bank
- Pellicer Creek & Matanzas River Basin – Brick Road Mitigation Bank, Fish Tail Swamp Mitigation Bank, Lake Swamp Mitigation Bank, St. Johns Mitigation Bank, and St. Marks Pond Mitigation Bank

The required wetland mitigation credits could be sourced from one or more than one of the above-listed mitigation banks. FDOT will continue to consider all mitigation options to provide the necessary mitigation when the mitigation is required. Wetland impacts which will result from the construction of this project will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and 33 U.S.C.§1344.

## 5.7 Agency Coordination

Agency coordination will be conducted as necessary throughout the design and permitting phases of the project.

## 5.8 Wetlands Finding

A Wetlands Finding was made in accordance with Executive Order 11990. It is as follows:

1. The proposed project will have no significant short-term or long-term adverse impacts to wetlands;
2. There is no practicable alternative to construction in wetlands; and
3. Measures have been taken to minimize harm to wetlands.

# 6.0 Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-276), established procedures designed to identify, conserve, and enhance EFH for those species regulated under a federal fisheries management plan (FMP).

EFH is defined in the MSFCMA as "…those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The 1997 NMFS rules further clarify EFH with the following definitions:

**Waters** – aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate;

**Substrate** – sediment, hard bottom, structures underlying the waters, and associated biological communities;

**Necessary** – the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and

**Spawning, breeding, feeding, or growth to maturity** – stages representing a species' full life cycle.

Habitat Areas of Particular Concern (HAPCs) are established by the NMFS to protect habitat for species managed by that agency. In large rivers near the coast, HAPCs are typically designated to protect freshwater spawning habitat for penaeid shrimp. HAPCs are related to, but not necessarily the same as, EFH.

## 6.1 Methods

The project study area was evaluated for impacts to EFH in accordance with the Essential Fish Habitat chapter of the FDOT PD&E Manual during the site visits and database searches. Resources utilized for this evaluation included field observations, aerial photographs, soil survey data, and the NMFS' Southeast Region EFH/HAPC Mapper. In inland areas, it is generally understood that EFH is limited to portions of waterways that are subject to the ebb and flow of the tide, regardless of their salinity, and that in such tidal waters EFH extends up to the Mean High Water Line (MHWL) of the system. Tidal action pushes water upstream into freshwater systems, and these tidal pulses extend beyond the reach of saline waters and plants adapted to saline or brackish conditions. Therefore, EFH consists of saline, brackish, and freshwater tidal waters. Mitigation for the permanent loss (fill) of saline or brackish EFH is saltmarsh functional gain. Mitigation for the permanent loss of freshwater tidal EFH may be accomplished in several ways.

## 6.2 Results

The NMFS' Mapper indicated that EFH and HAPCs do not occur within the project study area, including in Turnbull Creek. At SR 16, Turnbull Creek is a small forested freshwater creek dominated by freshwater-adapted vegetation. Therefore, this report concludes that EFH and HAPCs do not occur in the project study area and will not be affected by the proposed project.

## 6.3 Potential Impacts and Mitigation (Conceptual)

EFH and HAPCs do not occur in the project study area and therefore no additional mitigation to offset impacts to these resources will be required.

## 6.4 Agency Coordination

No further coordination with NMFS or USACE regarding EFH or HAPCs will be required for this project.

# 7.0 Anticipated Permits

## 7.1 Listed Species

If the bald eagle nest in Pond Site Alternative 2C is considered active and must be taken, then an Incidental Take Permit from USFWS will be required.

## 7.2 Wetlands

The regulatory agencies exerting jurisdiction over potentially affected wetlands will require permits for unavoidable impacts. The permit will have to consider wetland impacts (if any are proposed) and/or the modification or creation of the stormwater management system. The project size, nature of the proposed work, and wetland impacts will all dictate the type of state and federal environmental resource permits required.

The project is expected to require either an Individual Environmental Resource Permit (ERP) from SJRWMD for the wetland impacts and stormwater system or be considered a modification to one or more existing ERPs. State wetland mitigation is expected to be required for all impacts to wetlands and jurisdictional waters.

Federal wetland permitting is the responsibility of USACE. The project may qualify for Regional General Permit (RGP) SAJ-92 from USACE. The potential use of RGP SAJ-92 is dependent on FDOT approval of the PD&E document and that its status remains current. In addition, qualification for the use of the RGP would depend on multiple factors, such as total project dredge and fill impacts, maximum impact acreage per mile, whether the project is determined to include "new alignment", and whether USACE agrees to allow it to be processed under that permit. Importantly, the use of RGP SAJ-92 is limited to projects that have less than five acres of impact for any one mile segment. The total impacts per mile of this project can only be determined when final federal jurisdiction is established and when final pond site selection is made. If the project does not qualify for the RGP, then an Individual Permit from USACE is required by Section 10/Section 404. Regardless of the type of permit issued by USACE, all wetland impacts are expected to require federal wetland mitigation.

Compliance with federal Section 404(b)(1) guidelines includes verification that all impacts have been avoided to the greatest extent practicable, that unavoidable impacts have been minimized, and that a compensatory mitigation plan has been provided for unavoidable wetland impacts.

Pursuant to 40 CFR parts 122 and 124, any project that results in the clearing of one or more acres of land will require a National Pollutant Discharge Elimination System (NPDES) permit from the FDEP. In association with this permit, a Stormwater Runoff Control Concept (SRCC), implemented during the construction of the project, will also be required. The primary functions of the NPDES requirements are to ensure that sediment and erosion are controlled during construction of the project. These permits require adherence to BMPs to ensure compliance.

## 7.3 Essential Fish Habitat

The project will not require permits for impacts to EFH or HAPCs.

# 8.0 Conclusion

FDOT District 2 is conducting a PD&E Study for improvements to a 5.9-mile section of SR 16 between IGP and I-95. Within the study limits, SR 16 is functionally classified as a rural principal arterial-other.

This study will evaluate widening the existing two-lane rural roadway to a four-lane divided urban roadway. In addition, multi-modal transportation improvements including continuous bicycle and pedestrian facilities will be evaluated. SR 16 has one existing bridge (Bridge Number 780064) over Turnbull Creek. The existing bridge will need to be replaced due to proposed profile changes.

The primary purpose of this project is to improve traffic mobility, reduce congestion, and address safety on SR 16 from IGP to I-95. The secondary purpose of the project is to accommodate planned developments.

The project study area for this report is defined as the roadway alignment, 17 pond site alternatives, one floodplain compensation area, and one drainage easement. The footprint of the Preferred Alternative lies within the project study area and is defined as the roadway alignment, Pond Site Alternatives 2C, 3C, and 4C, a ROW extension leading to Pond Site Alternative 2C, the floodplain compensation area south of Pond Site Alternative 2C, and a drainage easement near Pond Site Alternative 4A.

**Special Designations**

GIS shapefile information regarding regulatory CEs was obtained from SJRWMD. Based on this information, there are eleven recorded CEs that occur close to or possibly within the project study area. Note that based on this preliminary data, Pond Site Alternative 2B appears to fall entirely within a CE, and that Pond Site Alternative 6A appears to contain a portion of another CE. None of these Pond Site Alternatives are included in the Preferred Alternative. CEs appear to occur close to the boundaries of Pond Site Alternatives 2C, the adjacent floodplain compensation area, 3C, and 4C, all of which are included in the Preferred Alternative. Additional work, including boundary location by a licensed surveyor and/or legal research into the location and status of easements, will be necessary to determine if recorded CEs will be impacted by the proposed project. No Aquatic Preserves, Wildlife Management Areas, or Outstanding Florida Waters, National Wildlife Refuges, or Wild and Scenic Rivers will be affected by the project.

**Listed Species, Protected Species, and Other Species That May Have Regulatory Significance**

No designated Critical Habitat is present in the project study area and therefore none will be affected by the project. A total of 38 species that are federally-listed, candidate or proposed species for federal listing, and/or state-listed were determined to have some probability of occurrence in the project study area. All are referred to as “listed species” in this report. Federal statuses include not listed (N), candidate (C), under review (UR), proposed endangered (PE), and

threatened (T). State statuses include federally threatened (FT), state endangered (SE), and state threatened (ST). Of the 38 species with the potential to occur in the project study area, two are federally-listed (one reptile species and one bird species) and 34 are state-listed (29 plant species, two reptile species, and three bird species). In addition, there is one candidate species of insect for federal listing and one mammal species proposed for federal listing. FDOT will adhere to several implementation measures and project commitments regarding listed plant and wildlife species. **Table C-1** below summarizes the listed species with potential to occur within the project study area and their effect determinations.

**Table C-1. Summary of Listed Species with Potential to Occur Within the Project Study Area and Their Effect Determinations**

| Scientific Name | Common Name | Federal Status | State Status | Probability of Occurrence in the Project Study Area | Effect Determination |
|---|---|---|---|---|---|
| **Plants** | | | | | |
| *Asarum arifolium (Hexastylis arifolia)* | Little Brown Jug | N | ST | Low | No Adverse Effect Anticipated |
| *Asclepias viridula* | Southern Milkweed | N | ST | Low | No Adverse Effect Anticipated |
| *Calopogon multiflorus* | Manyflowered Grasspink | N | ST | Low | No Adverse Effect Anticipated |
| *Calydorea coelestina* | Bartram's Ixia | N | SE | Low | No Adverse Effect Anticipated |
| *Carex chapmanii* | Chapman's sedge | N | ST | Low | No Adverse Effect Anticipated |
| *Coreopsis intergrifolia* | Ciliate Leaf Tickseed | N | SE | Low | No Adverse Effect Anticipated |
| *Gonolobus suberosus(= Matelea gonocarpus)* | Anglepod | N | ST | Low | No Adverse Effect Anticipated |
| *Helianthus carnosus* | Lake-side Sunflower | N | SE | Low | No Adverse Effect Anticipated |
| *Lilium catesbaei* | Pine Lily | N | ST | Moderate | No Adverse Effect Anticipated |
| *Litsea aestivalis* | Pondspiece | N | SE | Low | No Adverse Effect Anticipated |
| *Lobelia cardinalis* | Cardinalflower | N | ST | Moderate | No Adverse Effect Anticipated |
| *Lythrum curtissii* | Curtiss' Loosestrife | UR | SE | Low | No Adverse Effect Anticipated |
| *Nemastylis floridana* | Celestial Lily | N | SE | Low | No Adverse Effect Anticipated |
| *Nolina atopocarpa* | Florida Beargrass | N | ST | Low | No Adverse Effect Anticipated |

| Table C-1. Summary of Listed Species with Potential to Occur Within the Project Study Area and Their Effect Determinations | | | | | |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | **Federal Status** | **State Status** | **Probability of Occurrence in the Project Study Area** | **Effect Determination** |
| *Orbexilum virgatum* | Pineland Leatherroot | N | SE | Low | No Adverse Effect Anticipated |
| *Pecluma plumula* | Plume Polypody | N | SE | Low | No Adverse Effect Anticipated |
| *Pinguicula caerulea* | Blueflower Butterwort | N | ST | Low | No Adverse Effect Anticipated |
| *Pinguicula lutea* | Yellow Butterwort | N | ST | Low | No Adverse Effect Anticipated |
| *Platanthera blephariglottis* var. *conspicua* | White Fringed Orchid | N | ST | Low | No Adverse Effect Anticipated |
| *Platanthera ciliaris* | Yellow Fringed Orchid | N | ST | Low | No Adverse Effect Anticipated |
| *Platanthera nivea* | Snowy Orchid | N | ST | Low | No Adverse Effect Anticipated |
| *Pogonia ophioglossoides* | Rose Pogonia | N | ST | Low | No Adverse Effect Anticipated |
| *Pycnanthemum floridanum* | Florida Mountain-mint | N | ST | Low | No Adverse Effect Anticipated |
| *Rudbeckia nitida* | St. Johns Blackeyed Susan | N | SE | Low | No Adverse Effect Anticipated |
| *Ruellia noctiflora* | Nightflowering Wild Petunia | N | SE | Low | No Adverse Effect Anticipated |
| *Sarracenia minor* | Hooded Pitcherplant | N | ST | High | No Adverse Effect Anticipated |
| *Verbesina heterophylla* | Variable-leaf Crownbeard | N | SE | Low | No Adverse Effect Anticipated |
| *Zephyranthes atamasca* var. *atamasca* | Rainlily | N | ST | High | No Adverse Effect Anticipated |
| *Zephyranthes atamasca* var. *treatiae* | Treat's Rainlily | N | ST | High | No Adverse Effect Anticipated |
| **Insects** | | | | | |
| *Danaus plexippus* | Monarch Butterfly | C | N | Moderate | N/A |
| **Reptiles** | | | | | |
| *Drymarchon corais couperi** | Eastern Indigo Snake | T | FT | Low | May Affect, Not Likely to Adversely Affect |

| Table C-1. Summary of Listed Species with Potential to Occur Within the Project Study Area and Their Effect Determinations | | | | | |
|---|---|---|---|---|---|
| **Scientific Name** | **Common Name** | **Federal Status** | **State Status** | **Probability of Occurrence in the Project Study Area** | **Effect Determination** |
| *Gopherus polyphemus** | Gopher Tortoise | N | ST | Moderate | No Adverse Effect Anticipated |
| *Pituophis melanoleucus*** | Pine Snake | N | ST | Low | No Adverse Effect Anticipated |
| **Birds** | | | | | |
| *Egretta caerulea*** | Little Blue Heron | N | ST | High | No Adverse Effect Anticipated |
| *Egretta tricolor*** | Tricolored Heron | N | ST | Moderate | No Adverse Effect Anticipated |
| *Mycteria americana** | Wood Stork | T | FT | High | May Affect, Not Likely to Adversely Affect |
| *Platalea ajaja*** | Roseate Spoonbill | N | ST | Low | No Adverse Effect Anticipated |
| **Mammals** | | | | | |
| *Perimyotis subflavus* | Tricolored Bat | PE | N | Low | N/A |

A bald eagle nest is located within Pond Site Alternative 2C. This pond is currently considered part of the Preferred Alternative. This nest was documented as active and successful during the 2023-2024 nesting season. The current activity status of this nest will be determined before construction. If considered in use, FDOT will work with the U.S. Fish and Wildlife Service (USFWS) to determine if a permit will be required. Practicable design modifications will continue to be applied to reduce impacts to this nest. The parcel is likely sufficiently large enough to allow the pond to be redesigned to avoid directly impacting the nest and to stay out of its 330' primary zone.

### Wetlands and Other Surface Waters

Wetlands and surface waters were identified and evaluated within the entire project study area. However, only those that occur within the Preferred Alternative were assessed as potentially impacted by the project. The footprint of the Preferred Alternative lies within the project study area and is defined as the roadway alignment, Pond Site Alternatives 2C, 3C, and 4C, a ROW extension leading to Pond Site Alternative 2C, the floodplain compensation area south of Pond Site Alternative 2C, and a drainage easement near Pond Site Alternative 4A. For the purposes of this report, the conservative assumption is made that all wetlands and jurisdictional waters within the Preferred Alternative will be permanently impacted by the project. It is estimated that a total of 21.90 acres of vegetated wetlands and 1.25 acres of jurisdictional surface waters occur within the Preferred Alternative and that all of these areas will be permanently impacted. It is estimated that the Preferred Alternative's permanent impacts will require wetland mitigation totaling 13.25 units of freshwater functional gain. At this time, mitigation credits are available from the following

commercial sources: Fish Tail Swamp Mitigation Bank, Lake Swamp Mitigation Bank, St. Johns Mitigation Bank, St. Marks Pond Mitigation Bank, Star 4 Mitigation Bank, Town Branch Mitigation Bank, Tupelo Mitigation Bank, Brick Road Mitigation Bank, Fish Tail Swamp Mitigation Bank, Lake Swamp Mitigation Bank, St. Johns Mitigation Bank, and St. Marks Pond Mitigation Bank.

The required wetland mitigation credits could be sourced from one or more than one of the above-listed mitigation banks. FDOT will continue to consider all mitigation options to provide the necessary mitigation when the mitigation is required. The method and source of the necessary mitigation will be finalized during the permitting process. As the project progresses into the design phase, it is possible that not all wetlands and jurisdictional waters in the Preferred Alternative will be permanently and completely impacted. Temporary impacts, secondary impacts, and temporary work areas (if any) are not known at this time. Wetland impacts will be finalized during the permitting process.

Existing upland-cut roadside ditches are not specifically delineated or quantified in this report, and no existing wet retention stormwater ponds were identified. During the permitting phase, if existing non-jurisdictional canals, upland-cut ditches, and/or wet retention stormwater ponds are included in the final project, these waters should be considered non-jurisdictional and exempt from state and federal mitigation requirements.

Wetland impacts were evaluated in accordance with Executive Order 11990. A Wetlands Finding has been reached and it is as follows:

1. The proposed project will have no significant short-term or long-term adverse impacts to wetlands;
2. There is no practicable alternative to construction in wetlands; and
3. Measures have been taken to minimize harm to wetlands.

Wetland impacts which will result from the construction of this project will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and 33 U.S.C. §1344.

**Essential Fish Habitat**

The project study area does not contain EFH or HAPCs. Therefore, no additional mitigation or agency coordination is necessary for impacts to these resources.

**Anticipated Permits**

If the bald eagle nest in Pond Site Alternative 2C is considered active and must be taken, then an Incidental Take Permit from USFWS will be required.

The project is expected to require either an Individual Environmental Resource Permit (ERP) from SJRWMD for the wetland impacts and stormwater system or be considered a modification to one

or more existing ERPs. Federal wetland permitting is the responsibility of the U.S Army Corps of Engineers (USACE). The project may qualify for Regional General Permit (RGP) SAJ-92. If not, it will require a federal Individual Permit from USACE. Both agencies (SJRWMD and USACE) will require standard freshwater functional gain (such as in the form of mitigation bank credits) to offset the loss of ecological values.

**Implementation Measures and Commitments**

FDOT will adhere to several implementation measures and project commitments regarding plant and wildlife species. They are included below.

*Implementation Measures:*

- Surveys to update locations of active bald eagle nest sites will be conducted during the design phase, and permits will be acquired if there will be unavoidable impacts during construction. Coordination with USFWS and FWC will take place as necessary.
- FDOT will conduct surveys for protected plants and animals within the project area as part of the permitting process.
- If state- or federally-listed plants or wildlife are identified within the project area, FDOT will coordinate with the appropriate agency to address potential impacts.

*Project Commitments:*

- The most recent version of the USFWS Standard Protection Measures for the eastern indigo snake will be utilized during construction.
- FDOT will provide mitigation for impacts to wood stork Suitable Foraging Habitat within the service area of a Service-approved wetland mitigation bank or wood stork conservation bank.
- If the monarch butterfly is listed by USFWS as threatened or endangered and the project may affect the species, FDOT commits to re-initiating consultation with USFWS to determine appropriate avoidance and minimization measures for protection of the newly listed species.
- If the tricolored bat is listed by USFWS as threatened or endangered and the project may affect the species, FDOT commits to re-initiating consultation with USFWS to determine appropriate avoidance and minimization measures for protection of the newly listed species.
- Structures within the project area will be fully inspected for the presence of bats, including the tricolored bat, during design and permitting and again prior to construction. If bats are present in bridges or culverts, FDOT will follow current agency protection measures and will employ exclusion measures as necessary to prevent negative impacts to roosting bats.

# 9.0 References

Browder, J.A. 1984. Wood stork feeding areas in southwest Florida. Fla. Field Nat. 12:81-96.

Cowardin, L.M., V. Carter V., F.C. Golet, E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service Report No. FWS/OBS/-79/31.Washington, D.C.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. Including Regional Supplement to the Corps Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region, November 2010.

Florida Department of Transportation (FDOT). 1999. Florida Land Use, Cover and Forms Classification System. FDOT, Tallahassee, Florida. 43pp.

Florida Department of Transportation. July 1, 2023. Project Development and Environmental Manual; Part 2, Chapter 16, Protected Species and Habitat. FDOT, Tallahassee, Florida.

Florida Department of Transportation. July 1, 2023. Project Development and Environmental Manual; Part 2: FDOT PD&E Manual Part 2, Chapter 9, Wetlands and Other Surface Waters. FDOT, Tallahassee, Florida

Florida Department of Transportation. July 1, 2023. Project Development and Environmental Manual; Part 2: FDOT PD&E Manual Part 2, Chapter 17, Essential Fish Habitat. FDOT, Tallahassee, Florida

U.S. Fish and Wildlife Service (USFWS). February 2023. Species Overview: Red-cockaded Woodpecker (Picoides borealis). FWS Focus. Web accessed at: https://www.fws.gov/species/red-cockaded-woodpecker-picoides-borealis

Florida Natural Areas Inventory (FNAI). 2022. Florida Guide to Rare Animals of Florida.

FNAI, 2001a. Field Guide to the rare Animals of Florida: Florida Pine Snake (Pituophis melanoleucus mugitus). Obtained online at:
https://www.fnai.org/PDFs/FieldGuides/Pituophis_melanoleucus_mugitus.pdf

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

Kahl, M. P., Jr. 1964. Food ecology of the wood stork (Mycteria americana) in Florida. Ecol. Monogr. 34:97-117.

Moler, P. E. 1992. Eastern Indigo Snake, Drymarchon corais couperi. 181-186 pp. In: Rare and Endangered Biota of Florida-Amphibians and Reptiles, Vol. III. P.E. Moler, ed. University Press of Florida, Gainesville, Florida.

Ogden J. C., J. A. Kushlan, and J. T. Tilmant. 1978. The food habits and nesting success of wood storks in Everglades National Park 1974. Natl. Park Serv. Res. no.16. Washington, D. C.

Ogden, J.C. 1996. Wood Stork, Mycteria americana. 31-41 pp. In: Rare and Endangered Biota of Florida-Birds, Vol. V. Rodgers, J. A., Jr., Kale, H. W., and Smith, H. T., eds. University Press of Florida, Gainesville, Florida.

Rodgers, J. A., Jr., A. S. Wenner, and S. T. Schwikert. 1988. The use and function of green nest material by wood storks. Wilson Bull. 100:411-423 (cited in Rogers et al., 1996).

United States Department of Agriculture-Natural Resource Conservation Service Web Soil Survey. 2019. Soil Survey of St. Johns County, Florida.

United States Army Corps of Engineers (USACE), Jacksonville District. 2013. The Corps of Engineers, Jacksonville District and the State of Florida Effect Determination Key for the Manatee in Florida. 1-12.

United States Army Corps of Engineers/United States Fish and Wildlife Service. 2008. Effect Determination Key for the Wood Stork in Central and North Peninsular Florida. Wood Stork Effect Determination Key.

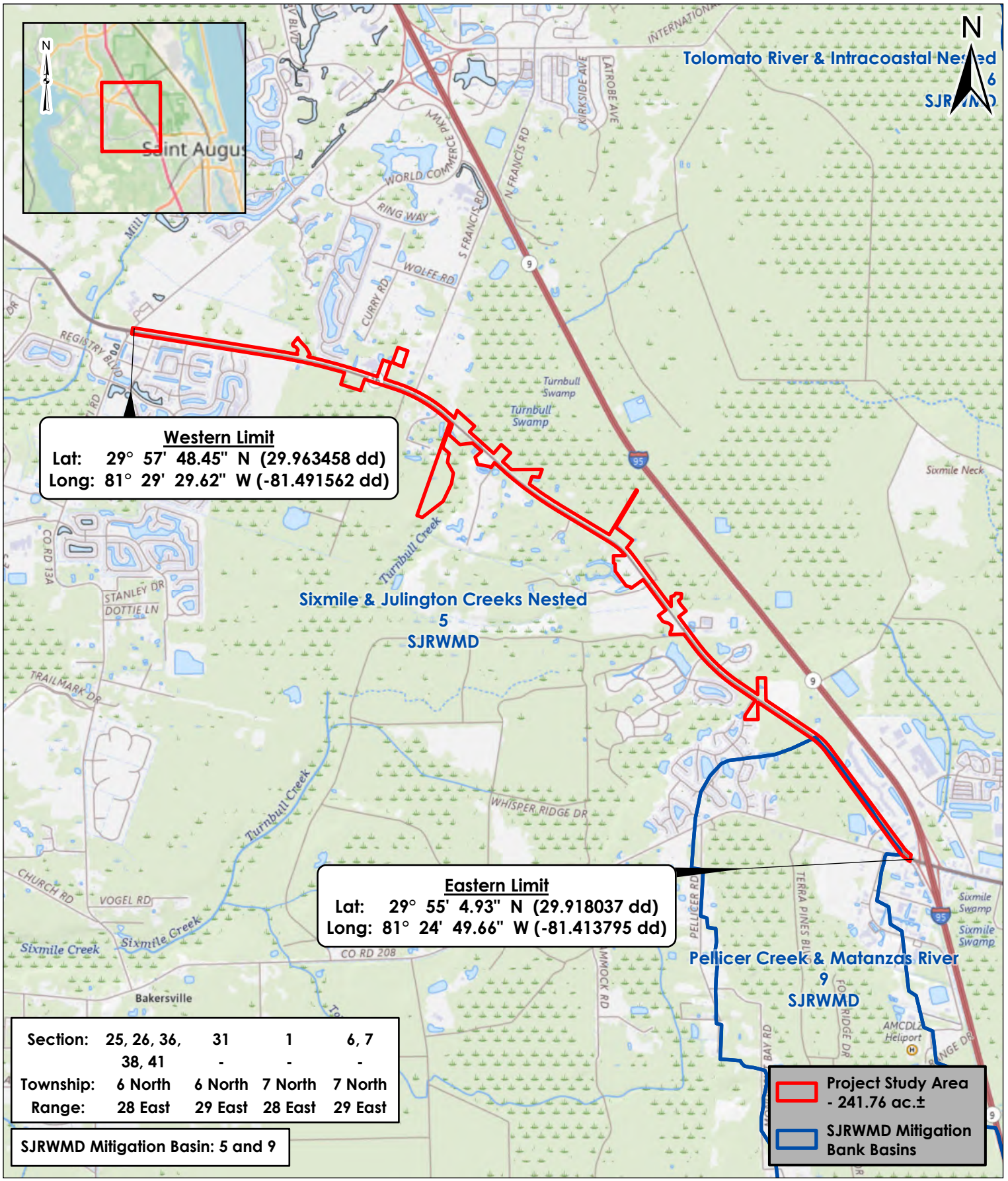
United States Fish and Wildlife Service. 1996. Multi Species Recovery Plan for South Florida: Wood Stork. 4:393-428.

