ENVIRONMENTAL SUPPLEMENT

341 SABAL PALM ROAD

FOLIO #00438400007

NAPLES, FL 34114

AUGUST 2024

Prepared by:

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1 INTRODUCTION

The Sabal Palm Road property is approximately 169.18 acres in size, located at 341 Sabal Palm Road in Naples, Florida 34114, which is within Section 25, Township 50 South, and Range 26 East in Collier County and can be identified by folio number 00438400007.

The proposed development is a single-phase project that will include the construction of a multi-family residential community, with associated infrastructure and stormwater management, as well as preserve areas.

This document provides information concerning the proposed project site as it relates to natural and environmental resources and will be submitted to Collier County in association with a rezone request made by the applicant.

The document was compiled by Timothy Hall, senior Ecologist and Vice President of Turrell Hall and Associates. Mr. Hall is a Wildlife Ecology graduate from University of Florida and had been a practicing ecologist for 35 years, providing reports and assessments to Collier County for the past 27 years.

2 EXISTING CONDITIONS PRE-DEVELOPMENT

The subject property is located approximately 1.50 miles east of Collier Boulevard on Sabal Palm Road. The site is currently operated as an active citrus grove and is bordered by various undeveloped lands and preserves on all sides. The project site is composed of 10 land cover or land use types including; Fixed Single Family, Citrus Grove, Cypress, Cypress (Exotics 25-50%), Cypress (Exotics 75-100%), Hydric Pine Flatwoods (Exotics 25-50%), Disturbed Land, Disturbed Land – Berm, Disturbed Land (Hydric), Roads and Highways, and Other Surface Waters. The historic soils mapped onsite were designated by the United States Department of Agriculture (USDA) as "Holopaw fine sand, limestone substratum," which is a hydric soil, "Boca fine sand," which is not a hydric soil, "Boca, Riviera, limestone substratum and Copeland fine sands, depressional," which is a hydric soil, and "Hallandale and Boca fine sands," which is a hydric soil.

2.1 FLUCFCS CODES AND HABITAT DESCRIPTIONS

The Florida Land Use, Cover, and Forms Classification System (FLUCFCS) manual was used to classify all vegetative communities occurring within the parcel boundaries. The attached FLUCFCS exhibit shows the subject property together with its vegetative cover and depicts the approximate limits of the wetland and upland areas. A general description is provided below in Table 1.

Table 1: FLUCFCS Codes and Descriptions

FLUCFCS Code	Description	Acres	Jurisdictional Wetlands / OSW
111	Fixed Single-Family Units	1.46	No
221	Citrus Groves	107.30	No
621	Cypress	0.45	Yes
621E2	Cypress (Exotics 25-50%)	2.56	Yes
621E4	Cypress (Exotics 75-100%)	16.26	Yes
625E4	Hydric Pine Flatwoods (Exotics 25-50%)	2.82	Yes
740B	Disturbed Land - Berm	4.93	No
740H	Disturbed Land (Hydric)	6.82	Yes
814	Roads and Highways	0.41	No
OSW	Other Surface Waters	26.17	Yes
	Total:	**169.18**	**55.08**

2.2 VEGETATIVE ASSOCIATIONS

2.2.1 Fixed Single-Family Units

Areas in Florida designated as Fixed Single-Family Units are typically characterized by the presence of single-family residences with maintained landscaping or turf lawns.

2.2.2 Citrus Grove

Florida communities designated as "Citrus Grove" are typically characterized by the presence of a citrus crop. Groves generally occur in areas with a specific combination of soil qualities and climatological parameters. Overall, the vegetation in this community is not dominated by hydrophytic plants. The soil sampled in this community did not contain any hydric characteristics, and no hydrologic indicators were observed.

2.2.3 Cypress

Vegetative communities in Florida designated as "Cypress" are defined by a dominance or predominance of bald cypress (*Taxodium distichum*) or pond cypress (*Taxodium ascendens*). The canopy of this community is mainly comprised of bald cypress as well as some cabbage palm (*Sabal palmetto*). The onsite vegetation in this community is dominated by hydrophytic vegetation, hydrologic indicators are present, and soils exhibit hydric characteristics. A list of observed species within the Cypress community onsite can be found below in Table 2.

Table 2: Species Observed in the Cypress Community

Common Name	Scientific Name	Strata/ Substrata	Wetland Designation	Est. % Coverage
Bald cypress	*Taxodium distichum*	C	OBL	35%
Pop ash	*Fraxinus caroliniana*	C, M, G	OBL	19%
Cabbage palm	*Sabal palmetto*	C, M	FAC	15%
Strangler fig	*Ficus aurea*	C, M	FAC	11%
Swamp bay	*Persea palustris*	C, M	OBL	10%
Coco plum	*Chrysobalanus icaco*	M	FACW	3%
Swamp fern	*Telmatoblechnum serrulatum*	G	FACW	85%
False nettle	*Boehmeria cylindrica*	G	OBL	4%
Buttonbush	*Cephalanthus occidentalis*	G	OBL	4%
Giant leather fern	*Acrostichum danaeifolium*	G	OBL	3%
American burnweed	*Erechtites hieraciifolius*	G	FAC	1%

C = Canopy M = Mid-story G = Groundcover V = Vine
OBL – Obligate Wetland FACW = Facultative Wetland FAC = Facultative
FACU = Facultative Upland UPL = Upland

2.2.4 Cypress (Exotics 25-50%)

This community is similar to the Cypress community described above. However, this area is characterized by its recruitment of exotic and invasive vegetation. The canopy of the Cypress (Exotics 25-50%) habitat on this site consists of cypress, pop ash (*Fraxinus caroliniana*), cabbage palm, Brazilian pepper (*Schinus terebinthifolia*), strangler fig (*Ficus aurea*), and swamp bay (*Persea palustris*). Hydrologic indicators are present in this community in the form of morphological plant adaptations, such as active cypress knees and buttressed tree bases. Elevated lichen lines and

water marks were also observed on the vegetation in this community. The soil sample collected within the community did exhibit hydric characteristics. A list of observed species within the Cypress (Exotics 25-50%) community onsite can be found below in Table 3.

Table 3: Species Observed in the Cypress (Exotics 25-50%) Community

Common Name	Scientific Name	Strata/ Substrata	Wetland Designation	Est. % Coverage
Bald cypress	*Taxodium distichum*	C	OBL	25%
Pop ash	*Fraxinus caroliniana*	C, M, G	OBL	2%
Cabbage palm	*Sabal palmetto*	C, M	FAC	15%
Brazilian pepper	*Schinus terebinthifolia*	C, M	FAC	35%
Strangler fig	*Ficus auera*	C, M	FAC	5%
Swamp bay	*Persea palustris*	C, M	OBL	5%
Coco plum	*Chrysobalanus icaco*	M	FACW	3%
Swamp fern	*Telmatoblechnum serrulatum*	G	FACW	85%
Climbing fern	*Lygodium* spp.	V	FAC	30%
Possum vine	*Cissus verticillata*	V	FAC	10%
False nettle	*Boehmeria cylindrica*	G	OBL	4%
Buttonbush	*Cephalanthus occidentalis*	G	OBL	4%
Giant leather fern	*Acrostichum danaeifolium*	G	OBL	3%
American burnweed	*Erechtites hieraciifolius*	G	FAC	1%

C = Canopy M = Mid-story G = Groundcover V = Vine
OBL – Obligate Wetland FACW = Facultative Wetland FAC = Facultative
FACU = Facultative Upland UPL = Upland

2.2.5 Cypress (Exotics 75-100%)

This community is also similar to the Cypress communities, which are described above. However, this area is even more heavily invaded by exotic vegetation. The canopy of the onsite Cypress (Exotics 75-100%) habitat consists of cypress, melaleuca (*Melaleuca quinquenervia*), cabbage palm, Brazilian pepper, java plum (*Syzygium cumini*), and slash pine (*Pinus elliottii*). Hydrologic indicators are present in this community in the form of morphological plant adaptations, such as active cypress knees and buttressed tree bases. Adventitious rooting and water marks were also observed on the vegetation in this community. The soil sample collected in the community did exhibit hydric characteristics. A list of observed species within the onsite Cypress (Exotics 75-100%) community is displayed in Table 4 below.

Table 4: Species Observed in the Cypress (Exotics 75-100%) Community

Common Name	Scientific Name	Strata/ Substrata	Wetland Designation	Est. % Coverage
Melaleuca	*Melaleuca quinquenervia*	C, M, G	FAC	70%
Bald cypress	*Taxodium distichum*	C, M, G	OBL	21%
Cabbage palm	*Sabal palmetto*	C, M, G	FAC	8%
Slash pine	*Pinus elliottii*	C	UPL	3%
Dahoon holly	*Ilex cassine*	M, G	OBL	13%
Brazilian pepper	*Schinus terebinthifolia*	M, G	FAC	7%
Myrsine	*Myrsine cubana*	M	FAC	6%

Java plum	*Syzygium cumini*	M	FAC	3%
Laurel oak	*Quercus laurifolia*	M	FACW	2%
Wax myrtle	*Morella cerifera*	M	FAC	2%
Swamp fern	*Telmatoblechnum serrulatum*	G	FACW	50%
Climbing fern	*Lygodium* spp.	V	FAC	30%
Sawgrass	*Cladium jamaicense*	G	OBL	10%
Dogfennel	*Eupatorium capillifolium*	G	FAC	4%
Greenbrier	*Smilax* sp.	V	FAC	3%
Coco plum	*Chrysobalanus icaco*	G	FACW	2%
Virginia creeper	*Parthenocissus quinquefolia*	V	FAC	2%
Erectleaf witchgrass	*Dichanthelium erectifolium*	G	OBL	2%
Swamp bay	*Persea palustris*	G	OBL	1%
Caesarweed	*Urena lobata*	G	UPL	1%
False buttonweed	*Spermacoce* sp.	G	UPL	1%

C = Canopy M = Mid-story G = Groundcover V = Vine
OBL – Obligate Wetland FACW = Facultative Wetland FAC = Facultative
FACU = Facultative Upland UPL = Upland

2.2.6 Hydric Pine Flatwoods (Exotics 75-100%)

Vegetative communities in Florida designated as "Pine Flatwoods" are defined by a dominance or predominance of longleaf pine (*Pinus palustris*) or slash pine. Common understory species include saw palmetto (*Serenoa repens*), wax myrtle (*Morella cerifera*), and a variety of herbs and shrubs. The onsite Pine Flatwoods community is characterized dominated by acute recruitment of exotic and invasive vegetation. The canopy of this community is mainly comprised of slash pine while cypress and cabbage palm are also present in lesser dominance. The vegetation in this community is not primarily dominated by hydrophytic plants. However, hydrologic indicators and hydric soils are both present, which is indicative of a hydric community type. A list of observed species within the onsite Cypress community is displayed in Table 5 below.

Table 5: Species Observed in the Hydric Pine Flatwoods (Exotics 75-100%) Community

Common Name	Scientific Name	Strata/ Substrata	Wetland Designation	Est. % Coverage
Slash pine	*Pinus elliottii*	C	UPL	20%
Brazilian pepper	*Schinus terebinthifolia*	M, G	FAC	70%
Bald cypress	*Taxodium distichum*	C, M, G	OBL	10%
Cabbage palm	*Sabal palmetto*	C, M	FAC	16%
Melaleuca	*Melaleuca quinquenervia*	C	FAC	15%
Coco plum	*Chrysobalanus icaco*	M, G	FACW	27%
Myrsine	*Myrsine cubana*	M	FAC	3%
Climbing fern	*Lygodium* spp.	G	FAC	20%
Swamp fern	*Telmatoblechnum serrulatum*	G	FACW	7%

C = Canopy M = Mid-story G = Groundcover V = Vine
OBL – Obligate Wetland FACW = Facultative Wetland FAC = Facultative
FACU = Facultative Upland UPL = Upland

2.2.7 Disturbed Land – Berm

The "Disturbed Land – Berm" designates the ridge that extends throughout several areas along the perimeter of the subject property as well as the perimeter of the southwestern forested wetland. Vegetation along the berms is comprised primarily of slash pine with varying levels of exotic infestation.

2.2.8 Disturbed Land – Hydric

The onsite "Disturbed Land – Hydric" communities are areas that were previously cleared, but still retain hydrologic qualities. Vegetation is dominated by a monoculture of the invasive, exotic species Paragrass (*Urochloa mutica*). Standing water and evidence of aquatic fauna, such as "Island apple snail," *Pomacea maculata*, was observed in these areas. The Disturbed Land – Hydric communities can be found south of the onsite Fixed Single Family Units area.

2.2.9 Roads and Highways

Communities in Florida designated as transportation are utilized for the movement of people and goods. In this case there is a portion of an existing road, Sabal Palm Road, on the property.

2.2.10 Other Surface Waters

Areas in Florida designated as "Other Surface Waters (OSW)" are typically characterized by the presence of standing water, while not exhibiting other wetland characteristics (such as hydrophytic vegetation). In this case, OSW refers to the agricultural ditches and swales observed and associated with the Citrus Grove onsite. There is also a ditch running north to south between the single family residence and the orange grove which conveys water from the north side of Sabal Palm Road through a culvert under the road.

2.2.11 Wetland Seasonal High-Water Table & Hydroperiod

Standing water was present in the Disturbed Land – Hydric and Cypress (Exotics 75-100%) communities at the time of the site inspection. During heavy rain events water clearly inundates these portions of the property. Approximately three to five inches of water appears to remain in places above the soil surface of the Disturbed Land – Hydric for several days at a time. Elevated water marks are present approximately 9-inches above the soil surface throughout the Cypress and other natural wetland communities onsite, a clear indication of hydrologic conditions. Due to the adjacent agricultural activities, including the berms, ditches, and pumps, there is very little naturally driven hydrology on the site. Water levels are controlled through the pumping operations to move water out of or into the site as needed for the trees.

2.2.12 Jurisdictional Status of Wetlands

Qualified Turrell, Hall and Associates (THA) environmental staff inspected the project lands for the purpose of delineating wetlands and other surface waters. The wetland delineation methodologies and criteria set forth by the state (in Chapter 62-340, FAC, Delineation of the Landward Extent of Wetlands and Surface Waters) and the US Army Corps of Engineers (USACE) {in accordance with 33 CFR Part 331, Regulatory Guidance Letter (RGL) No. 08-02 issued June 26, 2008 and subsequent guidance provided by the Wetlands Regulatory Assistance Program Regional Supplement to the COE Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (ver. 2.0)} were followed in determining whether an area classified as a wetland or other surface water and in delineating the limits (boundaries) of potential jurisdictional wetlands and other surface waters.

THA ecologists flagged the boundaries of areas determined to classify as wetlands. There were very few cases where it appeared wetland lines established based on the state methodology would differ from those established based on the federal (USACE) methodology. Where this did occur, the feature boundary was flagged based on the landward-most extent of the two methods, in other words, the methodology that produced the greatest extent of wetlands was used to flag the wetland line (the "safe uplands line" approach). The wetland boundaries flagged (or otherwise marked) by staff ecologists were subsequently survey-located.

The wetlands definition in Chapter 62-340(19), F.A.C. states that wetlands are those areas "inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils." The methodology used by the State of Florida to delineate a wetland boundary, as described in Chapter 62-340, F.A.C., uses a series of tests in order to determine the presence of a wetland. These tests were deemed positive on part of the subject property.

In order to be considered a jurisdictional wetland, a community must display two out of three of the following characteristics: hydrophytic vegetation, hydric soils, and hydrologic indicators. These characteristics are defined in Chapter 62-340, F.A.C.

Approximately 114.10 acres of the subject property have been identified as uplands. The Fixed Single-Family Units, Citrus Groves, Disturbed Land – Berm, and Roads and Highways communities do not meet the definition of a wetland. Vegetation in these communities is not primarily hydrophytic, no hydrological indicators are present, and soils do not contain any hydric characteristics.

Approximately 28.91 acres of the subject property have been identified as wetlands. The Cypress, Cypress E2, Cypress E4, Hydric Pine Flatwoods E2, and the Disturbed Land – Hydric communities meet the definition of a wetland. Within the Cypress and Disturbed Land – Hydric communities, vegetation is primarily hydrophytic, hydrologic indicators are present, and soils contain hydric characteristics. Within the Hydric Pine Flatwoods community, vegetation is not primarily hydrophytic. However, both hydrologic indicators and hydric soils are present.

All of the wetlands identified are assumed to be jurisdictional to both the state and federal regulatory agencies.

2.3 LISTED PLANT AND ANIMAL SPECIES

Endangered species are as any species of plant, insect, or wildlife naturally occurring in Florida, whose prospects of survival are in jeopardy due to modification or loss of habitat; over-utilization for commercial, sporting, scientific or educational purposes; disease; predation; inadequacy of regulatory mechanisms; or other natural or manmade factors affecting its continued existence (F.S. 372.072).

Threatened species include any species of plant or wildlife naturally occurring in Florida, which may not be in immediate danger of extinction, but which exist in such small populations as to become endangered if it is subjected to increased stress as a result of further modification of its environment.

Several surveys for listed animal and plant species were conducted within the project area by THA biologists. The threatened and endangered species survey efforts and their results are outlined in the attached Listed Species Survey report. The Listed Species report describes the approximate locations where listed animal species were observed on and near the project area during the referenced surveys. During the survey events, four listed animal species were observed onsite.

2.4 SOILS

According to the USDA Natural Resources Conservation Service (NRCS), five soil types mapped at the subject property: (1) "Holopaw fine sand, limestone substratum," which is a hydric soil; (2) "Boca fine sand," which is a hydric soil; (3) "Boca, Riviera, limestone substratum and Copeland fine sands, depressional," which is a hydric soil, (4) "Hallandale and Boca fine sands," which is not a hydric soil, and (5) "Hallandale and Boca fine sands," which is not a hydric soil. The following sub-section provides a brief description of the soil map unit identified on the project lands. Information is provided about the soil's landscape position (i.e., its typical location in the landscape on a county-wide basis), the soil's profile (i.e., textural composition and thickness or depth range of the layers or horizons commonly present in the soil), and the soil's drainage and hydrologic characteristics. The soils occurring on project lands are as follows:

2.4.1 2 – Holopaw fine sand, Limestone substratum

This nearly level, poorly drained soil is in sloughs and broad poorly defined drainage ways. Individual areas are elongated and irregular in shape and range from 20 to 300 acres. The slope is 0 to 2 percent.

Typically, the surface layer is dark gray fine sand about 5 inches thick. The substratum layer is fine sand to a depth of about 52 inches; the upper part is light gray and the lower parties light brownish gray. The subsoil extends to a depth of about 62 inches; the upper part is dark grayish brown fine sand and the lower part is dark grayish brown fine sandy loam. Limestone bedrock is at a depth of about 62 inches.

