

FINAL ENVIRONMENTAL TECHNICAL COMPENDIUM

For

**US 301 (SR 43) Project Development and Environment (PD&E) Study
From Falkenburg Road to Causeway Boulevard
WPI SEG. NO.: 421140-6
Hillsborough County**

August 2008

Prepared for:

Hillsborough County



In Cooperation With

Florida Department of Transportation – District 7

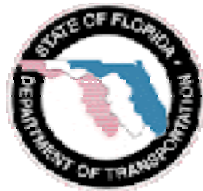


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1.0 PROJECT INTRODUCTION

1.1 Project Description

1.1.1 Existing Conditions

Hillsborough County, in conjunction with the Florida Department of Transportation (FDOT), conducted a Project Development and Environment (PD&E) Study to evaluate the widening of US Highway 301 from Falkenburg Road to Causeway Boulevard in Hillsborough County, Florida (see *Figure 1*). The total project length is approximately 0.75 miles. The improvements will include adding one through lane in each direction to the existing four-lane, divided facility.

US Highway 301 is a principal arterial roadway that begins in Sarasota County, proceeds in a northeasterly direction, and exits the state of Florida northeast of the City of Jacksonville, Florida. Within the study area, US Highway 301 is a north-south four lane divided roadway within a right-of-way (R/W) that varies from 200 feet to 249 feet roadway. The typical section consists of two 12-foot lanes in each direction with 8-foot shoulders, 4 foot of which is paved, on either side (see *Figure 2*). The northbound and southbound directions are separated by a 41-foot grassed median containing ditch bottom inlets for conveyance of stormwater. Grassed swales on either side of the roadway serve as part of the roadway stormwater management system. A 6-foot sidewalk exists on either side of the R/W from Causeway Boulevard south to Wes Kearney Way.

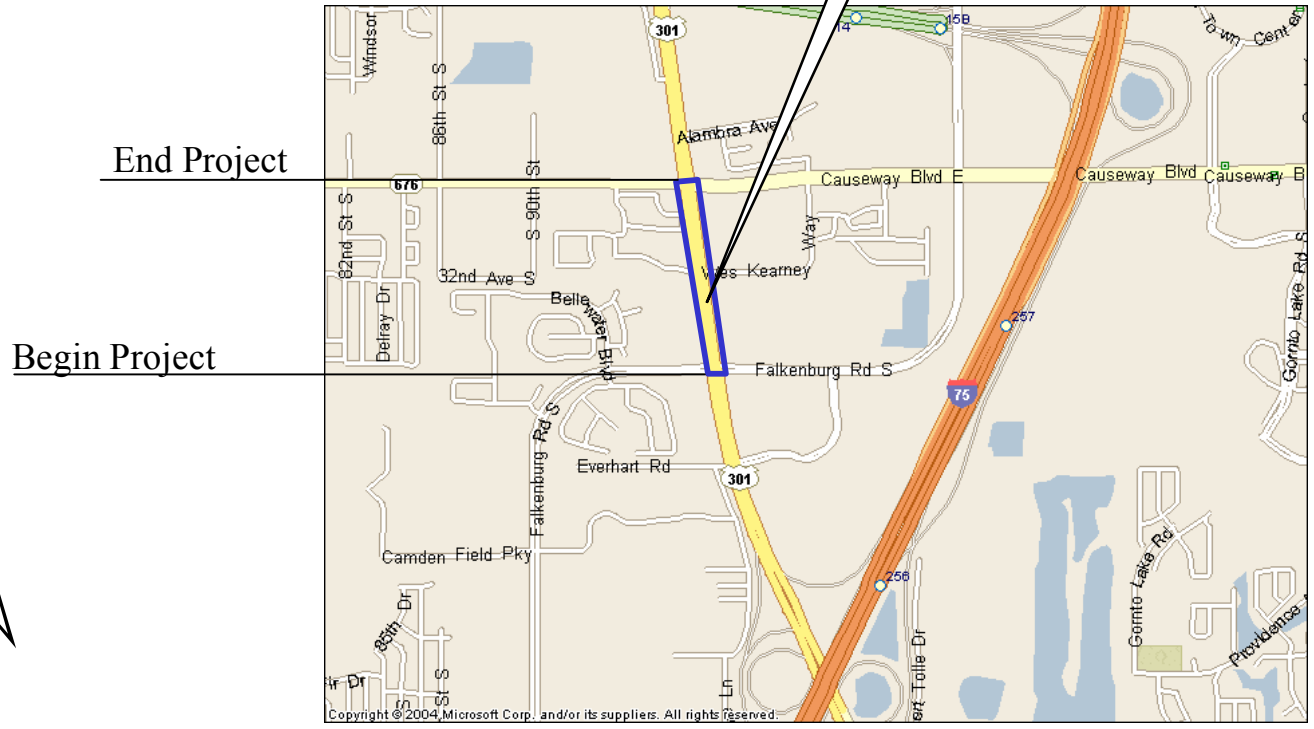
1.1.2 Proposed Improvements

The Build Alternative involves increasing the roadway from four lanes to six lanes by adding lanes to the outside of the existing lanes (see *Figure 3*). This PD&E Study evaluated the need and feasibility to widen US Highway 301 to 6 lanes from Falkenburg Road to Causeway Boulevard. Other improvements will include 12 foot shoulders, 5 feet of which is paved, that can accommodate bicycles, access management, and modifications to the existing stormwater management system to provide water quality and quantity treatment. The roadway improvements will not require acquisition of additional R/W. The existing intersection with Wes Kearney Way will be maintained. Five-foot sidewalks will be added near the existing R/W from Falkenburg Road to Wes Kearney Way.

The Build Alternative's drainage system utilizes a dry retention swale with the swale bottom a minimum of one (1) foot above the seasonal high water table (SHWT), based on site-specific water table information. The front slope would be set to 1:4 and the back slope would be at 1:2 and will tie to the existing ground. The west side adjacent to the Pavilion Development, from Falkenburg Road to the first driveway north will be raised to match future Pavilion finished grades. The proposed grade is estimated to be 31.0 feet based on permit plans on file at Southwest Florida Water Management District (SWFWMD). Sidewalks will be located at the R/W on both sides of the project where there are currently no sidewalks. The raised area along