United States Fish and Wildlife Service. Updated April 2013. Eastern Indigo Snake Effect Programmatic Effect Determination Key. 1-7.

# Appendix A – Project Exhibits

# Appendix A – Project Exhibits

*Exhibit 1 – USGS Topographical Quadrangle Map*




| Section: | 25, 26, 36, 38, 41 | 31 | 1 | 6, 7 |
|---|---|---|---|---|
| Township: | 6 North | 6 North | 7 North | 7 North |
| Range: | 28 East | 29 East | 28 East | 29 East |

SJRWMD Mitigation Basin: 5 and 9

0 2,000 4,000
Feet

DATA SOURCE(S):
ESRI WMS - World Topography Basemap; Bakersville, FL Quadrangle

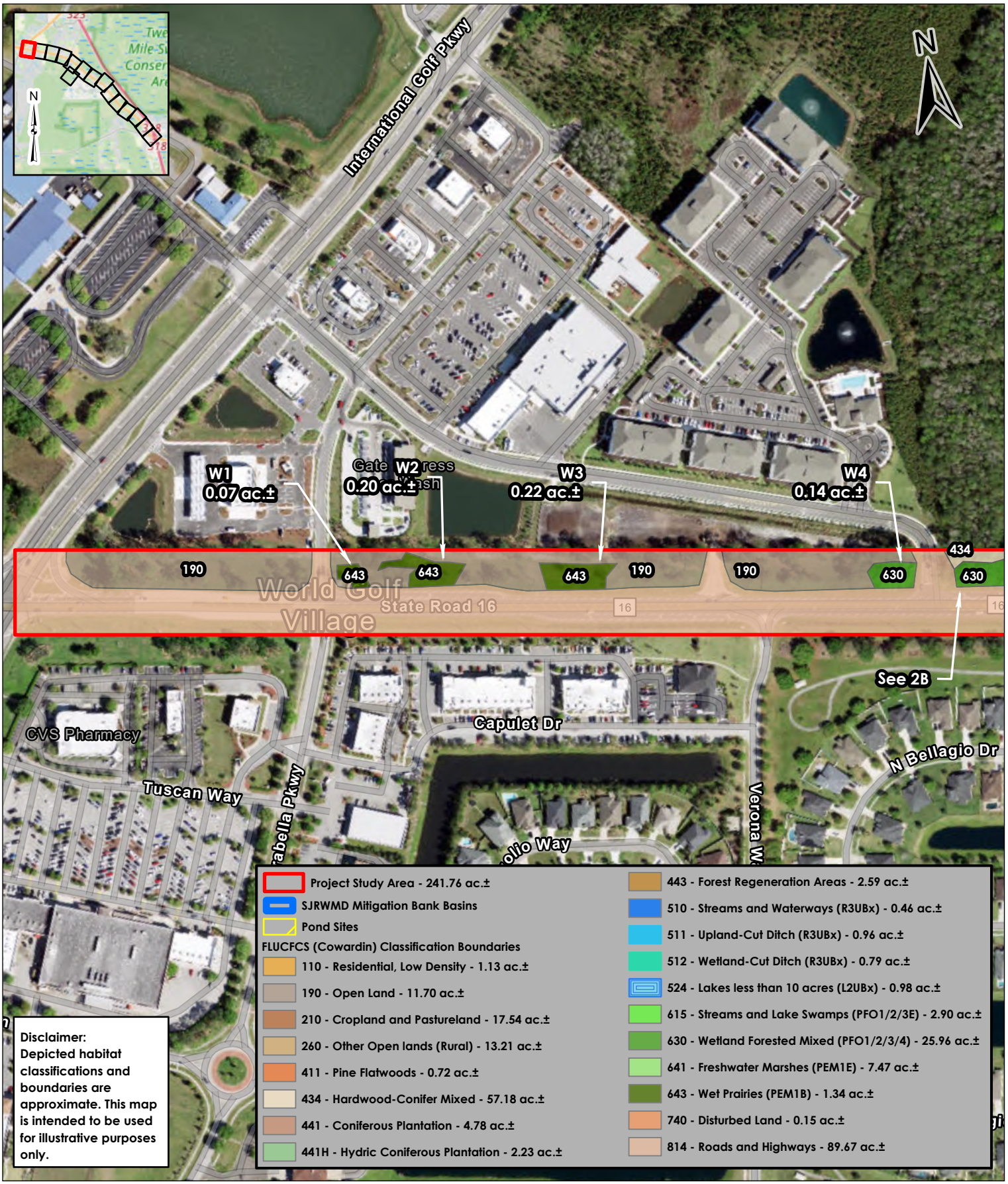
# USGS Topographic Map

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | JDS |
| Approved By: | KAC |
| EXHIBIT NUMBER | 1 |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx

*Exhibit 2 – Habitat Maps*




**Disclaimer:**
Depicted habitat classifications and boundaries are approximate. This map is intended to be used for illustrative purposes only.

0 150 300
Feet

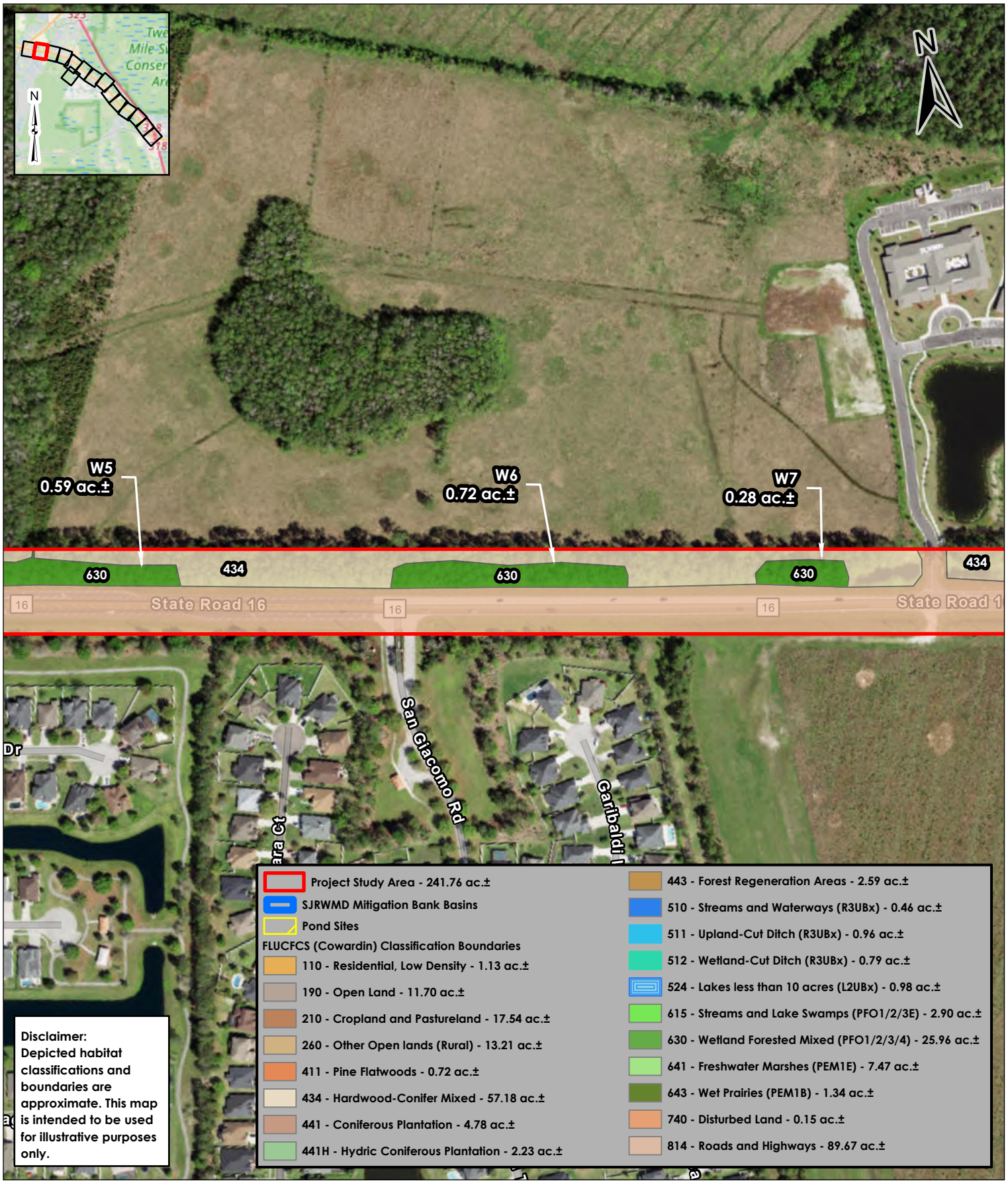
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 2A |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

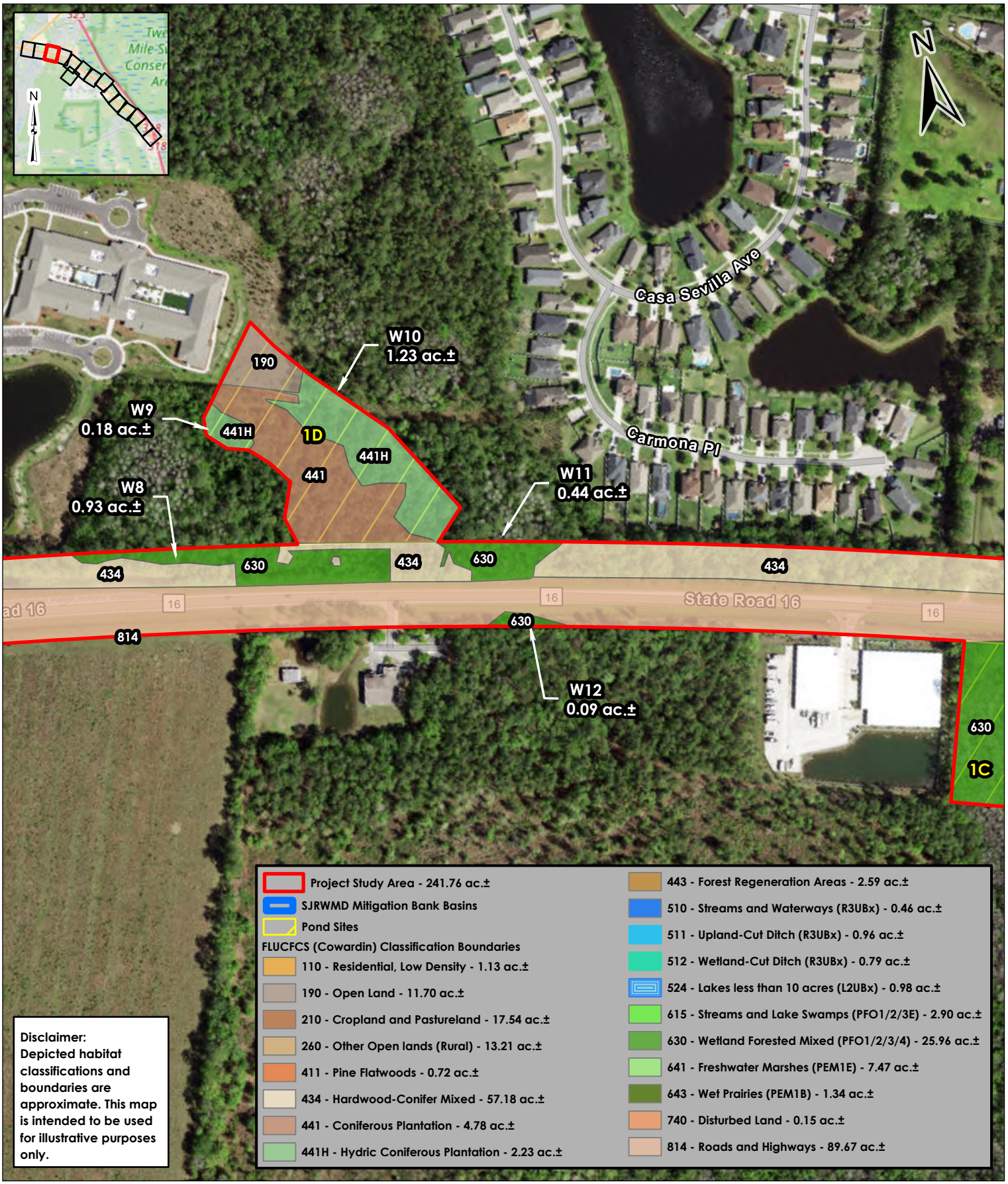
# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |

EXHIBIT NUMBER **2B**

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

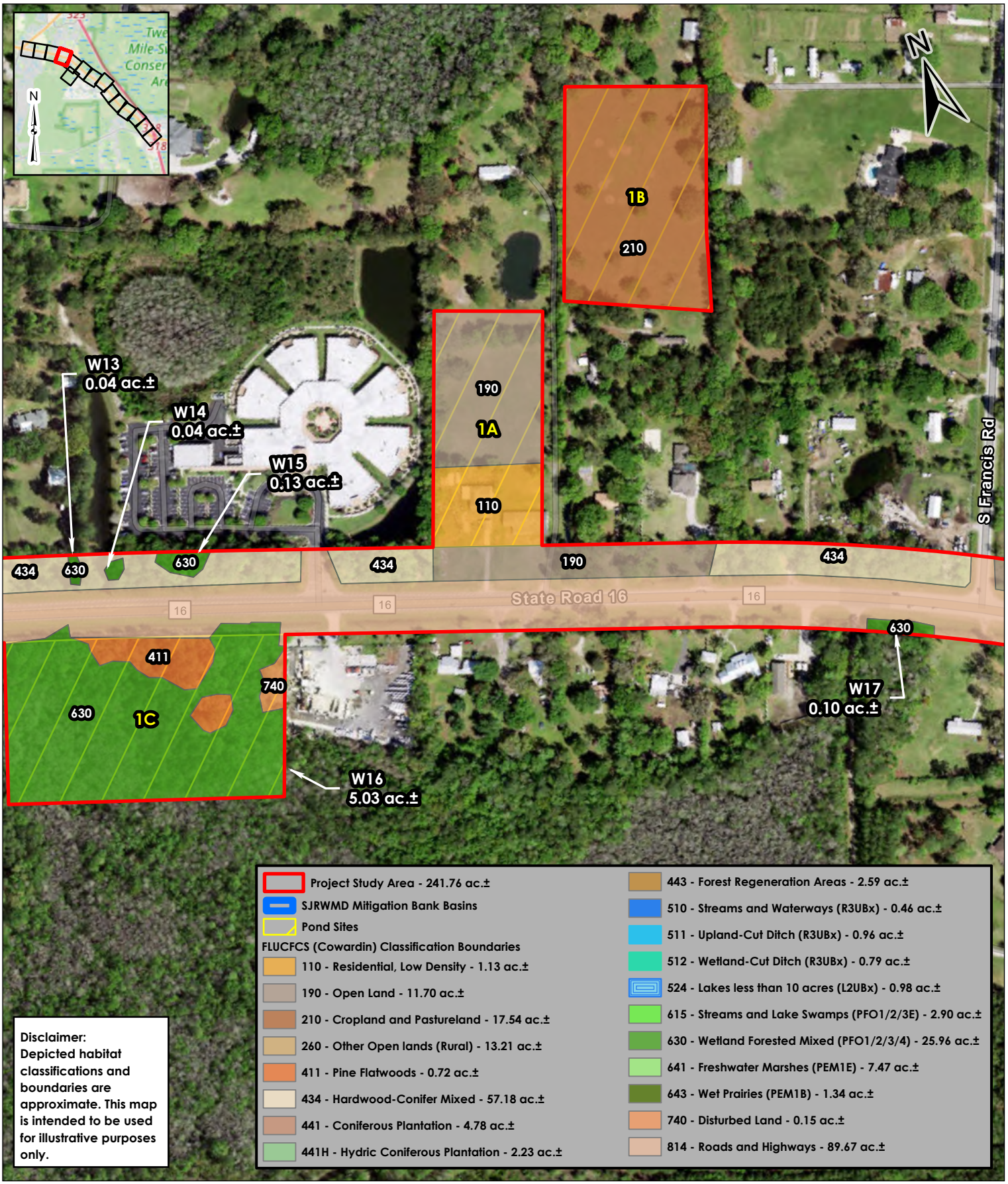
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 2C |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




**Disclaimer:**
Depicted habitat classifications and boundaries are approximate. This map is intended to be used for illustrative purposes only.

0 150 300
Feet

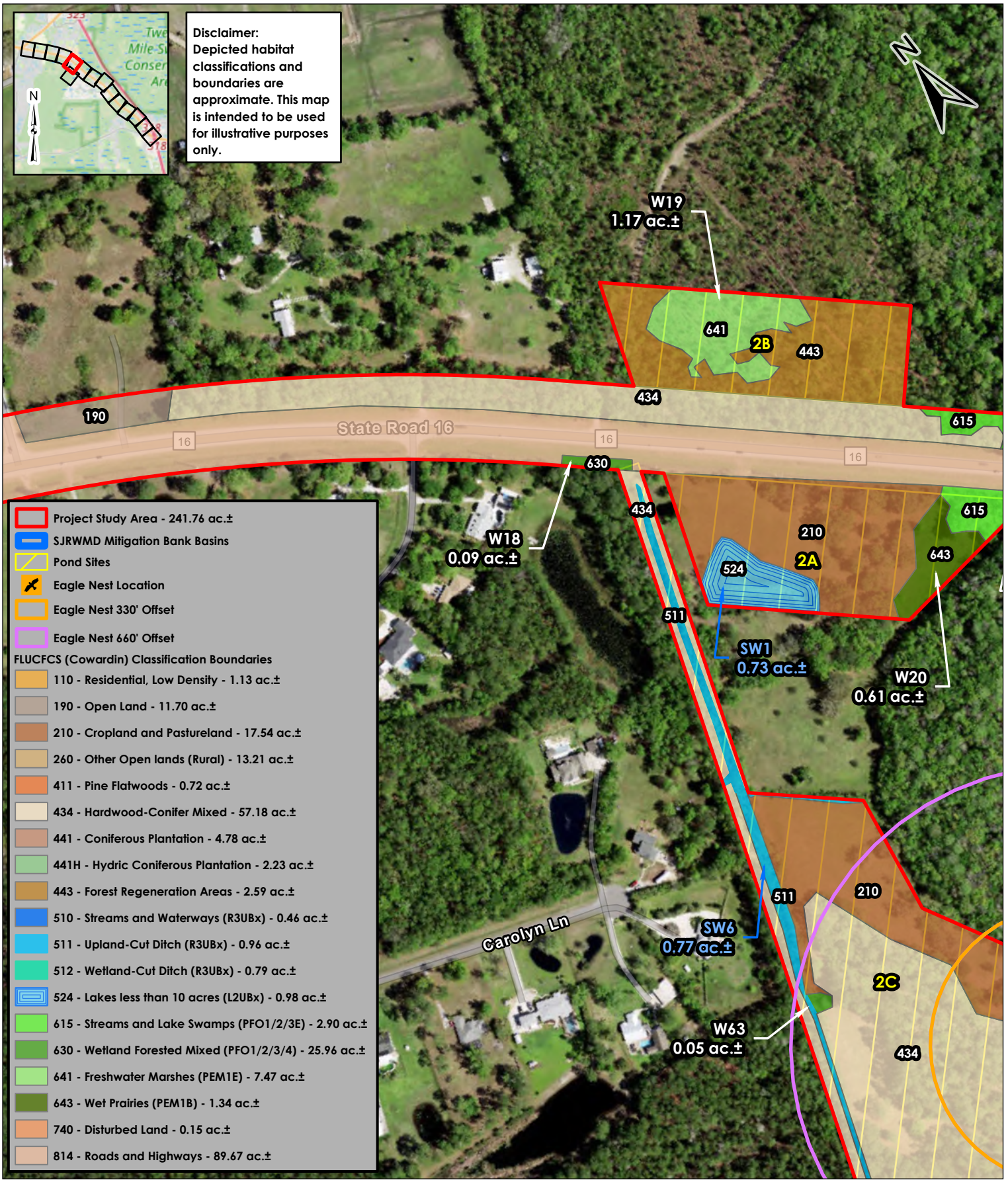
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 2D |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

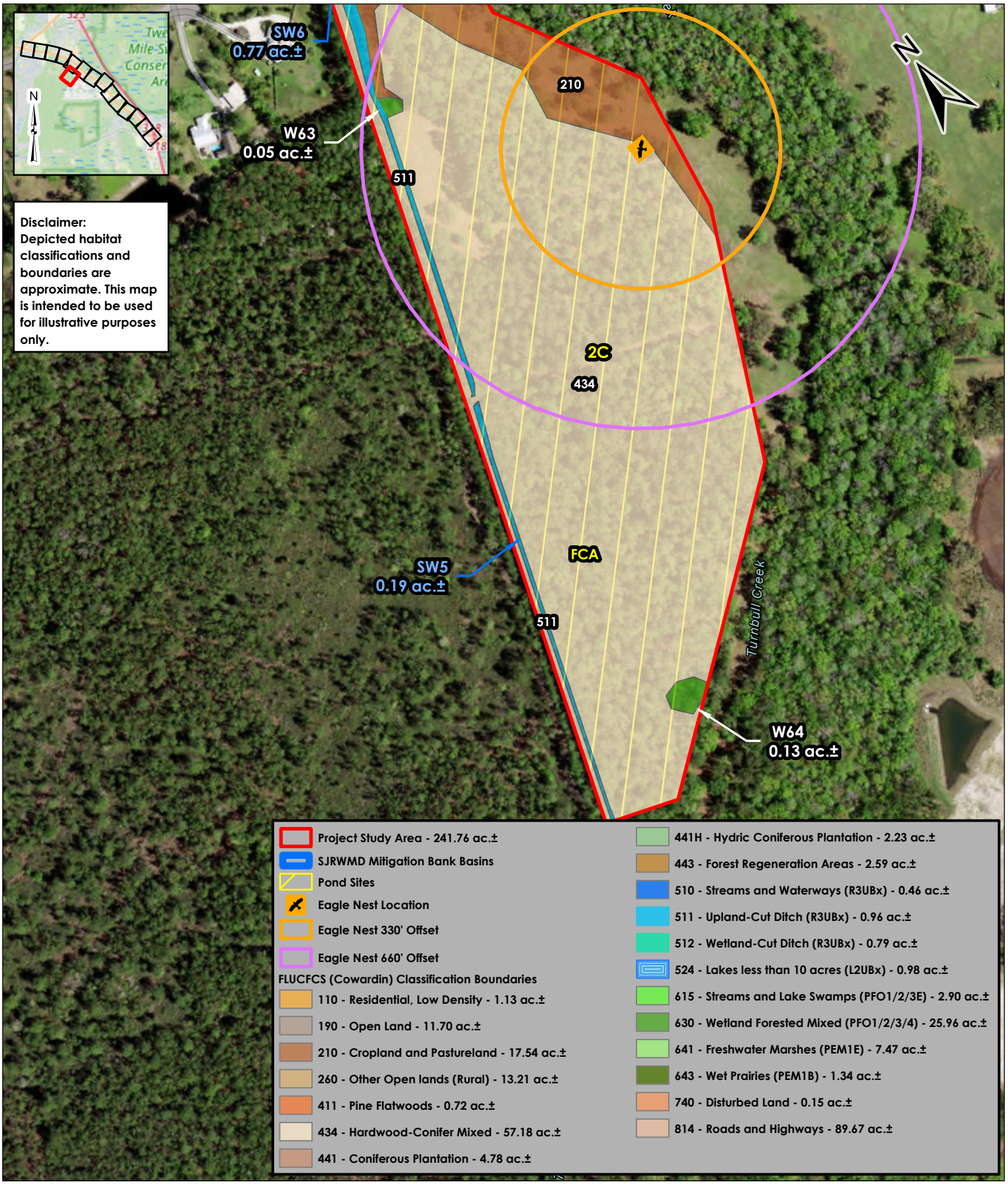
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Aug 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 2E |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