In 95 percent of the areas mapped as this soil, Holopaw and similar soils make up 78 to 97 percent of the map unit. The characteristics of Malabar, Pineda and Riviera soils with limestone substratums are similar.

Soils of dissimilar characteristics included in this unit are small areas of Basinger, Boca and Chobee soils on similar landscape positions. These soils make up about 3 to 22 percent of the unit.

The permeability of this soil is moderately slow. The available water capacity is low. In most years, under natural conditions, the seasonal high water table is within 12 inches of the surface for 3 to 6 months. In other months, the water table is below 12 inches and recedes to a depth of more than 40 inches during extended dry periods. During periods of high rainfall, the soil is covered by shallow slowly moving water for periods of about 7 to 30 days.

Natural vegetation consists of scattered south Florida slash pine, cypress, cabbage palm, saw palmetto, waxmyrtle, sandcordgrass, chalky bluestem and gulf muhly.

This soil is poorly suited to cultivated crops because of wetness and droughtiness. With good water-control measures and soil improving measures, the soil can be made suitable for many fruit and vegetable crops. A water control system is needed to remove excess water in wet seasons and provide water through subsurface irrigation in dry seasons. Row crops should be rotated with

cover crops. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be added according to the need of the crops.

With proper water control, the soil is moderately suited to citrus. Water control systems that maintain good drainage to an effective depth are needed. Bedding the soil prior to planting provides good surface and internal drainage and elevates the trees above the seasonal high water table. A good grass cover crop between the trees helps to protect the soil from blowing when the trees are younger.

With good water control management, this soil is well suited to pasture. A water control system is needed to remove excess water during the wet season. It is well suited to pangolagrass, bahiagrass and clover. Excellent pastures of grass or grass-clover mixtures can be grown with good management. Regular applications of fertilizers and controlled grazing are needed for highest yields.

This soil is well suited for desirable range plant production. The dominant forage consists of blue maidencane, chalky bluestem and bluejoint panicum. Management practices should include deferred grazing. This Holopaw soil is in the Slough range site.

This soil has severe limitations for most urban uses because of the high water table. To overcome this limitation, building sites and septic tank absorption fields should be mounded. This soil also has severe limitations for recreational development because of wetness and sandy texture. Problems associated with wetness can be corrected by providing adequate drainage and drainage outlets to control the high water table. The sandy texture limitation can be overcome by adding suitable topsoil or by resurfacing the area.

This Holopaw soil is in capability subclass IVw.

2.4.2 21 – Boca fine sand

This nearly level, poorly drained soil is on the flatwoods. Individual areas are elongated and irregular in shape and range from 20 to 350 acres. The slope is 0 to 2 percent.

Typically, the surface layer is very dark gray fine sand about 4 inches thick. The subsurface layer is fine sand to a depth of about 26 inches; the upper part is light gray and the lower part is brown. The subsoil is dark grayish brown fine sandy loam to a depth of about 30 inches. Limestone bedrock is at a depth of about 30 inches.

In 95 percent of areas mapped as this soil, Boca and similar soils make up 79 to 93 percent of the map unit. The characteristics of Hallandale soils are similar.

Soils of dissimilar characteristics included in this map unit are small areas of Pineda and Riviera, limestone substratum soils in slough landscape positions. These soils make up about 7 to 21 percent of the unit.

The permeability of this soil is moderate. The available water capacity is very low. In most years, under natural conditions, the seasonal high water table is between 6 to 18 inches of the surface of 1 to 6 months. In other months, the water table is below 18 inches and recedes to a depth of more than 40 inches during extended dry periods. Rarely is it above the surface.

Natural vegetation consists mostly of South Florida slash pine, cabbage palm, saw palmetto, wax myrtle, chalky bluestem and pineland threeawn.

This soil is poorly suited to cultivated crops because of wetness and droughtiness. The number of adapted crops is limited unless very intensive management practices are followed. With good water control and soil improving measures, the soil can be made suitable form many fruit and vegetable crops. A water control system is needed to remove excess water in wet season and provide water through subsurface irrigation in dry seasons. Row crops should be rotated with cover crops. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be added according to the need of the crops.

With proper water control, the soil is well suited to citrus. Water control systems that maintain good drainage to an effective depth are needed. Bedding the soil prior to planting provides good surface and internal drainage and elevates the trees above the seasonal high water table. A good grass cover crop between the trees helps to protect the soil from blowing when the trees are young.

With good water control management, this soil is well suited to pasture. A water control system is needed to remove excess water during the wet season. It is well suited to pangolagrass, bahiagrass and clover. Excellent pastures of grass or grass-clover mixtures can be grown with good management. Regular applications of fertilizers and controlled grazing are needed for highest yields.

This soil is moderately suited for desirable range plant production. The dominant forage is creeping bluestem, lopsided indiangrass, pineland threeawn and chalky bluestem. Management practices should include deferred grazing and brush control. This Boca soil is in the South Florida Flatwood range site.

This soil has severe limitations for most urban uses because of wetness. If this soil is used as septic tank absorption fields, it should be mounded to maintain the system well above the seasonal high water table. For recreational uses, this soil also has severe limitations because of wetness, but with proper drainage to remove excess surface water during wet periods, many of these limitations can be overcome.

This Boca soil is in capability subclass IIIw.

2.4.3 25 Boca, Riviera, Limestone substratum, and Copeland fine sands, depressional

These level, very poorly drained soils are in depressions, cypress swamps and marshes. Individual areas are elongated and irregular in shape and range from 100 to 3000 acres. The slope is 0 to 1 percent.

Typically, the Boca soil has surface layer of very dark gray fine sand to a depth of about 26 inches; the upper part is light gray and the lower part is brown. The subsoil is dark grayish brown fine sandy loam to a depth of about 30 inches. Limestone bedrock is at a depth of about 30 inches.

Typically, the Riviera soil has a surface layer of gray fine sand about 6 inches thick. The subsurface layer is fine sand to a depth of about 32 inches; the upper part is light brownish gray and the lower part is light gray. The subsoil is sandy clay loam to a depth of about 54 inches; the upper part is grayish brown and the lower part is dark gray. Limestone bedrock is at a depth of about 54 inches.

Typically, the Copeland soil has a surface layer of black fine sand about 6 inches thick. The subsurface layer is fine sand to a depth of about 18 inches; the upper part is very dark grayish brown and the lower part is dark gray. The subsoil is light gray mottled, sandy clay loam to a depth of about 24 inches. The substratum is light gray marl to a depth of about 30 inches. Limestone bedrock is at a depth of about 30 inches.

Areas mapped can consist entirely of Boca soil, Riviera, limestone substratum, soil Copeland soil, or any combination of the three soils. These three soils were not separated in mapping because of similar management needs brought about by ponding. The characteristics of Holopaw, Malabar and Pineda soils are similar.

Soils of dissimilar characteristics included in these units are small areas of Basinger, Dania, Gator and Hallandale soils on similar landscape positions. These soils make up about 20 percent or less of the units.

The permeability of the Boca soil is moderate and the available water capacity is very low. The permeability of the Riviera soils is moderately rapid to moderately slow and the available water capacity is low. The permeability of the Copeland soil is moderated and the available water capacity is moderate.

In most years, under natural conditions, these soils are ponded for 6 to 9 months or more each year. In other months the water table is within 12 inches of the surface and recedes to a depth of 12 to 40 inches during extended dry periods.

These soils are not suited for cultivated crops or citrus because of flooding, ponding and wetness. These soils are used for natural wetlands. Natural vegetation consists mostly of bald cypress, pickerelweed, rushes, fire flag, sawgrass and Florida willow.

The Boca, Riviera and Copeland soils have no range site. These soils are in the Cypress Swamp ecological community.

These soils have severe limitations for all urban and recreational uses because of ponding. An effective drainage system that keeps the water table at a given depth is expensive and difficult to establish and maintain. Also, these soils act as a collecting basin for the area; therefore, a suitable outlet to remove the water is not available. These soils require an adequate amount of fill material to maintain house foundations and roadbeds above the high water table. Even when a good drainage systems is installed and the proper amount of fill material is added, keeping the area dry is a continuing problem because of seepage water from the slightly higher adjacent sloughs and flatwoods.

The Boca, Riviera and Copeland soils are in capability subclass VIIw.

2.4.4 49 – Hallandale and Boca fine sands

These nearly level, poorly drained soils are in sloughs and poorly defined drainage-ways. Individual areas are elongated and irregular in shape and range from 20 to 600 acres. The slope is 0 to 2 percent.

Typically, the Hallandale soil has a surface layer of very dark gray fine sand about 3 inches thick. The subsurface layer is grayish brown fine sand to a depth of about 9 inches. The subsoil is yellowish brown fine sand to a depth of about 12 inches. Limestone bedrock is at a depth of about 12 inches.

Typically, the Boca soil has a surface layer of very dark gray fine sand about 4 inches thick. The subsurface layer is fine sand to a depth of about 26 inches; the upper part is light gray and the lower part is brown. The subsoil is dark grayish brown fine sandy loam to a depth of about 30 inches. Limestone bedrock is at a depth of about 30 inches.

Areas mapped can consist entirely of Hallandale and similar soils, Boca soil, or any combination of the two soils. The two soils were not separated in mapping because of similar management needs and soil characteristics. The characteristics of Jupiter soil are similar.

Soils of dissimilar characteristics included in this unit are small areas of Copeland and Pineda, limestone substratum, soils on similar landscape positions. These soils make up about 0 to 5 percent of the unit.

The permeability of the Hallandale soil is rapid. The permeability of the Boca soil is moderate. The available water capacity of these soils is very low.

In most years, under natural conditions, the seasonal high water table is within 12 inches of the surface for 3 to 6 months. In other months, the water table is below 12 inches and recedes to a depth of more than 40 inches during extended dry periods. During periods of high rainfall, the soil is covered by shallow, slowly moving water for periods of about 7 to 30 days.

Natural vegetation consists of scrub cypress, sand cordgrass, wax myrtle and maidencane.

These soils are poorly suited to cultivated crops because of wetness, shallow bedrock and droughtiness. With good water control measures and soil-improving measures, these soils can be made suitable for many fruit and vegetable crops. A water control system is needed to remove excess water in wet seasons and provide water through subsurface irrigation in dry seasons. Row crops should be rotated with cover crops. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be added according to the need of the crops. With proper water control, these soils are moderately suited to citrus. Water control systems that maintain good drainage to an effective depth are needed. Bedding prior to planting provides good surface and internal drainage and elevates the trees above the seasonal high water table. A good grass cover crop between the trees helps to protect the soils from blowing when the trees are younger.

With good water control management, these soils are well suited to pasture. A water control system is needed to remove excess water during the wet season. They are well suited to pangola grass, bahia grass and clover. Excellent pastures of grass or grass-clover mixtures can be grown with good management. Regular applications of fertilizers and controlled grazing are needed for highest yields.

These soils are well suited for desirable range plant production. The dominant forage consists of the blue maidencane, chalky bluestem and bluejoint panicum. Management practices should include deferred grazing. The Hallandale and Boca are in the Slough range site.

These soils have severe limitations for most urban uses because of the high water table and shallow bedrock. To overcome this limitation, building sites and septic tank absorption fields should be mounded. These soils also have severe limitations for recreational development because of wetness and sandy texture. Problems associated with wetness can be corrected by providing adequate drainage and drainage outlets to control the high water table. The sandy texture limitation can be overcome by adding suitable topsoil or by resurfacing the area.

These Hallandale and Boca soils are in capability subclass Vw.

2.4.5 103 – Cypress Lake-Riviera-Copeland fine sands, Frequently ponded-Urban Land Association

These nearly level, poorly drained soils are in sloughs, low broad flats, flatwoods, and cypress swamps. The slope is 0 to 1 percent.

Typically, the Cypress Lake soil has a surface layer of dark gray fine sand about 3 inches thick. The subsurface layer is fine sand to a depth of about 14 inches; the upper part is gray, and the lower part is light gray. The subsoil is light yellowish brown fine sand to a depth of about 25 inches and a grayish brown sandy clay loam to a depth of about 30 inches. Limestone bedrock is at a depth of about 30 to 40 inches.

Typically, the Riviera soil has a surface layer of gray fine sand about 6 inches thick. The subsurface layer is fine sand to a depth of about 32 inches; the upper part is light brownish gray, and the lower part is light gray. The soil is sandy clay loam to a depth of about 54 inches; the upper part is grayish brown, and the lower part is dark gray. Limestone bedrock is at a depth of about 54 inches.

Typically, the Copeland soil has a surface layer of black fine sand about 6 inches thick. The subsurface layer is fine sand to a depth of about 18 inches; the upper part is very dark grayish brown, and the lower part is dark gray. The subsoil is light gray, mottled, sand clay loam to a depth of about 24 inches. The substratum is light gray marl to a depth of about 30 inches. Limestone bedrock is at a depth of about 30 inches.

Typically, Urban land consists of filled or disturbed areas where commercial buildings, houses, parking lots, streets, sidewalks, recreational areas, shopping centers or other urban structures exist where the soil cannot be observed.

In 90 percent of the area mapped, Cypress Lake and similar soils make up approximately 24 percent, Riviera and similar soil make up approximately 23 percent, and Copeland and similar soil make up approximately 22 percent. Urban land soil make up approximately 20 percent. The soils occur as areas so intricately mixed or so small that mapping them separately is not practical.

The permeability of the Riviera is moderately rapid to moderately slow and the available water capacity is moderate. In most years, under natural conditions, the seasonal high water table is within 12 inches of the surface for 3 to 6 months. In other months, the water table is below 12 inches and recedes to a depth of more than 40 inches during extended dry periods. During periods of high rainfall, these soils are covered by shallow slowly moving water for periods of about 7 to 30 days.

With proper water control, these soils are moderately suited to citrus. Water control systems that maintain good drainage to an effective depth are needed. Bedding the soil prior to planting provides good surface and internal drainage and elevates the trees above the seasonal high water table. The loamy subsoil may impede proper drainage. A good grass cover crop between the tress helps to protect the soil from blowing when the trees are younger.

The natural vegetation consists mostly of South Florida slash pine, cabbage palm, saw palmetto, gallberry, and pineland threeawn, in addition to the species commonly found in wetland areas.

Major uses of the soil include forest land, rangeland, wildlife habitat, recreation, and urban land. With good water control management, some areas are used for truck crops, citrus, and pastures. A water control system is needed to remove excess water during the wet season. These soils are well suited to pangolagrass, bahiagrass and clover. Excellent pastures of grass or grass-clover mixtures can be grown with good management. Regular applications of fertilizers and controlled grazing are needed for highest yields.

These soils are poorly suited for desirable range plant production. The Riviera and Copeland soil have no range site.

These soils have severe limitations for most urban uses because of the high water table. To overcome this limitation, building sites and septic tank absorption fields should be mounded. The soils also have severe limitations for recreational development because of wetness and sandy texture. Problems associated with wetness can be corrected by providing adequate drainage and drainage outlets to control the high water table. The sandy texture limitation can be overcome by adding suitable topsoil or by resurfacing the area.

The Riviera and Copeland soils are in capability subclass IIIw.

3 PROPOSED CONDITIONS (POST-DEVELOPMENT)

3.1 PROPOSED PROJECT

The proposed project is the development of a mixed single and multi-family community, with associated infrastructure, stormwater management, and preservation areas. The majority of the proposed development area is comprised of previously cleared and impacted land associated with the single-family residence, citrus grove, and store. The project proposes to preserve and enhance a large portion of the remaining forested wetland areas. The project is also incorporating a flow way that will continue to pass water from north of Sabal Palm Road and allow it to sheet flow to the south. The proposed flow way will replace the ditch through the property that currently provides this conveyance.

The 169.18-acre site is comprised of 114.10 acres of upland, 28.91 acres of wetland, and 26.17 acres of other surface waters. The majority of the subject area has been impacted by previous development, clearing, and surrounding development, which has resulted in the recruitment and infestation of exotic and nuisance species within the remaining forested wetlands. The proposed development will result in approximately 17.42 acres of direct wetland impacts. Additionally, the proposed development will result in impacts to all of the open water ponds and ditches (26.17 acres).

3.2 NATIVE HABITAT

Collier County Land Development Code regulations require that projects preserve a portion of their on-site native habitat as part of their development proposal. Calculations are based on a percentage of the acreage of native habitat existing on the site. Since the Sabal Palm Road property is greater than 20 acres in size and qualifies as "Residential and Mixed Use Development," under LDC 3.05.07 B.1., it is required to preserve 25% of existing native vegetation on the site. Only 3.01 (0.02%) of the 169.18 acres on the property qualify as native habitat. The project is therefore required to preserve 0.75 acre of habitat (3.01 * 0.25). The project proposes to preserve and enhance 10.44 acres of existing wetland habitat and will well exceed the County's native habitat preservation requirements.

3.3 PROJECT IMPACTS TO ARCHAEOLOGICAL & HISTORICAL RESOURCES

The Florida Master Site File (MSF) was contacted and initial information from them indicated that there was a known archaeological site located on the property. Further research into the history of the site seems to point to a mistake on the MSF mapping in that the site report shows the actual location to be approximately 500 feet further south than shown and not within the project boundaries. Further coordination with the Department of Historical Resources (DHR) will be undertaken (see Appendix II). It is possible that a Phase I archaeological investigation may be required on the property during the State and Federal permitting process.

Should any archaeological evidence be discovered during construction, the development activities at the specific site will be immediately halted and the appropriate agency notified. Development will be suspended for a sufficient length of time to enable the County or a designated consultant to assess the find and determine the proper course of action.

3.4 ELIMINATION AND REDUCTION OF WETLAND IMPACT

The subject property has been chosen because of the upland habitat and previously developed land onsite. A large portion of the forested wetlands on the project site will remain undeveloped and enhanced through exotic removal and the installation of native vegetation. Annual monitoring will take place to ensure success criteria for plantings and exotic vegetation management is met according to the criteria set forth in state, federal, and local permits. Additionally, mitigation is proposed to offset unavoidable impacts to wetlands.

As used herein, the term "direct impacts" refers to actions that will result in the complete elimination of wetland areas (i.e., dredging and filling). “Secondary impacts” refers to actions that may reduce the functional value of the wetland area, such as encroachment, shading, or trimming, but does not eliminate the wetland or impact it to the point that all functional value is lost.

3.4.1 Temporary Impacts

Temporary wetland impacts will occur within the preserve enhancement areas. The density of exotic vegetation will require mechanical removal to quickly and sufficiently remove the vegetation which has infested these areas. Regrading and planting the preserves following the exotic removal will restore them back to natural grades. These temporary impacts will result in a higher functioning wetland and will not be detrimental to the habitats on or adjacent to the project site.