Project Location



End Project

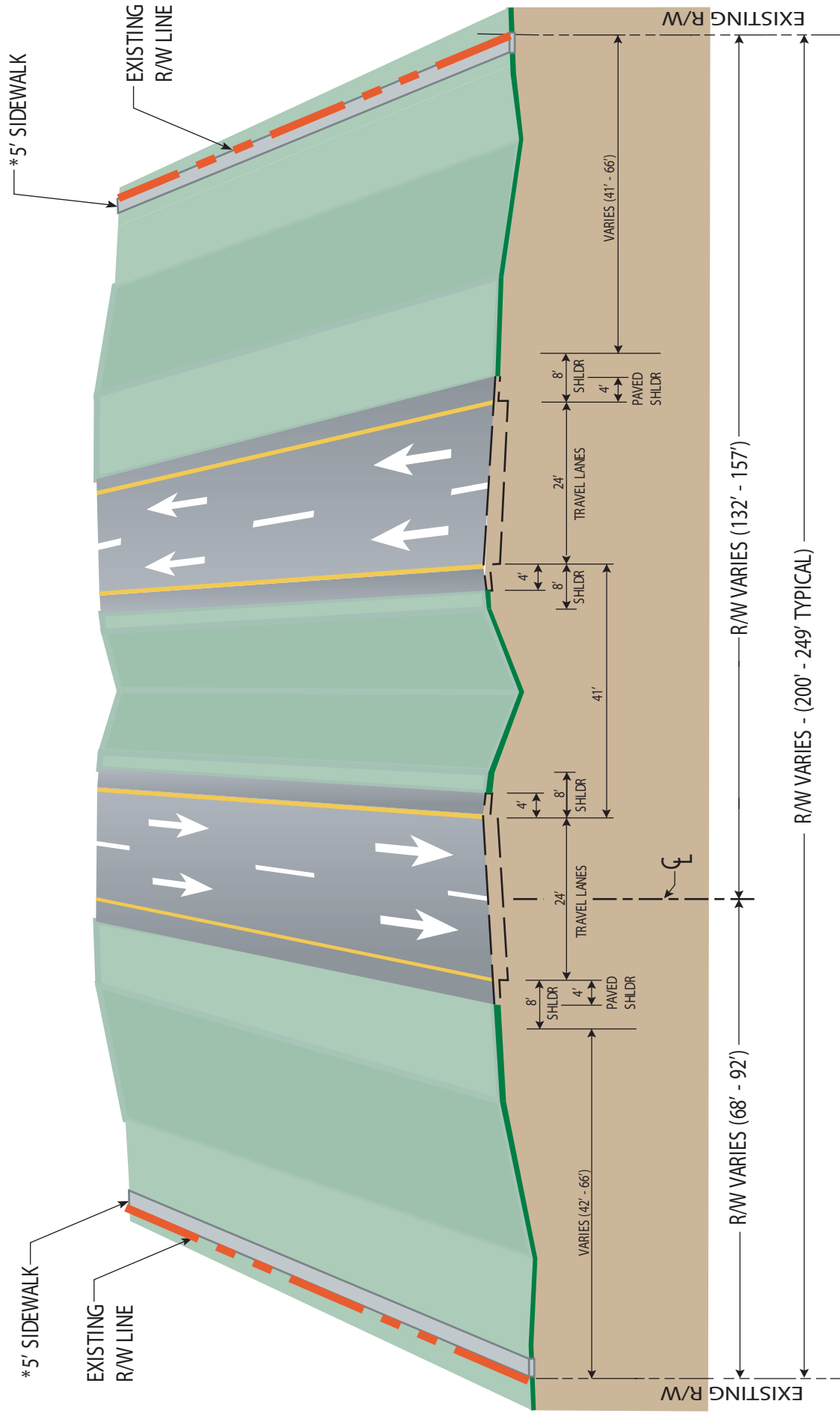
Begin Project

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PROJECT LOCATION MAP

**US 301 (SR 43)
 FROM FALKENBURG RD.
 TO CAUSEWAY BLVD.**

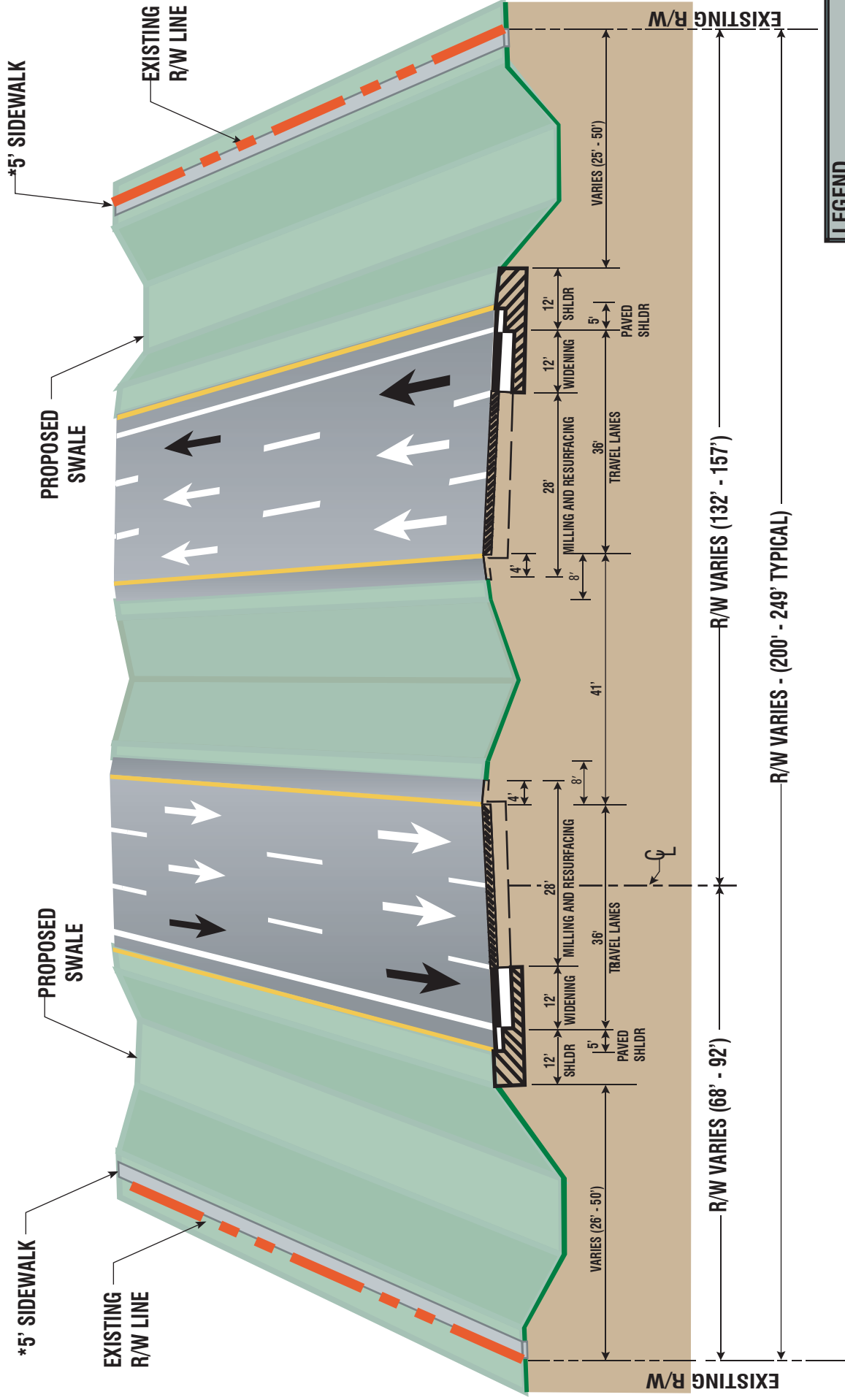
SCALE: Not To Scale	WPI SEG NO.: 421140-6	DATE: January 2007	FIGURE: 1
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* Existing sidewalk is from
Wes Kearney Way to Causeway Blvd.

**EXISTING TYPICAL SECTION (4 TO 6 LANES)
US 301 (SR 43)
FROM FALKENBURG RD TO CAUSEWAY BLVD
WPI Seg. No. 421140-6**

FIGURE 2



* Proposed sidewalk from Falkenburg Rd. to Wes Kearney Way

**PROPOSED TYPICAL SECTION (4 TO 6 LANES)
US 301 (SR 43)**

FROM FALKENBURG RD TO CAUSEWAY BLVD

WPI Seg. No. 421140-6

Figure 3

the Pavilion side will be allowed by the property owner. This will allow the fill slope to encroach onto the Pavilion property as the Pavilion property develops. The swales will retain the required volume and overflow to the outfall. Recovery of the required volume will be obtained by percolation or through a bleeder device such as an orifice.

The proposed swale typical section is shown in *Figure 4*.

EXIST
R/W LINE

2' FLAT

WATER QUANTITY

WATER QUALITY

1:2

1:4

0.79'

0.77'

1' (MIN)

2' MIN BOT WIDTH

SHWT

Figure 4
Proposed Swale Typical Section
WPI Seg. No. 421140-6

2.0 EXISTING ENVIRONMENTAL CHARACTERISTICS

2.1 Land Use

In general, land use within the project study area is predominantly suburban residential, including apartments and single family residences, retail, commercial, and a small amount of undeveloped land. This is a rapidly growing area of Hillsborough County. The project is not anticipated to change land use patterns.

2.1.1 Natural and Biological Features

Extensive alterations to the natural environment along the project study area have already occurred. The construction of drainage swales, residential and commercial developments, and stormwater borrow ponds along the roadway has altered the hydrology of the region. The natural features along the project corridor are limited to two offsite wetlands and an improved pasture, landscaped areas, and man-made surface waters. Descriptions of the natural and biological features found within the project corridor are provided below.

2.1.2 Uplands

The project is located in an area of Hillsborough County that is highly developed. There are no areas that are natural uplands along the project area. There are no natural upland communities within the project area.

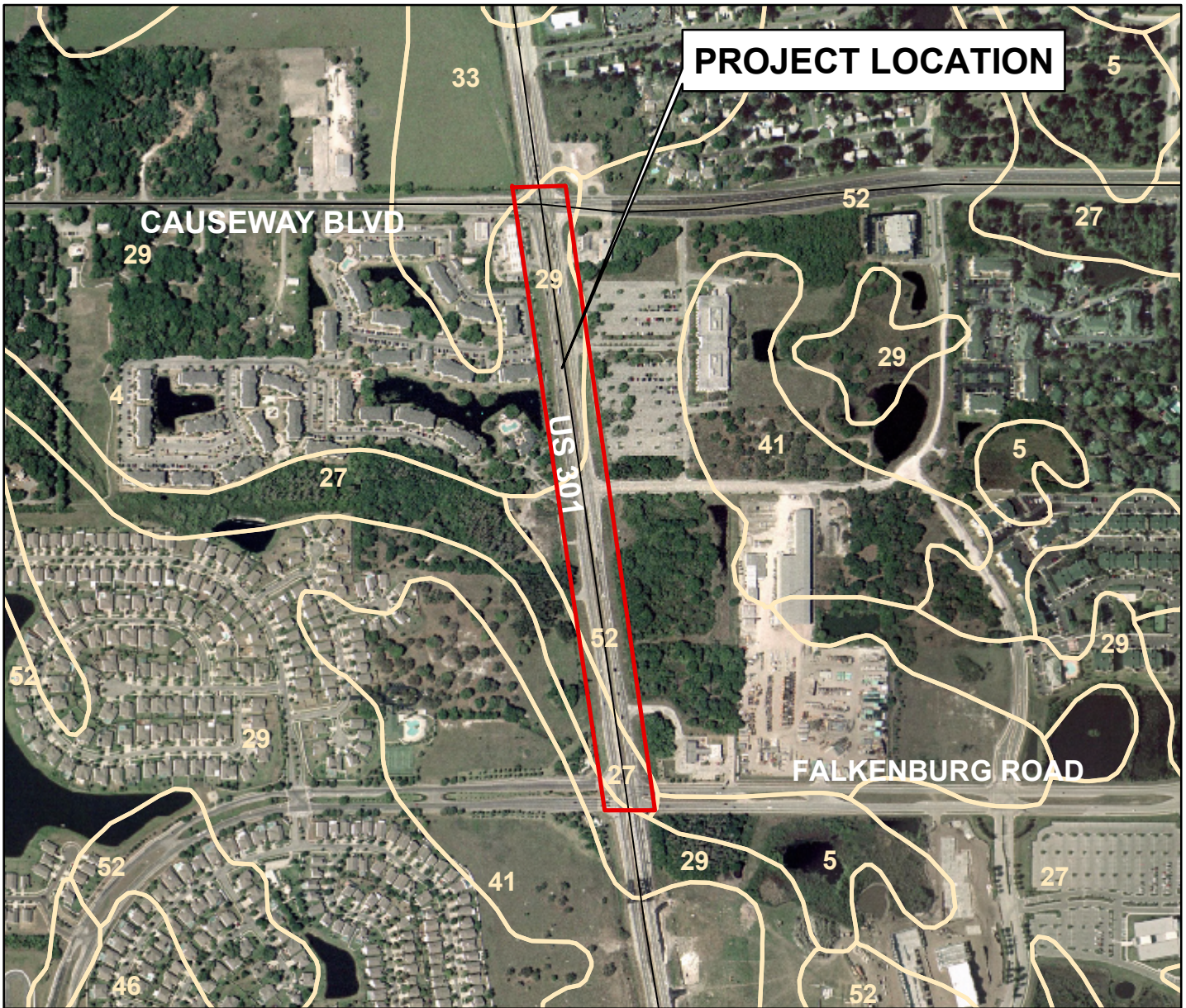
2.1.3 Soils

According to the United States Department of Agriculture/Natural Resource Conservation Service (USDA/NRCS) Soil Survey of Hillsborough County Area, Florida (1989), three soil types exist within the proposed project area. A list of these soils and a copy of the USDA/NRCS Soil Map are provided in *Figure 5*. Only Malabar fine sand is generally considered to be hydric by the Hydric Soils of Florida Handbook (2000).

2.1.4 Floodplains

The Flood Insurance Rate Maps (FIRM) for Hillsborough County (Community Panel Number 120112 038E, dated August 15, 1989) was reviewed to evaluate impacts to floodplains. A FEMA Firmette (FIRM) Map for the project corridor has been included as *Figure 6*.

The entire project corridor is within FEMA designated Flood Zone C. Flood Zone C denotes areas of minimal flooding. Therefore, the project will not result in impacts to the FEMA designated 100-year floodplain.



Sources: Aerial Express. 2003 AE, LLC. 2003 GDT, Inc.
 Southwest Florida Water Management District. GIS Data.
 USDA/SCS Soil Survey of Hillsborough County, Florida. May 1989.