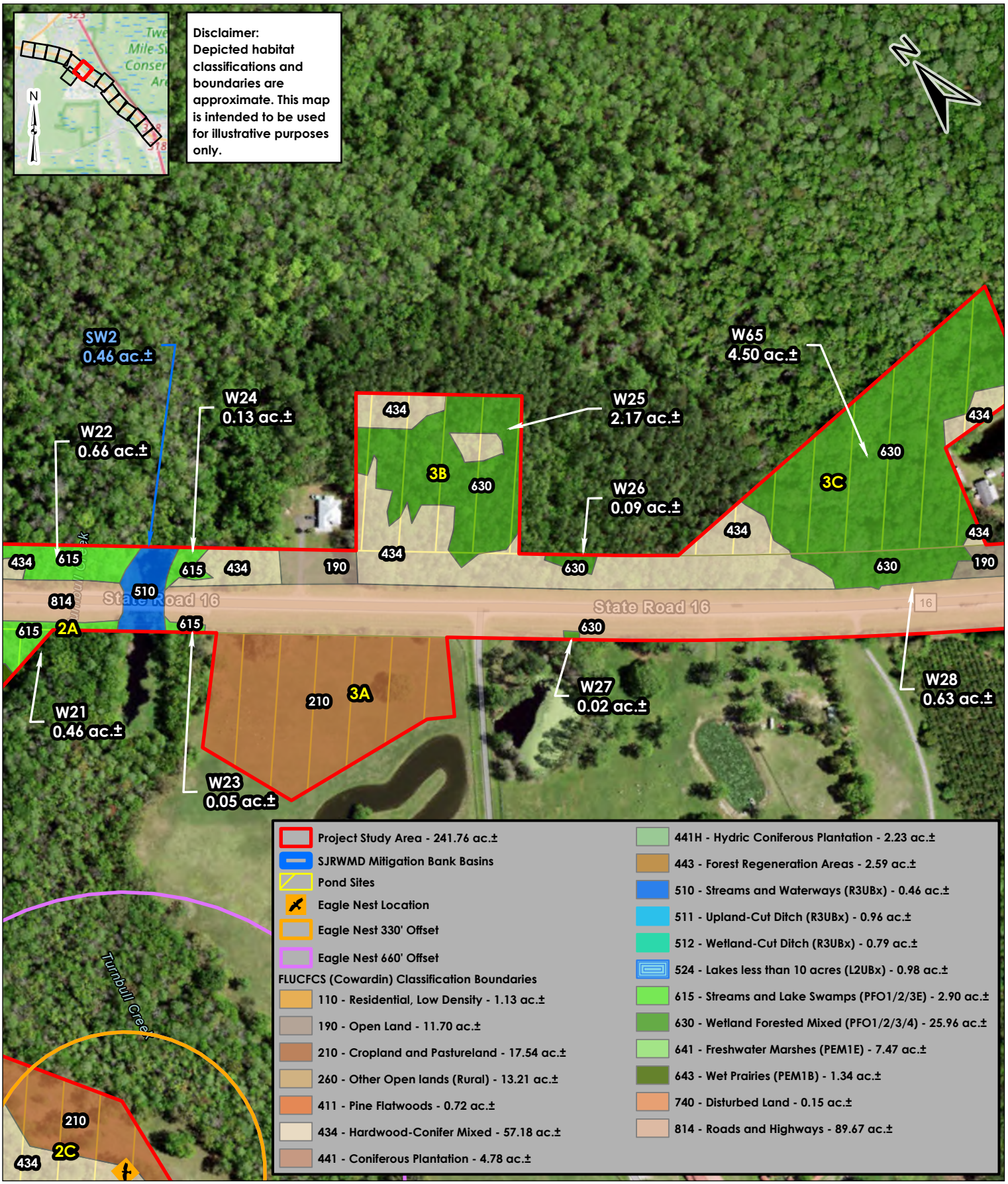
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Aug 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 2F |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

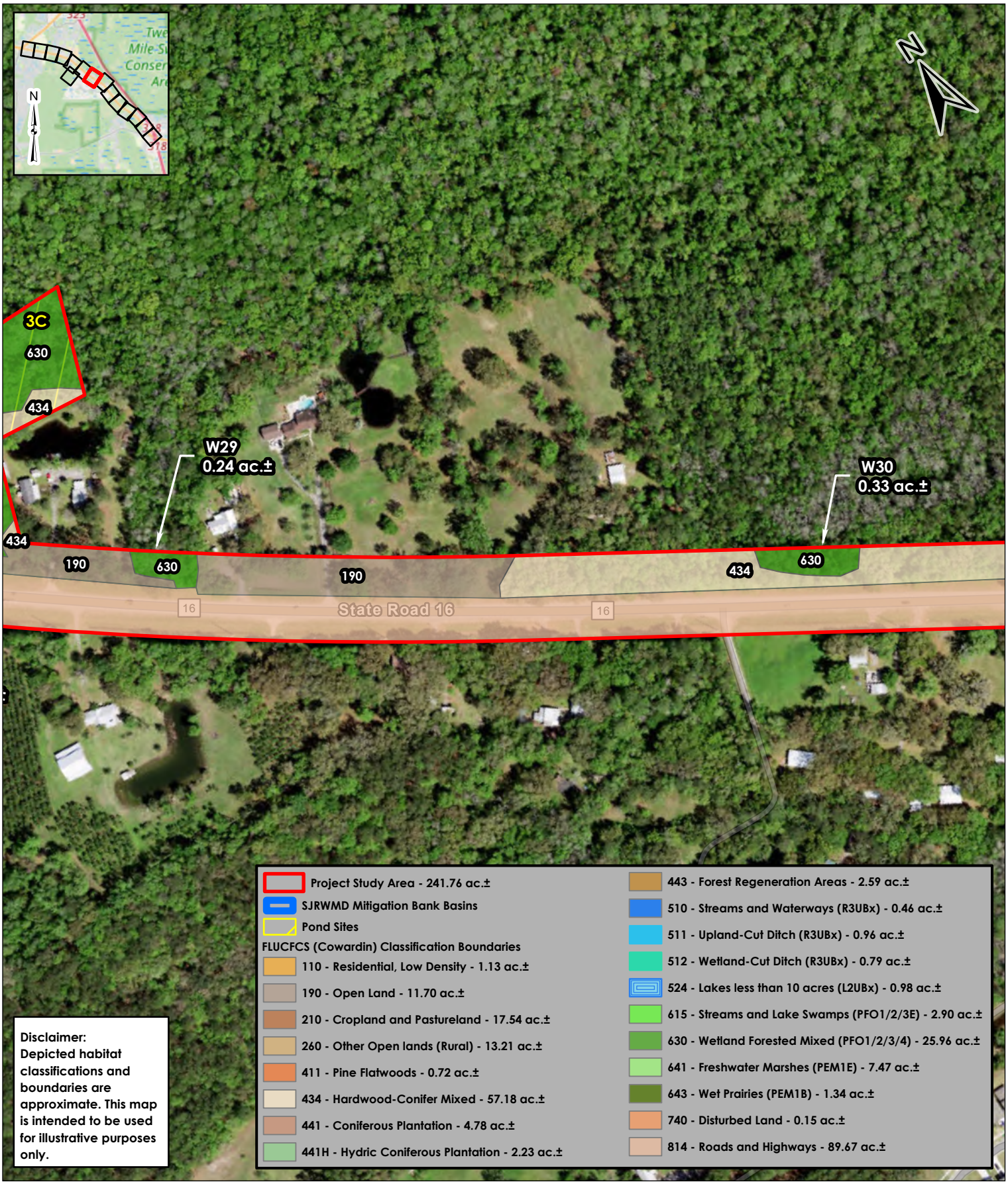
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Aug 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 2G |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

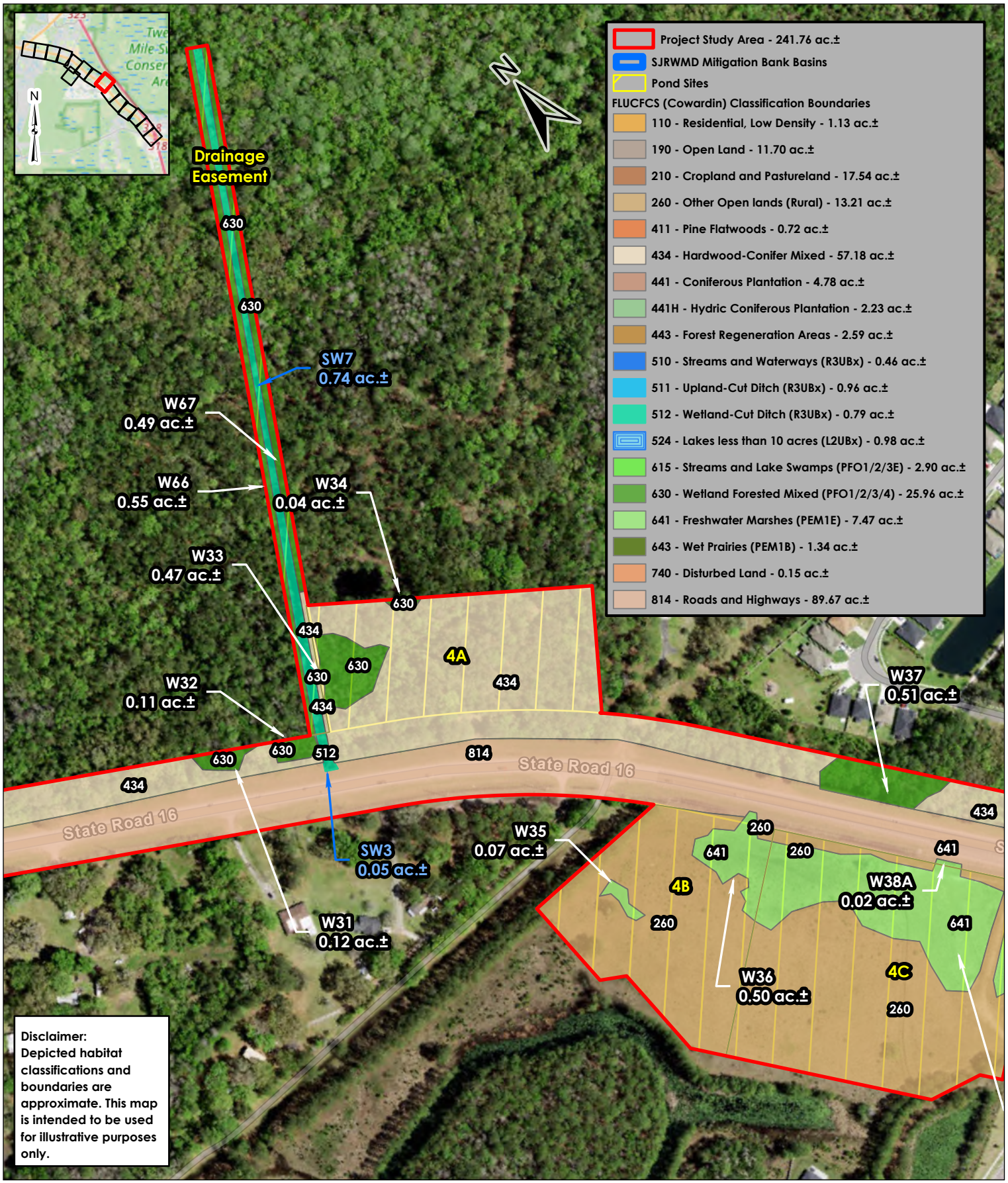
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 2H |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




Disclaimer:
Depicted habitat classifications and boundaries are approximate. This map is intended to be used for illustrative purposes only.

0 150 300
Feet

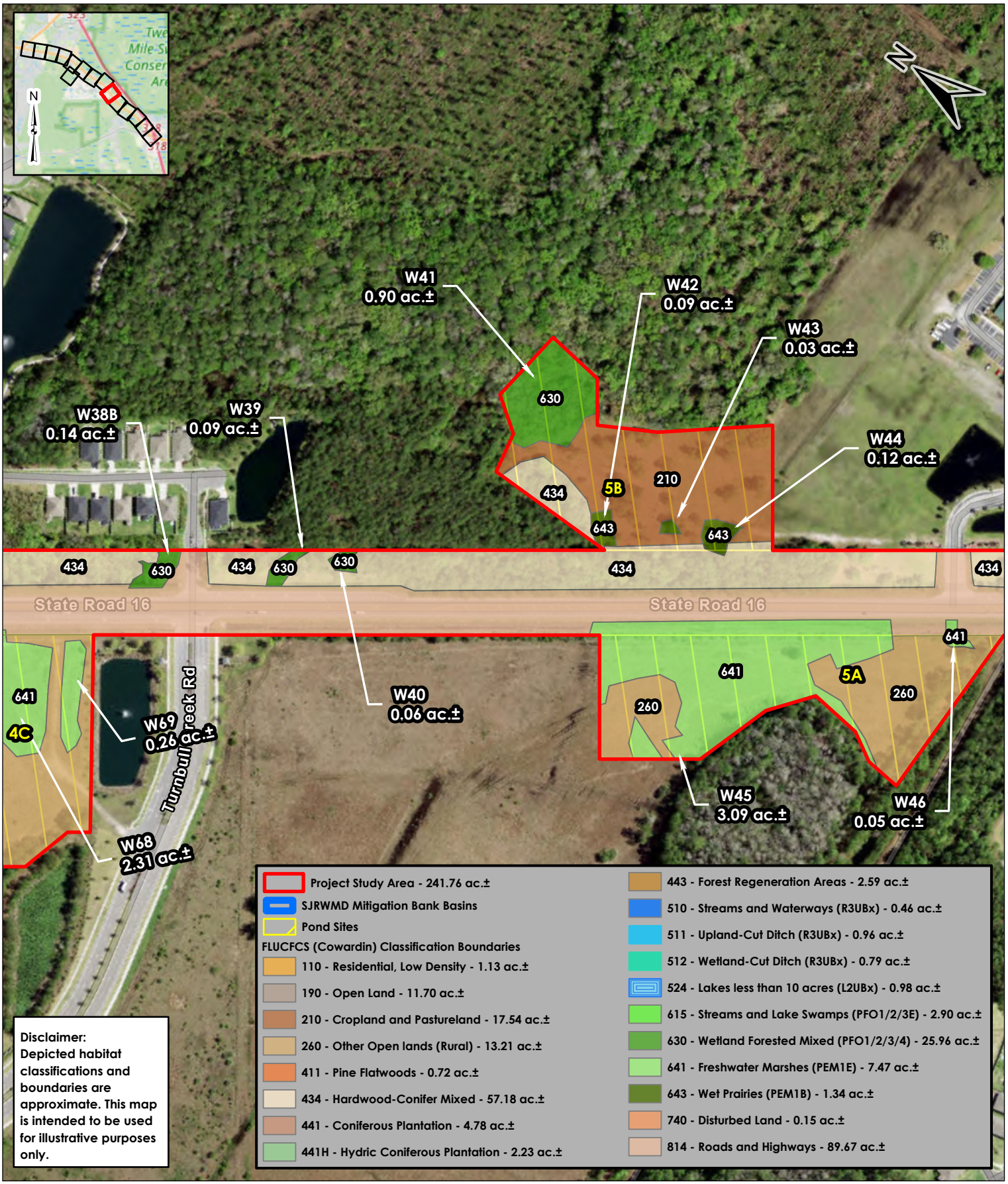
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 21 |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




**Disclaimer:**
Depicted habitat classifications and boundaries are approximate. This map is intended to be used for illustrative purposes only.

0 150 300
Feet

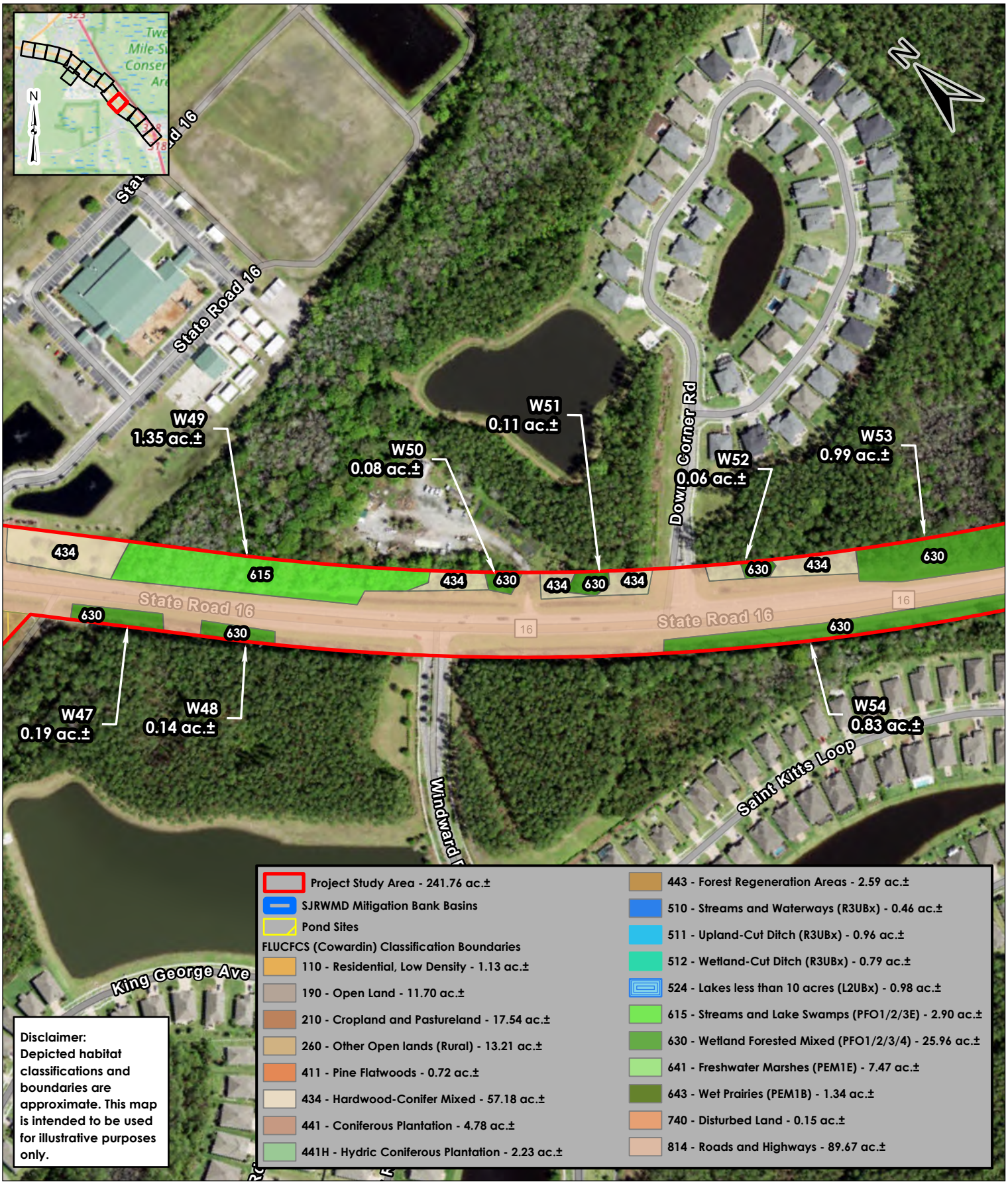
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 2J |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




**Disclaimer:**
Depicted habitat classifications and boundaries are approximate. This map is intended to be used for illustrative purposes only.

0 150 300
Feet

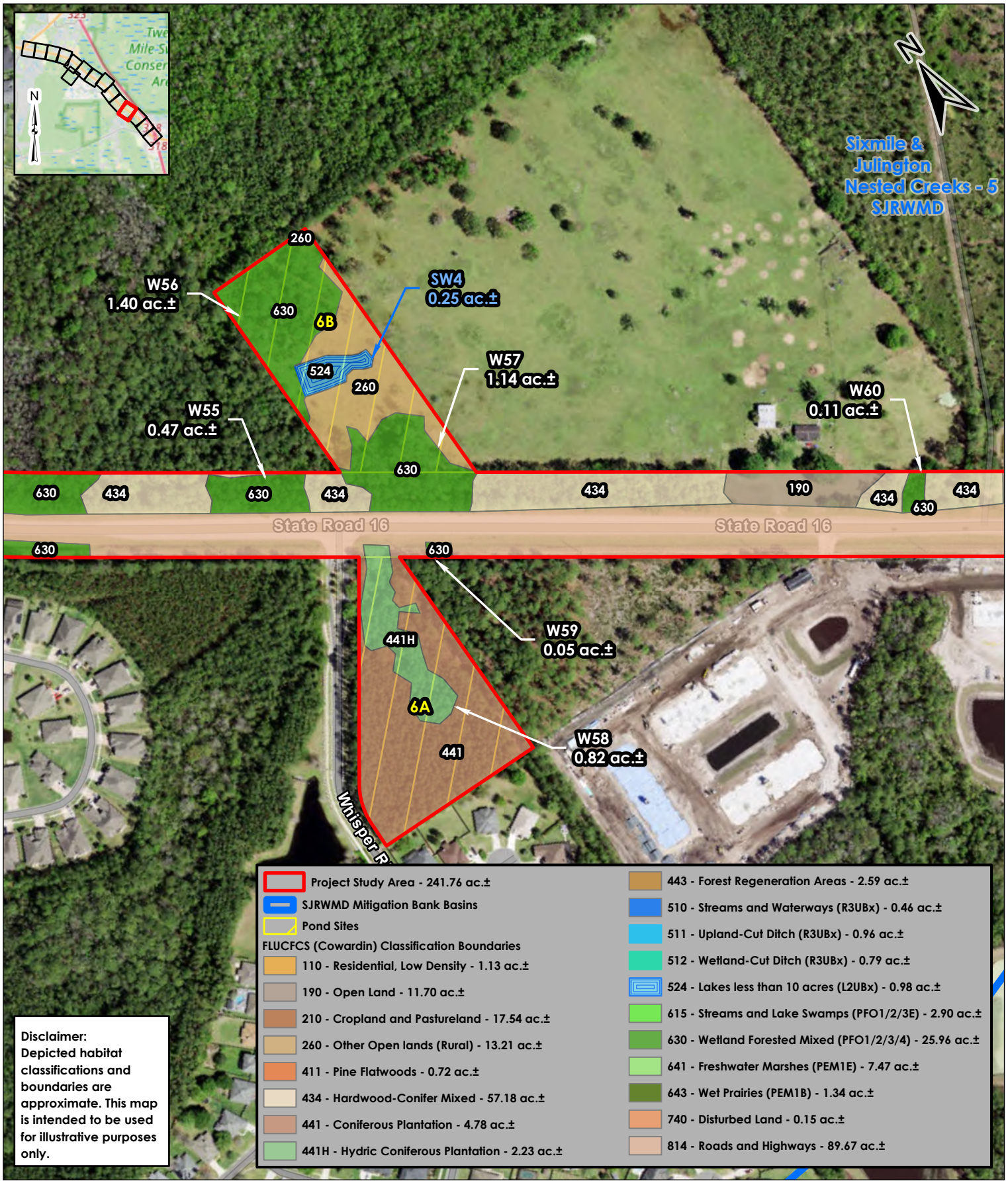
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 2K |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

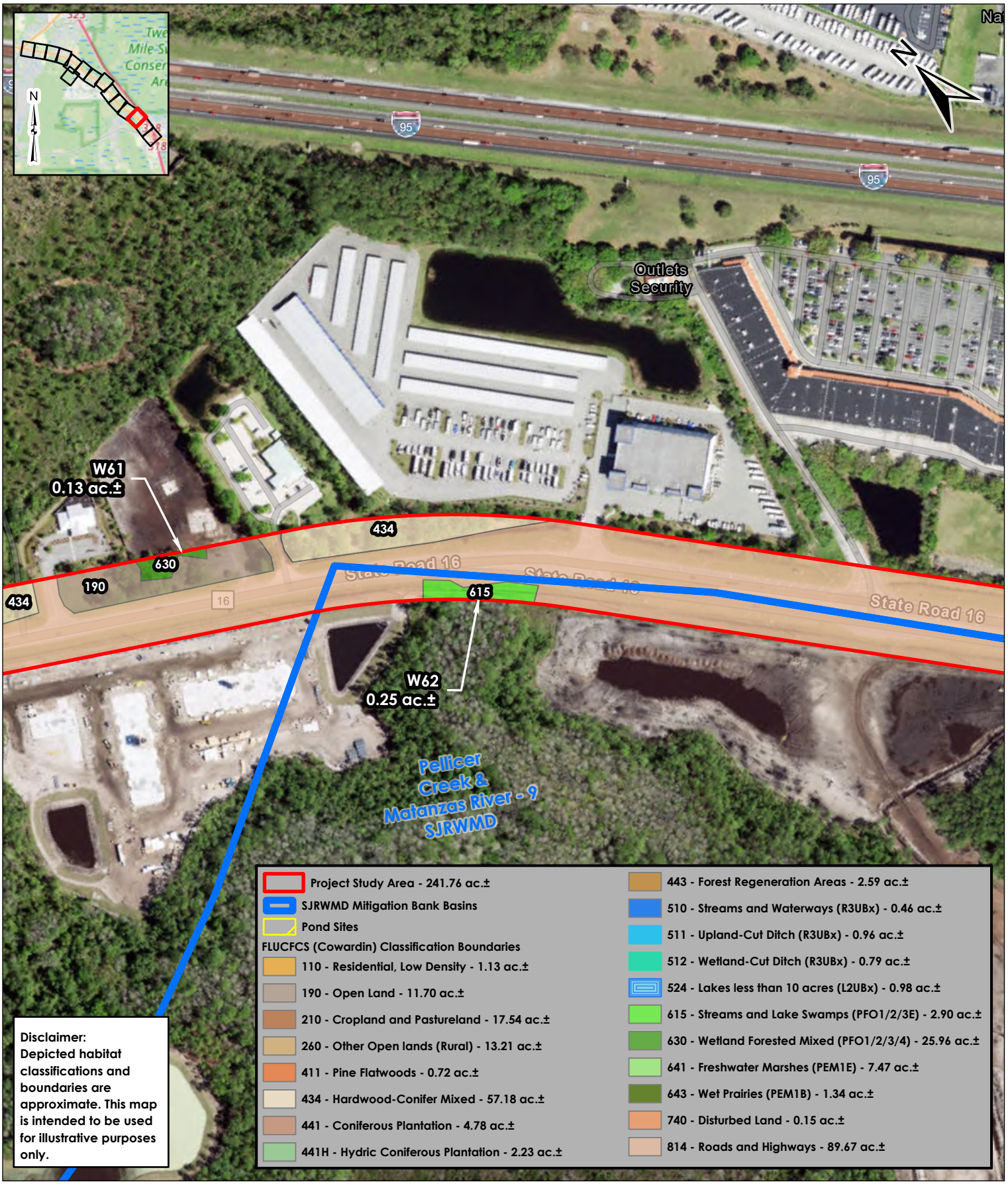
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 2L |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