3.4.2 Direct Impacts

Direct wetland impacts are associated with digging out or filling in wetlands. On this project, a flow-way designed to help facilitate water movement around the project site is being proposed that impacts approximately 17.42 acres of disturbed wetland areas. This flow-way also serves as a partial buffer between the development and the adjacent preserve areas. In addition to the wetland being excavated, the other surface waters on the project site will also be impacted by the development but the ditch open water surface area will be replaced by the constructed stormwater ponds.

3.4.3 Secondary Impacts to Wetlands and Water Resources

Secondary impacts to wetlands are usually associated with encroachment or changes to hydrology that incidentally occur as a result of the development. The project is proposing two preserve areas, neither of which will be subject to secondary impacts. The preserve in the southwest corner of the property will be separated from the development by the proposed flow-

way and protected from encroachment by the same flow-way. The preserve along the northern property line has already been impacted by past agricultural activities and roadway encroachment. Placing a constructed berm around the wetland and separating it from the proposed development, along with the enhancement that will be done through the removal of invasive vegetation will result in a higher functioning system with no secondary impacts to it.

3.4.4 Cumulative Impacts

In accordance with the Applicant's Handbook, Volume I (Sec. 10.2.8 (a)), all proposed wetland impacts will be mitigated through a combination of on-site enhancement along with the purchase of credits within the same drainage basin. The project site is located within the West Collier drainage basin and within the service areas of the Big Cypress, Panther Island, and Corkscrew Regional Mitigation Banks.

3.5 PROJECT IMPACTS TO LISTED SPECIES

3.5.1 American alligator (Alligator mississippiensis)

Though the American alligator is no longer considered endangered, it is currently listed as federally threatened due to its similarity in appearance to the American crocodile (*Crocodylus acutus*). Several alligators were observed in the agricultural ditches on the subject property. Any development that results in the removal of the agricultural ditches could affect alligators on-site. These effects could be offset with the inclusion of other alligator habitats onsite, such as artificial lakes and stormwater retention ponds. Any potential development should include a protection plan to help avoid and minimize direct impacts to individual alligators and alligator nests.

3.5.2 Audobons's crested caracara (Polyborus plancus audubonii)

Audubon's' crested caracara (*Polyborus plancus audubonii*) is a subspecies of the crested caracara (*Polyborus plancus*) that inhabits peninsular Florida. Audubon's' crested caracara (hereinafter referred to as "caracara") prefers native rangeland and unimproved pasture for foraging. Caracara prefer cabbage palms for nesting surrounded by habitats with low-ground cover and shrubby vegetation. Any potential development of the subject property is not expected to impact caracara foraging or nesting. However, the project is not within the USFWS consultation area for Caracaras so additional survey effort requirements are not expected.

3.5.3 Bald Eagle (Haliaeetus leucocephalus)

While no longer a listed species, state or federally, the bald eagle (*Haliaeetus leucocephalus*) is still protected by state rule 68A-16.002, F.A.C., and federal laws (Migratory Bird Treaty Act of 1918 and the Bald and Golden Eagle Protection Act of 1940). An incidental take permit may be needed for activities taking place within 660 feet of an eagle nest during the breeding season (October 1 – May 15). No eagle nests were observed on or adjacent to the subject property during surveys. One active nest (CO060) is located approximately 1.6 miles from the subject property and a

recently destroyed nest (CO060a) is located approximately 1.67 miles from the subject property. No state or federal permitting will be required for eagle nests in regard to this subject property.

3.5.4 Big Cypress fox squirrel (Sciurus niger avicennia)

The Big Cypress fox squirrel (BCFS) is a subspecies of the eastern fox squirrel (*Sciurus niger*). It is listed as threatened on the Florida Endangered and Threatened Species List due to suitable habitat loss, degradation, and fragmentation. Optimal habitat conditions for BCFS are dependent on the presence of appropriate trees for nest sites, abundant year-round food resources, and an open understory with little or no bushes, or shrub layer present. Squirrel nests were observed on the subject property, and one fox squirrel was seen foraging on the eastern edge of the site. Grey squirrels (*Sciurus carolinensis)* were also seen throughout the wooded areas of the property. There is no planned impact to the areas containing squirrel nests, but additional monitoring may be required to confirm BCFS occupancy of the site and which species are utilizing the nests.

3.5.5 Eastern indigo snake (Drymarchon couperi)

The Eastern indigo snake (*Drymarchon couperi*) is listed as federally threatened. Generally, this species lives and hunts in a wide variety of habitats and its territory can cover large areas. It can be associated with gopher tortoise burrows (as a commensal) and favors pine flatwoods, palmetto prairies, and scrub habitats as well as wetland edges. It is relatively reclusive in nature and is rarely observed in the wild. Immediately prior to construction on the subject property, an eastern indigo snake survey will be needed to ensure they are not utilizing areas where large equipment will be used. No eastern indigo snakes have been observed onsite. However, indigo snakes could theoretically frequent parts of the property. Special construction guidelines to protect the indigo snake will have to be followed by construction personnel during all phases of construction work performed onsite.

3.5.6 Everglade snail kite (Rostrhamus sociabilis plumbeus)

The Everglade snail kite (*Rostrhamus sociabilis plumbeus)* is a subspecies of the snail kite (*Rostrhamus sociabilis)* that inhabits Florida, Cuba, and northwestern Honduras. The Everglade snail kite is listed as federally endangered by FWS. The principal threat to the Everglade snail kite is the loss, degradation, and fragmentation of wetland habitats. The project is not located within the critical habitat of the Everglades snail kite. No snail kites were observed in or adjacent to the subject property, but sightings have been documented of snail kites in the adjacent Picayune Strand State Forest. Snail kite foraging habitat typically consists of clear and calm marsh habitats with interspersed open water and shallow water areas. These areas may contain sparse low trees but must be relatively clear and open to allow foraging of apple snail species (*Pomacea* spp.), which is the snail kites' main food source. Since such areas are not present on the subject property, no effect on suitable foraging habitat is expected with any potential development.

3.5.7 Everglades mink (Neovison vison evergladensis)

The Everglades mink (*Neovison vison evergladensis)* is a subspecies of the American mink *(Neovison vison),* which historically occurred in the Everglades, Big Cypress area, and Lake Okeechobee area. The Everglades mink is a cryptic mammalian predator in the weasel family that is listed as threatened by FWC. Although the understanding of their current distribution is limited, they do occur in Collier County and presumably could be using the subject property or adjacent areas. Everglades mink rely on a variety of wetland habitats, and therefore any actions that degrade, impair, or fragment suitable wetland habitats could affect the species. The proposed project occurs within citrus agricultural land and is thus unlikely to have any effects on the Everglades mink.

3.5.8 Florida bonneted bat (Eumops floridanus)

The Florida bonneted bat (*Eumops floridanus*) is a federally endangered bat species that utilizes relatively open terrestrial and freshwater areas as foraging habitat and as a source of drinking water. Their roosting habitat includes forests or other areas with suitable roost structures (tree snags, trees with cavities, artificial cavities, etc.). Several cavity trees were observed on site. The cavity trees onsite appeared to be used primarily by red-bellied woodpeckers (*Melanerpes carolinus*) but could serve as potential roosting habitat for bonneted bats. These cavities will be inspected with a small camera and monitor system prior to construction to ensure that they are unoccupied prior to being cut down. The subject property is located within the Florida Bonneted Bat Consultation Area and contains potential roosting and foraging habitat. Consultation and monitoring will be required to further assess the impact of any development of the subject property on the Florida bonneted bat.

3.5.9 Florida burrowing owl (Athene cunicularia floridana)

The Florida burrowing owl (*Athene cunicularia floridana*) is a subspecies of the burrowing owl (*Athene cunicularia*) that occurs in Florida. It is a small, long-legged owl that uses burrows year-round for breeding and roosting. It is listed by FWC as threatened. Burrowing owls prefer well-drained sandy soil with low vegetation height, typically native dry prairies. No burrowing owls were observed on the subject property or adjacent areas. Potential development to the property is unlikely to result in any impact to Florida burrowing owls.

3.5.10 Florida panther (Puma concolor coryi)

The Florida panther (*Puma concolor coryi*) is a federally endangered species that utilizes habitat across Southern Florida, mainly south of the Caloosahatchee River. Panthers require large, remote, and undeveloped areas and are rarely seen in more developed areas, such as the subject property. No panthers or signs of panthers were observed during surveys. The property is included in the Primary Florida Panther Focus Area, which is defined as "All lands essential for the survival of the Florida panther in the wild".

The FWS has established panther Habitat Suitability Values (HSVs) for various types of habitats

with scores (values) ranging from 0 (no value) to 9.5 (optimal value). When the acreage of a given habitat type (polygon) is multiplied by this habitat's HSV, the result is termed the Panther Habitat Unit value or PHU value. Based on the existing habitat types that are present, the total HSVs for the subject property range from 0 (open water and urban) to 4.7 (orchards/groves) and to 9.2 (cypress forest).

Any potential development will require coordination with the FWC and FWS to address the potential impacts to Florida panthers and their potential habitats. The specific details of any potential project's panther mitigation program shall be coordinated with the wildlife agencies as a part of the permitting process. The applicant shall ensure that the compensation value of off-site compensation combined with the compensation value of any on-site preserved lands will be at least equal to, if not greater than, the current PHU value of the undeveloped citrus lands. Any other measures deemed necessary by the FWS to ensure adequate protection of panthers shall also be addressed by the applicant during the consultation process during which, the applicant shall also coordinate panther issues with the FWC. In light of this approach, it is anticipated that the proposed project is unlikely to adversely affect the Florida panther.

3.5.11 Florida sandhill crane (Antigone canadensis pratensis)

The Florida sandhill crane (*Antigone canadensis pratensis*) is listed as threatened by the FWC. This subspecies of sandhill crane is a year-round resident found throughout the state. The Florida sandhill crane typically inhabits shallow wetland communities and pastures.

No Florida sandhill cranes were observed onsite, and they are not expected to occur within the subject property due to its unsuitable habitat types. There are no natural freshwater marshes, prairies, or pastures onsite that would be likely to support sandhill cranes presence or breeding. Any proposed development of the subject property is not anticipated to have any impact to Florida sandhill cranes.

3.5.12 Gopher tortoise (Gopherus polyphemus)

The gopher tortoise is listed as a threatened species by the FWC. This species prefers upland habitats, particularly xeric scrub communities, and higher-elevation pine flatwoods. They can also be found in disturbed upland areas, including fallow and abandoned agricultural fields, perimeters of active crop fields, and pastures. No gopher tortoise burrows were observed on the subject property.

3.5.13 Red-cockaded woodpecker (Picoides borealis)

The red-cockaded woodpecker (*Picoides borealis;*(referred to in the following as "RCW") is a federally endangered species that typically utilizes mature pine woodlands and savannas. RCWs nest in cavities of mature, large, live pine trees. Stands with developed hardwood midstory are not suitable foraging or nesting habitat. The site area was surveyed for RCW cavities, and none were located onsite. There is one documented, active RCW colony is approximately three miles north of the property in Picayune Strand State Forest. Therefore, a consultation with FWC or FWS

may be required but given the absence of suitable habitat or mature live cavity trees, there is a low probability of occurrence on-site.

3.5.14 Southeastern American kestrel (Falco sparverius Paulus)

The Southeastern American kestrel is a subspecies of the American kestrel. It is a small falcon, which is listed as threatened by the FWC. The American kestrel typically nests in the abandoned cavities of woodpeckers found in dead pine trees. The conversion of open sandhills and pine flatwoods to citrus groves in South Florida has greatly reduced its available nesting and foraging habitats. The presence of southeastern American kestrels can only be confirmed from April to August when northern migrants are not present in Florida. The range of southeastern kestrels does not overlap the subject property; therefore, it is unlikely that the kestrel that was observed on the subject property was a southeastern American kestrel. No incidental take of southeastern kestrels is expected with any possible development of the subject property, but additional surveys may be recommended by FWC to determine whether southeastern kestrels could actually be present or not.

Several cavity trees were observed onsite. The cavity trees onsite appeared to be utilized primarily by red-bellied woodpeckers (*Melanerpes carolinus*) but could serve as potential roosting habitat for kestrels. These cavities will be inspected with a small camera and monitor system prior to any potential construction or exotic removal activity to ensure that they are unoccupied prior to being cut down.

3.5.15 Various Listed Wading Birds

Little blue herons, tricolored herons (*Egretta tricolor)*, roseate spoonbills (*Platalea ajaja*), and wood storks (*Mycteria americana*), are expected to utilize the surface water onsite, and in nearby areas. Only little blue herons were observed onsite. The proposed project is not anticipated to have any negative impact to the adjacent wetlands. No nests of these species have been observed within the project area. White ibis (*Eudocimus albus*) were observed onsite as well. The white ibis was removed from Florida's endangered and threatened species list in 2017, but it is protected by state and federal law, The proposed project is not anticipated to have any impact to any potential onsite nests. Any major development of the project area will result in the loss of onsite agricultural ditches that could potentially be utilized by the aforementioned wading birds. This reduction of foraging habitat could be offset by the creation of stormwater storage or artificial lakes onsite. The project will also preserve and remove invasive vegetation from the existing wooded wetlands onsite, which will further improve potential foraging for wading birds.

3.5.16 Wood stork (Mycteria americana)

The wood stork (*Mycteria americana*) is a large wading bird typically found in forested freshwater and estuarine wetlands in the southeastern United States. Wood storks prefer shallow and fluctuating water levels with low turbidity for foraging. As a result of habitat loss and degradation, the wood stork is listed as Threatened by FWS. No wood stork nests, rookeries, or roosting sites were found on or adjacent to the subject property. Wood storks have been reported

in areas adjacent to the subject property. The closest documented wood stork colony is located approximately 19 miles to the north in the Corkscrew Swamp Sanctuary. The property is located just outside of the 18.6-mile radius of the colony that FWS considers "Core Foraging Area,". Wood storks prefer to feed in flooded wooded areas but will opportunistically feed in drainage ditches. Any major development of the subject area will result in the loss of onsite agricultural ditches that could potentially be utilized by the wood storks. FWS may consider the agricultural ditches on the property as "Suitable Foraging Habitat (SFH)". Any impacts to SFH "may affect" wood storks, which will require FWS consultation. This reduction of foraging habitat could be offset by the creation of artificial lakes onsite. The project will also preserve and enhance the existing forested wetlands onsite, which will further improve potential foraging for wood storks.

3.5.17 Listed Plant Species

According to the USFWS Information for Planning and Consultation (IPaC) services, the only federally listed plant with the potential of occurring in the area is the Florida prairie clover (*Dalea carthagenensis floridana*) which is normally found on pine rocklands or rockland hammocks. No evidence of any federally listed plant species were observed. Several state listed species have the potential of occurring on the site, specifically airplant (Tillandsia) and a few orchid species. No evidence of any of the state listed species was observed. Due the past and ongoing agricultural operations, the likelihood of any listed plant species presence on the property is low.

3.5.18 Florida Black Bear (Ursus americanus floridanus)

The black bear is no longer listed as threatened in the state but project management with respect to the species is needed to minimize the potential for adverse resident-bear interactions. According to FWC's Black Bear Calls Database, there have been 75 bear related calls within 2 miles of the project site over the past 10 years. A black bear management plan will be coordinated with FWC to outline project guidelines that residents will follow to reduce the likelihood of bears entering or being attracted into the neighborhood. Items such ad pet feeding, garbage control, and other potential attractants to bears will be controlled or prohibited within the development.

4 PROJECT CONSISTENCY WITH CCME

The following Section outlines how the project is consistent with the Goals and Objectives of the Collier County Conservation and Coastal Management Element (CCME) of the Growth Management Plan (GMP). Each of the 13 Goals of the CCME is listed along with how that Goal is applicable to the proposed project. For those Goals that are not applicable, no further description is included.

GOAL 1: TO PLAN FOR THE PROTECTION, CONSERVATION, MANAGEMENT, AND APPROPRIATE USE OF THE COUNTY'S NATURAL RESOURCES.

This Goal is more applicable to the County process in general than to any single project. The project has used data available from the County resources to plan the project and protect species, habitats, and resources to the greatest extent practicable.

GOAL 2: TO PROTECT THE COUNTY'S SURFACE AND ESTUARINE WATER RESOURCES.

The project will undergo review by the South Florida Water Management District (SFWMD) as part of the ERP process. The project will also be reviewed by County reviewers during the zoning request. Surface water management, water quality concerns, and outfall quantities and locations will all undergo review and will be consistent with any regional or local Watershed Management Plans. The project stormwater will meet all applicable State and Local water quality criteria.

GOAL 3: TO PROTECT THE COUNTY'S GROUNDWATER RESOURCES TO ENSURE THE HIGHEST WATER QUALITY PRACTICAL.

The project will undergo review by the SFWMD as part of the ERP process for water quality certification. Groundwater extractions for the purposes of irrigation are permitted through SFWMD review. Any irrigation use will be monitored annually to ensure that adverse impacts to groundwater resources are not adversely impacted.

GOAL 4: TO CONSERVE, PROTECT, AND APPROPRIATELY MANAGE THE COUNTY'S FRESHWATER RESOURCES.

The project will undergo review by the SFWMD as part of the ERP process for water quality certification. Groundwater extractions for the purposes of irrigation are permitted through SFWMD review. Any irrigation use will be monitored to ensure that adverse impacts to groundwater resources are not adversely impacted. If applicable and available, the Project may utilize treated effluent (re-use) water for irrigation if such water is available.

GOAL 5: TO PROTECT, CONSERVE, AND APPROPRIATELY USE THE COUNTY'S MINERAL AND SOIL RESOURCES.

No mineral extraction is proposed in association with the proposed project. The project will utilize appropriate BMPs to protect soils on the project site from erosion or disturbance during construction activities. Silt fencing, protective barriers, berms, and swales could all be used during construction activities on the site.

GOAL 6: TO IDENTIFY, PROTECT, CONSERVE, AND APPROPRIATELY USE NATIVE VEGETATIVE COMMUNITIES AND WILDLIFE HABITAT.

The project is required to preserve a minimum of 25% of the existing native habitat on the project site. The proposed site plan currently provides 85% preservation (2.56 of 3.01 acres) of habitats that meet the County definition as native. In addition, the project will preserve an additional 7.88 acres that do not meet the County definition as native in their current state but will be enhanced and restored to native status as a result of the project. In all, the project will preserve 10.44 acres of wetland habitats. All preserves will be maintained to control exotic vegetation per the County code requirements.

GOAL 7: TO PROTECT AND CONSERVE THE COUNTY'S FISHERIES AND WILDLIFE.