LEGEND

- 27 = Malabar fine sand, 0 to 2 percent slope
- 29 = Myakka fine sand, 0 to 2 percent slope
- 33 = Ona fine sand, 0 to 2 percent slope
- 52 = Smyrna fine sand, 0 to 2 percent slope



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USDA/SCS SOILS MAP

**US 301 (SR 43)
FROM FALKENBURG RD.
TO CAUSEWAY BLVD.**

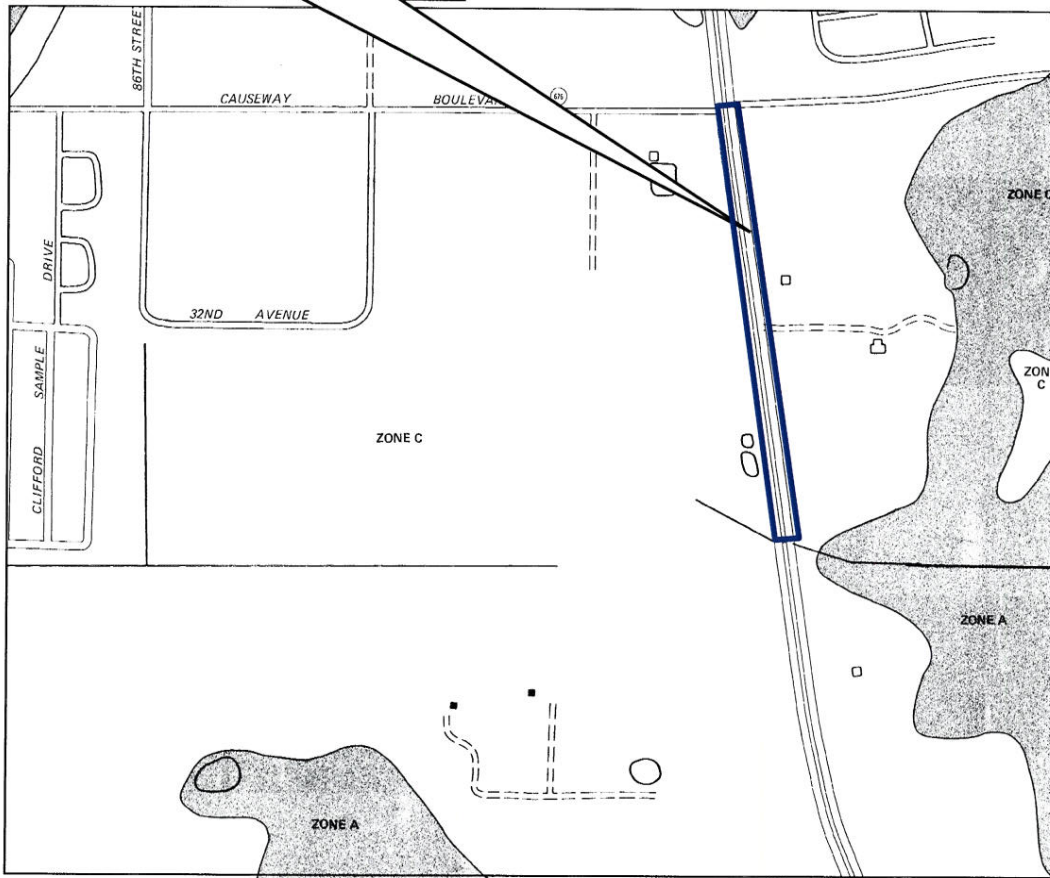
SCALE: 1" equals 700'

WPI SEG. NO.: 421140-6

DATE: January 2007

FIGURE: 5

Project Location



NATIONAL FLOOD INSURANCE PROGRAM


FIRM
FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
(UNINCORPORATED AREAS)

PANEL 386 OF 825
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
120112 0386 E

MAP REVISED:
AUGUST 15, 1989

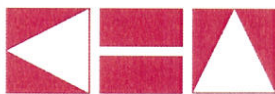


Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using FIRM software. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

LEGEND

Zone C – Areas of Minimal Flooding.



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FEMA FLOOD INSURANCE RATE MAPS

**U.S. 301 (S.R. 43)
FROM FALKENBURG RD.
TO CAUSEWAY BLVD.**

SCALE: As Shown	WPI SEG. NO.: 421140-6	DATE: January 2007	FIGURE: 6
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2.1.5 Wetlands and Other Surface Waters

Two wetlands, a wetland swale, and a stormwater pond were identified within the R/W. One surface water management pond was identified within 100 feet of the R/W adjacent to the property. Photos of the wetland and swales are included in *Appendix A*.

2.1.6 Water Quality

A Water Quality Impact Evaluation (WQIE) was completed for this project and is included in *Appendix B*. It has been determined that the project will not have an adverse impact to water quality. The stormwater facility design will include, at a minimum, the water quality requirements for water quality impacts as required by the SWFWMD.

3.0 WETLAND EVALUATION

3.1 Introduction

This section of the Environmental Technical Compendium contains the locations, descriptions, and classifications of the wetlands and surface waters in the project area. The impacts to these features, methods of avoidance and minimization, and mitigation options are also addressed. This evaluation was conducted in accordance with the FDOT PD&E Manual, Part 2, Chapter 18.

3.2 Methodology

The methodology for identifying wetlands and surface waters in the project area included the following:

- Review of the United States Department of Agriculture/Natural Resources Conservation Service (USDA/NRCS) Soil Survey of Hillsborough County, Florida (1989), to identify hydric soils within the proposed project area
- Review of Hydric Soils of Florida Handbook (Florida Association of Environmental Soil Scientists, 2001)
- Interpretation of 1 inch = 200 feet scale aerial photographs to identify wetlands and other surface water features in the proposed project area
- Review of the National Wetlands Inventory (NWI) Map, a GIS-based resource that is available online through the United States Fish and Wildlife Service (USFWS)
- Field reconnaissance conducted on September 14, 2006 to verify the presence or absence of wetlands and other surface waters within, and adjacent to, the proposed project R/W
- Review of files at the Hillsborough County Environmental Protection Commission (EPC)

3.3 Surface Water Descriptions

The locations of all surface waters are provided in *Figure 7*. *Table 1* represents a complete summary of these features.

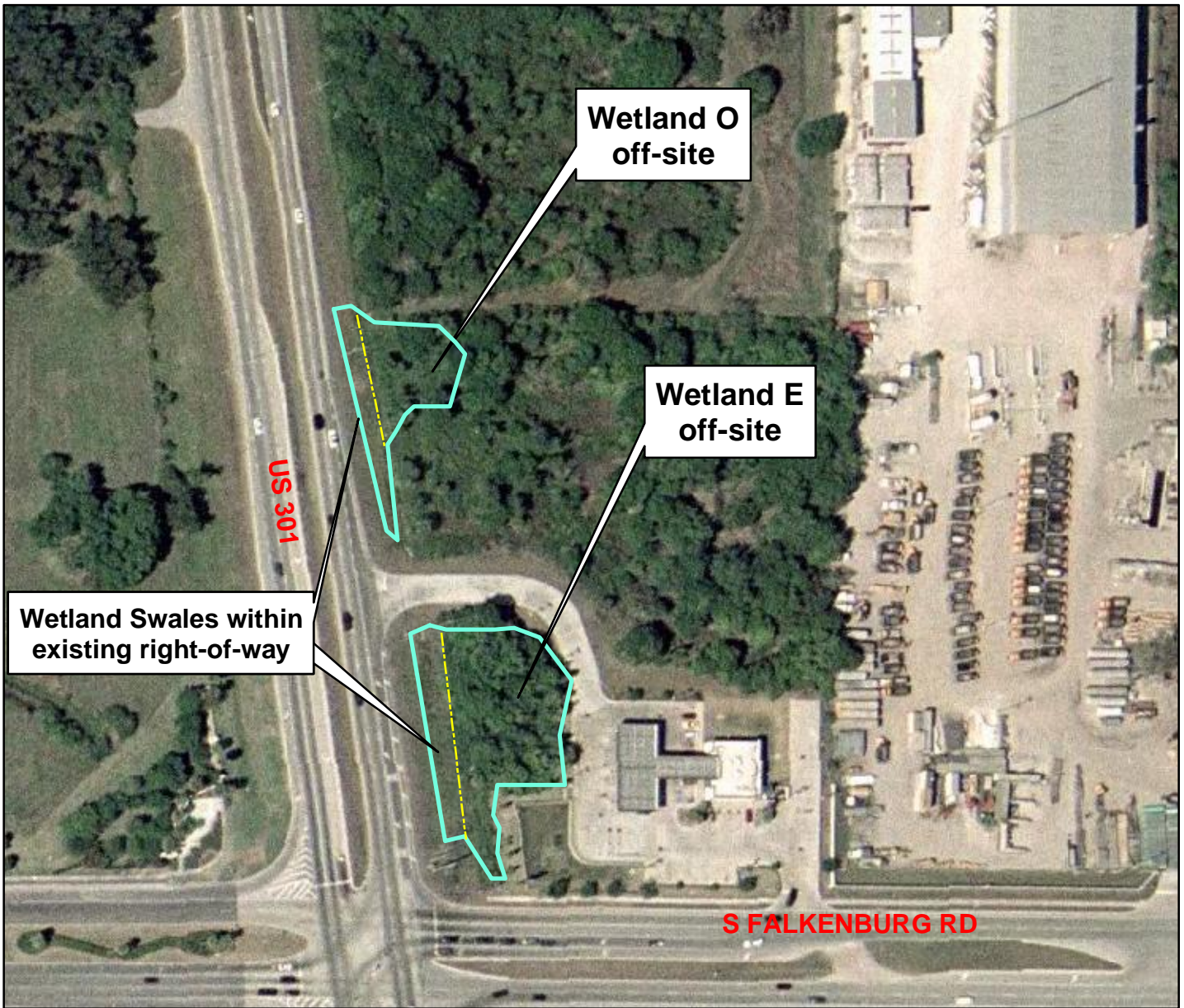
Table 1 Summary of Wetlands and Other Surface Waters					
Site No.	FLUCFCS Code	Cowardin Classification	Station No.	Hydrologic Contiguity*	Comments
WETLANDS					
E	641	PEM1Jx	1065-1070	1	Adjacent wetland
O	641	PEMIJx	1065-1070	1	Adjacent wetland
Swale-1	641	PEM1Jx	1065-1070	1	This is a roadside swale
OTHER SURFACE WATERS					
1	534	N/A	1080 (approximately)	1	This surface water management pond is part of a multi-family residential development adjacent to the site.
*Hydrologic contiguity as defined in the FDOT PD&E Manual, Part 2, Chapter 18 (page 18-5): Perched or isolated from a regional surface water drainage system, including flats and depressions.					

3.3.1 Wetlands

FLUCFCS 641 (Freshwater Marsh)

Two wetlands were observed adjacent to the east of project. They are located south of Wes Kearney Boulevard and north of Falkenburg Road. One wetland is located on an undeveloped parcel; the other is located in front of a 7- 11 gas station. As discussed below, these wetlands were claimed by EPC and were identified as “E” and “O” (see *Figure 6*). Vegetation in this area consists of primrose willow (*Ludwigia peruviana*), cattail (*Typha sp.*), Carolina willow (*Salix sp.*), red maple (*Acer rubrum*) and dollar weed (*Hydrocotyle umbellata*). According to the USDA/NRCS Soil Survey of Hillsborough County Area, Florida (1989), the soil type in this area is Smyrna fine sand, 0 to 2 percent slope. This soil is generally not considered hydric.