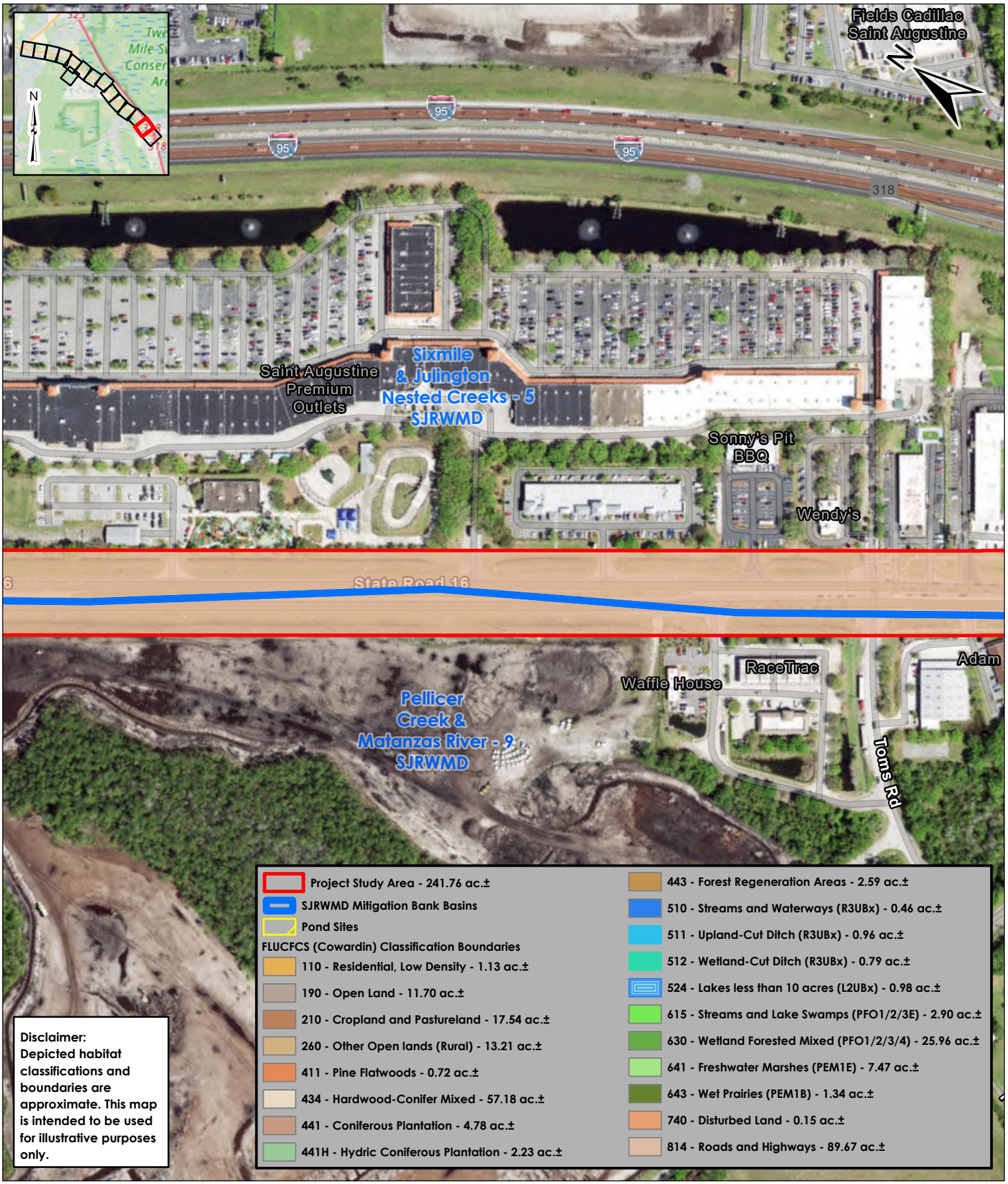
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 2M |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

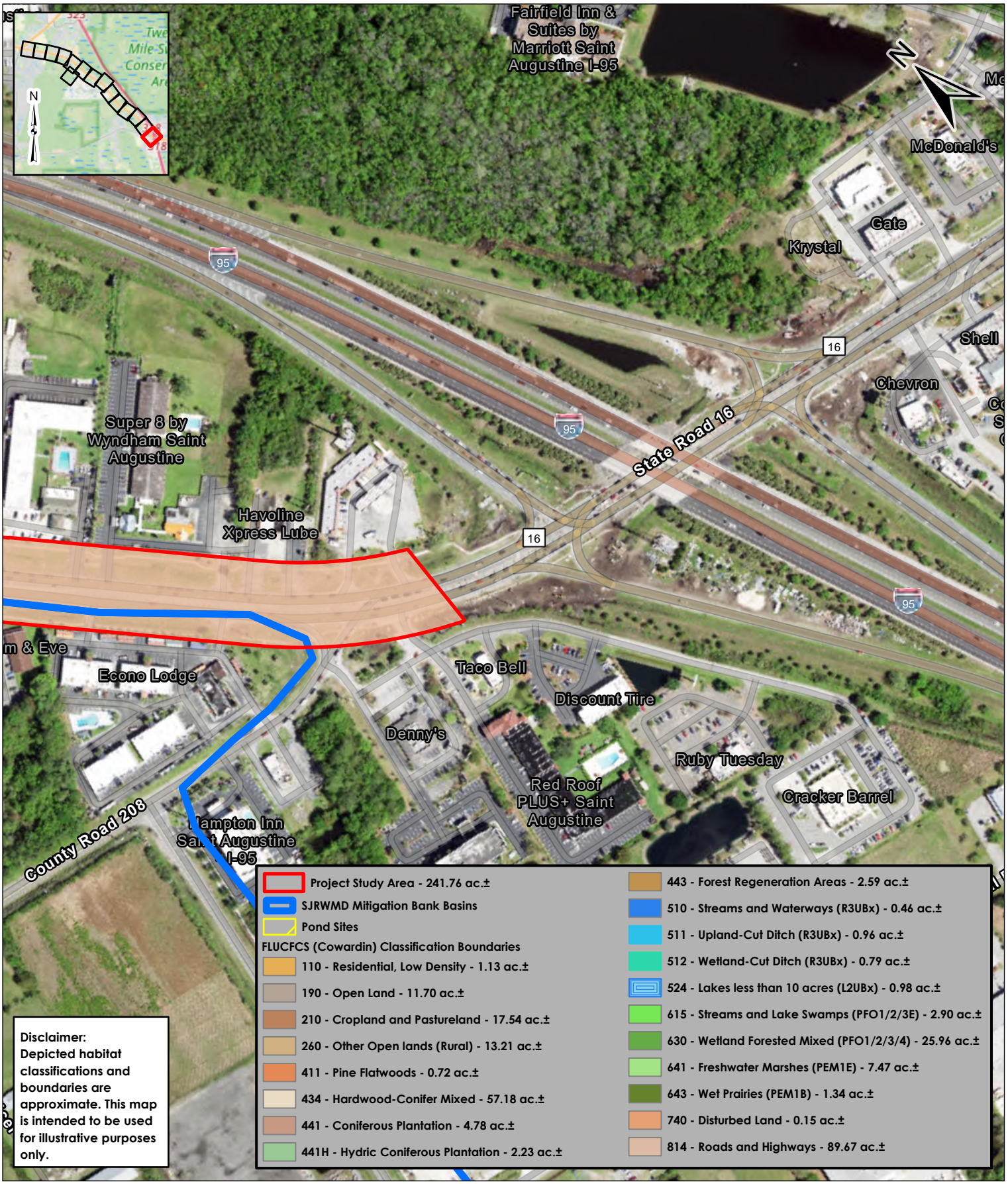
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 2N |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

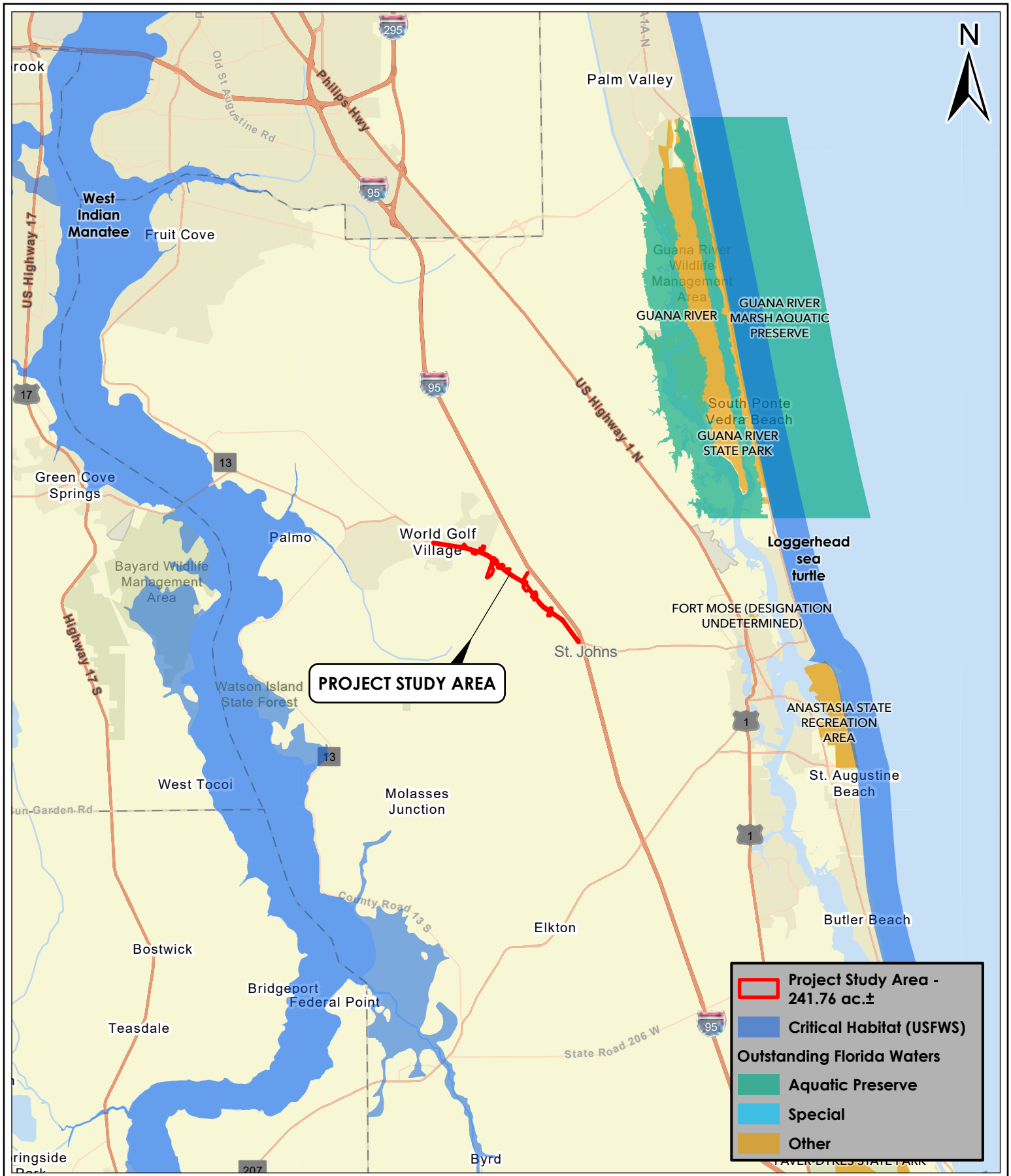
# Habitat

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 20 |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx

# *Exhibit 3 – Outstanding Florida Waters, Aquatic Preserves, and Critical Habitats Map*




0 2 4
Miles

DATA SOURCE(S):
ESRI WMS - World Street Map; FDEP; USFWS

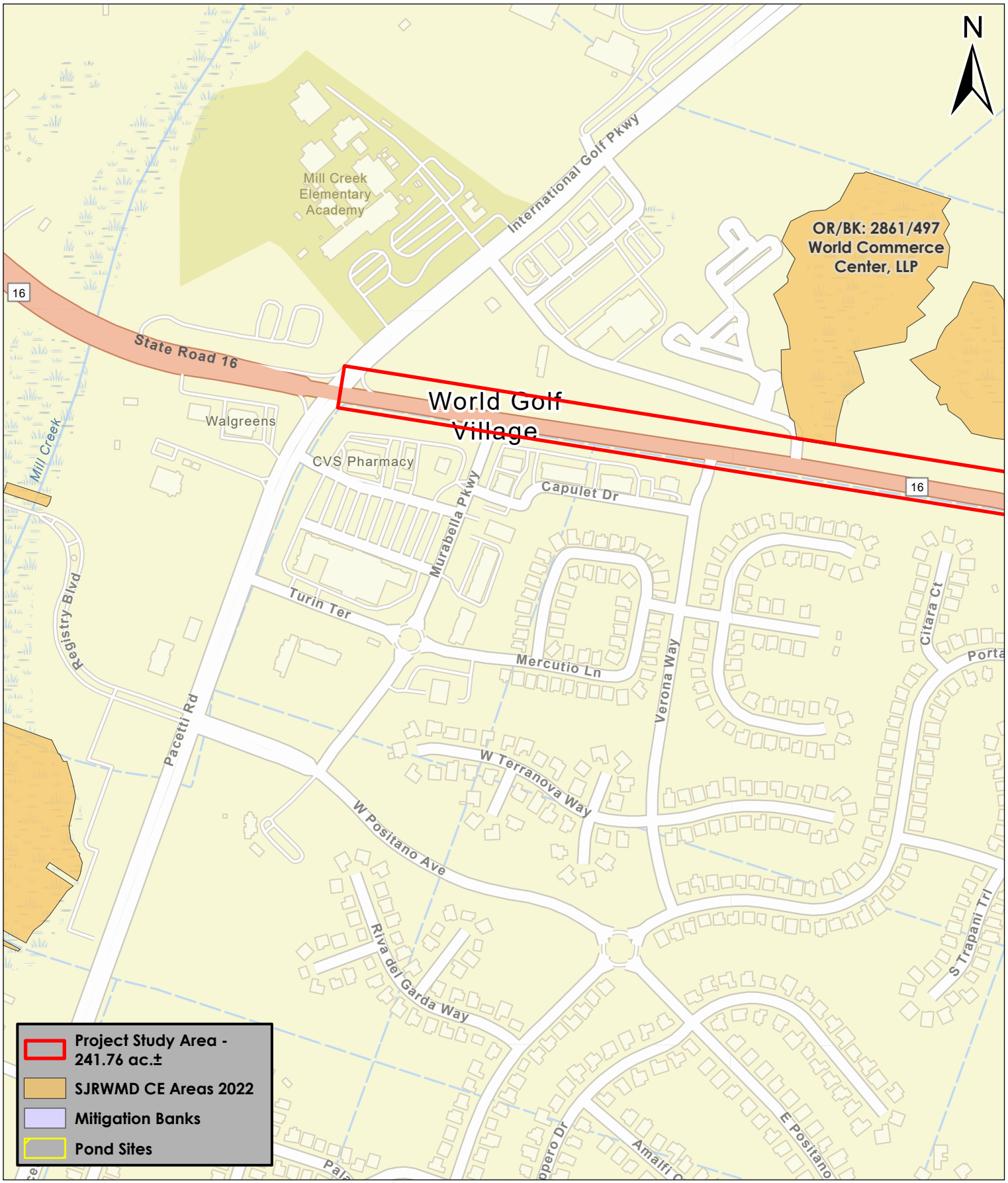
# Outstanding Florida Waters, Aquatic Preserves, and Critical Habitats

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 3 |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx

*Exhibit 4 – Adjacent Regulatory Conservation Easements Map*




0 300 600
US Feet

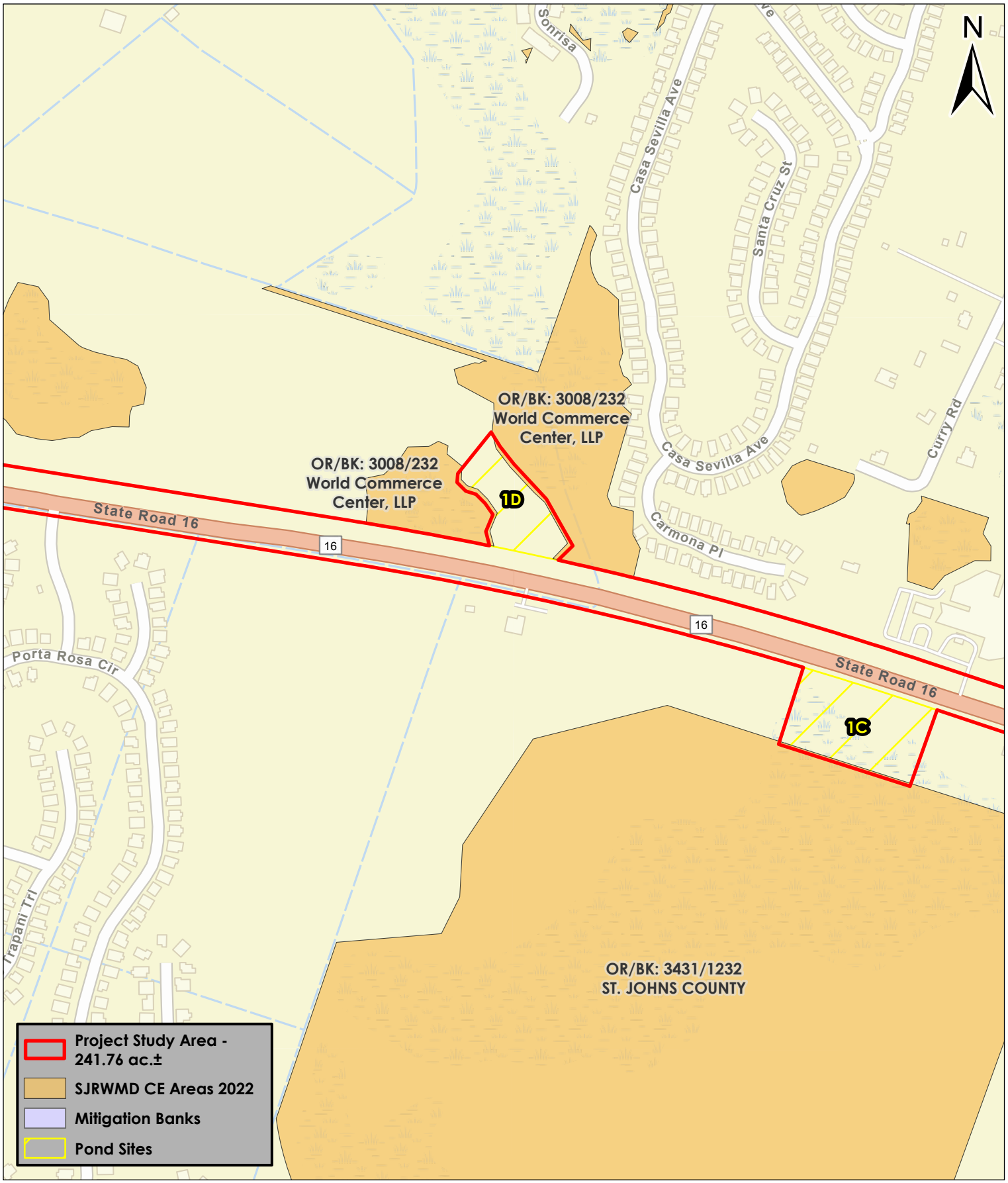
DATA SOURCE(S):
ESRI WMS - World Street Map; SJRWMD

# Adjacent Regulatory Conservation Easements

**SR 16: I-95 to IGP**
**FIP 210447-5**
**St. Johns County, Florida**

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 4A |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 300 600
US Feet

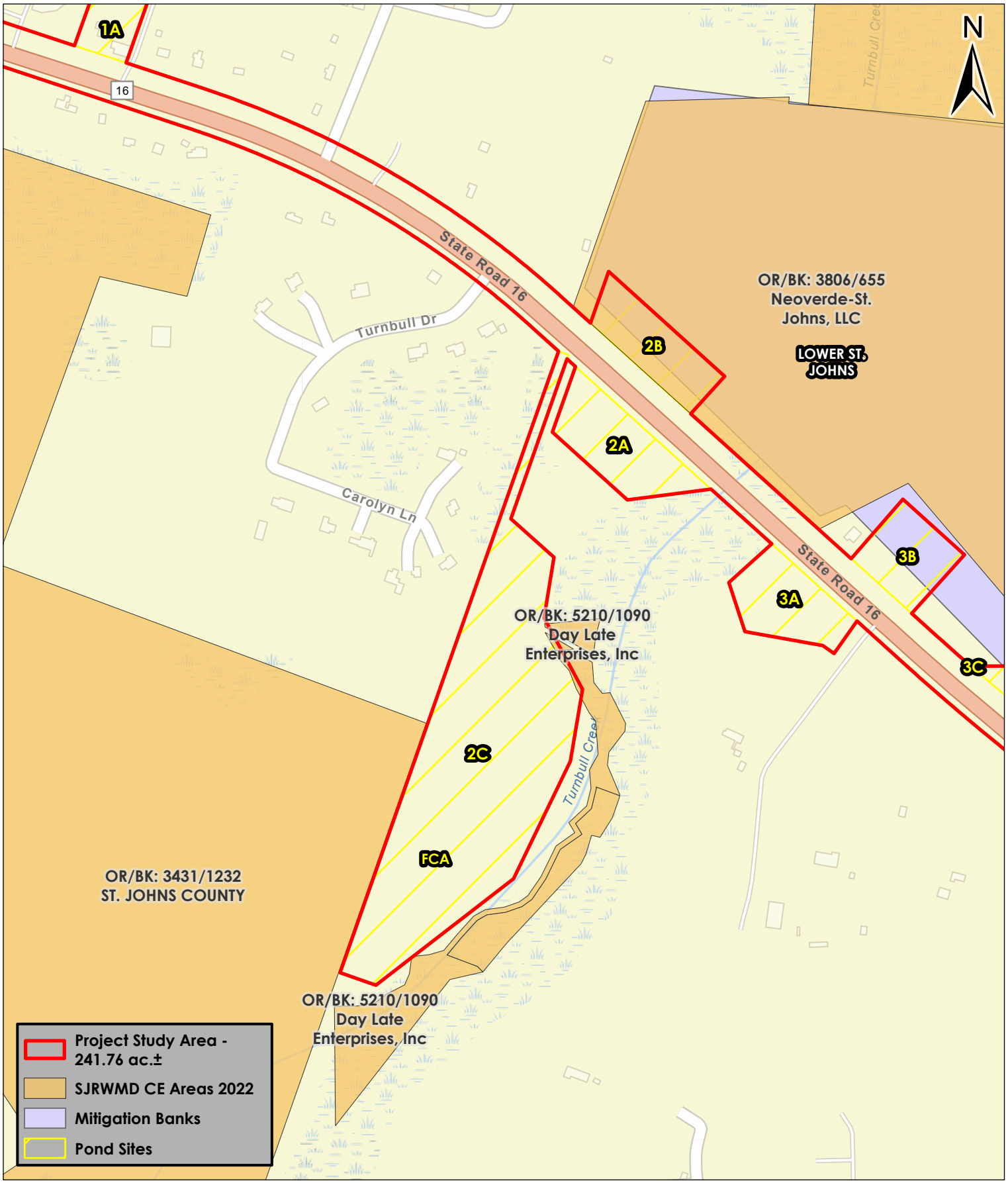
DATA SOURCE(S):
ESRI WMS - World Street Map; SJRWMD

# Adjacent Regulatory Conservation Easements

**SR 16: I-95 to IGP**
**FIP 210447-5**
**St. Johns County, Florida**

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 4B |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 300 600
US Feet