The project has conducted a Listed Species Survey over the Project lands. This survey will be updated periodically during the permitting process to ensure that new species do not take up residence on the project lands without knowledge before construction commencement. Coordination and review with the Florida Fish and Wildlife Conservation Commission (FWC) and U.S. Fish & Wildlife Service (FWS) will be undertaken to ensure that potential impacts to state and federally protected species are minimized.

GOAL 8: TO MAINTAIN COLLIER COUNTY'S EXISTING AIR QUALITY

The Project will comply with all applicable State and Federal air quality standards. All site construction equipment will be maintained appropriately in terms of emissions standards and potential air pollution.

GOAL 9: TO APPROPRIATELY MANAGE HAZARDOUS MATERIALS AND WASTE TO PROTECT THE COUNTY'S POPULOUS AND NATURAL RESOURCES AND TO ENSURE THE HIGHEST ENVIRONMENTAL QUALITY.

This Goal is more applicable to County efforts than to individual projects.

GOAL 10: TO PROTECT, CONSERVE, MANAGE, AND APPROPRIATELY USE THE COUNTY'S COASTAL BARRIERS INCLUDING SHORELINES, BEACHES, AND DUNES AND PLAN FOR, AND WHERE APPROPRIATE, RESTRICT ACTIVITIES WHERE SUCH ACTIVITIES WILL DAMAGE COASTAL RESOURCES.

This project will not affect any coastal barriers, dunes, beaches, shorelines, or any other coastal resources.

GOAL 11: TO PROVIDE FOR THE PROTECTION, RESERVATION, AND SENSITIVE RE-USE OF HISTORIC RESOURCES.

The Florida Master Site File (MSF) mapping indicates that there is a known archaeological site located on the property. Further research into the history of the site seems to point to a mistake on the MSF mapping in that the site report shows the actual location to be approximately 500 feet further south than shown and not within the project boundaries. Further coordination with the Department of Historical Resources (DHR) will be undertaken (see Appendix II). It is anticipated that a Phase I archaeological investigation will be required on the property during the State and Federal permitting process.

Should any archaeological evidence be discovered during construction, the development activities at the specific site will be immediately halted and the appropriate agency notified. Development will be suspended for a sufficient length of time to enable the County or a designated consultant to assess the find and determine the proper course of action.

GOAL 12: TO MAKE EVERY REASONABLE EFFORT TO ENSURE THE PUBLIC SAFETY, HEALTH, AND WELFARE OF PEOPLE AND PROPERTY FROM THE EFFECTS OF HURRICANE STORM DAMAGE.

The project is not located within the County's Coastal High Hazard Area. All building construction on the project will be subject to building code regulation and will adhere to construction standards with respect to wind loadings and hurricane protection. On-site construction will have a hurricane preparedness plan outlining steps to follow should a hurricane approach while site construction is under way.

GOAL 13: TO AVOID UNNECESSARY DUPLICATION OF EXISTING REGULATORY PROGRAMS

The Project will undergo review by the SFWMD, FDEP, and FWC. All correspondence and permitting undertaken with these agencies will be provided to the County upon request to assist with County review and minimize duplication of permitting efforts.

5 PHOTOS

Figure 1: View of the Ditch and Citrus Grove communities onsite.

Figure 2: View of the Cypress (Exotics 25-50%) community onsite.

Figure 3: View of the Cypress (Exotics 75-100%) community onsite.

Figure 4: View of the Disturbed Land (Hydric) onsite.

Figure 5: View of the onsite Disturbed Land (Hydric) with the presence of standing water.

Figure 6: A close-up image of the standing water observed in the Disturbed Land (Hydric).

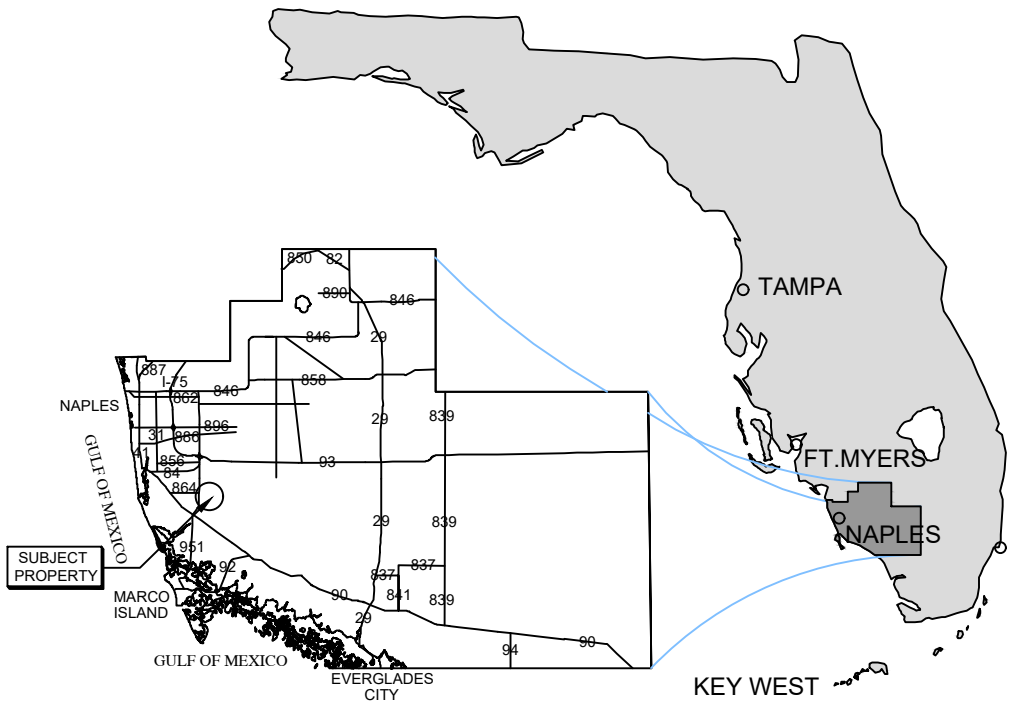
Figure 7: View of the onsite agricultural ditches designated as "Other Surface Waters".

Figure 8: View of the Disturbed Land - Berm onsite.

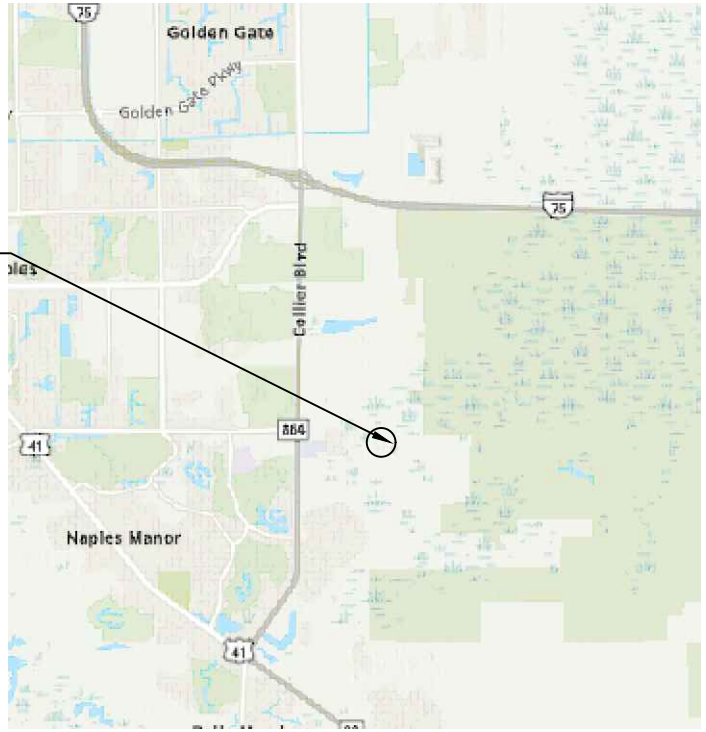
APPENDIX I:
EXHIBITS

p:\23099.00 341 sabal palm rd\CAD\PERMIT-STATE\23099.00-STATE.dwg LOCATION MAP 11/15/2024

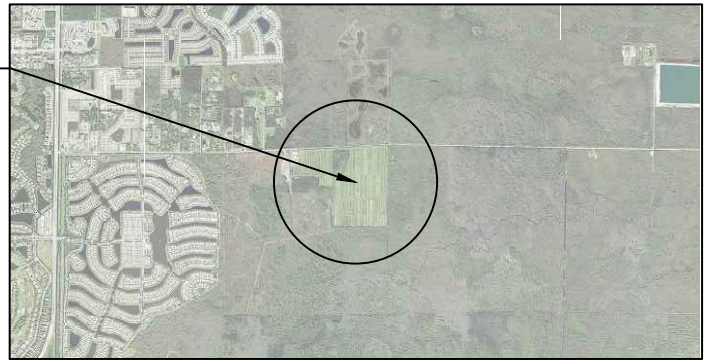
STATE OF FLORIDA



COLLIER COUNTY



VICINITY MAP



COUNTY AERIAL

SITE ADDRESS:
<> 341 SABAL PALM RD
NAPLES, FL 34114

<> LATITUDE: N 26.094201
<> LONGITUDE: W -81.660967

NOTES:
<> THESE DRAWINGS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT INTENDED FOR CONSTRUCTION USE.

Turrell, Hall & Associates, Inc.
Marine & Environmental Consulting
3584 Exchange Ave. Naples, FL 34104-3732
Email: tuna@thanaples.com Phone: (239) 643-0166 Fax: (239) 643-6632

341 SABAL PALM RD

LOCATION MAP

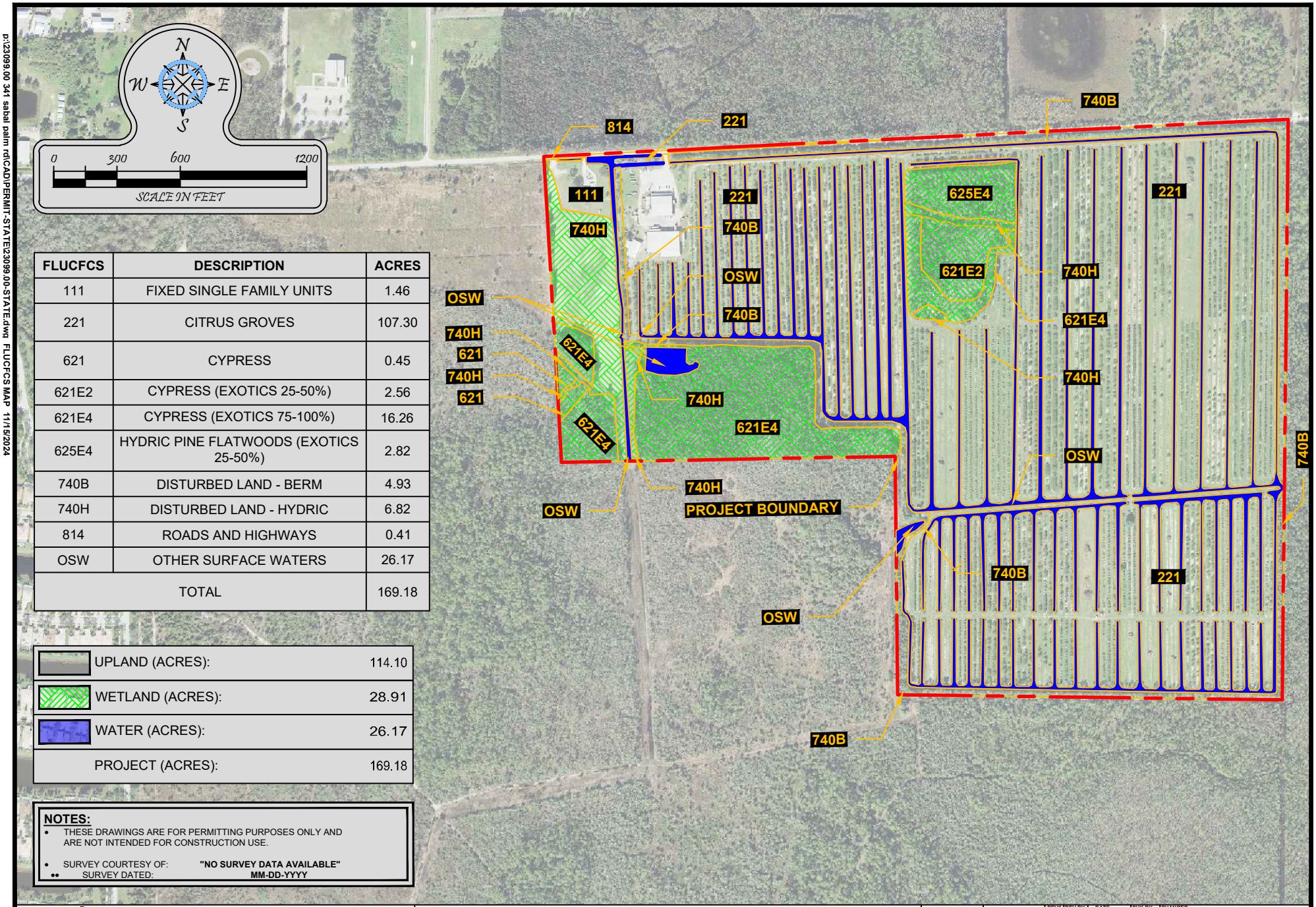
RY NO. 5875

THESE DRAWINGS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT INTENDED FOR CONSTRUCTION USE.

		REV#:	REV BY:	DATE:	CHK BY:	CHANGED:
DESIGNED:	TH	1.	-	-	-	-
DRAWN BY:	RMJ	2.	-	-	-	-
CREATED:	11-15-24	3.	-	-	-	-
JOB NO.:	23099	4.	-	-	-	-
SHEET NO.:	01 OF 06	5.	-	-	-	-

SECTION- 25 TOWNSHIP- 50 S RANGE- 26 E

p:\23099.00 341 sabal palm rd\CAD\PERMIT-STATE\23099.00-STATE.dwg FLUCFCS MAP 11/15/2024



FLUCFCS	DESCRIPTION	ACRES
111	FIXED SINGLE FAMILY UNITS	1.46
221	CITRUS GROVES	107.30
621	CYPRESS	0.45
621E2	CYPRESS (EXOTICS 25-50%)	2.56
621E4	CYPRESS (EXOTICS 75-100%)	16.26
625E4	HYDRIC PINE FLATWOODS (EXOTICS 25-50%)	2.82
740B	DISTURBED LAND - BERM	4.93
740H	DISTURBED LAND - HYDRIC	6.82
814	ROADS AND HIGHWAYS	0.41
OSW	OTHER SURFACE WATERS	26.17
TOTAL		169.18

UPLAND (ACRES):	114.10
WETLAND (ACRES):	28.91
WATER (ACRES):	26.17
PROJECT (ACRES):	169.18

NOTES:

- THESE DRAWINGS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT INTENDED FOR CONSTRUCTION USE.
- SURVEY COURTESY OF: **"NO SURVEY DATA AVAILABLE"**
- SURVEY DATED: **MM-DD-YYYY**

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341 SABAL PALM RD

FLUCFCS MAP

RY NO. 5875

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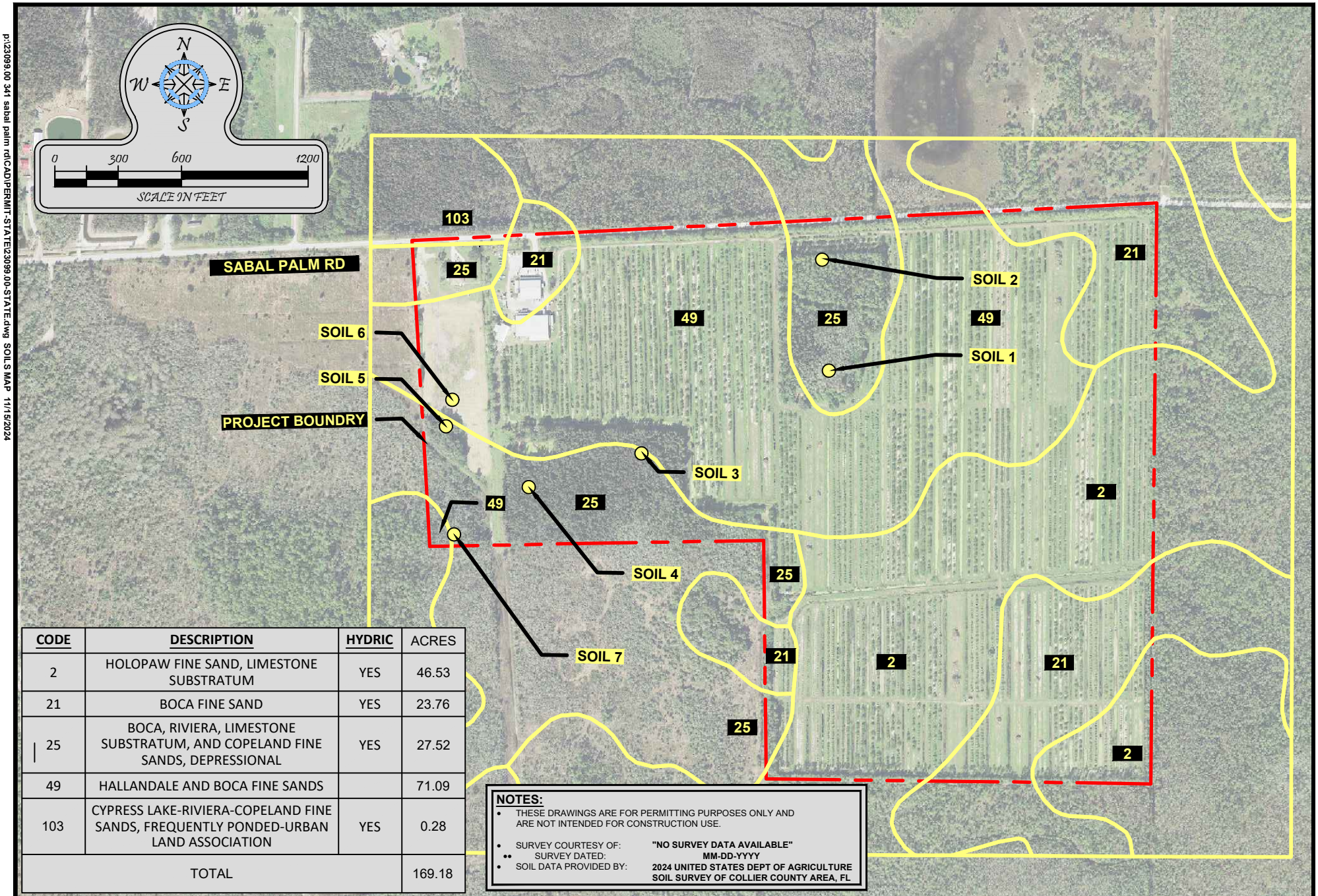
		REV#:	REV BY:	DATE:	CHK BY:	CHANGED:
DESIGNED:	TH	1.	-	-	-	-
DRAWN BY:	RMJ	2.	-	-	-	-
CREATED:	11-15-24	3.	-	-	-	-
JOB NO.:	23099	4.	-	-	-	-
SHEET NO.:	02 OF 06	5.	-	-	-	-