The files at the EPC were reviewed for information on previously documented wetlands within and adjacent to the project area. One wetland jurisdictional determination (JD) was identified for folio number 0723030102. This parcel is located at the northeast corner of US Highway 301 and Falkenburg Road. Two wetlands, “E” and “O” were identified adjacent to US Highway 301. The JD found is dated August 12, 1997 and has expired; however, based on field reconnaissance, it is unlikely that the limits of the wetlands on the adjacent side have changed relative to the US Highway 301 R/W.



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SUMMARY OF WETLANDS AND OTHER SURFACE WATERS

**US 301 (SR 43)
FROM FALKENBURG RD.
TO CAUSEWAY BLVD.**

SCALE: 1" equals 170'	WPI SEG. NO.: 421140-6	DATE: January 2007	FIGURE: 7
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Roadside swales were observed during site reconnaissance. These swales were directly adjacent to both wetlands “E” and “O” referenced above. It appears that these swales were excavated through wetlands “E” and “O” and are hydrologically connected. Therefore, it is likely that the Southwest Florida Water Management District (SWFWMD), EPC, and the United States Army Corps of Engineers (USACE) will claim these swales as jurisdictional wetlands and will likely require compensatory mitigation if impacts are proposed. It appears that approximately 0.1 acres of impacts to these swales will occur. A summary of these features is provided in *Table 1*.

FLUCFCS 534 – Residential Stormwater Management Pond

This stormwater borrow pond is located in the Windermere Apartment complex at the southwest corner of US Highway 301 and Causeway Boulevard. The stormwater management pond does not appear to be within the R/W for US Highway 301. Impacts to this pond are not anticipated.

A description of the relevant FLUCFCS codes is included in *Appendix C*.

3.4 Impact Assessment

At this time, impacts to the wetland swales adjacent to the wetland are anticipated. No other impacts to jurisdictional wetlands or surface waters are anticipated.

3.5 Conceptual Mitigation Plan

Impacts to swales that exhibit wetland functions and values are anticipated. The SWFWMD, EPC and potentially the USACE will likely require compensatory mitigation for impacts to these wetlands. Coordination with these agencies will occur during the permitting phase of the project. If mitigation is required, the most feasible option would be to mitigate at an offsite mitigation bank. The Tampa Bay Mitigation bank would be one option.

3.6 Coordination and Permits Required

Coordination among the Hillsborough County EPC, FDOT and SWFWMD will occur during design. The following permits will likely be required:

- Southwest Florida Water Management District Environmental Resource Permit
- Southwest Florida Water Management District Water Use Permit
- Florida Department of Environmental Protection (FDEP) National Pollutant Discharge Elimination System (NPDES) Permit
- Hillsborough County Environmental Protection Commission

4.0 ENDANGERED SPECIES BIOLOGICAL ASSESSMENT

4.1 Introduction

This section of the Environmental Technical Compendium discusses the potential occurrence of federal or state-listed species within the project area. Any potentially adverse effects to listed species due to the project are also addressed. This assessment was conducted in accordance with Section 7(c) of the Endangered Species Act of 1973 and the FDOT PD&E Manual, Part 2, Chapter 27.

4.2 Methodology

4.2.1 Data Collection

Information on the potential presence of listed species along the project corridor was collected through a literature review and coordination with appropriate regulatory agencies. The US Fish and Wildlife Service (USFWS), the Florida Fish and Wildlife Conservation Commission (FWC), and the Florida Natural Areas Inventory (FNAI) were consulted for information from their Geographic Information Systems databases regarding listed species occurrences.

The Advanced Notification was submitted to the USFWS and the FWC on December 6, 2006. A letter was sent to the FNAI on November 27, 2006 requesting their input on listed species that may occur within the project area. Responses from FNAI are provided in *Appendix D*.

Field reviews of the project corridor were also conducted on September 14, 2006. During the field reconnaissance, no listed species were observed within the project area.

4.2.2 Listed Species

Based on the literature review, coordination with regulatory agencies, and field reconnaissance, the state and federally listed species that may occur in the project area are listed in *Table 2*. No federally designated critical habitat exists within the project area.

Table 2 Listed Animal Species Potentially Found in Proposed Project Area			
Common Name	Scientific Name	Federal Status	State Status
Wood Stork	<i>Mycteria americana</i>	E	E
Little Blue Heron	<i>Egretta caerulea</i>	N	SSC
White Ibis	<i>Eudocimus albus</i>	N	SSC
Sandhill Crane	<i>Grus canadensis pratensis</i>	N	T

Notes: E = Endangered, T = Threatened, T(S/A) = Threatened due to Similarity of Appearance, SSC = Species of Special Concern, N = Not Listed

4.3 Project Impacts

4.3.1 Habitat Impacts

Potential habitats along the proposed project area are limited to man-made swales, and maintained, upland areas adjacent to the roadway. Adverse impacts to protected species are anticipated to be low as a result of the proposed roadway improvements to US Highway 301. The quality of the habitat is low and the area is generally surrounded by development. Most of the species that could potentially occur within the project area are wading birds that commonly forage in road side swales. It is anticipated that any mitigation required for impacts to the swales will be sufficient to offset any potential loss of foraging habitat.

4.3.1.1 Listed Species Impacts

Provided below is a discussion of the listed species that may occur within the project area and the potential impacts to each species resulting from project implementation.

4.3.1.2 Federally Listed Species

Wood Stork (*Mycteria americana*)

The wood stork is listed as Endangered by both the USFWS and the FWC. The historical decline of this species is generally attributed to habitat disruption caused by changes in the distribution, timing, and quantity of water flows in South Florida. Wood storks are typically found in marshes, cypress swamps, and mangrove swamps, but their presence in artificial ponds, seasonally flooded roadside or agricultural ditches, and managed impoundments has become common.

Wood stork breeding areas extend from South Florida through Georgia and along the coastal areas of South Carolina. Large, colonial nesting areas are typically established in swamps or islands surrounded by broad, open water areas. Stands of cypress (*Taxodium sp.*) and red mangrove (*Rhizophora mangle*) trees are common nesting habitats. The same colony site may be used over many years, provided the site remains undisturbed and sufficient foraging habitat is available. Individual nests are large, rigid structures found in the forks of large branches or limbs of medium to tall trees. Mating occurs at the nest site following a period of courtship displays. Female storks will lay a single clutch of two to five eggs (usually three) as early as October and as late as June. If the initial nest fails early in the breeding season, a second clutch may be laid. Wood storks may nest with other wading bird species, including white ibis (*Eudocimus albus*), tricolored herons, snowy egrets (*Egretta thula*), and great blue herons. During the non-breeding season (from summer to the fall - rainy season in South Florida), juvenile wood storks from South Florida colonies have been observed throughout the state and in southern Georgia, coastal South Carolina, central Alabama, and east-central Mississippi.

Wood storks forage in a variety of wetland habitats using a specialized feeding behavior known as tactolocation. The birds wade through shallow waters with beaks partially open and immersed,

and once a prey item is detected through touch, the mandibles snap shut. In order for this technique to be effective, the prey must be concentrated in high numbers and in shallow water. Almost any shallow wetland depression that concentrates fish, either through reproduction or as a consequence of seasonal drying, may be used as feeding habitats. Some examples of foraging sites include freshwater marshes, stock ponds, shallow ditches, narrow tidal creeks, shallow tidal pools, and depressional areas of cypress heads and swamp sloughs. Calm, shallow water areas (between 10 and 25 centimeters) that are not overgrown with dense, aquatic vegetation usually supply good feeding conditions.

According to the FWC Florida Waterbird Colony search, there are three wood stork colonies located within the 18.6 mile core foraging area. The surface waters adjacent to the project are narrow, frequently dry roadside swales and surface water management areas, which are not optimal foraging habitat for wood storks. No wood storks were observed during the field review, but they may utilize the manmade other surface waters located within the project area. Although impacts to roadside swales are anticipated as a result of the project, sufficient foraging habitat will remain and no adverse impacts to wood storks are anticipated.

4.3.1.3 State Listed Species

Little Blue Heron (*Egretta caerulea*) and White Ibis (*Eudocimus albus*)

These two wading bird species are listed by the FWC as Species of Special Concern. Habitat preference for the little blue heron, snowy egret, and tri-colored heron is estuarine to freshwater habitats in Florida. They are mixed- or single-colony breeders that roost in mangroves or other dense growing shrub. The drainage ditches, stormwater borrow ponds adjacent to the project may be used for foraging. White ibis habitat includes freshwater marshes, shallow lakes, and estuaries. Ibis are commonly seen foraging in canals, drainage areas, and ponds following heavy rains. The white ibis is a gregarious bird, often feeding and traveling in groups, and nesting in colonies with other wading birds during both spring and summer.

No nesting areas for these species were observed within the project area. Although impacts to roadside swales will result from the project, sufficient foraging habitat will remain, and no adverse impacts to these four wading bird species are anticipated.

Sandhill Crane (*Grus canadensis*)

The Florida sandhill crane is listed as Threatened by the state of Florida but is not federally listed. The sandhill crane's typical foraging habitat consists of prairies, freshwater marshes and pasture lands. They nest in shallow water or on the ground in marshy areas. According to FWC, there is a wintering migrant subspecies, the greater sandhill crane (*G. c. tabida*), found in Florida during October and November and beginning spring migration in late February. It is difficult to distinguish between the migrant subspecies and the state listed Florida sandhill crane (*G. c. pratensis*) based on physical characteristics. Because of this, sandhill cranes observed in Florida between May and September can be assumed to be the Florida subspecies (Stys 1997).

According to FNAI, the date observed or definite evidence of reproduction may be used to differentiate between the two subspecies. The swales on the subject site provide typical foraging habitat for the sandhill cranes.

During site reconnaissance, no individuals and evidence of previous or existing nests were observed. Based upon our assessment, while the site provides suitable foraging habitat for these birds, there is not adequate nesting habitat.

4.3.1.4 Essential Fish Habitat

The aquatic habitats that presently exist within the project area are limited to the swales, adjacent freshwater marshes and surface water management ponds. As such, impacts to EFH are not anticipated.

4.3.1.5 Listed Plant Species

Because the land use surrounding the project area is primarily commercial and residential, opportunities for endangered or threatened plant species to occur in appropriate habitats are limited. Data from FNAI, the USFWS Threatened and Endangered Species System and the Atlas of Florida Vascular Plants (<http://www.plantatlas.usf.edu/>), (*Appendix E*) was used to compile a table of relevant listed plant species that may be present in Hillsborough County. Based on the information reviewed and the type of habitat within the project area, impacts to state and/or federally listed plant species are not anticipated.