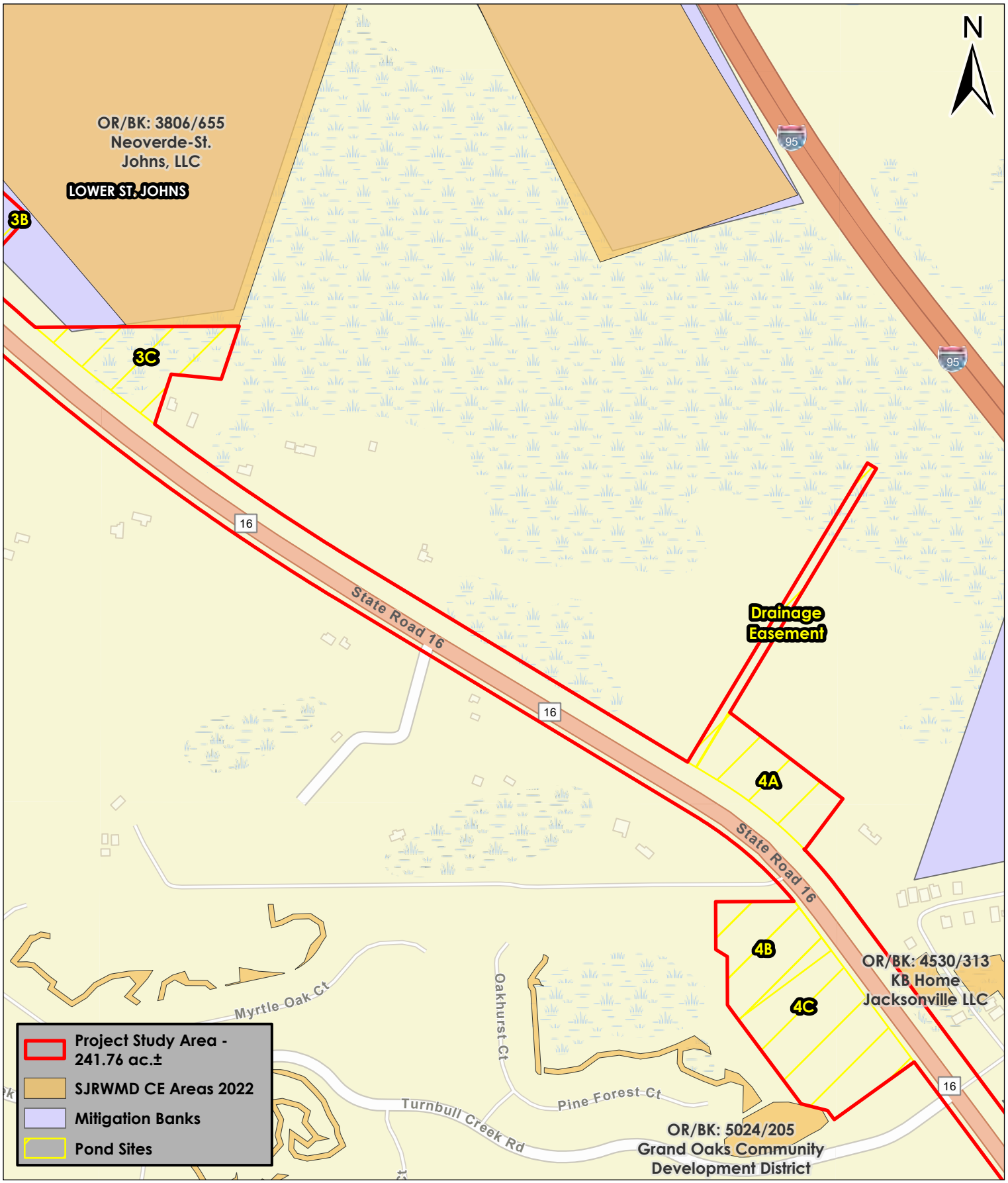
DATA SOURCE(S):
ESRI WMS - World Street Map; SJRWMD

# Adjacent Regulatory Conservation Easements

**SR 16: I-95 to IGP**
**FIP 210447-5**
**St. Johns County, Florida**

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 4C |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 300 600
US Feet

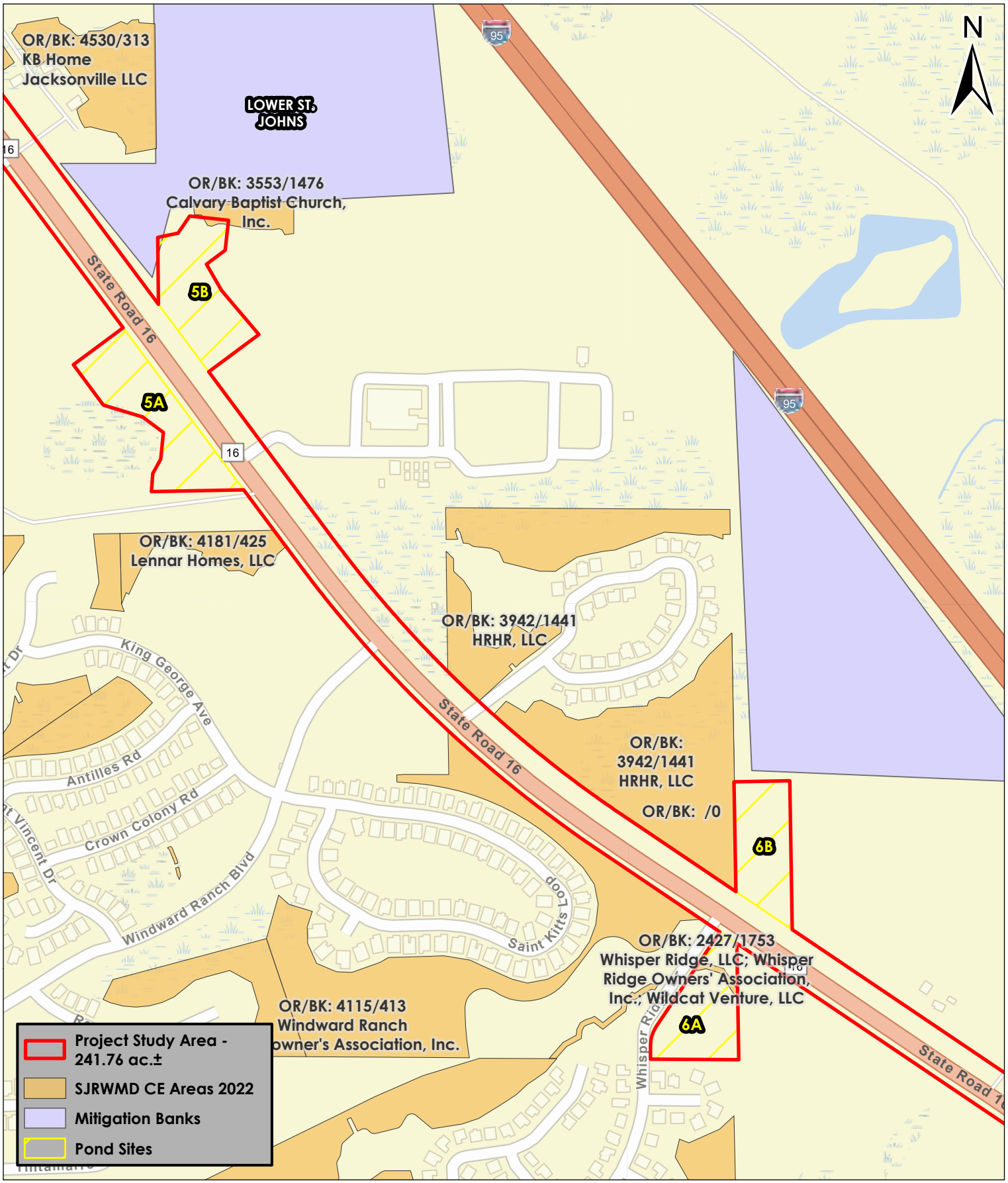
DATA SOURCE(S):
ESRI WMS - World Street Map; SJRWMD

# Adjacent Regulatory Conservation Easements

**SR 16: I-95 to IGP**
**FIP 210447-5**
**St. Johns County, Florida**

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 4D |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 300 600
US Feet

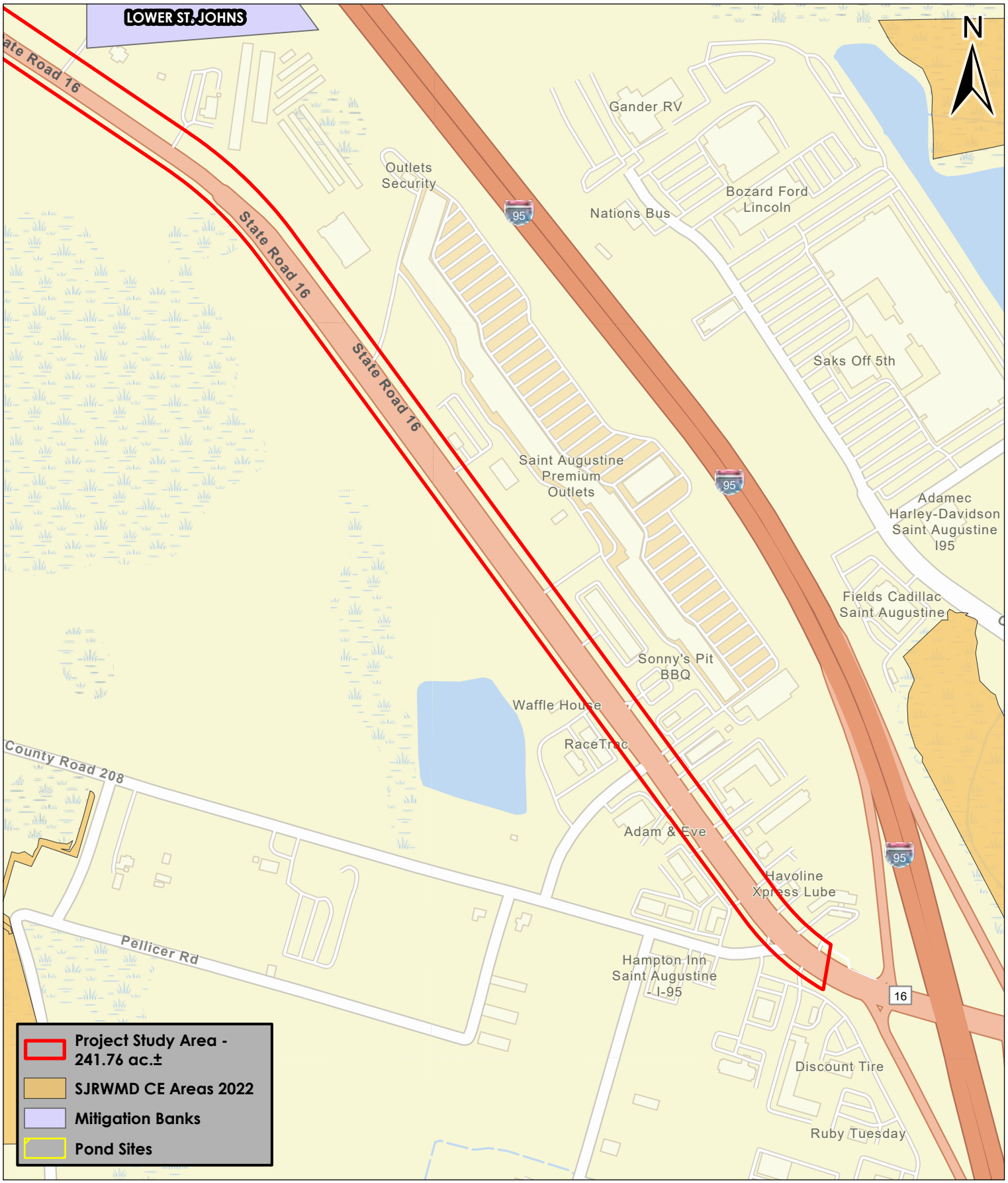
DATA SOURCE(S):
ESRI WMS - World Street Map; SJRWMD

# Adjacent Regulatory Conservation Easements

**SR 16: I-95 to IGP**
**FIP 210447-5**
**St. Johns County, Florida**

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 4E |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 300 600
US Feet

DATA SOURCE(S):
ESRI WMS - World Street Map; SJRWMD

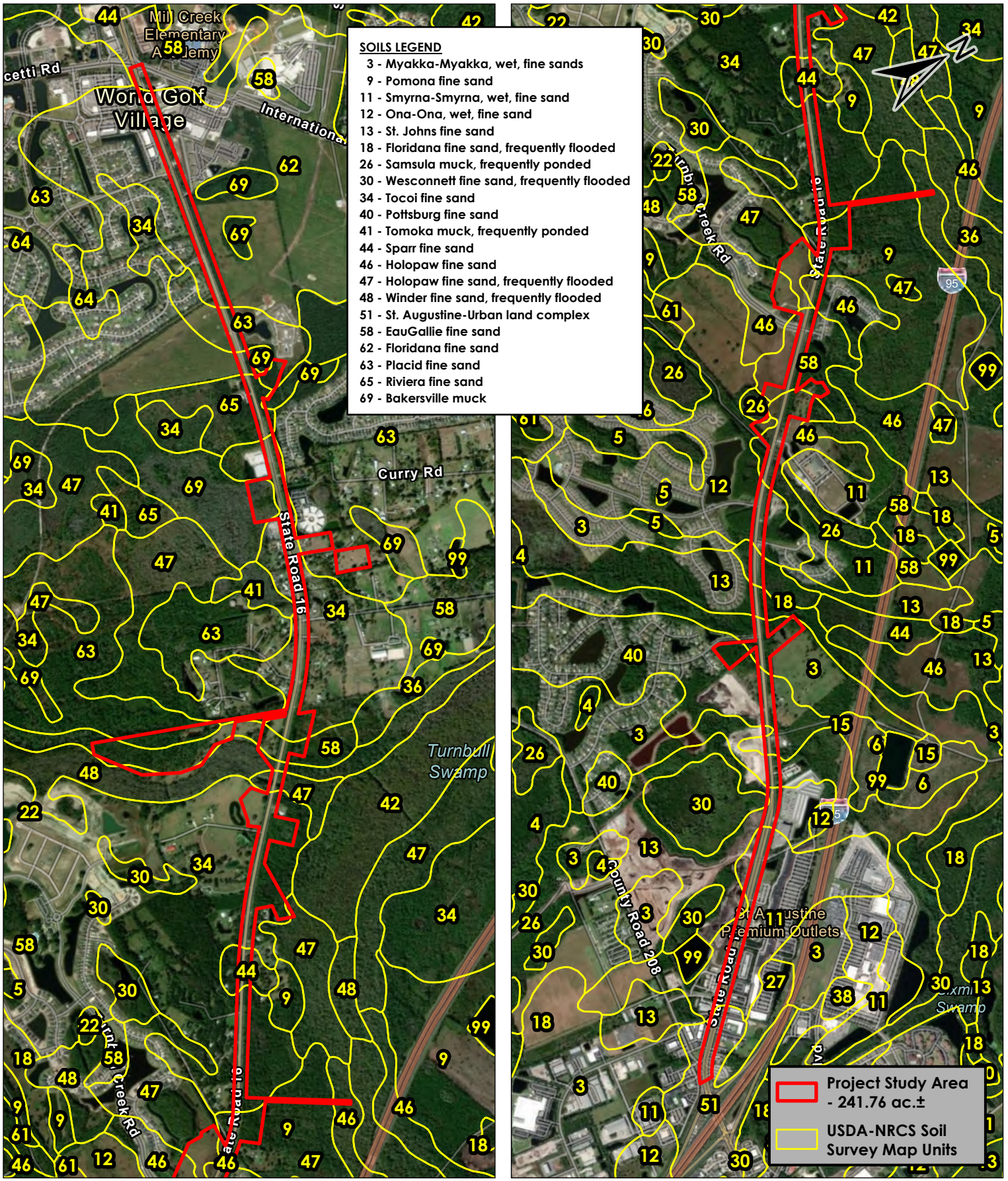
# Adjacent Regulatory Conservation Easements

**SR 16: I-95 to IGP**
**FIP 210447-5**
**St. Johns County, Florida**

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 4F |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx

*Exhibit 5 – Soils Maps*




0 1,000 2,000
Feet

DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; USDA-NRCS Web Soil Survey

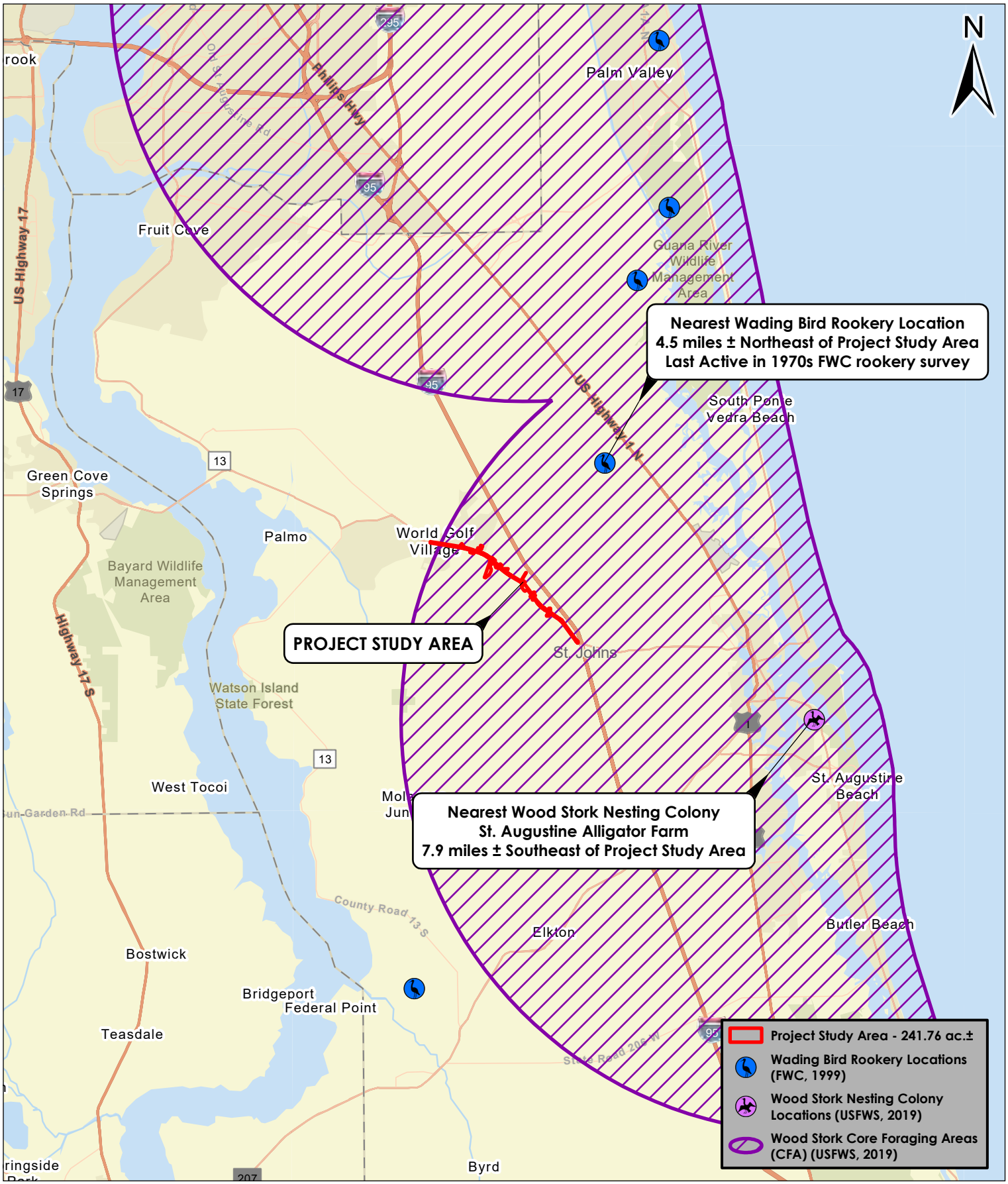
# Soils

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 5 |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx

# *Exhibit 6 – Documented Occurrences of Wading Bird Rookeries and Wood Stork Nesting Colonies/CFAs*




0 2 4
Miles

DATA SOURCE(S):
ESRI WMS - World Street Map; USFWS; FWC

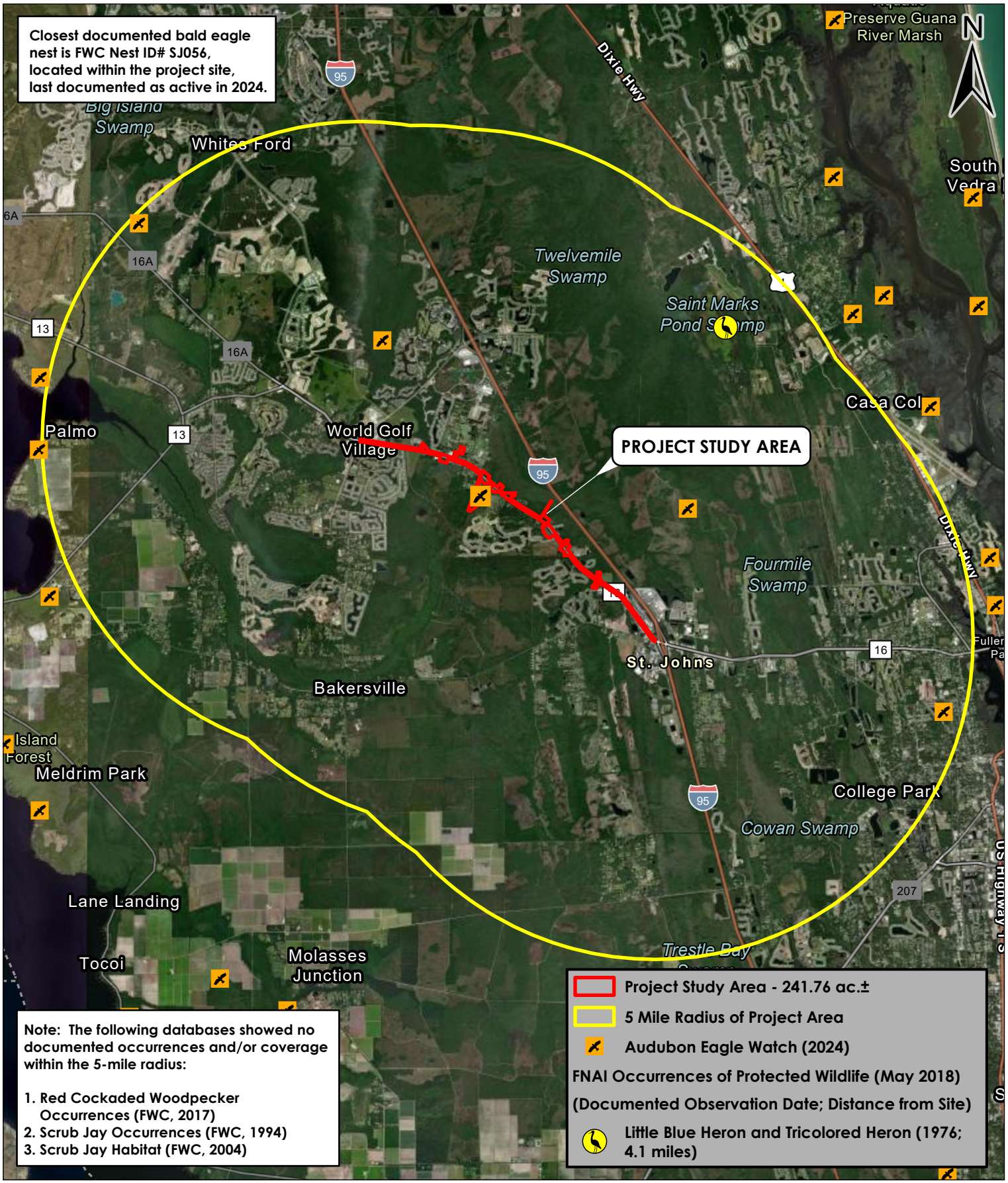
# Documented Occurrences of Wading Bird Rookeries and Wood Stork Nesting Colonies/CFAs

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 6 |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx

# *Exhibit 7 – Documented Occurrences of Protected Wildlife Within 5 Miles*




0 1 2
Miles

DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; USFWS, FWC, FNAI USGS

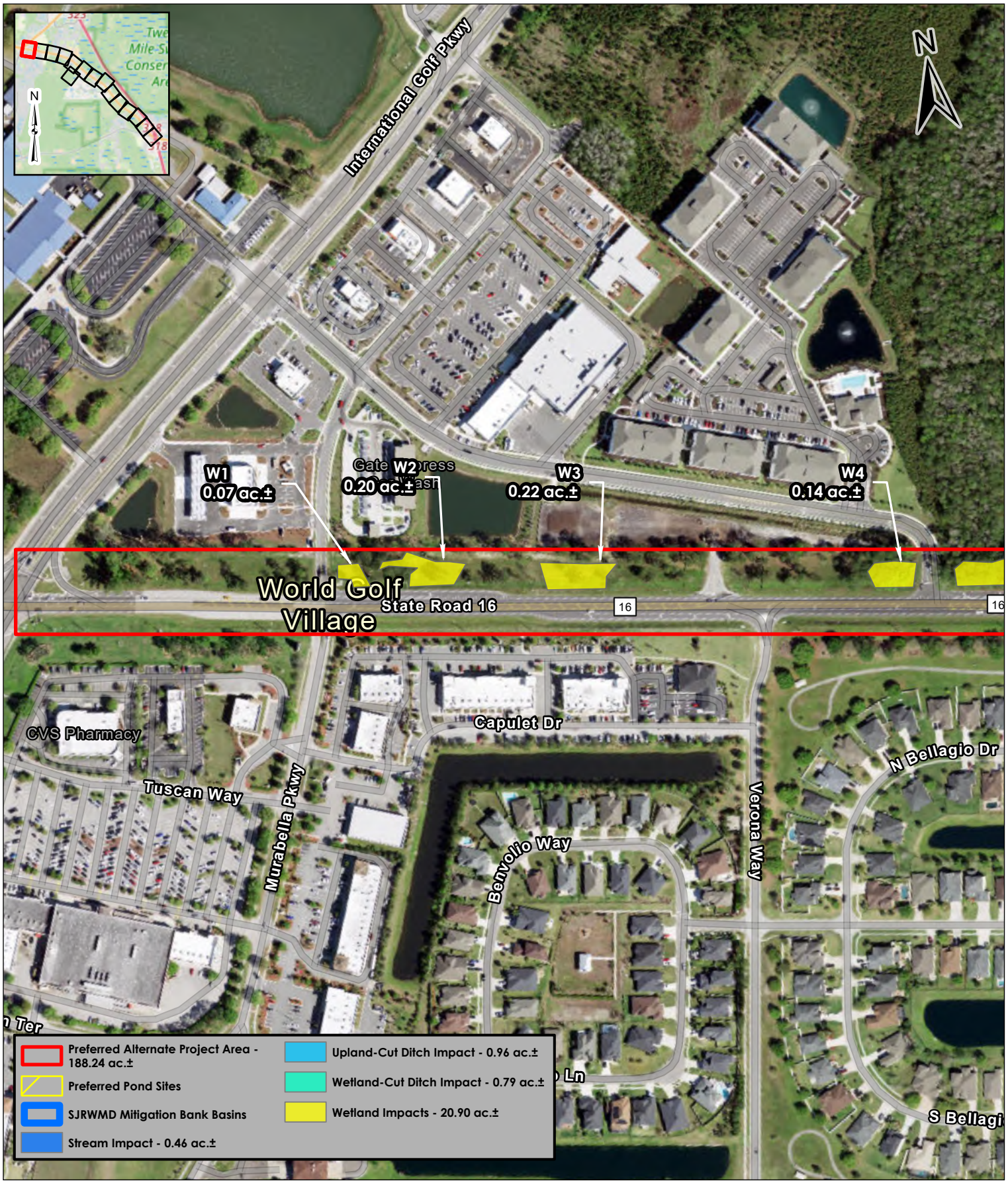
# Documented Occurrences of Protected Wildlife Within 5 Miles

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Aug 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 7 |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx

*Exhibit 8 – Preferred Alternative Impacts*




0 150 300
Feet

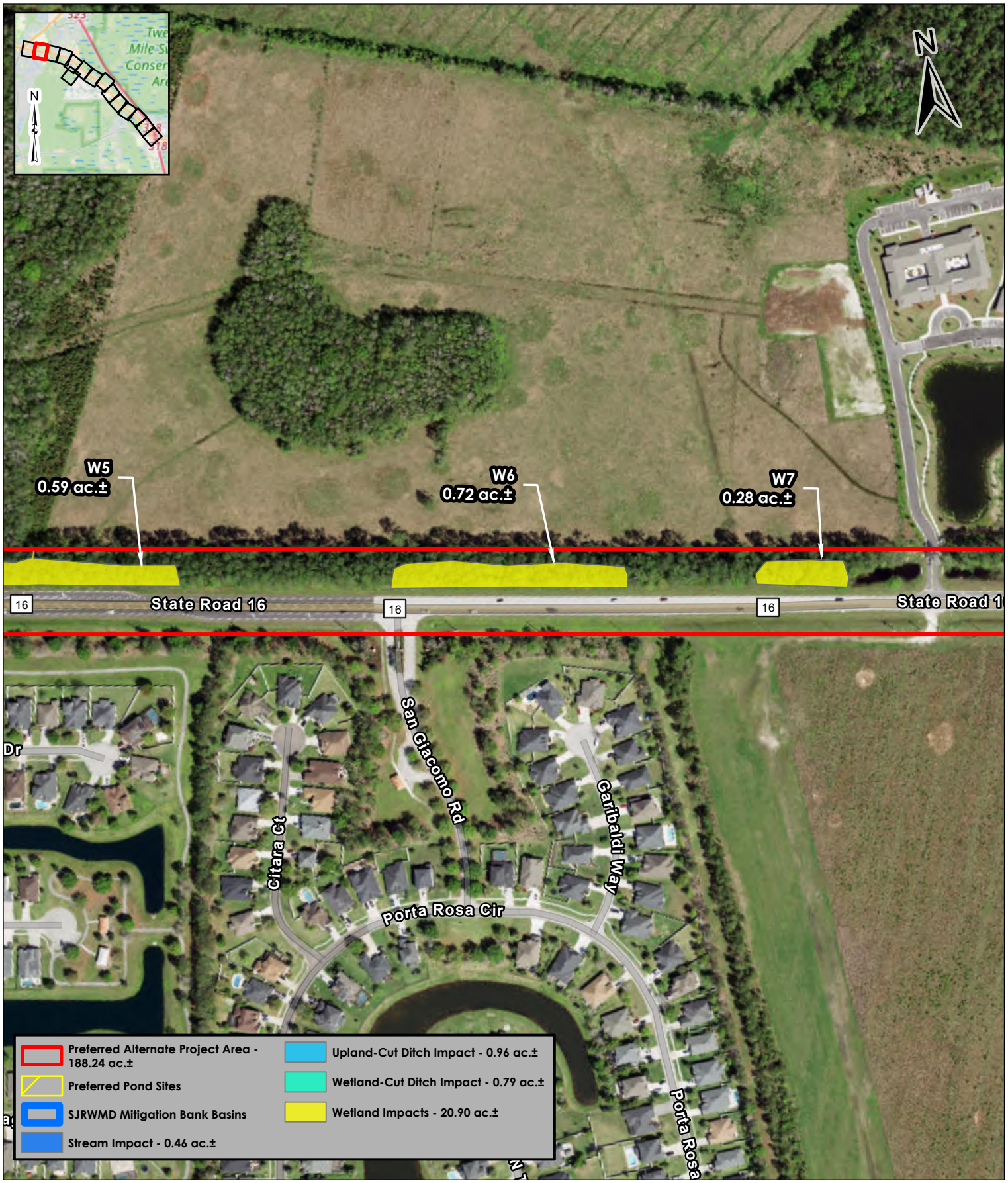
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

**SR 16: I-95 to IGP**
**FIP 210447-5**
**St. Johns County, Florida**

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 8A |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

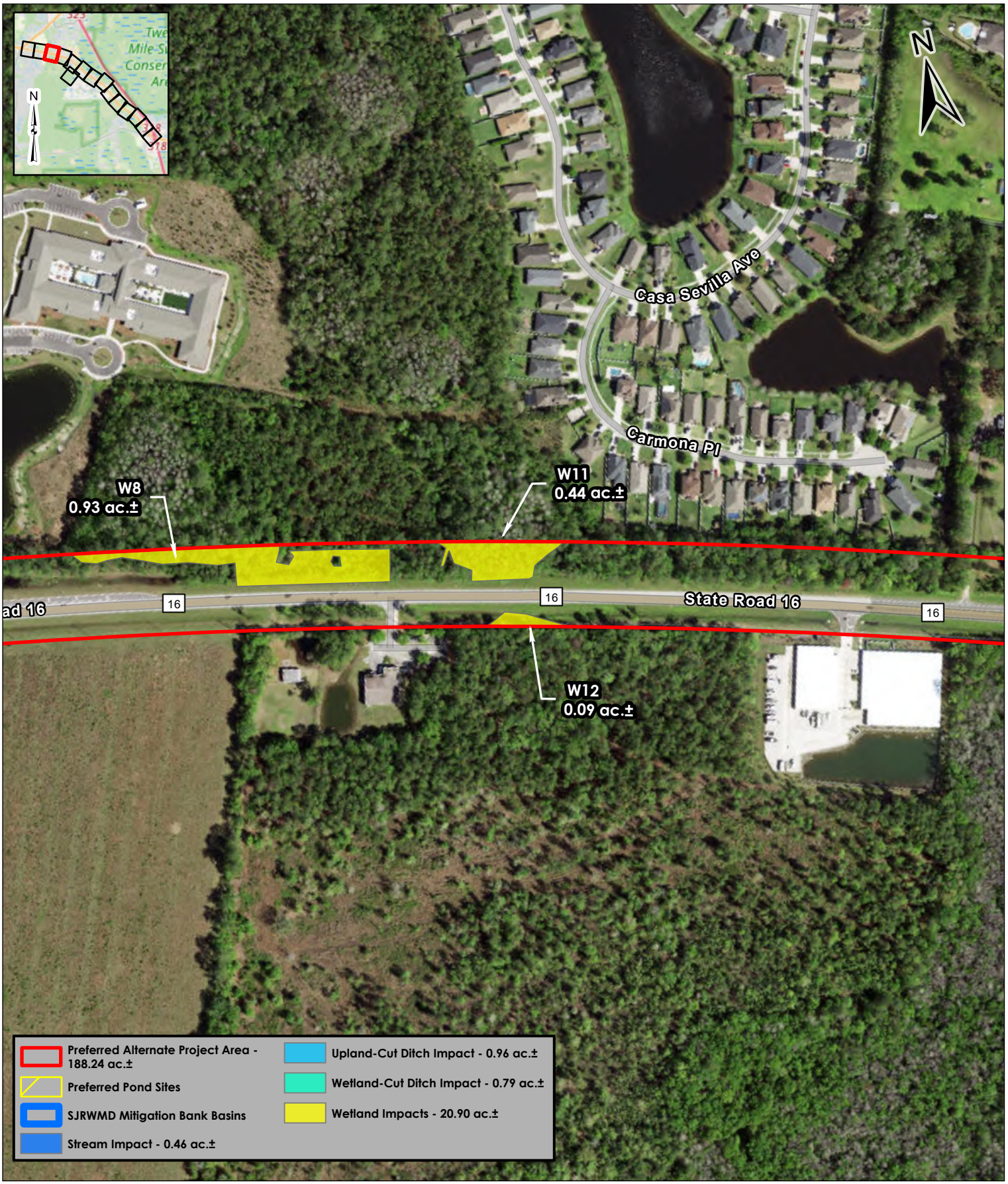
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | | | |
|---|---|---|---|
| SES Project No: | 2P001.1095.0001.18 | | |
| ERS Project No: | 23136 | Date: | Jul 2024 |
| Drawn By: | DF | EXHIBIT NUMBER | 8B |
| Reviewed By: | OR | | |
| Approved By: | KAC | | |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

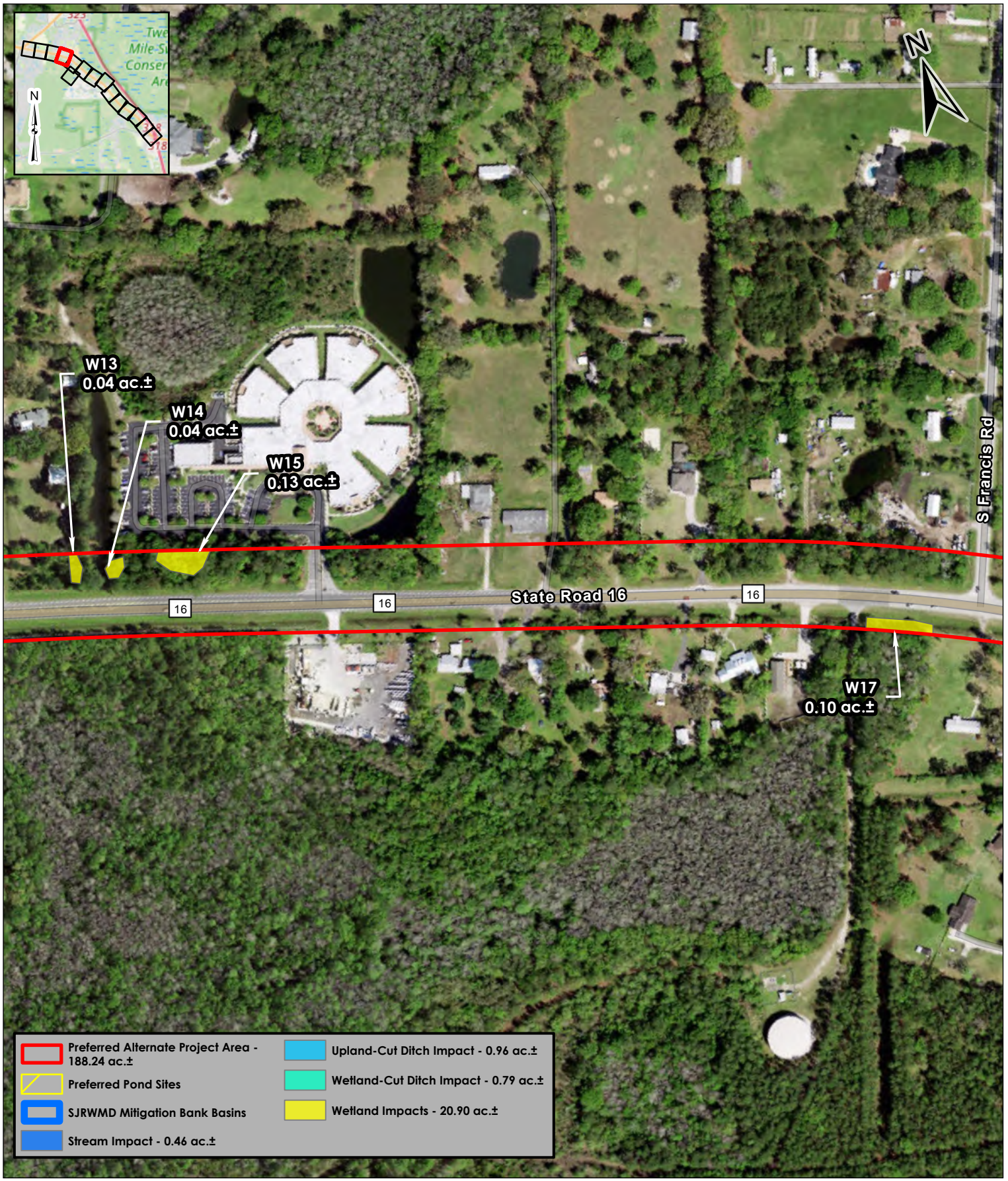
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 8C |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

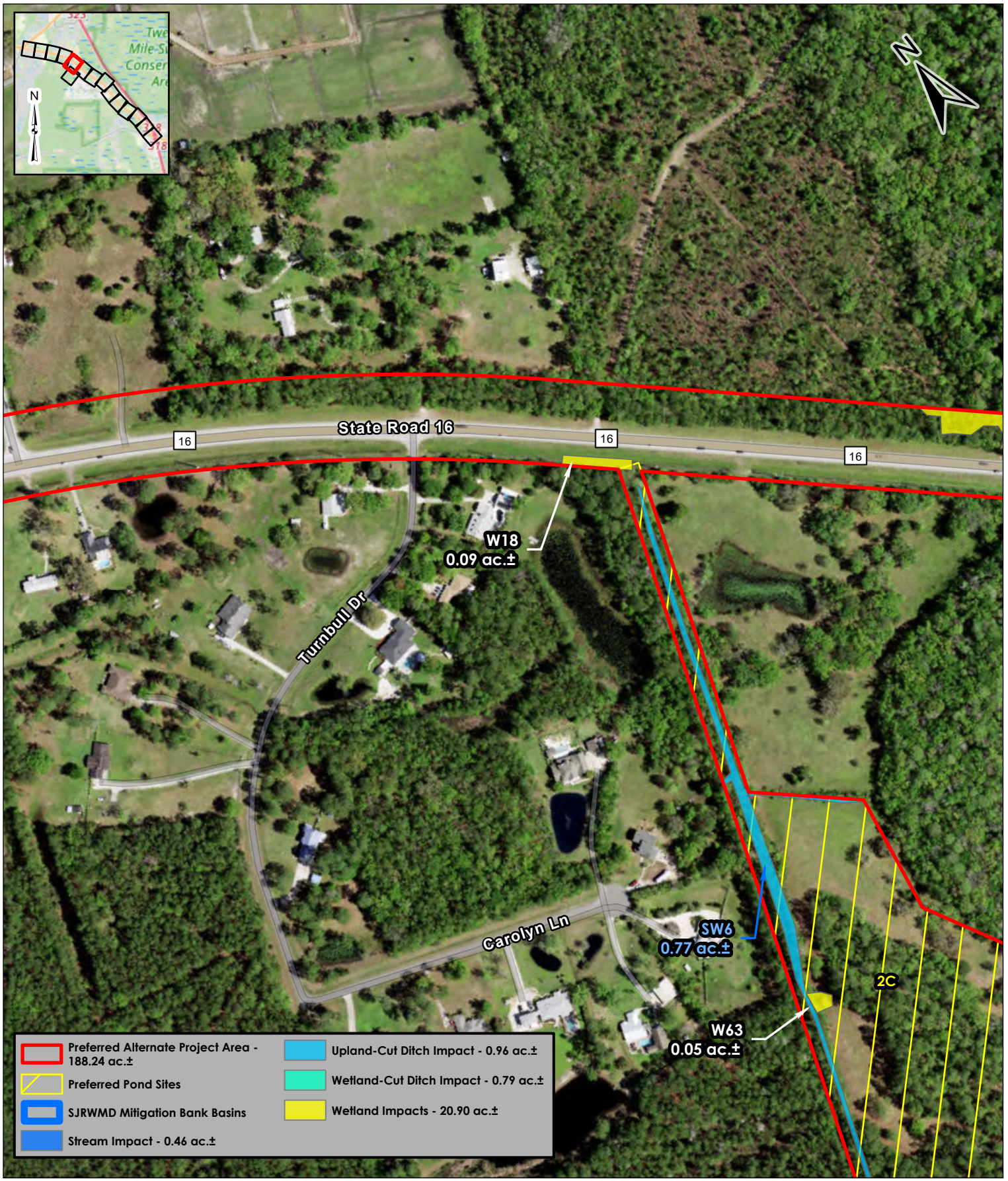
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 8D |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx



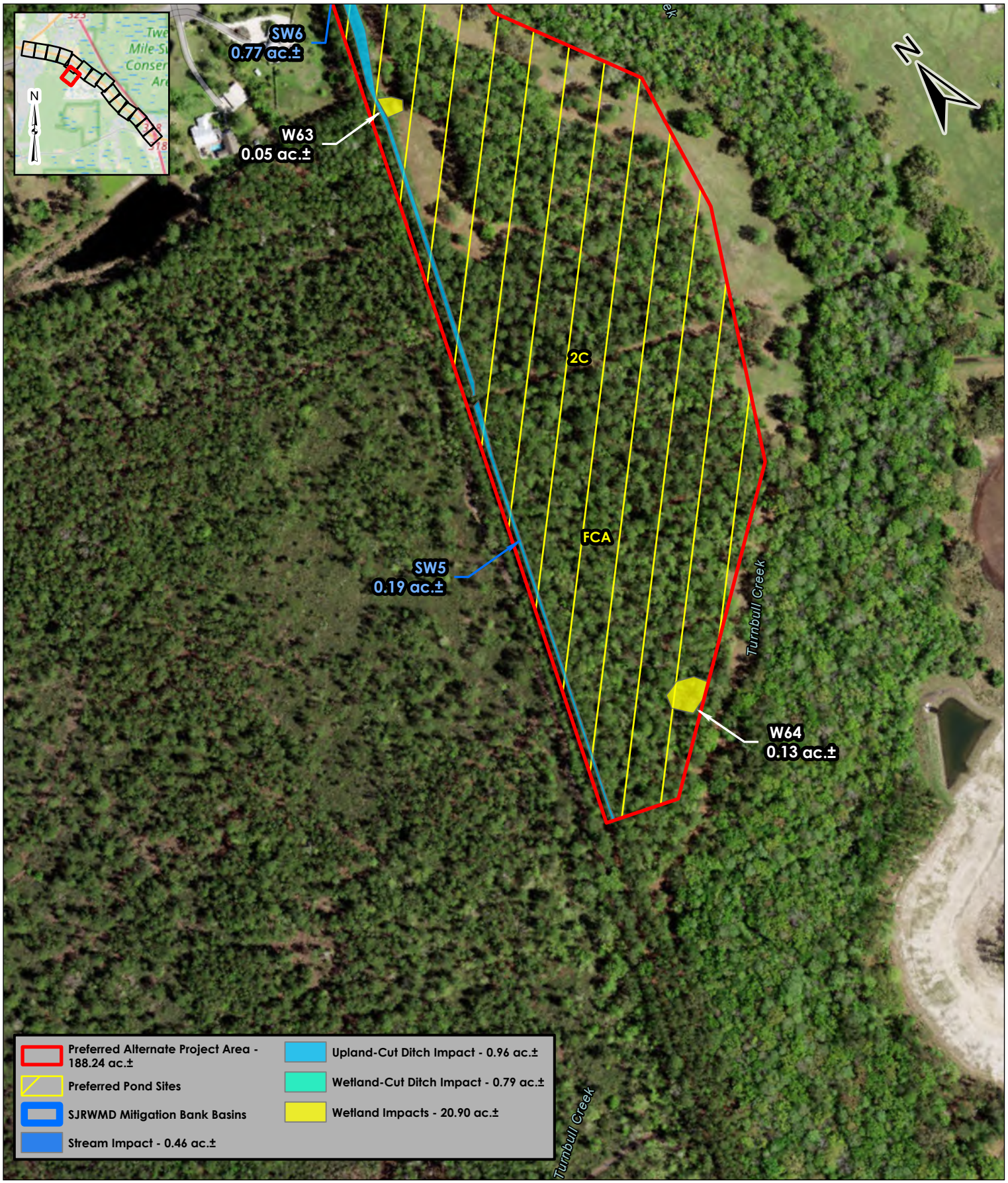

DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

## SR 16: I-95 to IGP
## FIP 210447-5
**St. Johns County, Florida**

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 8E |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

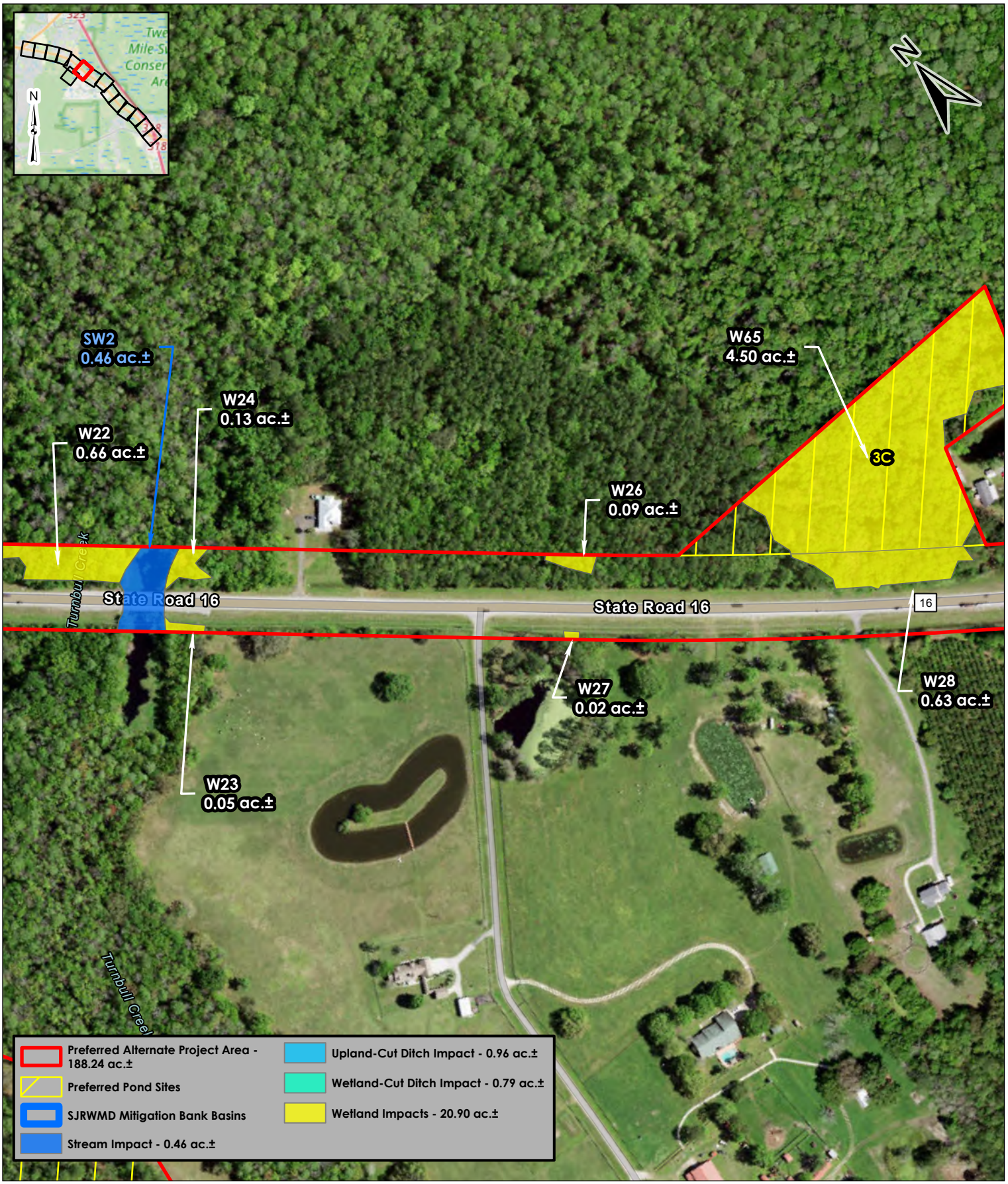
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 8F |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 8G |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx


0 150 300
Feet

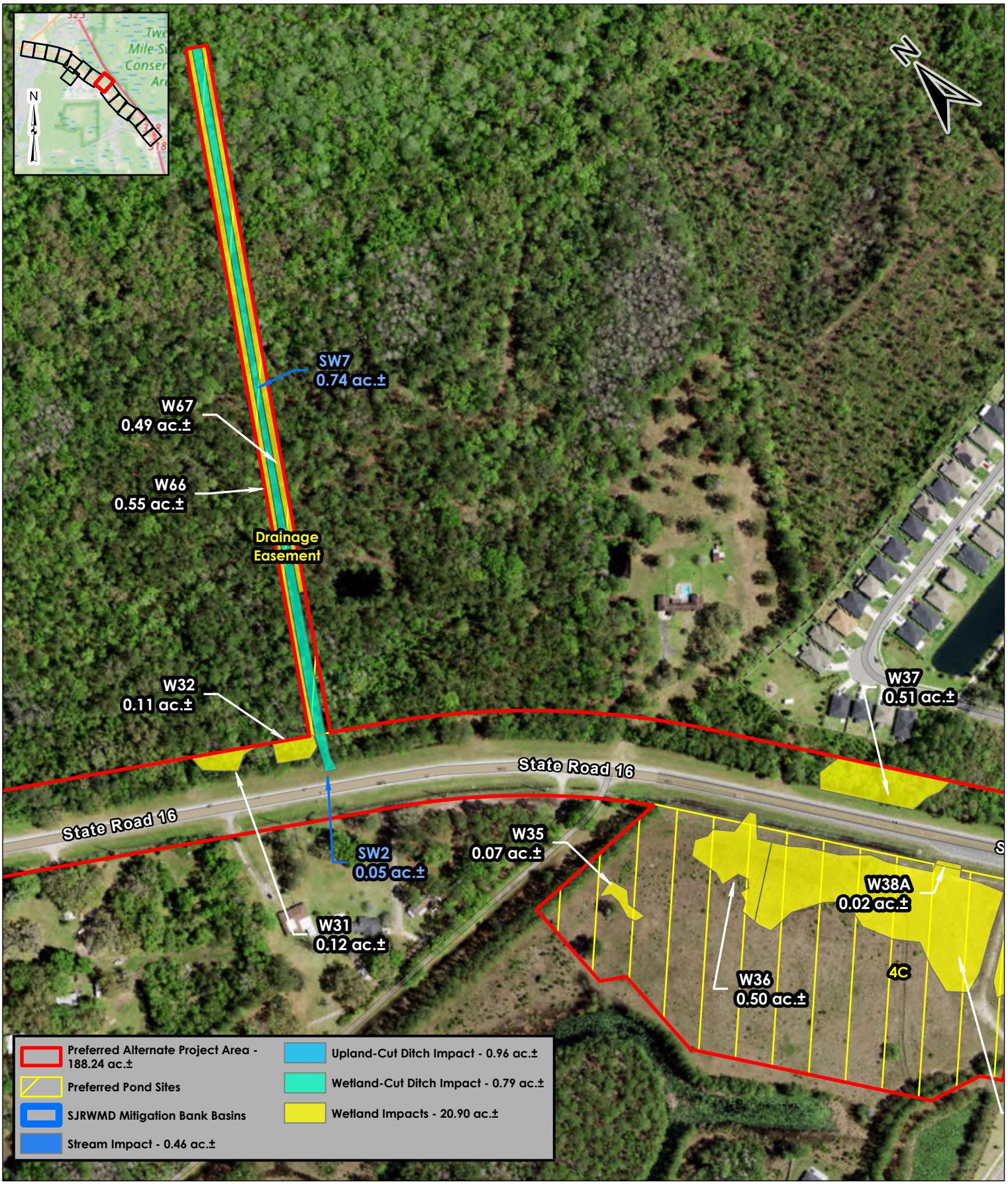
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 8H |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

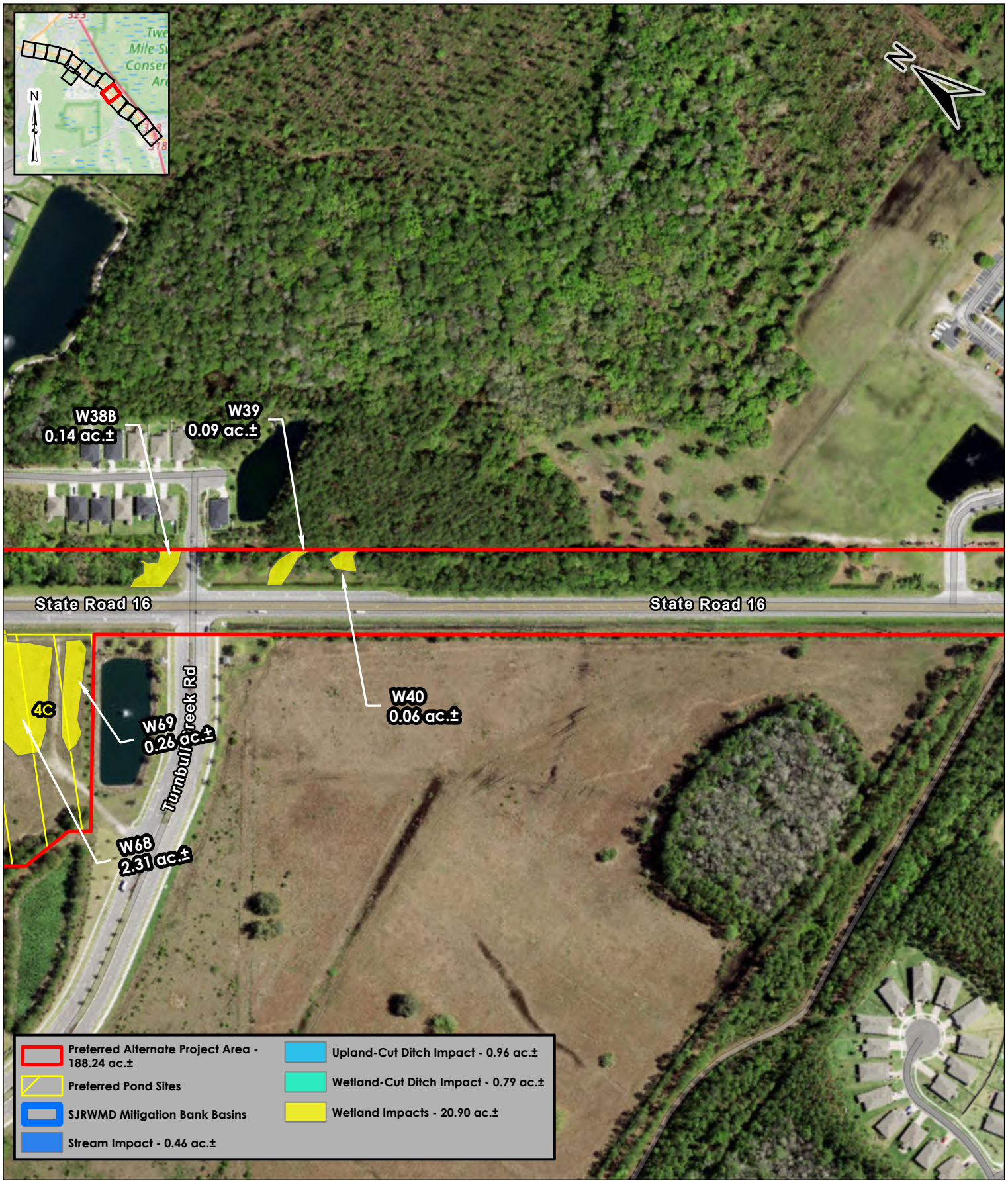
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 8I |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

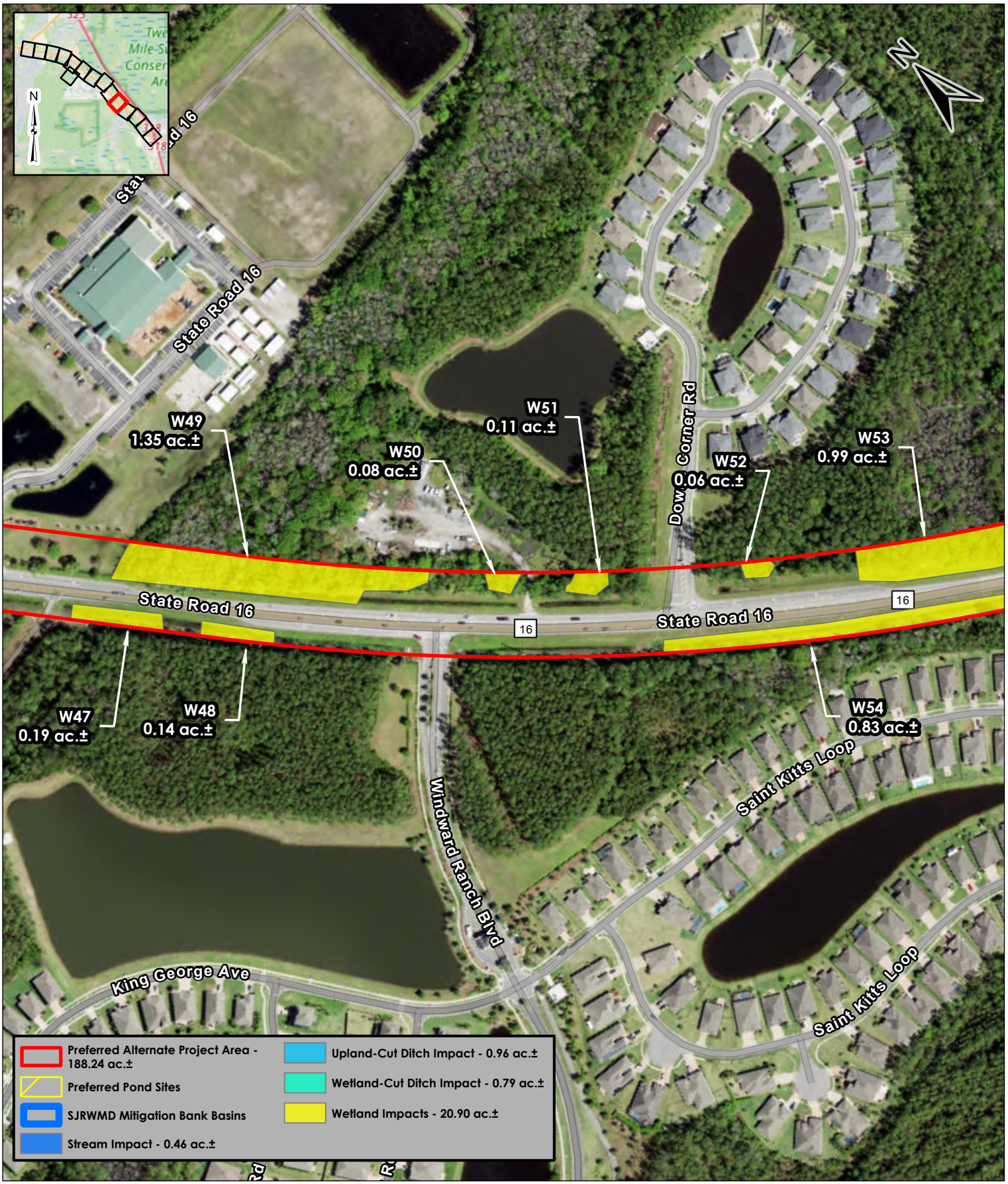
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 8J |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

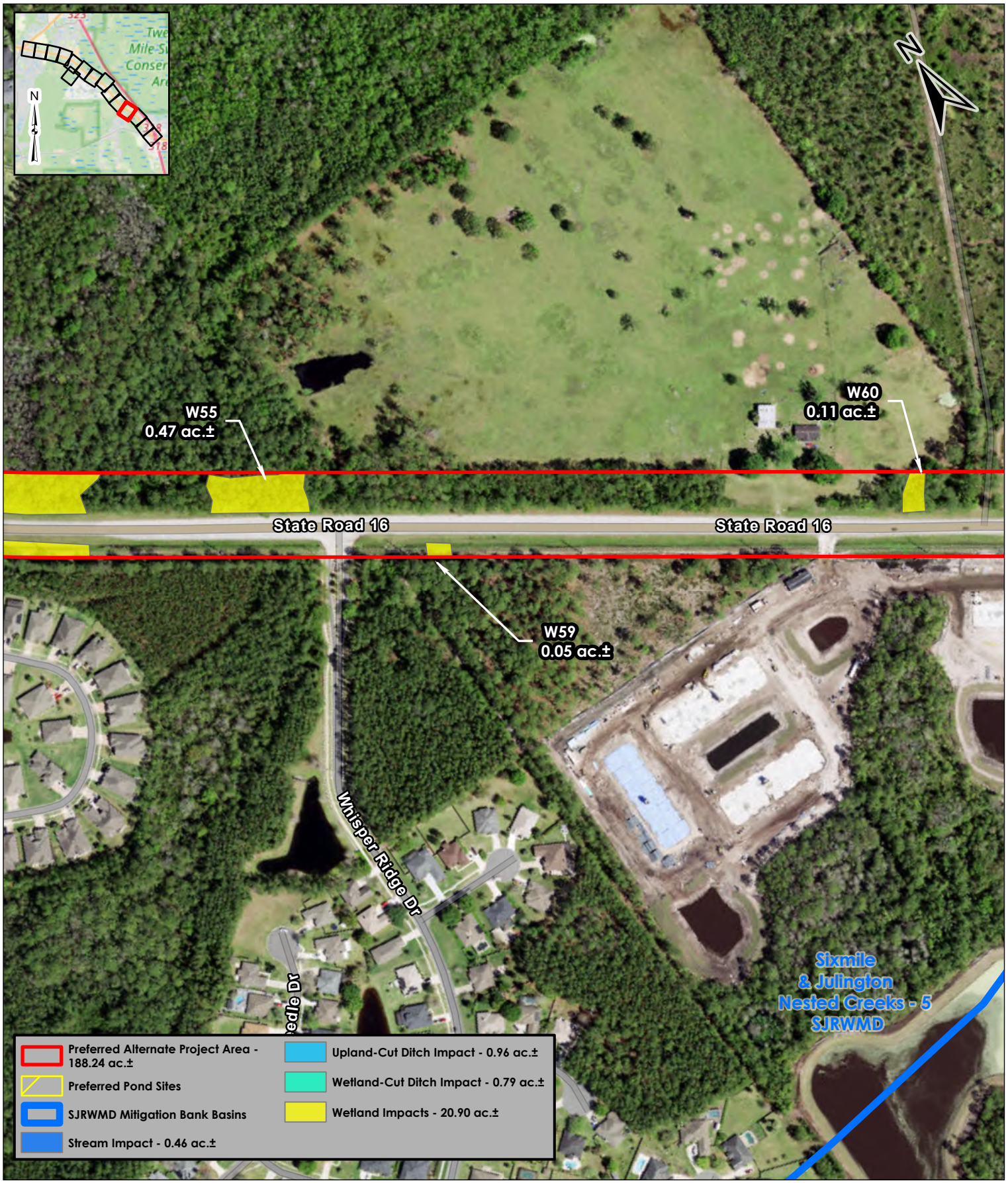
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 8K |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

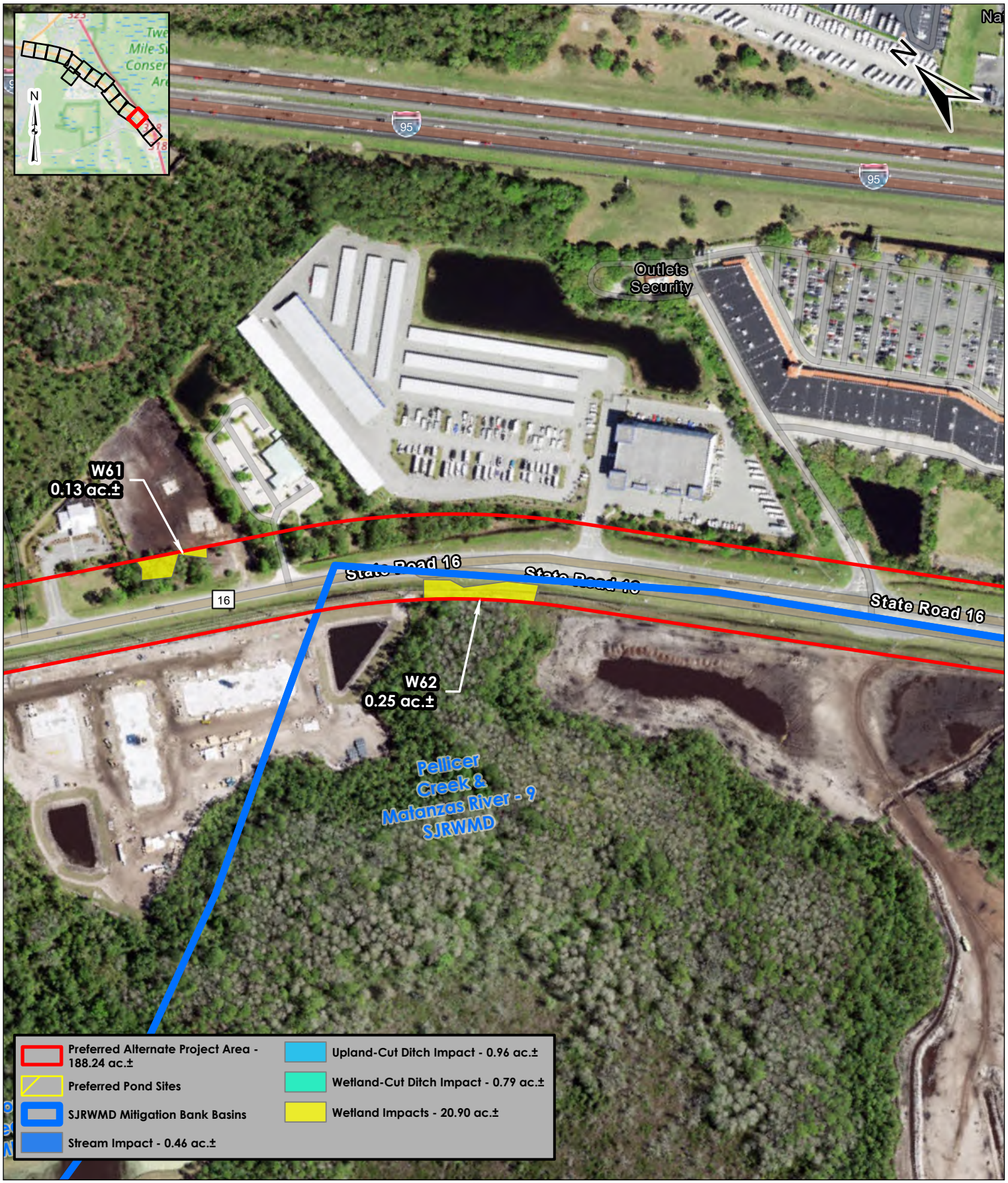
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 8L |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

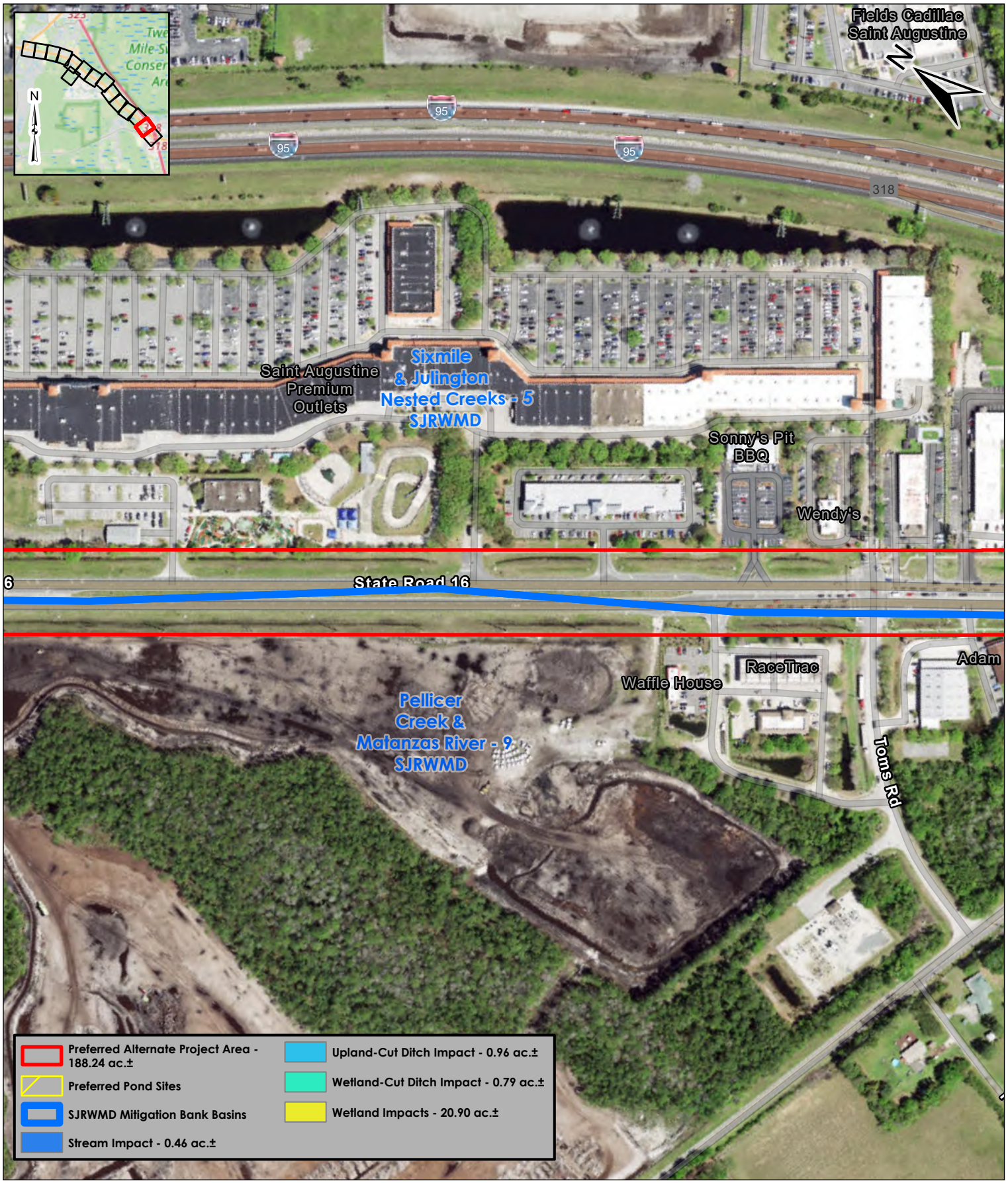
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 8M |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

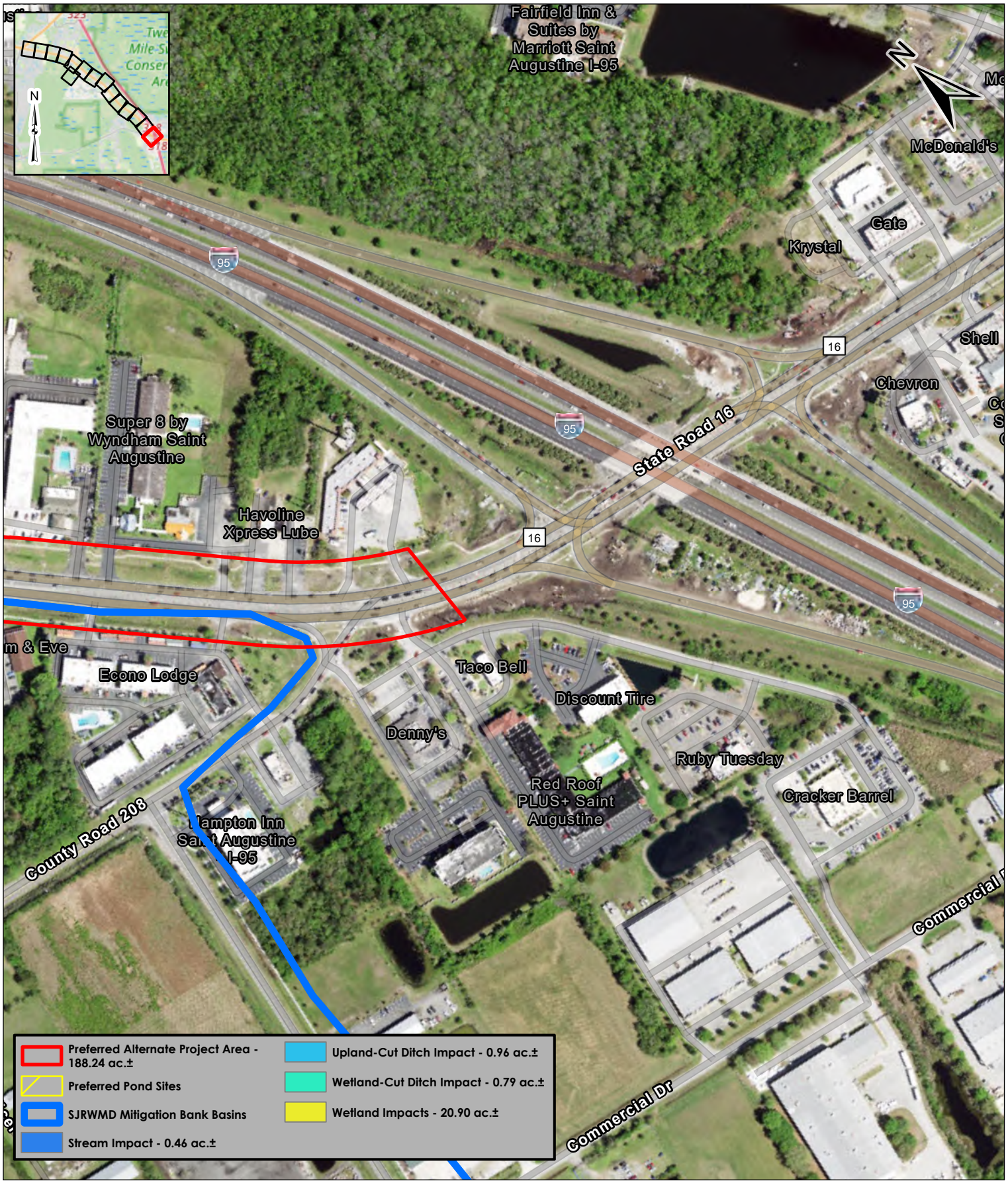
DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 8N |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx




0 150 300
Feet

DATA SOURCE(S):
ESRI WMS - World Aerial Imagery; Florida Land Use, Cover, and Forms Classification System (FDOT, 1999)

# Preferred Alternative Impacts

## SR 16: I-95 to IGP
## FIP 210447-5
St. Johns County, Florida

| | |
|---|---|
| SES Project No: | 2P001.1095.0001.18 |
| ERS Project No: | 23136 |
| Date: | Jul 2024 |
| Drawn By: | DF |
| Reviewed By: | OR |
| Approved By: | KAC |
| EXHIBIT NUMBER | 8O |

<LINK>J:\ERS</LINK> - Company\Projects\2023\23136 SR 16 I-95 to IGP PD&E\05-Graphics\SR16_I95_IGP.aprx

# Appendix B – USFWS Effect Determination Keys

# *USFWS Effect Determination Key for the Eastern Indigo Snake*

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.