SECTION- 25 TOWNSHIP- 50S RANGE- 26E

p:\23099.00 341 sabal palm rd\CAD\PERMIT-STATE\23099.00-STATE.dwg SOILS MAP 11/15/2024



CODE	DESCRIPTION	HYDRIC	ACRES
2	HOLOPAW FINE SAND, LIMESTONE SUBSTRATUM	YES	46.53
21	BOCA FINE SAND	YES	23.76
25	BOCA, RIVIERA, LIMESTONE SUBSTRATUM, AND COPELAND FINE SANDS, DEPRESSIONAL	YES	27.52
49	HALLANDALE AND BOCA FINE SANDS		71.09
103	CYPRESS LAKE-RIVIERA-COPELAND FINE SANDS, FREQUENTLY PONDED-URBAN LAND ASSOCIATION	YES	0.28
TOTAL			169.18

NOTES:

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- SURVEY COURTESY OF: "NO SURVEY DATA AVAILABLE"
- SURVEY DATED: MM-DD-YYYY
- SOIL DATA PROVIDED BY: 2024 UNITED STATES DEPT OF AGRICULTURE SOIL SURVEY OF COLLIER COUNTY AREA, FL

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341 SABAL PALM RD

SOILS MAP

RY NO. 5875

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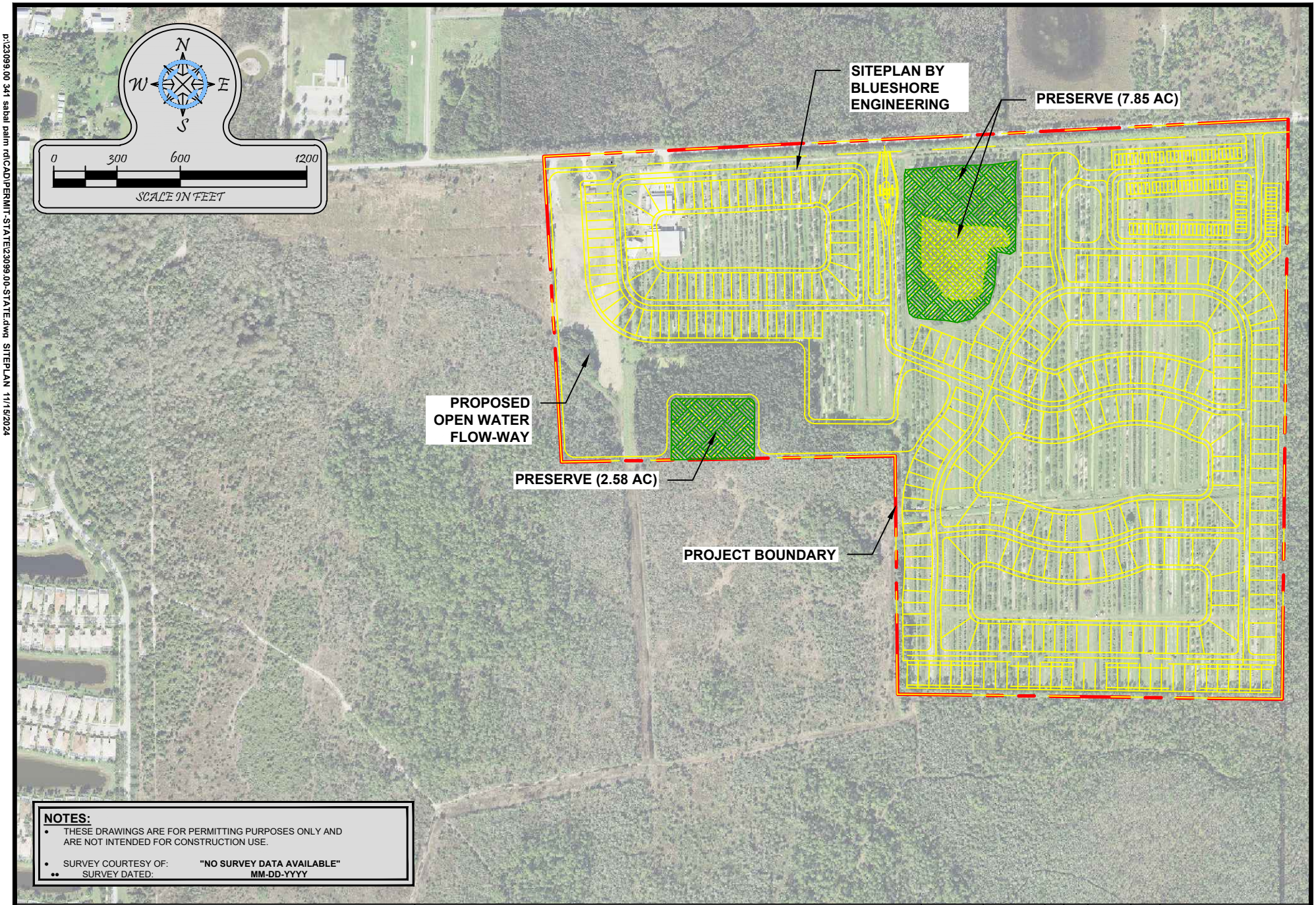
		REV#	REV BY:	DATE:	CHK BY:	CHANGED:
DESIGNED:	TH	1.	-	-	-	-
DRAWN BY:	RMJ	2.	-	-	-	-
CREATED:	11-15-24	3.	-	-	-	-
JOB NO.:	23099	4.	-	-	-	-
SHEET NO.:	03 OF 06	5.	-	-	-	-

SECTION-25 TOWNSHIP-50S RANGE-26E

p:\23099.00 341 sabal palm rd\CAD\PERMIT-STATE\23099.00-STATE.dwg SITEPLAN 11/15/2024



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- SURVEY DATED: **MM-DD-YYYY**

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341 SABAL PALM RD

SITEPLAN

RY NO. 5875

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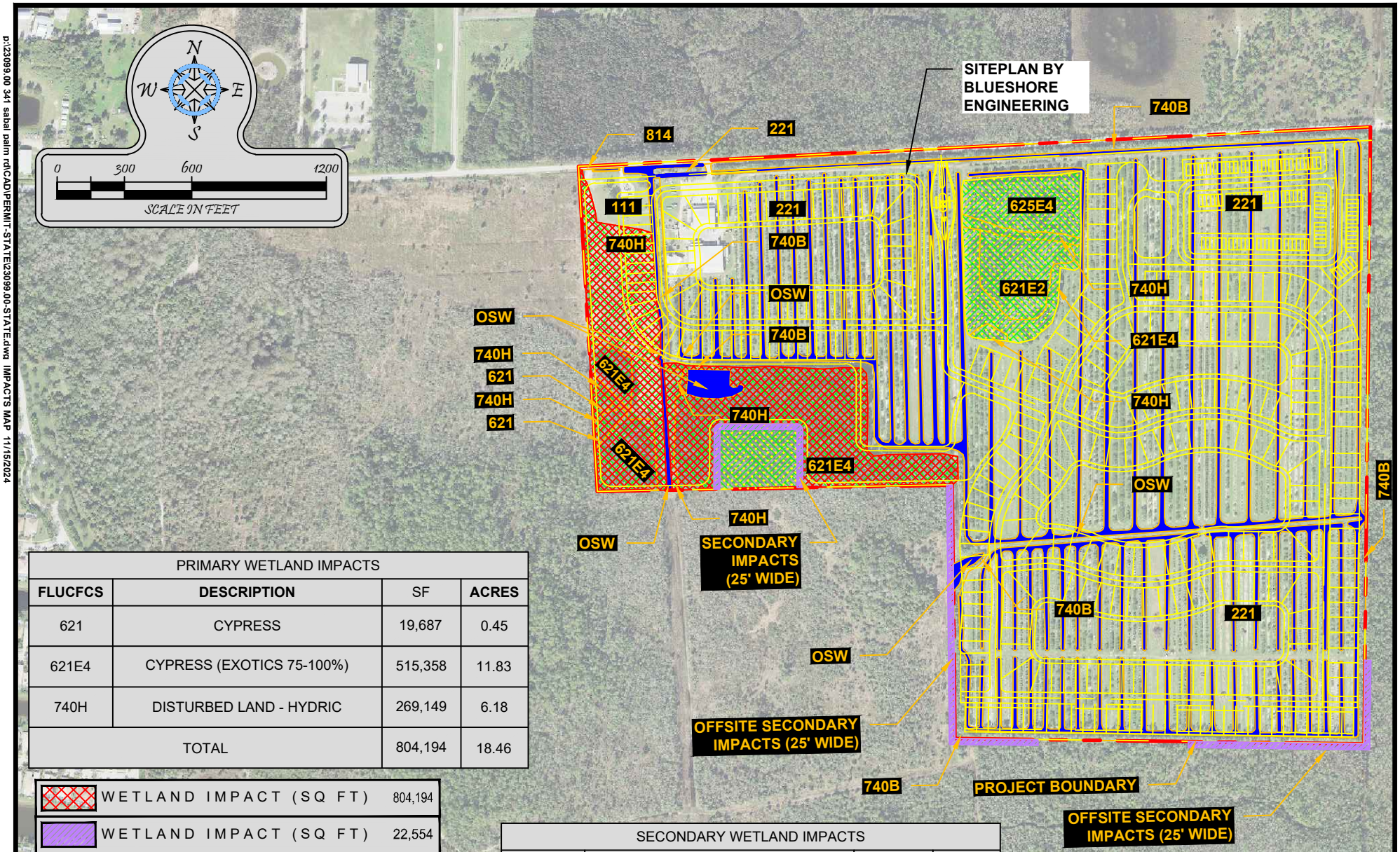
		REV#:	REV BY:	DATE:	CHK BY:	CHANGED:
DESIGNED:	TH	1.	-	-	-	-
DRAWN BY:	RMJ	2.	-	-	-	-
CREATED:	11-15-24	3.	-	-	-	-
JOB NO.:	23099	4.	-	-	-	-
SHEET NO.:	04 OF 06	5.	-	-	-	-

SECTION- 25 TOWNSHIP- 50 S RANGE- 26 E

p:\23099.00 341 sabal palm rd\CAD\PERMIT-STATE\23099.00-STATE.dwg IMPACTS MAP 11/15/2024



PRIMARY WETLAND IMPACTS			
FLUCFCS	**DESCRIPTION**	SF	**ACRES**
621	CYPRESS	19,687	0.45
621E4	CYPRESS (EXOTICS 75-100%)	515,358	11.83
740H	DISTURBED LAND - HYDRIC	269,149	6.18
TOTAL		804,194	18.46

WETLAND IMPACT (SQ FT) 804,194

WETLAND IMPACT (SQ FT) 22,554

NOTES:

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- SURVEY DATED: **MM-DD-YYYY**

SECONDARY WETLAND IMPACTS			
FLUCFCS	**DESCRIPTION**	SF	**ACRES**
621E4	CYPRESS (EXOTICS 50-75%)	22,554	0.52
OFFSITE	OFFSITE	68,834	1.58

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341 SABAL PALM RD

IMPACTS MAP

RY NO. 5875

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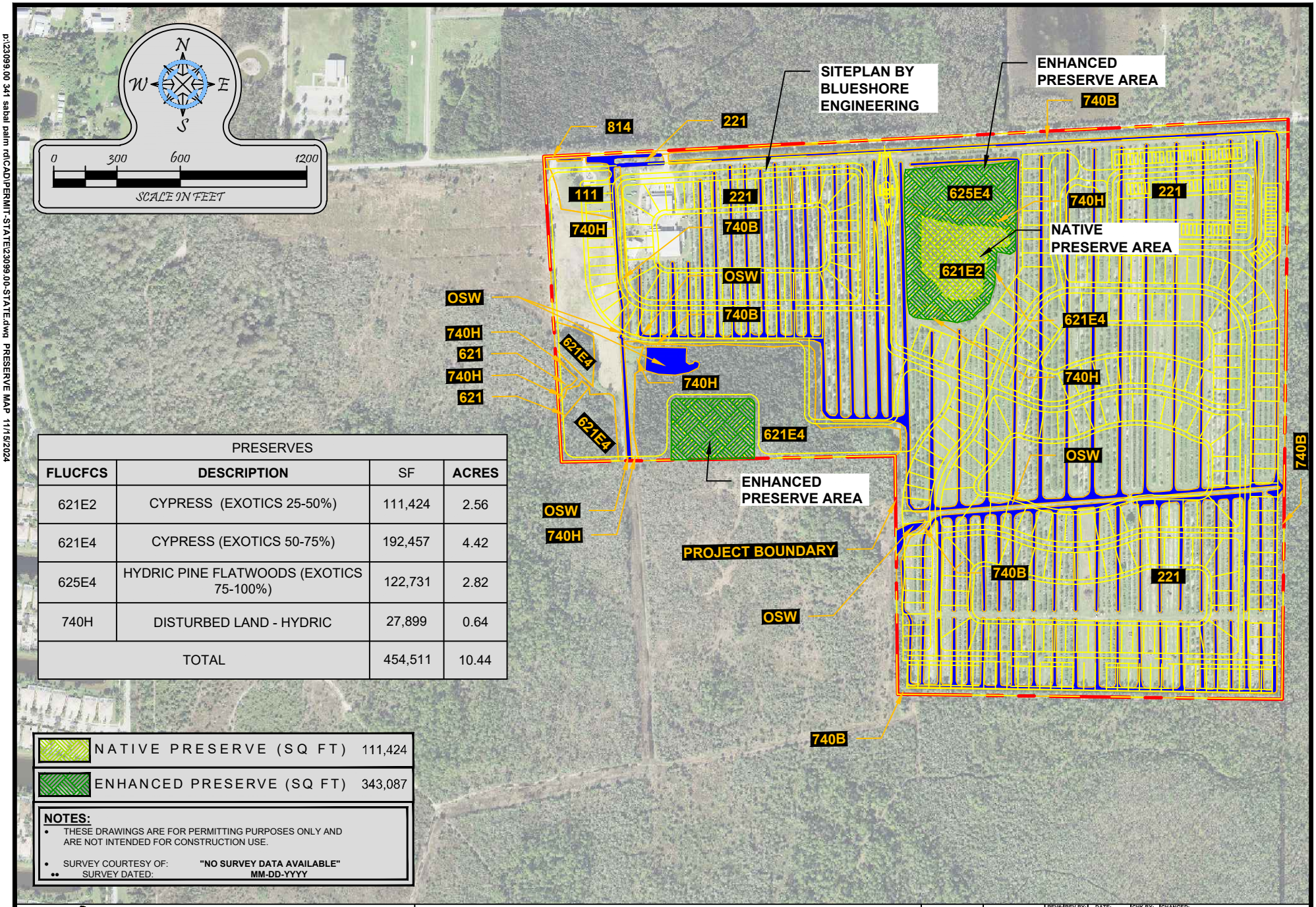
		REV#:	REV BY:	DATE:	CHK BY:	CHANGED:
DESIGNED:	TH	1.	-	-	-	-
DRAWN BY:	RMJ	2.	-	-	-	-
CREATED:	11-15-24	3.	-	-	-	-
JOB NO.:	23099	4.	-	-	-	-
SHEET NO.:	05 OF 06	5.	-	-	-	-

SECTION- 25 TOWNSHIP- 50S RANGE- 26E

p:\23099.00 341 sabal palm rd\CAD\PERMIT-STATE\23099.00-STATE.dwg PRESERVE MAP 11/15/2024



PRESERVES			
FLUCFCS	**DESCRIPTION**	SF	**ACRES**
621E2	CYPRESS (EXOTICS 25-50%)	111,424	2.56
621E4	CYPRESS (EXOTICS 50-75%)	192,457	4.42
625E4	HYDRIC PINE FLATWOODS (EXOTICS 75-100%)	122,731	2.82
740H	DISTURBED LAND - HYDRIC	27,899	0.64
TOTAL		454,511	10.44

NATIVE PRESERVE (SQ FT)	111,424
ENHANCED PRESERVE (SQ FT)	343,087

NOTES:

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- SURVEY DATED: **MM-DD-YYYY**

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3584 Exchange Ave. Naples, FL 34104-3732
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341 SABAL PALM RD

PRESERVE MAP

RY NO. 5875

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		REV#:	REV BY:	DATE:	CHK BY:	CHANGED:
DESIGNED:	TH	1.	-	-	-	-
DRAWN BY:	RMJ	2.	-	-	-	-
CREATED:	11-15-24	3.	-	-	-	-
JOB NO.:	23099	4.	-	-	-	-
SHEET NO.:	06 OF 06	5.	-	-	-	-

SECTION- 25 TOWNSHIP- 50S RANGE- 26E

APPENDIX II:
LISTED SPECIES SUMMARY

LISTED SPECIES SURVEY REPORT

341 SABAL PALM ROAD
NAPLES, FL 34114

SEPTEMBER 2024

Prepared by:

TURRELL, HALL & ASSOCIATES, INC.
Marine & Environmental Consulting
PHONE: 239-643-0166 WWW.THANAPLES.COM

Table of Contents

1 INTRODUCTION

Turrell, Hall & Associates, Inc. (THA) has conducted a listed species survey at 341 Sabal Palm Road in Naples, Florida 34114, located within Section 25, Township 50 S, Range 26 E, in Collier County. The parcel can be identified by Folio No. 00438400007 and totals approximately 169.18 acres in size.

The property has been in active citrus production for several decades. Periodic mowing around the citrus trees is done to keep vegetation down, and hydrology is controlled via pumps and an internal ditch system.

The purpose of this report is to provide a summary of wildlife observations on the property and to consider potential effects of the proposed project on any local, state, or federal listed species that may utilize the property for feeding, foraging, or nesting.

2 METHODOLOGY

Prior to any wildlife survey, careful consideration is given to the habitat types in question and species that are known to utilize such areas. Prior to conducting any survey, several publications and references are consulted. These include The Official List of Florida's Endangered Species, Florida's Endangered and Threatened Species (dated December 2022), Florida's Imperiled Species Management Plan, Florida Fish and Wildlife Conservation Commission (FWC) Species Conservation Measures and Permitting Guidelines, the Florida Natural Areas Inventory (FNAI), and Collier County aerial photography.

The basic objective of any wildlife survey is to obtain evidence that wildlife species are utilizing the subject site. This site may be comprised of a primary or secondary foraging zone, a nesting zone, or merely be adjacent to those sites with regard to a particular listed species. As many listed species in Florida are cryptic and/or nocturnal, patience and sufficient time must be devoted to the survey.