Federally-Listed Plant Species

The USFWS recognizes the occurrence of two federally-listed plant species in Hillsborough County: Florida bonamia (*Bonamia grandiflora*, Endangered) and chaffseed (*Schwalbea americana*, Endangered). Florida bonamia is found in upland scrub communities while chaffseed is found in open hammocks and flatwoods. Due to the absence of appropriate and required habitats for this plant species, it is not likely that they will occur within the project area, and they were not observed during the field reconnaissance. No adverse impacts to federally-listed plant species are anticipated.

State-Listed Plant Species

The remaining plants listed in *Appendix E* are state-listed species that were included in the FNAI's list of rare species documented and reported in Hillsborough. Due to the absence of appropriate and required habitats for these state-listed plants species, it is not likely that they will occur within the proposed project area, and none of these species were seen during the field reconnaissance. No adverse impacts to state-listed plant species are anticipated.

4.4 Potential Minimization Measures

Measures to avoid or minimize impacts to potential wildlife habitat along the project corridor have been considered. The No-Build Alternative was a viable option and was considered through the Public Hearing process. The primary measure of minimization for the Build Alternative was to design the roadway improvements within the existing R/W. In addition, potential foraging areas of wading birds will either remain or be created as a result of the roadway improvements and construction of drainage ditches to replace the impacted surface waters. In addition, the stormwater ponds will provide foraging habitat.

4.5 Proposed Mitigation Measures

The results of this Endangered Species Biological Assessment indicate that adverse impacts to protected species are not anticipated as a result of the roadway improvements to US Highway 301. Therefore, mitigation measures are not offered for the project.

4.6 Conclusions and Recommendations

The land use within the project limits is residential and commercial. The project is not anticipated to change land use patterns, because the majority of the project area is built out. As presently planned, all of the improvements will occur within the existing R/W.

Extensive alterations to the natural environment along the project have already occurred. The construction of swales, and stormwater borrow ponds along the roadway has altered the hydrology of the region. The natural features and potential habitats within the project corridor are limited to landscaped areas and manmade surface waters. Impacts to these areas are not anticipated at this stage of the design. Therefore, sufficient areas for wading bird species will either remain or be created as a result of the roadway improvements.

5.0 CONTAMINATION SCREENING EVALUATION

5.1 Introduction

This section of the Environmental Technical Compendium presents the results of a Contamination Screening Evaluation for the proposed project area. The possible impacts to the project by sites with potential contamination issues are discussed, and recommendations based on the possible impacts are provided. This evaluation was prepared in accordance with the FDOT PD&E Manual, Part 2, Chapter 22.

5.2 Hydrological Features

Hillsborough County is underlain by approximately 8,000 feet of sedimentary rock which overlays the crystalline basement rock. The upper rock strata consist of undifferentiated sand, silts, and clay, limestones, dolomite, and anhydrite. The upper water table aquifer, Pleistocene to Recent in age, consists of sand, clay, and marl, and ranges in thickness from 0 to 150 feet.

Underlying this unit is the Hawthorn Formation, Miocene in age, consisting of clay, sand, and limestone. In Hillsborough County, the limestone units of the Hawthorn Formation comprise the shallow artesian aquifer yielding small quantities of water. The Hawthorn Formation ranges in thickness from 0 to 250 feet.

Underlying these units is the Floridan Aquifer comprised of the Tampa and Suwannee limestones, the Ocala Group, Avon Park limestone, Lake City limestone, Oldsmar limestone, and Cedar Key limestone. The Tampa and Suwannee limestones which are Miocene and Oligocene in age comprise the upper part of the principal artesian aquifer in Hillsborough County, and yield water for most of the domestic and commercial wells in the County. The underlying Ocala Group exhibits low transmissivities and is rarely used for water supply. The lower productive zone of the Floridan is comprised of portions of the Avon Park and Lake City Limestones both Eocene in age. The limestone formations dip and thicken towards the southwest due to the Ocala Uplift and the Peninsular Arch (Menke, Meredith and Wetterhall, 1961).

5.3 Methodology

A preliminary evaluation of US Highway 301, from north of Falkenburg Road to Causeway Boulevard, was conducted to determine potential contamination concerns from properties or operations located within 1,200 feet of US Highway 301 R/W. This evaluation consisted of the following tasks:

- A search of the files available through the EPC, that maintains a database of contaminated locations and files at their Tampa office. The EPA Envirofacts system supplies online information concerning hazardous waste and National Priority List (NPL, Superfund) sites. The FDEP provides online viewing of site-specific contamination files (OCULUS database) and files at their West Palm Beach office.
- A review of information generated by Environmental FirstSearch (EFS), which includes a search of the following state and federal databases: NPL; Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS); Resource Conservation and Recovery Act (RCRA), Treatment Storage and Disposal facility (RCRA TSD); RCRA generator list (RCRA GEN); Information System (RCRIS); Emergency Response Notification System (ERNS); State Landfill (SWF/LF); Delisted NPL Sites; Facility Index System / Facility Identification Initiative Program Summary Report (FINDS); Underground Storage Tanks (UST); Petroleum Contamination Detail Report (PCT01); Stationary Tank Inventory Facility/Owner/Tank Report (STI02); Leaking Underground Storage Tank Incident Reports (LUST); Florida Cattle Dip Vats; and Dry Cleaners.
- A review of historical aerial photographs of the project area at the Hillsborough County Surveying Department. Photographs from the following years were available: 1966, 1972, 1979, 1985, 1985, 1991, 1994, 1997, 2000, 2002 and 2004. All of the photographs of the project area were reviewed. The photographs from these years provided an effective summary of the development within the project area.

- Visual reconnaissance on September 14, 2006 to identify sites or areas with indications of past or present contaminant storage, use, generation, or disposal. Potential sites were visually examined to the extent of available access for evidence of possible contaminant presence.
- Determining the contamination potential for each property within the project limits.

The contamination rating system is divided into four degrees of risk: **no**, **low**, **medium**, and **high**. This system expresses the degree of concern for potential contamination problems. Known problems may not necessarily present a high cause for concern if the regulatory agencies are aware of the situation and actions, where necessary, are either complete or are underway, and these actions will not have an adverse impact on the proposed project. The ratings are explained in Volume 2, Section 22-2.2.3 of the FDOT PD&E Manual as follows:

No: After a review of all available information, there is nothing to indicate that contamination would be a problem. It is possible that contaminants could have been handled on the property; however, all information (FDEP reports, monitoring well records, water and soil samples, etc.) indicate problems should not be expected. Examples of operations that may receive this rating are:

- A gas station that has been closed and has a closure assessment or contamination assessment documenting that there is no contamination remaining.
- A wholesale or retail outlet that handles hazardous materials in sealed containers that are never opened while at this facility, such as spray cans of paint at a “drug store.”

Low: The former or current operation has a hazardous waste generator identification (ID) number, or deals with hazardous materials; however, based on all available information, there is no reason to believe there would be any involvement with contamination. This is the lowest possible rating a gasoline station operating within current regulations could receive. This could also be applied to a retail hardware store that blends paint.

Medium: After a review of all available information, indications are found (reports, Notice of Violations, consent orders, etc.) that identify known or likely soil and/or water contamination and that the problem does not need remediation, is being remediated (i.e., air stripping of the ground water, etc.), or that continuing monitoring is required. The complete details of the remediation requirements are important to determine what the Department must do if the property were to be acquired. A recommendation should be made on each property falling into this category to its acceptability for use within the project, what actions might be required if the property is acquired, and the possible alternatives if there is a need to avoid the property.

High: After a review of all available information, a potential for contamination problems exists. Further assessment will be required after alignment selection to determine the actual presence and/or levels of contamination and the need for remedial action. A recommendation must be included for what further assessment is required. This would also be the case where the analyst “strongly suspects contamination” at the site. Conducting the actual contamination assessment is

not expected to begin until alignment is defined; however, circumstances may require additional screening assessments (i.e., collecting soil or water samples for laboratory analysis that may be necessary to determine the presence and/or levels of contaminants) to begin earlier. Properties that were previously used as gasoline stations and have not been evaluated or assessed would probably receive this rating.

There were five sites evaluated surrounding the project limits.

5.4 Project Impacts

This section describes the potential contamination associated with each of the sites in the vicinity of the project. *Figure 8* illustrates the locations of the potential contamination sites. *Table 3* provides a summary of the sites' contamination concerns and risk evaluation ratings.

Documentation of contaminant information was available for all five sites.

Table 3 Potential Contamination Sites					
Facility	Address/Location	FDEP ID	Approx. Distance from Roadway	Status	Risk
Radiant Food Store # 250	2829 South US 301	298624832	Adjacent	In Service	Medium
Circle K # 7494	2820 South US 301	298840559	Adjacent	In Service	Medium
Pavilions	Location Unknown	299200283	Adjacent	Closed	Low
Shell	Formerly located at 2620 US 301	298625032	Adjacent	Closed	Low
7-Eleven	3603 South US 301	299803172	Adjacent	In Service	Medium



LEGEND

- 1 = Radiant Food Store #250 (Shell)
FDEP #298624832
2829 S. US Hwy. 301
- 2 = Circle K Store #7494
FDEP #298840559
2802 S. US Hwy. 301
- 3 = Shell Station (likely)
FDEP #298625032
2620 S. US Hwy. 301
- 4 = 7 Eleven Gas Station
FDEP #298625032
3603 S. US Hwy. 301
- 5 = Pavillions (location unknown)
FDEP #299200283

Sources: Aerial Express. 2003 AE, LLC. 2003 GDT, Inc.
Southwest Florida Water Management District. GIS Data.



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POTENTIAL CONTAMINATION IMPACTS

**US 301 (SR 43)
FROM FALKENBURG RD.
TO CAUSEWAY BLVD.**

SCALE: 1" equals 500'	WPI SEG. NO.: 421140-6	DATE: January 2007	FIGURE: 8
--------------------------	---------------------------	-----------------------	--------------

Site 1

Radiant Food Store #250 (Shell) - 298624832

2829 South US Highway 301 (Southwest corner of US Highway 301 and Causeway Boulevard)

Station 1085-1090

This facility is an existing Shell station currently in service. A gas station type facility appears have been here since at least 1966. A review of records indicated that there are currently two 15,000 gallon underground storage tanks on the premises. Contamination has been detected in monitoring wells on site. This facility was scored in accordance with the requirements of the Site Petroleum Cleanup Program. This state program involves the oversight, management and administrative activities necessary to assess and prioritize the cleanup of petroleum storage facilities. As of May 22, 2006, the minimum score threshold for funding sites eligible for the Petroleum Cleanup Pre-Approval Program was raised from 30 to 37 points. The above-referenced site has a facility score of 10 and remediation is not being required by either FDEP or EPC. Based on the fact that known or potential contamination exists, this site is considered a **medium** risk.