*USFWS Effect Determination Key for the Wood Stork*

**THE CORPS OF ENGINEERS, JACKSONVILLE DISTRICT, U. S. FISH AND WILDLIFE SERVICE, JACKSONVILLE ECOLOGICAL SERVICES FIELD OFFICE AND STATE OF FLORIDA EFFECT DETERMINATION KEY FOR THE WOOD STORK IN CENTRAL AND NORTH PENINSULAR FLORIDA**
**September 2008**

## Purpose and Background

The purpose of this document is to provide a tool to improve the timing and consistency of review of Federal and State permit applications and Federal civil works projects, for potential effects of these projects on the endangered wood stork (*Mycteria americana*) within the Jacksonville Ecological Services Field Office (JAFL) geographic area of responsibility (GAR see below). The key is designed primarily for Corps Project Managers in the Regulatory and Planning Divisions and the Florida Department of Environmental Protection or its authorized designee, or Water Management Districts. The tool consists of the following dichotomous key and reference material. The key is intended to be used to evaluate permit applications and Corps' civil works projects for impacts potentially affecting wood storks or their wetland habitats. At certain steps in the key, the user is referred to graphics depicting known wood stork nesting colonies and their core foraging areas (CFA), footnotes, and other support documents. The graphics and supporting documents may be downloaded from the Corps' web page at http://www.saj.usace.army.mil/permit or at the JAFL web site at http://www.fws.gov/northflorida/WoodStorks. We intend to utilize the most recent information for both the graphics and supporting information; so should this information be updated, we will modify it accordingly. **Note: This information is provided as an aid to project review and analysis, and is not intended to substitute for a comprehensive biological assessment of potential project impacts. Such assessments are site-specific and usually generated by the project applicant or, in the case of civil works projects, by the Corps or project co-sponsor.**

**Explanatory footnotes provided in the key must be closely followed whenever encountered.**

## Scope of the key

This key should only be used in the review of permit applications for effects determinations on wood storks within the JAFL GAR, and not for other listed species. Counties within the JAFL 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.

The final effect determination will be based on project location and description, the potential effects to wood storks, and any measures (for example project components, special permit conditions) that avoid or minimize direct, indirect, and/or cumulative

impacts to wood storks and/or suitable wood stork foraging habitat. Projects that key to a "no effect" determination do not require additional consultation or coordination with the JAFL. Projects that key to "NLAA" also do not need further consultation; however, the JAFL staff will assist the Corps if requested, to answer questions regarding the appropriateness of mitigation options. Projects that key to a "may affect" determination equate to "likely to adversely affect" situations, and those projects should not be processed under the SPGP or any other programmatic general permit. For all "may affect" determinations, Corps Project Managers should request the JAFL to initiate formal consultation on the Wood stork.

## Summary of General Wood Stork Nesting and Foraging Habitat Information

The wood stork is primarily associated with freshwater and estuarine habitats that are used for nesting, roosting, and foraging. Wood storks typically nest colonially in medium to tall trees that occur in stands located either in swamps or on islands surrounded by relatively broad expanses of open water (Ogden 1991; Rodgers et al. 1996). Successful breeding sites are those that have limited human disturbance and low exposure to land based predators. Nesting sites protected from land-based predators are characterized as those surrounded by large expanses of open water or where the nest trees are inundated at the onset of nesting and remain inundated throughout most of the breeding cycle. These colonies have water depths between 0.9 and 1.5 meters (3 and 5 feet) during the breeding season.

In addition to limited human disturbance and land-based predation, successful nesting depends on the availability of suitable foraging habitat. Such habitat generally results from a combination of average or above-average rainfall during the summer rainy season, and an absence of unusually rainy or cold weather during the winter-spring breeding season (Kahl 1964; Rodgers et al. 1987). This pattern produces widespread and prolonged flooding of summer marshes that tends to maximize production of freshwater fishes, followed by steady drying that concentrate fish during the season when storks nest (Kahl 1964). Successful nesting colonies are those that have a large number of foraging sites. To maintain a wide range of foraging opportunities, a variety of wetland habitats exhibiting short and long hydroperiods should be present. In terms of wood stork foraging, the Service (1999) describes a short hydroperiod as one where a wetland fluctuates between wet and dry in 1 to 5-month cycles, and a long hydroperiod where the wet period is greater than five consecutive months. Wood storks during the wet season generally feed in the shallow water of short-hydroperiod wetlands and in coastal habitats during low tide. During the dry season, foraging shifts to longer hydroperiod interior wetlands as they progressively dry down (though usually retaining some surface water throughout the dry season).

Because of their specialized feeding behavior, wood storks forage most effectively in shallow-water areas with highly concentrated prey. Typical foraging sites for the wood stork include freshwater marshes, depressions in cypress heads, swamp sloughs, managed impoundments, stock ponds, shallow-seasonally flooded roadside or agricultural ditches, and narrow tidal creeks or shallow tidal pools. Good foraging conditions are characterized by water that is relatively calm, open, and having water depths between 5 and 15 inches (5 and 38 cm). Preferred foraging habitat includes wetlands exhibiting a mosaic of submerged and/or emergent aquatic vegetation, and shallow, open-water areas subject to hydrologic

regimes ranging from dry to wet. The vegetative component provides nursery habitat for small fish, frogs, and other aquatic prey, and the shallow, open-water areas provide sites for concentration of the prey during daily or seasonal low water periods.

## WOOD STORK KEY

**Although designed primarily for use by Corps Project Managers in the Regulatory and Planning Divisions, and State Regulatory agencies or their designees, project permit applicants and co-sponsors of civil works projects may find this key and its supporting documents useful in identifying potential project impacts to wood storks, and planning how best to avoid, minimize, or compensate for any identified adverse effects.**

A. Project within 2,500 feet of an active colony site[1]……*May affect*

Project more than 2,500 feet from a colony site……go to B

B. Project does not affect suitable foraging habitat[2] (SFH)…….*no effect*

Project impacts SFH[2]……go to C

C. Project impacts to SFH are less than or equal to 0.5 acre[3]…….....*NLAA*[4]

Project impacts to SFH are greater than or equal to 0.5 acre..……..go to D

D. Project impacts to SFH not within a Core Foraging Area[5] (see attached map) of a colony site, and no wood storks have been documented foraging on site…….....NLAA[4]

Project impacts to SFH are within the CFA of a colony site, or wood storks have been documented foraging on a project site outside the CFA ……..….go to E

E. Project provides SFH compensation within the Service Area of a Service-approved wetland mitigation bank or wood stork conservation bank preferably within the CFA, or consists of SFH compensation within the CFA consisting of enhancement, restoration or creation in a project phased approach that provides an amount of habitat and foraging function equivalent to that of impacted SFH (see *Wood Stork Foraging Habitat Assessment Procedure*[6] for guidance), is not contrary to the Service's *Habitat Management Guidelines For The Wood Stork In The Southeast Region* and in accordance with the CWA section 404(b)(1) guidelines……*NLAA*[4]

Project does not satisfy these elements.……....……...*May affect*

[1] An active nesting site is defined as a site currently supporting breeding pairs of wood storks, or has supported breeding wood storks at least once during the preceding 10-year period.

[2] Suitable foraging habitat (SFH) is described as any area containing patches of relatively open (< 25% aquatic vegetation), calm water, and having a permanent or seasonal water depth between 2 and 15 inches (5 to 38 cm). SFH supports and concentrates, or is capable of supporting and concentrating small fish, frogs, and other aquatic prey. Examples of SFH include, but are not limited to, freshwater marshes and stock ponds, shallow, seasonally flooded roadside or agricultural ditches, narrow tidal creeks or shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs. See above *Summary of General Wood Stork Nesting and Foraging Habitat Information*.

[3] On an individual basis, projects that impact less than 0.5 acre of SFH generally will not have a measurable effect on wood storks, although we request the Corps to require mitigation for these losses when appropriate. Wood Storks are a wide ranging species, and individually, habitat change from impacts to less than 0.5 acre of SFH is not likely to adversely affect wood storks. However, collectively they may have an effect and therefore regular monitoring and reporting of these effects are important.

[4] Upon Corps receipt of a general concurrence issued by the JAFL through the Programmatic Concurrence on this key, "NLAA" determinations for projects made pursuant to this key require no further consultation with the JAFL.

[5] The U.S. Fish and Wildlife Service (Service) has identified core foraging area (CFA) around all known wood stork nesting colonies that is important for reproductive success. In Central Florida, CFAs include suitable foraging habitat (SFH) within a 15-mile radius of the nest colony; CFAs in North Florida include SFH within a 13-mile radius of a colony. The referenced map provides locations of known colonies and their CFAs throughout Florida documented as active within the last 10 years. The Service believes loss of suitable foraging wetlands within these CFAs may reduce foraging opportunities for the wood stork.

[6]This draft document, *Wood Stork Foraging Habitat Assessment Procedure*, by Passarella and Associates, Incorporated, may serve as further guidance in ascertaining wetland foraging value to wood storks and compensating for impacts to wood stork foraging habitat.

## Monitoring and Reporting Effects

For the Service to monitor cumulative effects, it is important for the Corps to monitor the number of permits and provide information to the Service regarding the number of permits issued that were determined "may affect, not likely to adversely affect." It is requested that information on date, Corps identification number, project acreage, project wetland acreage, and latitude and longitude in decimal degrees be sent to the Service quarterly.

## Literature Cited

Kahl, M.P., Jr. 1964. Food ecology of the wood stork (*Mycteria americana*) in Florida. Ecological Monographs 34:97-117.

Ogden, J.C. 1991. Nesting by wood storks in natural, altered, and artificial wetlands in central and northern Florida. Colonial Waterbirds 14:39-45.

Rodgers, J.A. Jr., A.S. Wenner, and S.T. Schwikert. 1987. Population dynamics of wood storks in northern and central Florida, USA. Colonial Waterbirds 10:151-156.

Rodgers, J.A., Jr., S.T. Schwikert, and A. Shapiro-Wenner. 1996. Nesting habitat of wood storks in north and central Florida, USA. Colonial Waterbirds 19:1-21.

U.S. Fish and Wildlife Service. 1999. South Florida multi-species recovery plan. Fish and Wildlife Service; Atlanta, Georgia. Available from: http://verobeach.fws.gov/Programs/Recovery/vbms5.html.

# Appendix C – Listed Species Protection Measures

# STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE

## U.S. Fish and Wildlife Service

May 2024

The Standard Protection Measures for the Eastern Indigo Snake (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida and Georgia for use by project proponents and their construction personnel help minimize adverse impacts to eastern indigo snakes. However, implementation of this Plan does not replace any state of federal consultation or regulatory requirements. At least 30 days prior to any land disturbance activities, the project proponent shall notify the appropriate USFWS Field Office (see Field Office contact information) via e-mail that the Plan will be implemented as described below.

As long as the signatory of the e-mail certifies compliance with the below Plan (including use of the approved poster and pamphlet (USFWS Eastern Indigo Snake Conservation webpage), no further written confirmation or approval from the USFWS is needed regarding use of this Plan as a component of the project.

If the project proponent 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. The project proponent 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.

## STANDARD PROTECTION MEASURES

### BEFORE AND DURING CONSTRUCTION ACTIVITIES:

- All Project personnel shall be notified about the potential presence and appearance of the federally protected eastern indigo snake (*Drymarchon couperi*).
- All personnel shall be advised that there are civil and criminal penalties for harassing, harming, pursuing, hunting, shooting, wounding, killing, capturing, or collecting the species, in knowing violation of the Endangered Species Act of 1973.
- The project proponent or designated agent will post educational posters in the construction office and throughout the construction site. The posters must be clearly visible to all construction staff and shall be posted in a conspicuous location in the

Project field office until such time that Project construction has been completed and time charges have stopped.

- Prior to the onset of construction activities, the project proponent or 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 pamphlet 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. Photos of eastern indigo snakes may be accessed on USFWS, Florida Fish and Wildlife Conservation Commission and/or Georgia Department of Natural Resources websites.
- Each day, prior to the commencement of maintenance or construction activities, the Contractor shall perform a thorough inspection for the species of all worksite equipment.
- If an eastern indigo snake (alive, dead or skin shed) 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 Office. The contact information for the USFWS is provided below and on the referenced posters and pamphlets.
- During initial site clearing activities, an onsite observer is recommended 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).
- Periodically during construction activities, the project area should be visited 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.
- For erosion control use biodegradable, 100% natural fiber, net-free rolled erosion control blankets to avoid wildlife entanglement.

### 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 (See USFWS Field Office Contact Information).

## USFWS FIELD OFFICE CONTACT INFORMATION

Georgia Field Office: Phone: (706) 613-9493, email: gaes_assistance@fws.gov
Florida Field Office: Phone: (352) 448-9151, email: fw4flesregs@fws.gov

# POSTER & PAMPHLET INFORMATION

Posters with the following information shall be placed at strategic locations on the construction site and along any proposed access roads (final posters for Plan compliance are available on our website in English and Spanish and should be printed on 11 x 17in or larger paper and laminated (USFWS Eastern Indigo Snake Conservation webpage). Pamphlets are also available on our webpage and should be printed on 8.5 x 11in paper and folded, and available and distributed to staff working on the site.

## POSTER CONTENT (ENGLISH):

ATTENTION

Federally-Threatened Eastern Indigo Snakes may be present on this site!

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

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

• Stop land disturbing activities and allow the snake time to move away from the site without interference. Do NOT attempt to touch or handle the snake.

• Take photographs of the snake, if possible, for identification and documentation purposes.

• Immediately notify supervisor/agent, and a U.S. Fish and Wildlife Service (USFWS) Ecological Services Field Office, with the location information and condition of the snake.

• If the snake is located near clearing or construction activities that will cause harm to the snake, the activities must pause until a representative of the USFWS returns the call (within one day) with further guidance.

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

• Stop land disturbing activities and immediately notify supervisor/applicant, and a USFWS Ecological Services Field 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.

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, reaching up to 8 ft long. Named for the glossy, blue-black scales above and slate blue below, they often have orange to reddish color (cream color in some cases)

in the throat area. They are not typically aggressive.

SIMILAR SPECIES: The black racer resembles the eastern indigo snake. However, black racers have a white or cream chin, and thinner bodies.

LIFE HISTORY: Eastern indigo snakes live in a variety of terrestrial habitat types. Although they prefer uplands, they also use wetlands and agricultural areas. They will shelter inside gopher tortoise burrows, other animal burrows, stumps, roots, and debris piles. Females may lay from 4 to 12 white eggs as early as April through June, with young hatching in late July through October.

PROTECTED STATUS: The eastern indigo snake is protected by the USFWS, Florida Fish and Wildlife Conservation Commission, and Georgia Department of Natural Resources. Any attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage eastern indigo snakes is prohibited by the U.S. Endangered Species Act. Penalties include a maximum fine of $25,000 for civil violations and up to $50,000 and/or imprisonment for criminal offenses. Only authorized individuals with a permit (or an Incidental Take Statement associated with a USFWS Biological Opinion) may handle an eastern indigo snake.

Please contact your nearest USFWS Ecological Services Field Office if a live or dead eastern indigo snake is encountered:

Florida Office: (352) 448-9151

Georgia Office: (706) 613-9493

## POSTER CONTENT (SPANISH):

ATENCIÓN

¡Especie amenazada, la culebra Índigo del Este, puede ocupar el área!

Matar, herir o hostigar culebras Índigo del Este es estrictamente prohibido bajo la Ley Federal.

SI VES UNA CULEBRA ÍNDIGO DEL ESTE O UNA CULEBRA NEGRA VIVA EN EL ÁREA:

• Pare excavación y permite el movimiento de la culebra fuera del área sin interferir. NO atentes tocar o recoger la culebra.

• Fotografié la culebra si es posible para identificación y documentación.

• Notifique supervisor/agente, y la Oficina de Campo de Servicios Ecológicos del Servicio Federal de Pesca y Vida Silvestre (USFWS) apropiada con información acerca del sitio y condición de la culebra.

• Si la culebra está cerca de un área de construcción que le pueda causar daño, las actividades deben parar hasta un representante del USFWS regrese la llamada (dentro de un día) con más orientación.

SI VES UNA CULEBRA ÍNDIGO DEL ESTE MUERTA EN EL ÁREA:

• Pare excavación. Notifique supervisor/aplicante, y la Oficina de Campo de Servicios Ecológicos apropiada con información acerca del sitio y condición de la culebra.

• Fotografié la culebra si es posible para identificación y documentación.

• Emerge completamente la culebra en agua y congele la especie hasta que personal apropiado de la agencia de vida silvestre la recoja.

DESCRIPCIÓN. La culebra Índigo del Este es una de las serpientes sin veneno más grande en Norte América, alcanzando hasta 8 pies de largo. Su nombre proviene del color azul-negro brilloso de sus escamas, pero pueden tener un color anaranjado-rojizo (color crema en algunos casos) en su mandíbula inferior. No tienden a ser agresivas.

SERPIENTES PARECIDAS. La corredora negra, que es de color negro sólido, es la única otra serpiente que se asemeja a la Índigo del Este. La corredora negra se diferencia por una mandíbula inferior color blanca o crema y un cuerpo más delgado.

HÁBITATS Y ECOLOGÍA. La culebra Índigo del Este vive en una variedad de hábitats, incluyendo tierras secas, humedales, y áreas de agricultura. Ellas buscan refugio en agujeros o huecos de tierra, en especial madrigueras de tortugas de tierra. Las hembras ponen 4 hasta 12 huevos blancos entre abril y junio, y la cría emergen entre julio y octubre.

PROTECCIÓN LEGAL. La culebra Índigo del Este es clasificada como especie amenazada por el USFWS, la Comisión de Conservación de Pesca y Vida Silvestre de Florida y el Departamento de Recursos Naturales de Georgia. Intento de matar, hostigar, herir, lastimar, perseguir, cazar, disparar, capturar, colectar o conducta parecida hacia las culebras Índigo del Este es prohibido por la Ley Federal de Especies en Peligro de Extinción. Penalidades incluyen un máximo de $25,000 por violaciones civiles y $50,000 y/o encarcelamiento por actos criminales. Solos individuales autorizados con un permiso o Determinación de toma incidental (Incidental Take Statement) asociado con una Opinión Biológico del USFWS pueden recoger una Índigo del Este.

Por favor de contactar tu Oficina de Campo de Servicios Ecológicos más cercana si encuentras una culebra Índigo del Este viva o muerta:

Oficina de Florida: (352) 448-9151

Oficina de Georgia: (706) 613-9493

# Appendix D – UMAM Sheets

Sixmile & Julington Basin

**Site:** **SR 16 Improvements Preferred Alternative** **Date: 7-23-24**

| Impacts | Habitat Type | Location and Landscape Support before | Location and Landscape Support after | Water Environment before | Water Environment after | Community Structure before | Community Structure after | Acres | Functional Loss | Rounded Functional Loss |
|---|---|---|---|---|---|---|---|---|---|---|
| W | 441H | 5 | 0 | 5 | 0 | 5 | 0 | 0 | 0.0000 | 0.00 |
| SW | 510 | 7 | 0 | 7 | 0 | 7 | 0 | 0.46 | 0.3220 | 0.33 |
| SW | 524 | 5 | 0 | 7 | 0 | 7 | 0 | 0 | 0.0000 | 0.00 |
| W | 615 | 7 | 0 | 8 | 0 | 8 | 0 | 2.19 | 1.6790 | 1.68 |
| W | 630 | 5 | 0 | 6 | 0 | 6 | 0 | 14.81 | 8.3923 | 8.40 |
| W | 641 | 5 | 0 | 6 | 0 | 6 | 0 | 3.16 | 1.7907 | 1.80 |
| W | 643 | 5 | 0 | 6 | 0 | 6 | 0 | 0.49 | 0.2777 | 0.28 |
| SW | 512 | 7 | 0 | 7 | 0 | 7 | 0 | 0.79 | 0.5530 | 0.56 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0000 | 0.00 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0000 | 0.00 |
| | | | | | | | | | 0.0000 | |
| | | | | | | | | | 0.0000 | |
| | | | | | | | | | 0.0000 | |

Total Impact Acres **21.90**

Each line is rounded up to the next hundreth.

| Total Functional Loss | Total Rounded Functional Loss | Total Functional Gain Units |
|---|---|---|
| **13.015** | **13.05** | **0.000** |

| Mitigation<br>Preservation | Habitat Type | Location and Landscape Support before | Location and Landscape Support after | Water Environment before | Water Environment after | Community Structure before | Community Structure after | Time Lag | Risk Factor | Preservation Adjustment Factor | Relative Functional Gain | Acres Provided | Functional Gain Units |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 2 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 3 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 4 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 5 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 6 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 7 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| creation | | | | | | | | | | | | | |
| 1 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 2 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| uplands | | | | | | | | | | | | | |
| 11 | | | | x | x x | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 12 | | | | x | x x | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 13 | | | | x | x x | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 14 | | | | x | x x | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 15 | | | | x | x x | | | 1 | 1.00 | | 0.0000 | | 0.0000 |

Pellicer & Matanzas Basin

**Site:** **SR 16 Improvements Preferred Alternative** **Date: 7-23-24**

| Impacts | Habitat Type | Location and Landscape Support before | Location and Landscape Support after | Water Environment before | Water Environment after | Community Structure before | Community Structure after | Acres | Functional Loss | Rounded Functional Loss |
|---|---|---|---|---|---|---|---|---|---|---|
| W | 441H | 5 | 0 | 5 | 0 | 5 | 0 | 0 | 0.0000 | 0.00 |
| SW | 510 | 7 | 0 | 7 | 0 | 7 | 0 | 0 | 0.0000 | 0.00 |
| SW | 524 | 5 | 0 | 7 | 0 | 7 | 0 | 0 | 0.0000 | 0.00 |
| W | 615 | 7 | 0 | 8 | 0 | 8 | 0 | 0.25 | 0.1917 | 0.20 |
| W | 630 | 5 | 0 | 6 | 0 | 6 | 0 | 0 | 0.0000 | 0.00 |
| W | 641 | 5 | 0 | 6 | 0 | 6 | 0 | 0 | 0.0000 | 0.00 |
| W | 643 | 5 | 0 | 6 | 0 | 6 | 0 | 0 | 0.0000 | 0.00 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0000 | 0.00 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0000 | 0.00 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0000 | 0.00 |
| | | | | | | | | | 0.0000 | |
| | | | | | | | | | 0.0000 | |
| | | | | | | | | | 0.0000 | |

Total Impact Acres **0.25**

Each line is rounded up to the next hundreth.

Total Functional Loss **0.192**

Total Rounded Functional Loss **0.20**

Total Functional Gain Units **0.000**

| Mitigation / Preservation | Habitat Type | Location and Landscape Support before | Location and Landscape Support after | Water Environment before | Water Environment after | Community Structure before | Community Structure after | Time Lag | Risk Factor | Preservation Adjustment Factor | Relative Functional Gain | Acres Provided | Functional Gain Units |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 2 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 3 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 4 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 5 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 6 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 7 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| creation | | | | | | | | | | | | | |
| 1 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 2 | | | | | | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| uplands | | | | | | | | | | | | | |
| 11 | | | | x | x x | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 12 | | | | x | x x | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 13 | | | | x | x x | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 14 | | | | x | x x | | | 1 | 1.00 | | 0.0000 | | 0.0000 |
| 15 | | | | x | x x | | | 1 | 1.00 | | 0.0000 | | 0.0000 |