Aerial photography and the Florida Land Use, Cover, and Forms Classification System (FLUCFCS) maps of the site and surrounding area were consulted before arriving on-site. After thorough consideration of the property location and existing habitats, a potential list of species that could be found on-site was developed. The required survey procedure for each species was then followed to determine if any listed species was utilizing the subject property.

A system of linear transects was followed throughout the subject area in the early morning, afternoon, and dusk hours, thus allowing for the proper protocols for surveying wading birds, fox squirrels, gopher tortoises, and other anticipated or potential species that could occur on the project lands. THA Qualified biologists traversed the entire site in a series of linear transects spaced approximately 20 to 100 feet apart depending on the habitat type and density. Much of the site is relatively open space under citrus trees, which is periodically mown, thus allowing for open visibility during most of the surveying efforts. Where the site was not mown and the canopy was dense, transects were spaced closer together.

A visual inspection of trees was also conducted to search for squirrel day beds, red-cockaded woodpecker (RCW) cavities, and potential Florida bonneted bat roosts. Evidence of protected plants was also searched for along transect lines. Indirect evidence such as rooting, scrape marks, nests, cavities, burrows, tracks, and scat were looked for and noted. Once cavity or nest trees are located, they are marked with a handheld GPS for further investigation prior to clearing. In addition, the approximate sighting location of any listed species is noted on the survey aerial.

3 PRELIMINARY RESEARCH

Prior to field investigations, aerial photos, soil maps, and prior mapping for the Sabal Palm Road property were reviewed to identify the various vegetation associations that are present on and adjacent to the project area. Various publications and databases were reviewed to identify listed plant and wildlife species that could occur and those that had been previously documented on or near the project site and also to gather information concerning listed species.

Based on the habitat types that were identified, existing knowledge of the project area, contacts with other consultants, and review of publications and databases, a preliminary list of listed plant and animal species with the potential to occur within or near the project area was determined.

As used herein, the term "listed animal or plant species" refers to those plants and animals listed as endangered or threatened by the U.S. Fish and Wildlife Service (FWS) or the FWC. THA wildlife and listed species surveys were supplemented by research concerning listed species. The following subsections document these efforts and their results. A list of listed species that could potentially utilize the subject property can be found below in Table 1.

Table 1: Potential Threatened and Endangered Species

Common Name	Scientific Name	Status
American alligator	*Alligator mississippiensis*	FT (S/A)
Audubon's crested caracara	*Polyborus plancus audubonii*	FT
Big cypress fox squirrel	*Sciurus niger avicennia*	ST
Eastern indigo snake	*Drymarchon couperi*	FT
Everglade snail kite	*Rostrhamus sociabilis plumbeus*	FE
Everglades mink	*Neovison vison evergladensis*	ST
Florida bonneted bat	*Eumops floridanus*	FE
Florida burrowing owl	*Athene cunicularia floridana*	ST
Florida panther	*Puma concolor coryi*	FE
Florida sandhill crane	*Antigone canadensis pratensis*	ST
Gopher tortoise	*Gopherus polyphemus*	ST
Little blue heron	*Egretta caerulea*	ST
Red-cockaded woodpecker	*Picoides borealis*	FE
Roseate spoonbill	*Platalea ajaja*	ST
Sherman's short-tailed shrew	*Blarina carolinensis shermani*	ST
Southeastern American kestrel	*Falco sparverius paulus*	ST
Tricolored heron	*Egretta tricolor*	ST
Wood stork	*Mycteria americana*	FT
Florida Prairie Clover	*Dalea carthagenensis* var *floridana*	FE

FE = Federally Endangered FT = Federally Threatened ST = State Threatened
FT (S/A) = Federally designated Threatened species due to similarity of appearance

4 EXISTING CONDITIONS

The subject parcel is located south of Sabal Palm Road, with undeveloped preserve and State Forest lands surrounding the property. The property is bordered by the Picayune Strand State Forest on part of its eastern boundary. The Sabal Palm Road subject property encompasses approximately 169.18 acres, including 114.1 acres of uplands, 28.91 acres of wetland habitats, and 26.17 acres of other surface waters. Currently, the majority of the subject property is utilized as an orange grove, with a small store and single-family residence present as well. A large portion of the upland community on the property has been impacted by anthropogenic activities associated with agricultural maintenance. Additionally, there is a disturbed wetland area featuring an intense recruitment of exotic and invasive vegetation, likely due to prior anthropogenic activities and the past and ongoing agricultural activities of the area in general.

The Florida Land Use, Cover, and Forms Classification System (FLUCFCS) manual was used to classify all the vegetative communities occurring within the site boundaries. The FLUCFCS exhibit attached to the Environmental Assessment report shows the subject property together with its vegetative cover and depicts the approximate limits of the wetland and upland areas. A general description is provided below in Table 2. More detailed descriptions of the various vegetative communities and any site specific nuances can be found in the relative Environmental Assessment report.

Table 2: FLUCFCS Codes and Descriptions

FLUCFCS Code	Description	Acres	Jurisdictional Wetlands
111	Fixed Single Family Units	1.46	No
221	Citrus Groves	107.30	No
621	Cypress	0.45	Yes
621E2	Cypress (Exotics 25-50%)	2.56	Yes
621E4	Cypress (Exotics 75-100%)	16.26	Yes
625E4	Hydric Pine Flatwoods (Exotics 25-50%)	2.82	Yes
740B	Disturbed Land - Berm	4.93	No
740H	Disturbed Land (Hydric)	6.82	No
814	Roads and Highways	0.41	No
OSW	Other Surface Waters	26.17	Yes
	Total:	**169.18**	**55.08**

5 RESULTS

During the initial surveys conducted on-site, THA biologists recorded sightings of four listed species. The subject property was surveyed for a total of 52.87 hours. The most recent update added another 13 hours to the survey effort. A summary of survey times and weather on site is displayed below in Table 3.

Table 3: Summary of Survey Efforts

Date	Start	End	Observers	Survey Hours	Temp. (F)	Cloud Cover	Precip. (In.)	Wind (mph)
09/06/2023	08:31	17:00	2	16.63	81	45%	0	4 ESE
09/07/2023	08:07	17:30	2	18.77	91	10%	0	3 W
09/12/2023	07:21	11:00	2	7.30	79	20%	0	Calm
09/21/2023	08:55	09:55	1	1.00	75	0%	0	6 ENE
09/21/2023	07:55	09:55	1	2.00	75	0%	0	6 ENE
10/04/2023	07:44	13:00	1	5.27	75	5%	0	7 NE
10/12/2023	17:11	19:05	1	1.90	88	60%	0	13 SE
08/23/2024	16:00	20:00	1	4.00	90	10%	0	5 NW
08/30/2024	06:00	09:00	1	3.00	72	25%	0	5 N
09/04/2024	06:15	09:30	1	3.25	73	10%	0	Calm

5.1 LISTED SPECIES OBSERVED ONSITE

Four listed species were observed onsite by THA biologists. The nature, location, and frequency of these observations are explained below.

5.1.1 American alligator (Alligator mississippiensis)

Several American alligators were observed on-site utilizing the agricultural ditches associated with the citrus farm on the subject property. Alligators were observed on multiple days, including juvenile alligators that were seen in the canals to the south of the farm store.

5.1.2 Big Cypress fox squirrel (Sciurus niger avicennia)

A single Big Cypress fox squirrel was observed on the property on September 6, 2023, foraging on citrus fruits on the ground on the eastern edge of the property. The squirrel then crossed the eastern canal into the Picayune Strand State Forest.

5.1.3 Little blue heron (Egretta caerulea)

Several species of wading birds were observed on the subject property, one of which is state-threatened: the little blue heron. Little blue herons were observed on all surveys and throughout the agricultural land in the subject property.

5.1.4 Southeastern American kestrel (Falco sparverius paulus)

An American kestrel was observed on October 12, 2023, foraging from citrus trees located in the center of the subject property. Although it could be possible, it is unlikely that the kestrel that was seen was a southeastern American kestrel (*Falco sparverius paulus*).

5.2 SPECIES OBSERVED ONSITE

While surveying the subject property for listed species, biologists recorded sightings and signs of non-listed wildlife in addition to the listed species. All wildlife observed on or adjacent to the project site is displayed below in Table 4.

Table 4: List of Species Observed Onsite

Common Name	Scientific Name	Status
Amphibians		
Pig frog	*Lithobates grylio*	
Reptiles		
American alligator	*Alligator mississippiensis*	FT (S/A)
Brown anole	*Anolis sagrei*	Non-native
Black racer	*Coluber constrictor*	
Peninsula cooter	*Pseudemys peninsularis*	
Mammals		
Big Cypress fox squirrel	*Sciurus niger avicennia*	ST
Grey squirrel	*Sciurus carolinensis*	
White-tailed deer	*Odocoileus virginianus*	
Wild hog	*Sus scrofa*	Non-Native
Birds		
American kestrel	*Falco sparverius*	
Bank swallow	*Riparia riparia*	
Barn swallow	*Hirundo rustica*	
Belted kingfisher	*Megaceryle alcyon*	
Black-bellied whistling-duck	*Dendrocygna autumnalis*	
Blue jay	*Cyanocitta cristata*	
Blue-gray Gnatcatcher	*Polioptila caerulea*	
Boat-tailed Grackle	*Quiscalus major*	
Brown thrasher	*Toxostoma rufum*	
Carolina wren	*Thryothorus ludovicianus*	
Common grackle	*Quiscalus quiscula*	
Common ground dove	*Columbina passerina*	
Common yellowthroat	*Geothlypis trichas*	
Eastern bluebird	*Sialia sialis*	

Eastern phoebe	*Sayornis phoebe*	
Fish crow	*Corvus ossifragus*	
Gray catbird	*Dumetella carolinensis*	
Great crested flycatcher	*Myiarchus crinitus*	
Great egret	*Ardea alba*	
Green heron	*Butorides virescens*	
Killdeer	*Charadrius vociferus*	
Little blue heron	*Egretta caerulea*	ST
Loggerhead shrike	*Lanius ludovicianus*	
Mourning dove	*Zenaida macroura*	
Northern cardinal	*Cardinalis cardinalis*	
Northern flicker	*Colaptes auratus*	
Northern mockingbird	*Mimus polyglottos*	
Osprey	*Pandion haliaetus*	
Pileated woodpecker	*Dryocopus pileatus*	
Prairie warbler	*Setophaga discolor*	
Red-bellied woodpecker	*Melanerpes carolinus*	
Red-shouldered hawk	*Buteo lineatus*	
Rock pigeon	*Columba livia*	*Non-native*
Turkey vulture	*Cathartes aura*	
White ibis	*Eudocimus albus*	
White-eyed vireo	*Vireo griseus*	
Wild turkey	*Meleagris gallopavo*	

FE = Federally Endangered FT = Federally Threatened ST = State Threatened FT (S/A) = Federally designated Threatened species due to similarity of appearance

6 DISCUSSION

6.1 PROPOSED PROJECT

The proposed project includes the development of a mixed single and multi-family home residential project which includes two separate preserve areas which will be enhanced as a result of the project. The project also includes an open water flow-way that will help to treat the on-site stormwater generated by the project as well as provide conveyance across the property for waters originating on the north side of Sabal Palm Road. There are currently 2 pipes and a ditch which serve this purpose. The remaining development including the proposed lakes will take place in the disturbed and agricultural lands.

The 170.10169.18-acre site is comprised of 114.1 acres of upland, 28.91 acres of wetlands, and 26.17 acres of other surface waters. The majority of the property consists of citrus grove or disturbed land. The remaining vegetated areas on-site are dominated by exotic and nuisance species. The proposed development will result in the enhancement of wetlands on the subject property in association with extensive exotic removal.

6.2 PROPOSED IMPACTS TO POTENTIAL AND OBSERVED LISTED SPECIES

6.2.1 American alligator (Alligator mississippiensis)

Though the American alligator is no longer considered endangered, it is currently listed as federally threatened due to its similarity in appearance to the American crocodile (*Crocodylus acutus*). Several alligators were observed in the agricultural ditches on the subject property. Any development that results in the removal of the agricultural ditches could affect alligators on-site. These effects could be offset with the inclusion of other alligator habitats onsite, such as the proposed flow-way and stormwater lakes. Any potential development should include a protection plan to help avoid and minimize direct impacts to individual alligators and alligator nests.

6.2.2 Audobons's crested caracara (Polyborus plancus audubonii)

Audubon's' crested caracara (*Polyborus plancus audubonii*) is a subspecies of the crested caracara (*Polyborus plancus*) that inhabits peninsular Florida. Audubon's' crested caracara (hereinafter referred to as "caracara") prefers native rangeland and unimproved pasture for foraging. Caracara prefer cabbage palms for nesting surrounded by habitats with low-ground cover and shrubby vegetation. Any potential development of the subject property is not expected to impact caracara foraging or nesting. However, the project is not within the USFWS consultation area for Caracaras so additional survey effort requirements are not expected.

6.2.3 Bald Eagle (Haliaeetus leucocephalus)

While no longer a listed species, state or federally, the bald eagle (*Haliaeetus leucocephalus*) is still protected by state rule 68A-16.002, F.A.C., and federal laws (Migratory Bird Treaty Act of 1918 and the Bald and Golden Eagle Protection Act of 1940). An incidental take permit may be needed for activities taking place within 660 feet of an eagle nest during the breeding season (October 1 – May 15). No eagle nests were observed on or adjacent to the subject property during surveys. One active nest (CO060) is located approximately 1.6 miles from the subject property and a recently destroyed nest (CO060a) is located approximately 1.67 miles from the subject property. No state or federal permitting will be required for eagle nests in regard to this subject property.

6.2.4 Big Cypress fox squirrel (Sciurus niger avicennia)

The Big Cypress fox squirrel (BCFS) is a subspecies of the eastern fox squirrel (*Sciurus niger*). It is listed as threatened on the Florida Endangered and Threatened Species List due to suitable habitat loss, degradation, and fragmentation. Optimal habitat conditions for BCFS are dependent on the presence of appropriate trees for nest sites, abundant year-round food resources, and an open understory with little or no bushes, or shrub layer present. Squirrel nests were observed on the subject property, and one fox squirrel was seen foraging on the eastern edge of the site. Grey squirrels (*Sciurus carolinensis)* were also seen throughout the wooded areas of the property. There is no planned impact to the areas containing squirrel nests, but additional monitoring may be required to confirm BCFS occupancy of the site and avoidance of any active nests during the construction activities.

6.2.5 Eastern indigo snake (Drymarchon couperi)

The Eastern indigo snake (*Drymarchon couperi*) is listed as federally threatened. Generally, this species lives and hunts in a wide variety of habitats and its territory can cover large areas. It can be associated with gopher tortoise burrows (as a commensal) and favors pine flatwoods, palmetto prairies, and scrub habitats as well as wetland edges. It is relatively reclusive in nature and is rarely observed in the wild. Immediately prior to construction on the subject property, an eastern indigo snake survey will be needed to ensure they are not utilizing areas where large equipment will be used. No eastern indigo snakes have been observed onsite. However, indigo snakes could theoretically frequent parts of the property. Special construction guidelines to protect the indigo snake will have to be followed by construction personnel during all phases of construction work performed onsite.

6.2.6 Everglade snail kite (Rostrhamus sociabilis plumbeus)

The Everglade snail kite (*Rostrhamus sociabilis plumbeus)* is a subspecies of the snail kite (*Rostrhamus sociabilis)* that inhabits Florida, Cuba, and northwestern Honduras. The Everglade snail kite is listed as federally endangered by FWS. The principal threat to the Everglade snail kite is the loss, degradation, and fragmentation of wetland habitats. The project is not located within the critical habitat of the Everglades snail kite. No snail kites were observed in or adjacent to the subject property, but sightings have been documented of snail kites in the adjacent

Picayune Strand State Forest. Snail kite foraging habitat typically consists of clear and calm marsh habitats with interspersed open water and shallow water areas. These areas may contain sparse low trees but must be relatively clear and open to allow foraging of apple snail species (*Pomacea* spp.), which is the snail kites' main food source. Since such areas are not present on the subject property, no effect on suitable foraging habitat is expected with any potential development.

6.2.7 Everglades mink (Neovison vison evergladensis)

The Everglades mink (*Neovison vison evergladensis)* is a subspecies of the American mink *(Neovison vison),* which historically occurred in the Everglades, Big Cypress area, and Lake Okeechobee area. The Everglades mink is a cryptic mammalian predator in the weasel family that is listed as threatened by FWC. Although the understanding of their current distribution is limited, they do occur in Collier County and presumably could be using the subject property or adjacent areas. Everglades mink rely on a variety of wetland habitats, and therefore any actions that degrade, impair, or fragment suitable wetland habitats could affect the species. The proposed project occurs within citrus agricultural land and is thus unlikely to have any effects on the Everglades mink.

6.2.8 Florida bonneted bat (Eumops floridanus)

The Florida bonneted bat (*Eumops floridanus*) is a federally endangered bat species that utilizes relatively open terrestrial and freshwater areas as foraging habitat and as a source of drinking water. Their roosting habitat includes forests or other areas with suitable roost structures (tree snags, trees with cavities, artificial cavities, etc.). Several cavity trees were observed on site. The cavity trees onsite appeared to be used primarily by red-bellied woodpeckers (*Melanerpes carolinus*) but could serve as potential roosting habitat for bonneted bats. These cavities will be inspected with a small camera and monitor system prior to construction to ensure that they are unoccupied prior to being cut down. The subject property is located within the Florida Bonneted Bat Consultation Area and contains potential roosting and foraging habitat. Consultation and monitoring will be required to further assess the impact of any development of the subject property on the Florida bonneted bat.

6.2.9 Florida burrowing owl (Athene cunicularia floridana)

The Florida burrowing owl (*Athene cunicularia floridana*) is a subspecies of the burrowing owl (*Athene cunicularia*) that occurs in Florida. It is a small, long-legged owl that uses burrows year-round for breeding and roosting. It is listed by FWC as threatened. Burrowing owls prefer well-drained sandy soil with low vegetation height, typically native dry prairies. No burrowing owls were observed on the subject property or adjacent areas. Potential development to the property is unlikely to result in any impact to Florida burrowing owls.

6.2.10 Florida panther (Puma concolor coryi)

The Florida panther (*Puma concolor coryi*) is a federally endangered species that utilizes habitat across Southern Florida, mainly south of the Caloosahatchee River. Panthers require large,

remote, and undeveloped areas and are rarely seen in more developed areas, such as the subject property. No panthers or signs of panthers were observed during surveys. The property is included in the Primary Florida Panther Focus Area, which is defined as "All lands essential for the survival of the Florida panther in the wild".