Site 2

Circle K #7494 - 298840559

2820 South US Highway 301

Station 1085-1090

This facility was observed on the 1985 aerial photograph but not the 1979 aerial photograph. A review of the records indicated that this currently operational gas station had two discharges, one in 1990 and one in 1994. This facility has a score of 11. Although the site is considered contaminated, neither the FDEP nor the EPC are requiring remediation at this time. Based on the fact that known or potential contamination exists, this site is considered a **medium** risk.

Site 3

Pavilions - 299200283

Station Unknown

A review of the records indicates that this facility is currently closed. This facility was not observed in the field. The FirstSearch report indicates that the site is located at US Highway 301 and Causeway Boulevard. A street number was not provided. This facility was a non-retail fuel user, which means that this was not a gas station.

It appears that in 1985 three 10,000 gallon underground storage tanks were installed for unleaded gasoline. One discharge was reported in May of 2004. The last file in the records was a letter dated October 26, 2004 indicating that the discharge was being monitored. KHA discussed the file with EPC staff who indicated that the site was clean and a No Further Action (NFA) letter was in the file. Based on the presence of the NFA letter, this site is considered a **low** risk.

Site 4

Shell – 298625032

2620 South US Highway 301

Current Location Unknown

According to the FirstSearch report, this facility was located at 2620 US Highway 301. It appears that this facility may have been located at the northeast corner of US Highway 301 and Causeway Boulevard from approximately 1991 to 2004. A facility was not in this location on the 1985 aerial photograph. A review of the EPC files indicates that there were three tanks on site that are now closed. These files included:

- Discharge Report Form issued in January 1992
- Contamination Assessment Report issued in 1993
- Limited Scope Remediation plan issued in October, 1995

Discussion with EPC staff indicated that the site was considered clean and a Site Rehabilitation Completion Order (SRCO) has been issued. Based on the presence of the SRCO letter, this site is considered a **low** risk.

Site 5

7-Eleven – 299803172

3603 South US Highway 301

Station 1064

This facility was observed on the 2002 aerial photograph, but not 2000 aerial photograph. A review of the EPC files indicated that a discharge of petroleum occurred on May 5, 2006. Free product was identified in at least one of the monitoring wells. EPC scored this discharge 10 on August 8, 2006. Although the site is considered contaminated, neither the FDEP nor the EPC are currently requiring remediation. Based on the fact that known or potential contamination exists, this site is considered a **medium** risk.

5.5 Conclusions and Recommendations

A total of five potential contamination sites were identified along the project corridor with risk evaluation ratings ranging from Low to Medium Risk. A summary of the risk assessments for the project is presented in *Table 4*.

If construction activities are to occur in an area with contamination concerns, then a site assessment would be performed to the degree necessary during final design to determine levels of contamination and evaluate clean-up options and associated costs. Excavation and/or dewatering for installation of underground structures or utilities in the vicinity of contaminated sites could potentially encounter or exacerbate contamination conditions. Investigations should

not be limited to areas of roadway expansion but should also include the drainage areas located adjacent to the roadway.

Table 4 Summary of Potential Contamination Sites Risk Assessments	
Risk Assessment Category	Number of Sites
No	0
Low	2
Medium	3
High	0

Resolution of problems regarding contamination will be coordinated with appropriate regulatory agencies and action will be taken by Hillsborough County where applicable. Further coordination with the regulatory agencies, and possibly field surveys involving monitoring wells, soil borings and other site-specific methods, can identify potential contamination issues so that avoidance, minimization, and remediation measures can be taken.

Procedures specifying the contractor's responsibilities in regard to encountering petroleum-contaminated soil and/or groundwater are set forth in *FDOT's Standard Specifications for Road and Bridge Construction*. Special provisions to the aforementioned standard specifications may be necessary if the presence of contamination is confirmed, which could impact construction.

Literature Cited

Menke, C.G., E.W. Meredith and W.S. Wetterhall, Water Resources of Hillsborough County Florida, Florida Geological Survey Report of Investigation No. 25, Tallahassee, Florida, 1961.

Appendix A

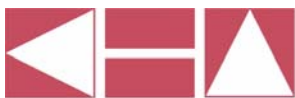
Site Photos



Photo 1: Circle K- Southeast corner of US 301 and Causeway Boulevard



Photo 2: Shell Station-Southwest corner of US 301 and Causeway Boulevard



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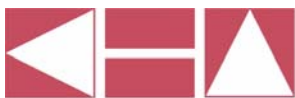
SITE PHOTOGRAPHS

**U.S. 301 SEIR
HILLSBOROUGH COUNTY, FL**

SCALE:	WPI SEG NO.:	DATE:	PAGE:
N/A	421140-6	February 1, 2007	1



Photo 3: Former (possibly gas station) site-Northeast corner of US 301 and Causeway Boulevard



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SITE PHOTOGRAPHS

**U.S. 301 SEIR
HILLSBOROUGH COUNTY, FL**

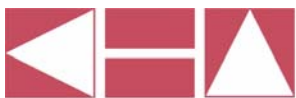
SCALE:	WPI SEG NO	DATE:	PAGE:
N/A	421140-6	February 1, 2007	2



Photo 4: 7-Eleven-Northeast corner of US 301 and Falkenburg Road



Photo 5: Swale in front of 7-Eleven, facing south



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SITE PHOTOGRAPHS

**U.S. 301 SEIR
HILLSBOROUGH COUNTY, FL**

SCALE:	WPI SEG. NO.:	DATE:	PAGE:
N/A	421140-6	February 1, 2007	3



Photo 6: Wetland and swales north of 7-Eleven, facing north



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SITE PHOTOGRAPHS

**U.S. 301 SEIR
HILLSBOROUGH COUNTY, FL**

SCALE:	WPI SEG NO.:	DATE:	PAGE:
N/A	421140-6	February 1, 2007	4

Appendix B
Water Quality Impact Evaluation
(WQIE)

WQIE CHECK LIST

Project Name: US 301 PD&E Study from Falkenburg Road to Causeway Boulevard

County: Hillsborough County

FIN (Financial Number): N/A

Federal Aid Project No.: N/A

Short Project Description: Widen 0.75 miles of existing US 301 from four to six lanes to match the typical section of US 301 north and south of the project area.

PART 1; DETERMINATION OF WQIE SCOPE

Does project increase impermeable surface area? Yes No

Does project alter the drainage system? Yes No

If the answer to both questions is no, complete the WQIE by checking Box A in Part 4.

Do environmental regulatory requirements apply? Yes No

If no, proceed to Part 4 and check Box B.

PART 2: PROJECT CHARACTERISTICS

2030 design ADT: 59,030 Expected speed limit: 50 m/hr

Drainage area: 22.2 acres 50 % Impervious 50 % Pervious

Land Use:

Category	Percent Land Use
Divided Highway (Federal-State)	100%

Potential large sources of pollution (identify): No large sources.

Groundwater Receptor (name of aquifer or N/A): Floridan

Designated well head protection area: Yes No Name: _____

Sole source aquifer: Yes No Name: _____

Groundwater recharge mechanism: Rainfall, infiltration.

(Notify District Drainage Engineer if karst conditions expected)

WQIE CHECK LIST (Contd.)

Surface water receptor (name of N/A):

Classification: I II III IV V

Special Designation (check all that apply):

ONRW OFW Aquatic Preserve Wild & Scenic River
 Special Water SWIM Area Local Comp Plan MS4 Area
 Other (specify): _____

Conceptual storm water conveyances and system (check all that apply):

Swales Curb and Gutter Scuppers Pipe French Drains
 Retention/ Detention Ponds Other _____

PART 3: ENVIRONMENTAL REGULATORY REQUIREMENTS

Regulatory Agency (check all that apply)	Reference citation of regulatory criteria (attach copy of pertinent pages)	Most stringent criteria (check all that apply)
USEPA <input type="checkbox"/>		<input type="checkbox"/>
FDEP <input checked="" type="checkbox"/>	NPDES	<input type="checkbox"/>
WMD <input checked="" type="checkbox"/> (Specify) <u>SWFWMD</u>	Environmental Resource Permit	<input checked="" type="checkbox"/>
Other <input checked="" type="checkbox"/> (US ACOE)	Section 404 Dredge and Fill Permit	<input type="checkbox"/>
Other <input type="checkbox"/> (HC EPC)	84-446/1-11	<input type="checkbox"/>

Proceed to Part 4 and check Box C.

WQIE CHECK LIST (Contd.)

PART 4: WQIE DOCUMENTATION

- A. Water quality is not an issue.
- B. No regulatory requirements apply to water quality issues. (Document by checking the “none” box for water quality in Section 6.C.3 of the Environmental Determination Form of Section 5.C.3 of the SEIR).
- C. Regulatory requirements apply to water quality issues. Water quality issues will be mitigated through compliance with the quantity design requirements placed by Southwest Florida Water Management District, an authorized regulatory agency. (Document by checking the “none” box for water quality in Section 6.C.3 of the Environmental Determination Form of Section 5.C.3 of the SEIR).

Evaluator Name (print): Craig Browning

Office: Kimley-Horn and Associates, Inc.

Signature _____ Date: December 19, 2006

Appendix C

FLUCFCS Definitions

FLUCFCS Code

- 134 Multiple Dwelling Unit, High Rise (3 stories or more)
- 140 Commercial and Services
- 143 Professional Services
- 191 Undeveloped Land with Urban Areas
- 400 Upland Forest
- 534 Highways (U.S.)
- 641 Freshwater Marsh
- 8142 Divided Highways (Federal-State)
- 8144 County Maintained

Cowardin Classification Definitions

PEM1Jx - Palustrine, Emergent, Excavated

Appendix D

FNAI Correspondence



1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
850-224-8207
fax 850-681-9364
www.fnai.org

December 4, 2006

Alicia A. Deochan
Kimley-Horn and Associates, Inc.
10117 Princess Palm Avenue, Suite 300
Tampa, FL 33610-8300

Dear Ms. Deochan:

Thank you for your request for information from the Florida Natural Areas Inventory (FNAI). We have compiled the following information for your project area.

Project: US301 SEIR, KHA Project No. 048805007
Date Received: November 27, 2006
Location: Township 29 S, Range 20 E, Section 31
Hillsborough County

Element Occurrences

A search of our maps and database indicates that currently we have several Element Occurrences mapped within the vicinity of the study area (see enclosed map and element occurrence table). Please be advised that a lack of element occurrences in the FNAI database is not a sufficient indication of the absence of rare or endangered species on a site.