The FWS has established panther Habitat Suitability Values (HSVs) for various types of habitats with scores (values) ranging from 0 (no value) to 9.5 (optimal value). When the acreage of a given habitat type (polygon) is multiplied by this habitat's HSV, the result is termed the Panther Habitat Unit value or PHU value. Based on the existing habitat types that are present, the total HSVs for the subject property range from 0 (open water and urban) to 4.7 (orchards/groves) and to 9.5 (pine forest).

Any potential development will require coordination with the FWC and FWS to address the potential impacts to Florida panthers and their potential habitats. The specific details of any potential project's panther mitigation program shall be coordinated with the wildlife agencies as a part of the permitting process. The applicant shall ensure that the compensation value of off-site compensation combined with the compensation value of any on-site preserved lands will be at least equal to, if not greater than, the current PHU value of the undeveloped citrus lands. Any other measures deemed necessary by the FWS to ensure adequate protection of panthers shall also be addressed by the applicant during the consultation process during which, the applicant shall also coordinate panther issues with the FWC. It is anticipated that the proposed project is not likely to adversely affect the Florida panther.

6.2.11 Florida sandhill crane (Antigone canadensis pratensis)

The Florida sandhill crane (*Antigone canadensis pratensis*) is listed as threatened by the FWC. This subspecies of sandhill crane is a year-round resident found throughout the state. The Florida sandhill crane typically inhabits shallow wetland communities and pastures.

No Florida sandhill cranes were observed onsite, and they are not expected to occur within the subject property due to its unsuitable habitat types. There are no natural freshwater marshes, prairies, or pastures onsite that would be likely to support sandhill cranes presence or breeding. Any proposed development of the subject property is not anticipated to have any impact to Florida sandhill cranes.

6.2.12 Gopher tortoise (Gopherus polyphemus)

The gopher tortoise is listed as a threatened species by the FWC. This species prefers upland habitats, particularly xeric scrub communities, and higher-elevation pine flatwoods. They can also be found in disturbed upland areas, including fallow and abandoned agricultural fields, perimeters of active crop fields, and pastures. No gopher tortoise burrows were observed on the subject property.

6.2.13 Red-cockaded woodpecker (Picoides borealis)

The red-cockaded woodpecker (*Picoides borealis;*(referred to in the following as "RCW") is a federally endangered species that typically utilizes mature pine woodlands and savannas. RCWs nest in cavities of mature, large, live pine trees. Stands with developed hardwood midstory are not suitable foraging or nesting habitat. The site area was surveyed for RCW cavities, and none were located onsite. There is one documented, active RCW colony is approximately three miles north of the property in Picayune Strand State Forest. Therefore, a consultation with FWC or FWS may be required but given the absence of suitable habitat or mature live cavity trees, there is a low probability of occurrence on-site.

6.2.14 Sherman's short-tailed shrew (Blarina carolinensis shermani)

The Sherman's short-tailed shrew (SSTS) is a state-designated threatened subspecies of the Southern short-tailed shrew (*Blarina carolinensis*). The SSTS is a small (about 4 inches in length), obscure, insectivorous rodent that occurs in Lee and Collier County. Little is known about the SSTS's life history, behavior, or biology, but the Southern short-tailed shrew inhabits dense, herbaceous habitats and moist forests. The species has not been collected since 1955 and is possibly extinct. The parts of the property that could serve as a potential habitat for the SSTS are not included in the proposed development plan, and therefore no impact to the SSTS is to be expected.

6.2.15 Southeastern American kestrel (Falco sparverius Paulus)

The Southeastern American kestrel is a subspecies of the American kestrel. It is a small falcon, which is listed as threatened by the FWC. The American kestrel typically nests in the abandoned cavities of woodpeckers found in dead pine trees. The conversion of open sandhills and pine flatwoods to citrus groves in South Florida has greatly reduced its available nesting and foraging habitats. The presence of southeastern American kestrels can only be confirmed from April to August when northern migrants are not present in Florida. The range of southeastern kestrels does not overlap the subject property, therefore, it is unlikely that the kestrel that was observed on the subject property was a southeastern American kestrel. No incidental take of southeastern kestrels is expected with any possible development of the subject property but additional surveys may be recommended by FWC to determine whether southeastern kestrels could actually be present or not.

Several cavity trees were observed onsite. The cavity trees onsite appeared to be utilized primarily by red-bellied woodpeckers (*Melanerpes carolinus*) but could serve as potential roosting habitat for kestrels. These cavities will be inspected with a small camera and monitor system prior to any potential construction or exotic removal activity to ensure that they are unoccupied prior to being cut down.

6.2.16 Various Listed Wading Birds

Little Blue herons, tricolored herons (*Egretta tricolor)*, roseate spoonbills (*Platalea ajaja*), and wood storks (*Mycteria americana*), are expected to utilize the surface water onsite, and in nearby areas. Only Little Blue herons were observed onsite. The proposed project is not anticipated to have any negative impact to the adjacent wetlands. No nests of these species have been observed within the project area. White ibis (*Eudocimus albus*) were observed onsite as well. The White ibis was removed from Florida's endangered and threatened species list in 2017, but it is protected by state and federal law, The proposed project is not anticipated to have any impact to any potential onsite nests. Any major development of the project area will result in the loss of onsite agricultural ditches that could potentially be utilized by the aforementioned wading birds. This reduction of foraging habitat could be offset by the creation of stormwater storage or artificial lakes onsite. The project will also preserve and remove invasive vegetation from the existing wooded wetlands onsite, which will further improve potential foraging for wading birds.

6.2.17 Wood stork (Mycteria americana)

The Wood stork (Mycteria americana) is a large wading bird typically found in forested freshwater and estuarine wetlands in the southeastern United States. Wood storks prefer shallow and fluctuating water levels with low turbidity for foraging. As a result of habitat loss and degradation, the Wood stork is listed as Threatened by FWS. No wood stork nests, rookeries, or roosting sites were found on or adjacent to the subject property. Wood storks have been reported in areas adjacent to the subject property. The closest documented wood stork colony is located approximately 19 miles to the north in the Corkscrew Swamp Sanctuary. The property is located just outside of the 18.6-mile radius of the colony that FWS considers "Core Foraging Area,". Wood storks prefer to feed in flooded wooded areas but will opportunistically feed in drainage ditches. Any major development of the subject area will result in the loss of onsite agricultural ditches that could potentially be utilized by the wood storks. FWS may consider the agricultural ditches on the property as "Suitable Foraging Habitat (SFH)". Any impacts to SFH "may affect" wood storks, which will require FWS consultation. This reduction of foraging habitat could be offset by the creation of artificial lakes onsite. The project will also preserve and enhance the existing forested wetlands onsite, which will further improve potential foraging for wood storks.

6.2.18 Listed Plant Species

According to the USFWS Information for Planning and Consultation (IPaC) services, the only federally listed plant with the potential of occurring in the area is the Florida prairie clover (*Dalea carthagenensis floridana*) which is normally found on pine rocklands or rockland hammocks. No evidence of any federally listed plant species were observed. Several state listed species have the potential of occurring on the site, specifically airplant (Tillandsia) and a few orchid species. No evidence of any of the state listed species was observed. Due the past and ongoing agricultural operations, the likelihood of any listed plant species presence on the property is low.

7 CONCLUSION

THA performed a listed species survey of the approximately 169.18-acre subject property in Collier County, Florida. Preliminary research was supplemented with over 50 hours of onsite investigation. Four potentially listed species were observed on the subject property: the American alligator, the southeastern American kestrel, the Big Cypress fox squirrel, and the little blue heron. Several other listed species were not observed but have the potential to be present on or adjacent to the proposed development of the subject property.

The proposed project includes the construction of a mixed single and multi-family residential development. The site plan avoids impacts to the remaining natural wetlands on the site. Some previously impacted wetland areas are being impacted to accommodate a stormwater flow-way through the project site. Any major development of the project area will result in the loss of onsite agricultural ditches that are being utilized by the aforementioned wading birds and American alligators. Preservation and improvement of the natural hardwood wetlands onsite and the development of artificial lakes will likely offset any negative effects of the loss of agricultural ditches.

The property is located within the Florida bonneted bat consultation area. Consultation and monitoring efforts for Florida bonneted bats will be required prior to any potential development of the property.

The property is located within the Primary Florida Panther Focus Area, which is defined as "all lands essential for the survival of the Florida panther in the wild". The applicant will be required to ensure that the compensation value of offsite compensation combined with the compensation value of any on-site preserved lands will be at least equal to, if not greater than, the current PHU value of the undeveloped citrus lands. Based on preliminary calculations, approximately 1,298 PHU credits will be needed to compensate for the proposed development.

Several cavity trees were found onsite that could potentially provide roosting habitat for multiple listed species. The majority of the cavity trees are included in the proposed preservations on the subject property. Any trees that need to be removed will be inspected with a small camera and monitor system prior to any potential construction or exotic removal activity to ensure that they are unoccupied prior to being cut down.

The subject property is surrounded by undeveloped preserve land and is bordered by the Picayune Strand State Forest on part of its eastern boundary. Any development of the property should consider the installation of buffers on its boundaries to prevent any potential human-wildlife conflict.

Based on THA's observations if the development of this site provides for appropriate design and management guidelines, it will not adversely affect any endangered, threatened, or otherwise protected species. These management guidelines shall be coordinated with the appropriate local, state, and federal agencies to better ensure their protection.

8 PHOTOS

Figure: View of a squirrel nest observed onsite

Figure 2: View of a Big Cypress fox squirrel observed foraging onsite.

Figure 3: View of an American alligator observed onsite.

Figure 4: View of a flock of wild turkeys observed onsite.

Figure 5: View of a pair of adult black-bellied whistling ducks and ducklings.

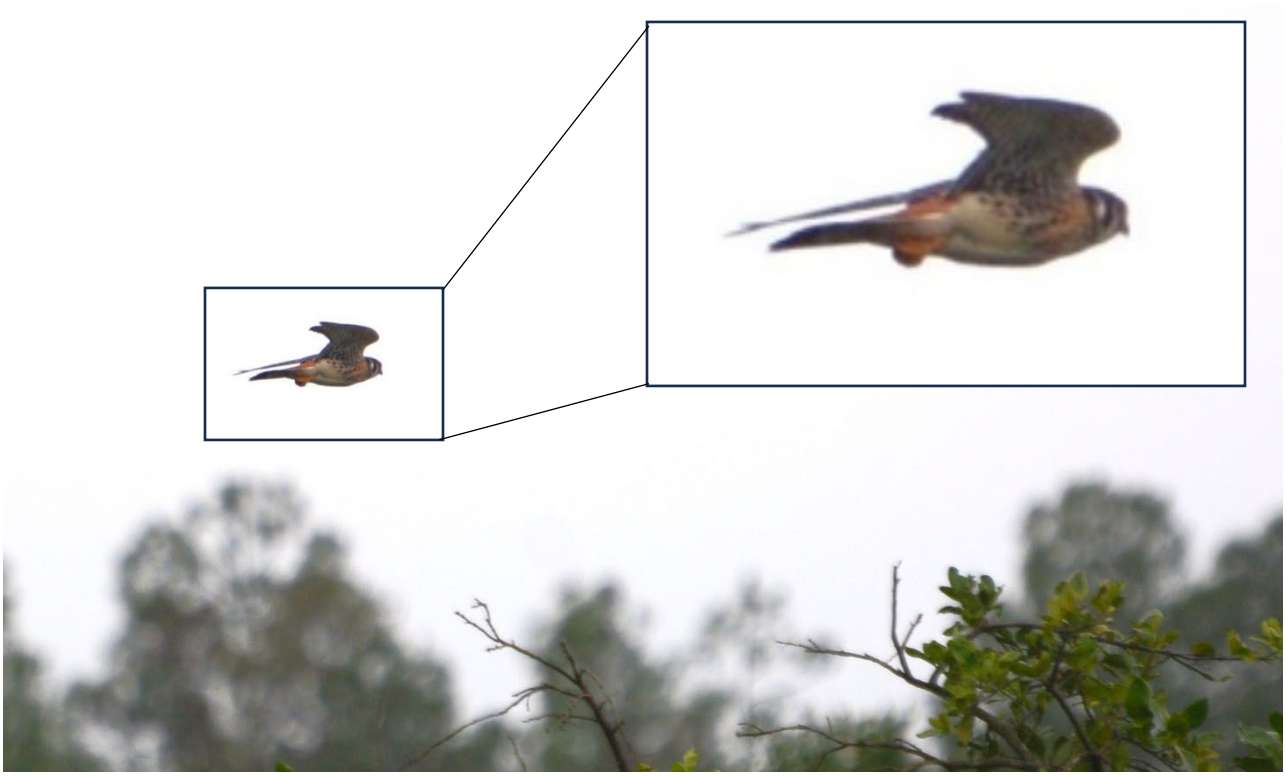

Figure 6: View of an American kestrel observed onsite.

Figure 7: View of an Eastern phoebe observed onsite.

Figure 8: View of a pig frog observed onsite.

Figure 9: View of a peninsula cooter observed onsite.

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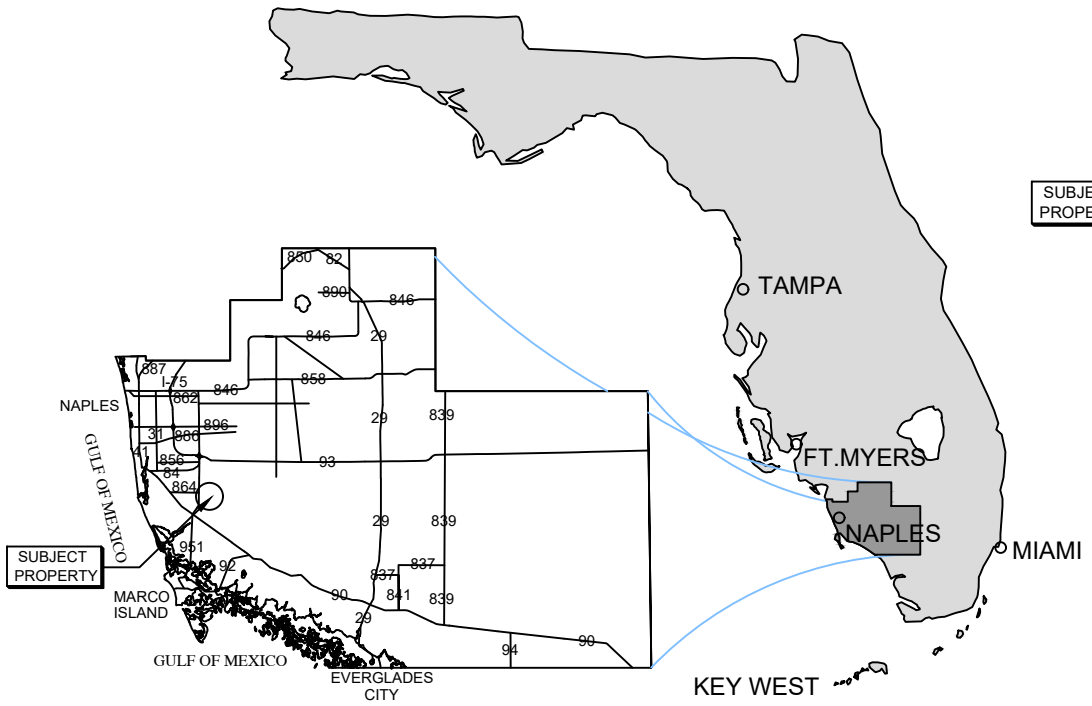
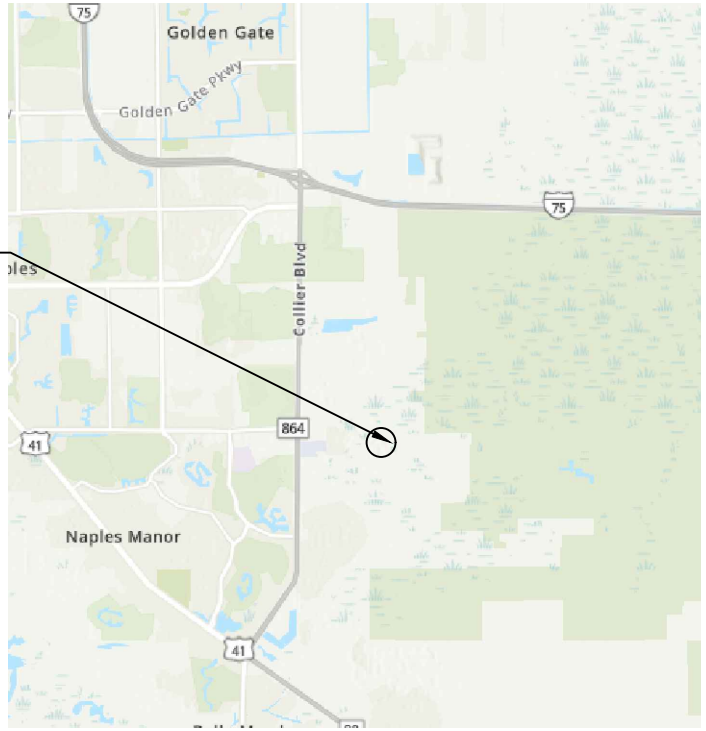
STATE OF FLORIDA



COLLIER COUNTY



VICINITY MAP

COUNTY AERIAL

LEGEND	
SHEET NUMBER	SHEET TITLE
01	LOCATION MAP
02	FLUCFCS MAP
03	SOILS MAP
04	LISTED SPECIES

SITE ADDRESS:
<> 341 SABAL PALM RD
NAPLES, FL 34114

<> LATITUDE: N 26.094201
<> LONGITUDE: W -81.660967

NOTES:
<> THESE DRAWINGS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT INTENDED FOR CONSTRUCTION USE.