The Element Occurrences data layer includes occurrences of rare species and natural communities. The map legend indicates that some element occurrences occur in the general vicinity of the label point. This may be due to lack of precision of the source data, or an element that occurs over an extended area (such as a wide ranging species or large natural community). For animals and plants, Element Occurrences generally refer to more than a casual sighting; they usually indicate a viable population of the species. Note that some element occurrences represent historically documented observations which may no longer be extant.

Likely and Potential Rare Species

In addition to documented occurrences, other rare species and natural communities may be identified on or near the site based on habitat models and species range models (see enclosed Biodiversity Matrix Report). These species should be taken into consideration in field surveys, land management, and impact avoidance and mitigation.

FNAI habitat models indicate areas, which based on landcover type, offer suitable habitat for one or more rare species that is known to occur in the vicinity. Habitat models have been developed for approximately 300 of the most rare species tracked by the Inventory, including all federally listed species.



Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

Tracking Florida's Biodiversity

FNAI species range models indicate areas that are within the known or predicted range of a species, based on climate variables, soils, vegetation, and/or slope. Species range models have been developed for approximately 340 species, including all federally listed species.

The FNAI Biodiversity Matrix Geodatabase compiles Documented, Likely, and Potential species and natural communities for each square mile Matrix Unit statewide.

The Inventory always recommends that professionals familiar with Florida's flora and fauna should conduct a site-specific survey to determine the current presence or absence of rare, threatened, or endangered species.

Please visit www.fnai.org/trackinglist.cfm for county or statewide element occurrence distributions and links to more element information.

The database maintained by the Florida Natural Areas Inventory is the single most comprehensive source of information available on the locations of rare species and other significant ecological resources. However, the data are not always based on comprehensive or site-specific field surveys. Therefore, this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. Inventory data are designed for the purposes of conservation planning and scientific research, and are not intended for use as the primary criteria for regulatory decisions.

Information provided by this database may not be published without prior written notification to the Florida Natural Areas Inventory, and the Inventory must be credited as an information source in these publications. FNAI data may not be resold for profit.

Thank you for your use of FNAI services. If I can be of further assistance, please give me a call at (850) 224-8207.

Sincerely,

Jason A. Griffin

Jason A. Griffin
Data Services Coordinator

encl



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Element Occurrences

- Animals
- Plants
- Communities
- Other
- Data Sensitive
- ➔ Point Indicates General Vicinity of Element

U.S. Fish & Wildlife Service
Scrub Jay Survey 1992-96

Conservation Lands

- Federal
- State
- Local
- Private
- State Aquatic Preserves

Land Acquisition Projects

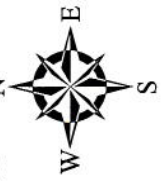
- Florida Forever
- Board of Trustees Projects

FNAI Rare Species

- Habitat
- FNAI Biodiversity Matrix Square Mile Units

County Boundary

- Interstate
- Turnpike
- Major Highway
- Local Road
- Water



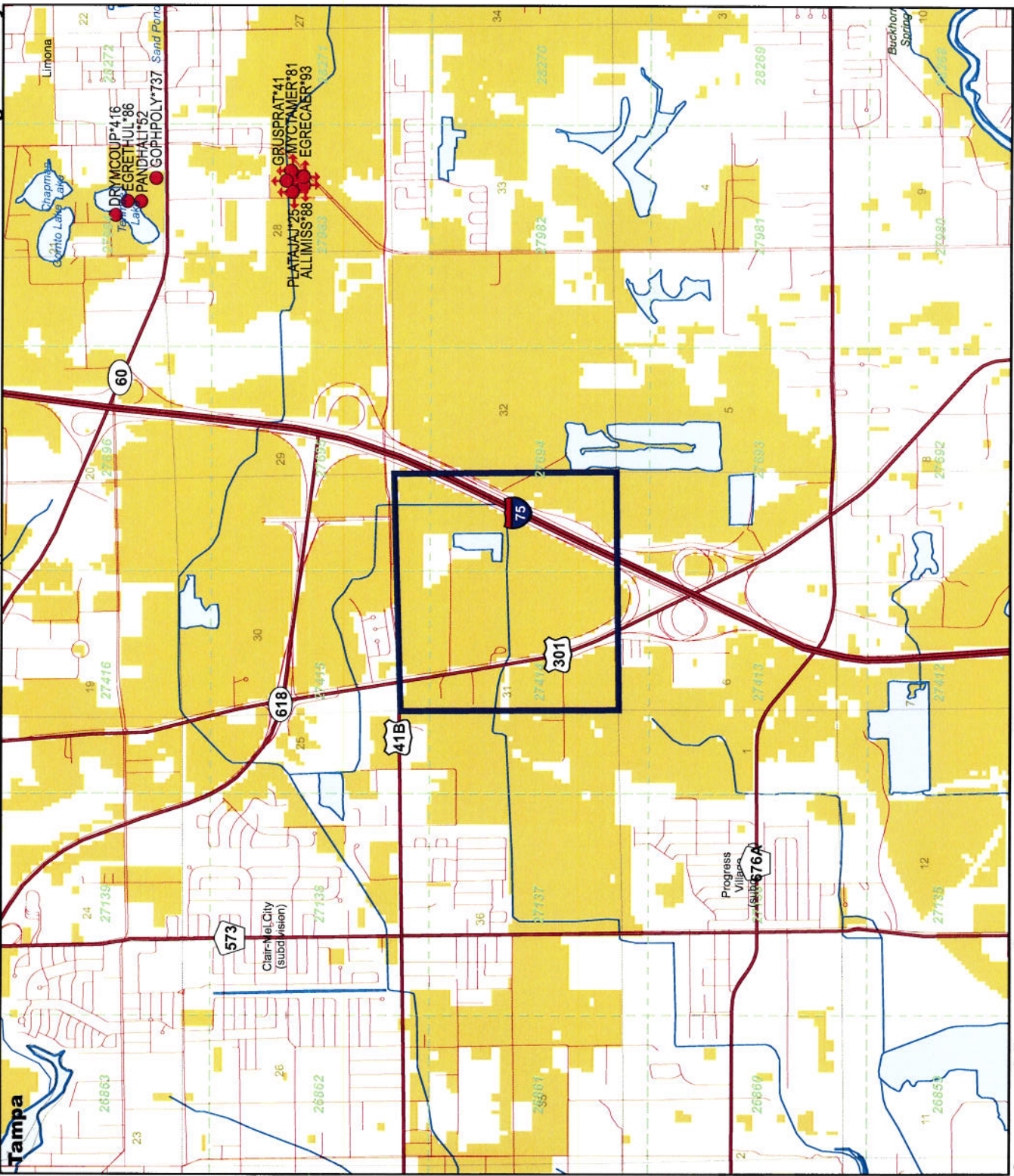
NOTE
Map should not be interpreted without accompanying documents.

T29 S / R20 E / S31

Tampa

Site boundaries are approximate.

Hillsborough County



Map produced by JAG
Map Date: 04 DEC 2006



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Florida Natural Areas Inventory

ELEMENT OCCURRENCES DOCUMENTED ON OR NEAR PROJECT SITE



Map Label	Scientific Name	Common Name	Global State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments	
GRUSPRAT*41	<i>Grus canadensis pratensis</i>	Florida Sandhill Crane	G5T2T3	S2S3	N	LT	1991-06	No general description given	ADULTS AND YOUNG OBSERVED. INDIVIDUALS HAVE BEEN KILLED ON SR-60.
EGRECAER*93	<i>Egretta caerulea</i>	Little Blue Heron	G5	S4	N	LS	1991-06	No general description given	+/- 90 ANIMALS FORAGING OVER 3 LAKES.
PLATAJAJ*25	<i>Platalea ajaja</i>	Roseate Spoonbill	G5	S2	N	LS	1991	No general description given	1-6 INDIVIDUALS OBSERVED, VARYING WITH YEAR.
ALLIMISS*88	<i>Alligator mississippiensis</i>	American Alligator	G5	S4	SAT	LS	1991-06	No general description given	ADULTS AND YOUNG OBSERVED.
MYCTAMER*81	<i>Mycteria americana</i>	Wood Stork	G4	S2	LE	LE	1991-06	No general description given	1-50+ INDIVIDUALS DEPENDING ON THE YEAR.
PANDHALI*52	<i>Pandion haliaetus</i>	Osprey	G5	S3S4	N	LS*	1991-07	LAKE AND MESIC HAMMOCK.	2 BIRDS OBSERVED FEEDING IN AREA FROM 1989-1991.
EGRETHUL*86	<i>Egretta thula</i>	Snowy Egret	G5	S3	N	LS	1991-07	WETLAND LAKE SHORE.	4 TO 22+ BIRDS ROOST IN WILLOWS AT EDGE OF POND IN WINTER MONTHS (8 MONTHS +/-).
DRYMCOPUP*416	<i>Drymarchon couperi</i>	Eastern Indigo Snake	G3	S3	LT	LT	1987	No general description given	1 INDIVIDUAL OBSERVED. NEST AT FOOT OF HALF FALLEN LIVE OAK NEAR LAKE SHORE.
GOPHPOLY*737	<i>Gopherus polyphemus</i>	Gopher Tortoise	G3	S3	N	LS	1991-08	SCRUBBY OAK COMMUNITY GRADING TO MESIC FLATWOODS.	+/- 6 BURROWS OBSERVED, EST. 2-10 INDIVIDUALS. FEEDING AND NESTING OBSERVED. OBSERVED ON SITE SINCE THE 1940'S.



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FLORIDA
Natural Areas
INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report



Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Matrix Unit ID: 27414					
Likely					
<i>Drymarchon couperi</i>	Eastern Indigo Snake	G3	S3	LT	LT
<i>Grus canadensis pratensis</i>	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
<i>Mycteria americana</i>	Wood Stork	G4	S2	LE	LE
Matrix Unit ID: 27415					
Likely					
<i>Drymarchon couperi</i>	Eastern Indigo Snake	G3	S3	LT	LT
<i>Grus canadensis pratensis</i>	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
<i>Mycteria americana</i>	Wood Stork	G4	S2	LE	LE
Matrix Unit ID: 27694					
Likely					
<i>Drymarchon couperi</i>	Eastern Indigo Snake	G3	S3	LT	LT
<i>Grus canadensis pratensis</i>	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
<i>Mycteria americana</i>	Wood Stork	G4	S2	LE	LE
Matrix Unit ID: 27695					
Likely					
<i>Ajaia ajaja</i>	Roseate Spoonbill	G5	S2	N	LS
<i>Alligator mississippiensis</i>	American Alligator	G5	S4	SAT	LS
<i>Drymarchon couperi</i>	Eastern Indigo Snake	G3	S3	LT	LT
<i>Egretta caerulea</i>	Little Blue Heron	G5	S4	N	LS
<i>Grus canadensis pratensis</i>	Florida Sandhill Crane	G5T2T3	S2S3	N	LT
<i>Mycteria americana</i>	Wood Stork	G4	S2	LE	LE
Potential from any/all selected units					
<i>Aimophila aestivalis</i>	Bachman's Sparrow	G3	S3	N	N
<i>Athene cunicularia floridana</i>	Florida Burrowing Owl	G4T3	S3	N	LS
<i>Calopogon multiflorus</i>	Many-flowered Grass-pink	G2G3	S2S3	N	LE
<i>Centrosema arenicola</i>	Sand Butterfly Pea	G2Q	S2	N	LE
<i>Chrysopsis floridana</i>	Florida Golden Aster	G1	S1	LE	LE
<i>Eumops floridanus</i>	Florida bonneted bat	G1	S1	N	LE
<i>Gopherus polyphemus</i>	Gopher Tortoise	G3	S3	N	LS
<i>Lechea cernua</i>	Nodding Pinweed	G3	S3	N	LT
<i>Linum carteri</i> var. <i>smallii</i>	Carter's Large-flowered Flax	G2T2	S2	N	LE
<i>Litsea aestivalis</i>	Pondspice	G3	S2	N	LE
<i>Matelea floridana</i>	Florida Spiny-pod	G2	S2	N	LE
Mesic flatwoods		G4	S4	N	N
<i>Mustela frenata peninsulæ</i>	Florida Long-tailed Weasel	G5T3	S3	N	N
<i>Nemastylis floridana</i>	Celestial Lily	G2	S2	N	LE
<i>Nolina atopocarpa</i>	Florida Beargrass	G3	S3	N	LT
<i>Panicum abscissum</i>	Cutthroat Grass	G3	S3	N	LE
<i>Pituophis melanoleucus mugitus</i>	Florida Pine Snake	G4T3?	S3	N	LS
<i>Platanthera integra</i>	Yellow Fringeless Orchid	G3G4	S3	N	LE

Definitions: Documented - Rare species and natural communities documented on or near this site.

Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.

Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.

Potential - This site lies within the known or predicted range of the species listed.



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Florida Natural Areas Inventory

Biodiversity Matrix Report



Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
<i>Peromyscus floridanus</i>	Florida Mouse	G3	S3	N	LS
<i>Pteroglossaspis ecrinata</i>	Giant Orchid	G2G3	S2	N	LT
<i>Rana capito</i>	Gopher Frog	G3	S3	N	LS
<i>Sciurus niger shermani</i>	Sherman's Fox Squirrel	G5T3	S3	N	LS
<i>Stilosoma extenuatum</i>	Short-tailed Snake	G3	S3	N	LT

Definitions: Documented - Rare species and natural communities documented on or near this site.
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

GLOBAL AND STATE RANKS

Florida Natural Areas Inventory (FNAI) defines an **element** as any rare or exemplary component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological feature. FNAI assigns two ranks to each element found in Florida: the **global rank**, which is based on an element's worldwide status, and the **state rank**, which is based on the status of the element within Florida. Element ranks are based on many factors, including estimated number of occurrences, estimated abundance (for species and populations) or area (for natural communities), estimated number of adequately protected occurrences, range, threats, and ecological fragility.

GLOBAL RANK DEFINITIONS

- G1** Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
- G2** Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
- G3** Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
- G4** Apparently secure globally (may be rare in parts of range).
- G5** Demonstrably secure globally.
- G#?** Tentative rank (e.g., G2?)
- G#G#** Range of rank; insufficient data to assign specific global rank (e.g., G2G3)
- G#T#** Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1)
- G#Q** Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
- G#T#Q** Same as above, but validity as subspecies or variety is questioned.
- GH** Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
- GNA** Ranking is not applicable because element is not a suitable target for conservation (e.g. as for hybrid species)
- GNR** Not yet ranked (temporary)
- GNRTNR** Neither the full species nor the taxonomic subgroup has yet been ranked (temporary)
- GX** Believed to be extinct throughout range
- GXC** Extirpated from the wild but still known from captivity/cultivation
- GU** Unrankable. Due to lack of information, no rank or range can be assigned (e.g., GUT2).

STATE RANK DEFINITIONS

Definition parallels global element rank: substitute "S" for "G" in above global ranks, and "in Florida" for "globally" in above global rank definitions.

**FEDERAL AND STATE LEGAL STATUSES
PROVIDED BY FNAI FOR INFORMATION ONLY.**

For official definitions and lists of protected species, consult the relevant state or federal agency.

FEDERAL LEGAL STATUS

Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.

- LE** Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species which is in danger of extinction throughout all or a significant portion of its range.
- LE,XN** An experimental population of a species otherwise Listed as an Endangered Species in the List of Endangered and Threatened Wildlife and Plants.
- PE** Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.
- LT** Listed as Threatened Species. Defined as any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
- LT,PDL** Species currently listed threatened but has been proposed for delisting.
- PT** Proposed for listing as Threatened Species.
- C** Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants, Category 1. Taxa for which the USFWS currently has substantial information on hand or in possession to support the biological appropriateness of proposing to list the species as endangered or threatened.
- PS** Partial listing status (species is listed for only a portion of its geographic range).
- SAT** Threatened due to similarity of appearance to a threatened species.
- SC** Species of concern. Species is not currently listed but is of management concern to USFWS.
- N** Not currently listed, nor currently being considered for addition to the List of endangered and Threatened Wildlife and Plants.

FLORIDA LEGAL STATUSES

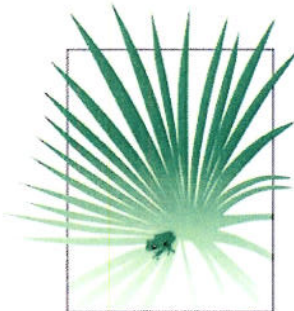
Animals: Definitions derived from “Florida’s Endangered Species and Species of Special Concern, Official Lists” published by Florida Fish and Wildlife Conservation Commission, 1 August 1997, and subsequent updates.

Animals (Florida Fish and Wildlife Conservation Commission- FFWCC)

- LE** Listed as Endangered Species by the FGFWFC. Defined as a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the state, or which may attain such a status within the immediate future.
- LT** Listed as Threatened Species by the FGFWFC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future. LT* (for Florida black bear) indicates that LT status does not apply in Baker and Columbia counties and in the Apalachicola National Forest.
- LS** Listed as Species of Special Concern by the FGFWFC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. LS* indicates that a species has LS status only in selected portions of its range in Florida.
- N** Not currently listed, nor currently being considered for listing.

Plants: Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505.

- LE** Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.
- PE** Proposed by the FDACS for listing as Endangered Plants.
- LT** Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered. LT* indicates that a species has LT status only in selected portions of its range in Florida.
- PT** Proposed by the FDACS for listing as Threatened Plants.
- CE** Listed as a Commercially Exploited Plant in the Preservation of Native Flora of Florida Act. Defined as species native to state which are subject to being removed in significant numbers from native habitats in the state and sold or transported for sale.
- PC** Proposed by the FDACS for listing as Commercially Exploited Plants.
- (LT)** Listed threatened as a member of a larger group but not specifically listed by species name.
- N** Not currently listed, nor currently being considered for listing.



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Appendix E
Listed Plant Species
of Hillsborough County

Common Name	Scientific Name	Federal Status	State Status	Habitat	Counties
Florida Bonamia	<i>Bonamia grandiflora</i>	T	E	Openings or disturbed areas in white sand scrub on central Florida ridges, with scrub oaks, sand pine, and lichens. Flowers May-August, but leaves and vines are distinctive all year. Endemic to central Florida scrub.	Hillsborough, Polk, Manatee,
Sand Butterfly Pea	<i>Centrosema arenicola</i>		E	Sandhill, scrubby flatwoods, dry upland woods. Flowers June-October. Each flower lasts one day. Endemic to central FL. Very few plants have been seen in the last two decades; only 1 population is protected.	Hillsborough, Pasco, Polk, Citrus
Florida Goldenaster	<i>Chrysopsis floridana</i>	E	E	Sunny, bare patches of sand in sand pine scrub' low sand ridges of excessively well drained, fine sands; railroad and highway rights-of-way. Flowers late summer-fall. Endemic to west-central FL.	Hillsborough, Pinellas
Spreading Pinweed	<i>Lechea divaricata</i>		E	Scrub and scrubby flatwoods. Flowers May-October. Endemic to the FL peninsula.	Hillsborough, Pinellas, Manatee, Sarasota, Polk
Narrowleaf Hoarypea	<i>Tephrosia angustissima</i>		E	Three varieties, all endangered in FL. Coral narrowleaf hoarypea: pine rocklands. Curtiss' narrowleaf hoarypea: scrub and sandy areas. Narrowleaf hoarypea: pine rocklands. Flowers spring-fall. Endemic to FL.	Hillsborough
Giant Orchid	<i>Pteroglossaspis ecristata</i>		T	Sandhill, scrub, pine flatwoods, pine rocklands. Flowers July-September, fruits September-November.	Hillsborough
Sand Butterfly Pea	<i>Centrosema arenicola</i>		E	Sandhill, scrubby flatwoods, dry upland woods. Flowers June-October. Each flower lasts one day. Endemic to central FL. Very few plants have been seen in the last two decades; only 1 population is protected.	Hillsborough, Pasco, Polk, Citrus
Chaffseed	<i>Schwalbea americana</i>	E	E	Moist, grassy ecotones around ponds in longleaf pine sandhills; longleaf pine savannas, sandhills, and flatwoods. Plants are semi-parasitic on the roots of gallberry, huckleberry, St. John's wort, silk grass, and others. Flowers April-June, depending on timing of recent fire. Without fire, plants remain short and inconspicuous. Brown, dead stems with old fruit are conspicuous for about a year after flowering.	Hillsborough
Tampa Mock Vervain & Coastal Mock Vervain	<i>Glandularia tampensis</i> & <i>G. maritima</i>		E	Tamp mock vervain: Live oak-cabbage palm hammocks and pine-palmetto flatwoods. Coastal mock vervain: back dunes, dune swales, and coastal hammocks. Both occur in disturbed sandy areas. Both species flower primarily in the spring and intermittently all year. Both are endemic to the FL peninsula.	Hillsborough, Pinellas, Pasco, Manatee, Sarasota
Widespread Polypody	<i>Pecluma dispersa</i>		E	Tree branches and limestone outcrops in dry hammocks.	Hillsborough
Plume Polypody	<i>Pecluma plumula</i>		E	Tree branches or limestone in hammocks, wet woods, and limesinks.	Hillsborough
Toothed lattice-vein fern	<i>Thelypteris serrata</i>		E	Cypress swamps, sloughs, and floodplains.	Hillsborough

Notes: Federal listing by the US Fish and Wildlife Service and State listing by the Florida Department of Agriculture and Consumer Services; T=Threatened, E=Endangered