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341 SABAL PALM RD

LOCATION MAP

RY NO. 5875

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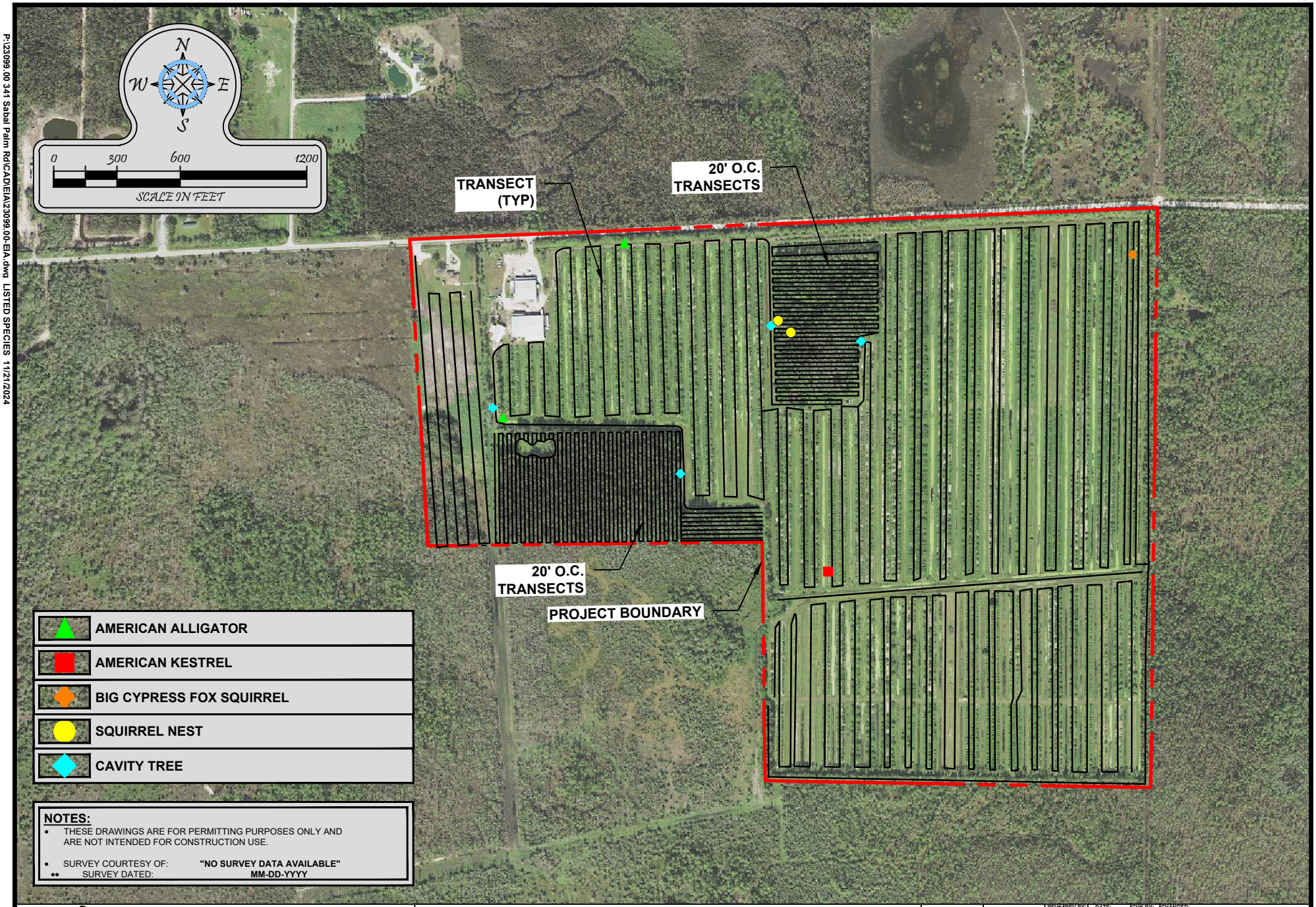
JOB NO.:	23099	4.	-	-	-	-
SHEET NO.:	01 OF 04	5.	-	-	-	-

SECTION- 25 TOWNSHIP- 50 S RANGE- 26 E

P:\23099.00 341 Sabal Palm Rd\CAD\EIA\23099.00-EIA.dwg LISTED SPECIES 11/21/2024



NOTES:

- THESE DRAWINGS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT INTENDED FOR CONSTRUCTION USE.
- SURVEY COURTESY OF: **"NO SURVEY DATA AVAILABLE"**
- SURVEY DATED: **MM-DD-YYYY**

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341 SABAL PALM RD

LISTED SPECIES

RY NO. 5875

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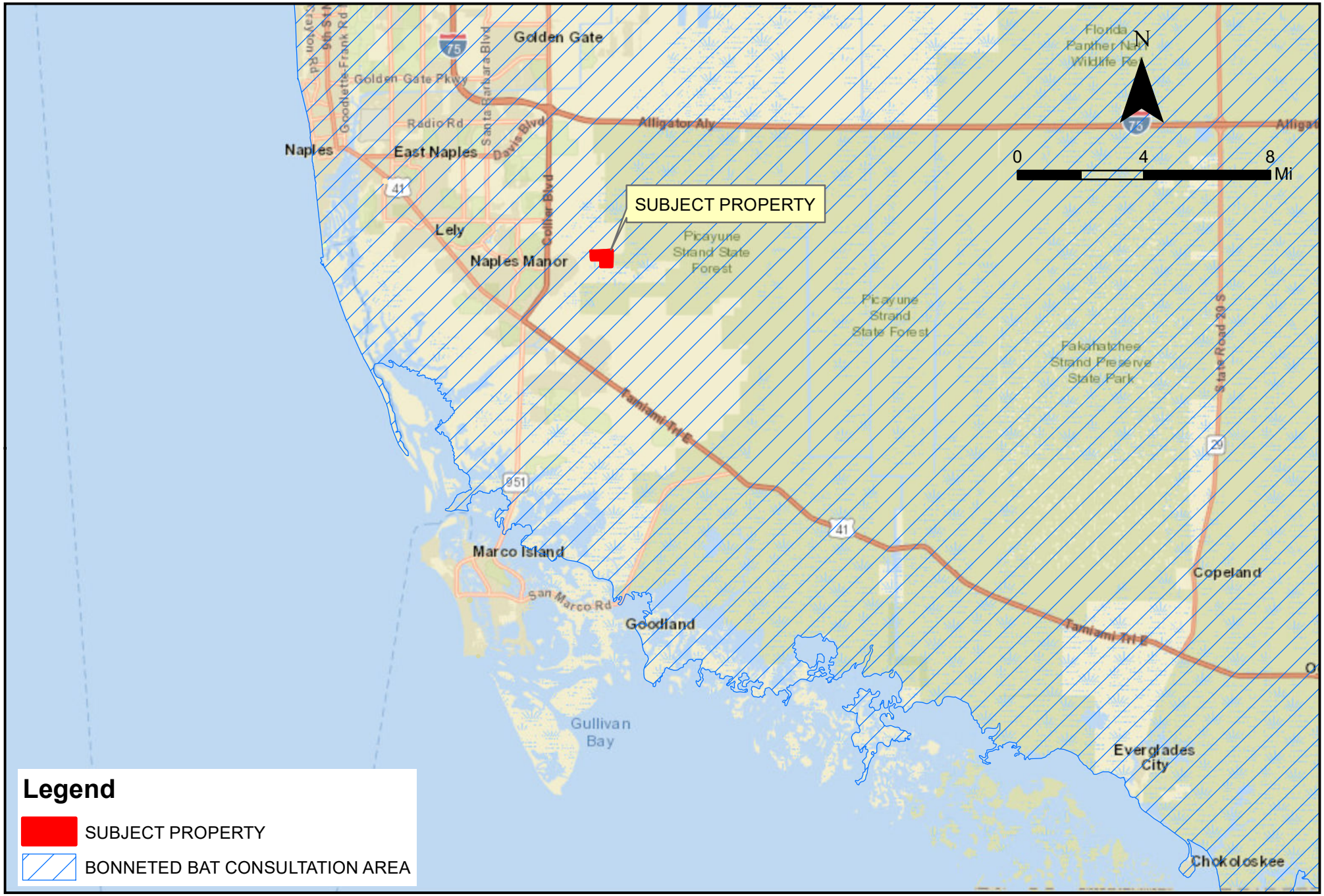

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341 SABAL PALM RD
BONNETED BAT CONSULTATION AREA

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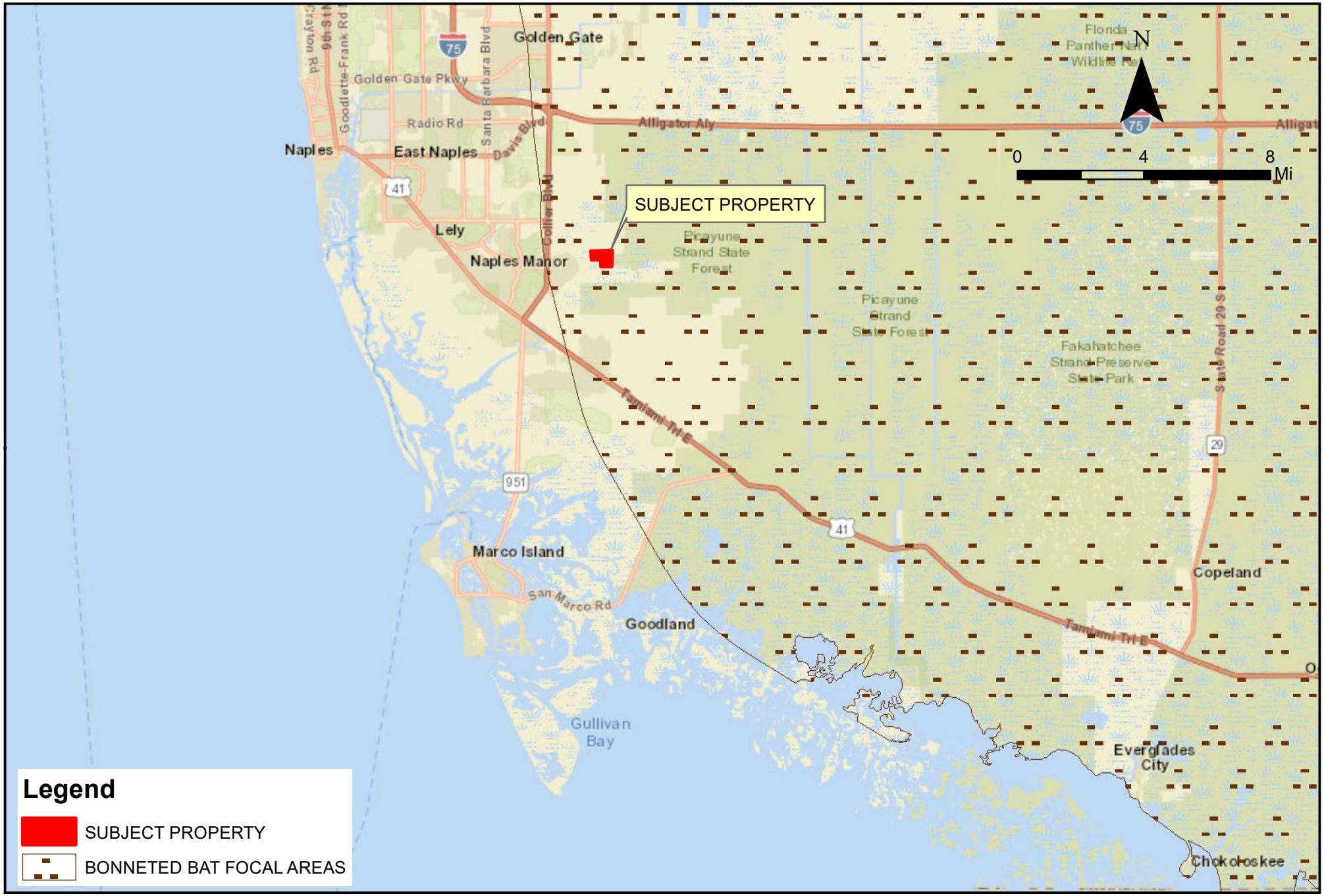

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341 SABAL PALM RD
BONNETED BAT FOCAL AREAS

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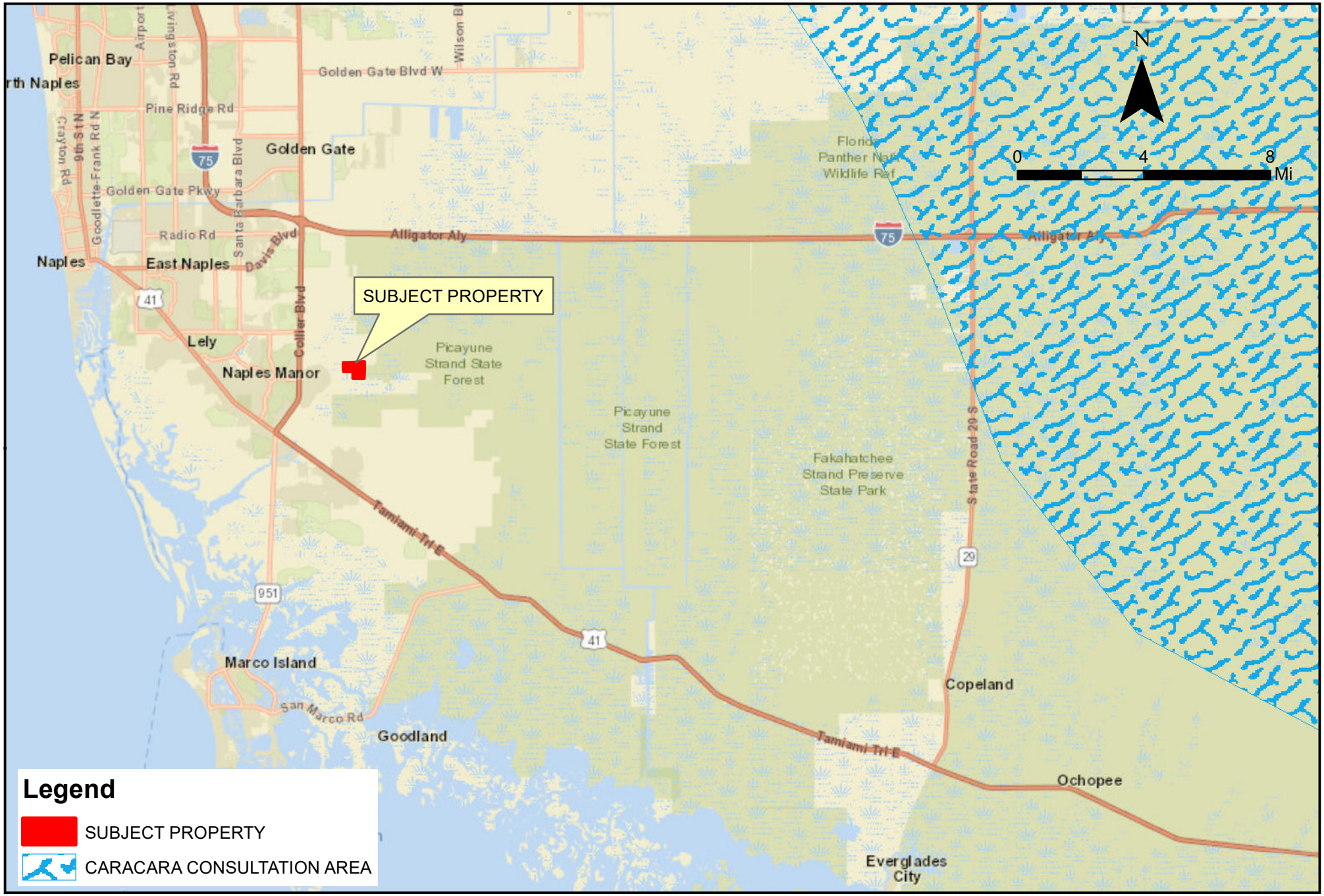

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341 SABAL PALM RD
CARACARA CONSULTATION AREA

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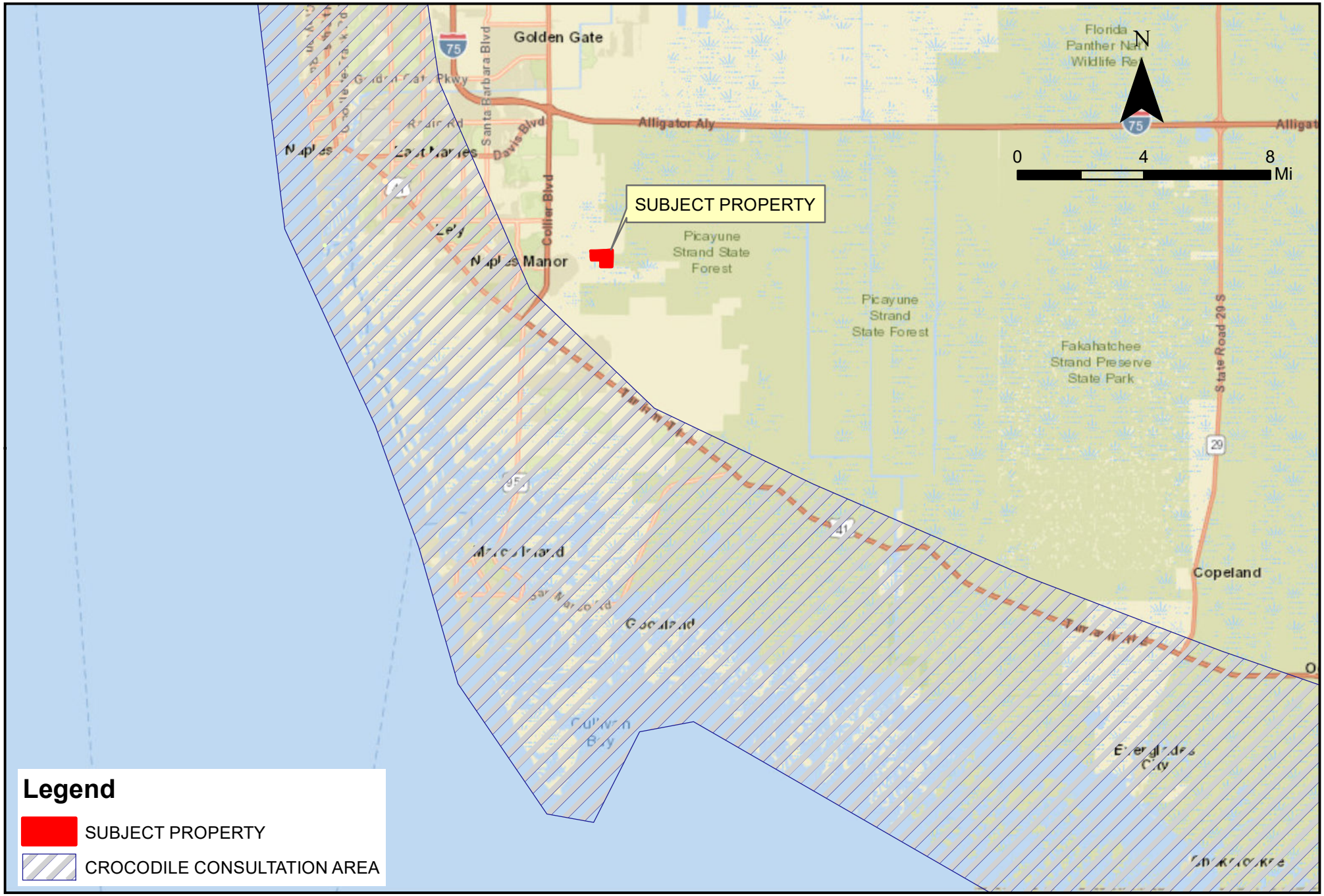

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341 SABAL PALM RD
CROCODILE CONSULTATION AREA

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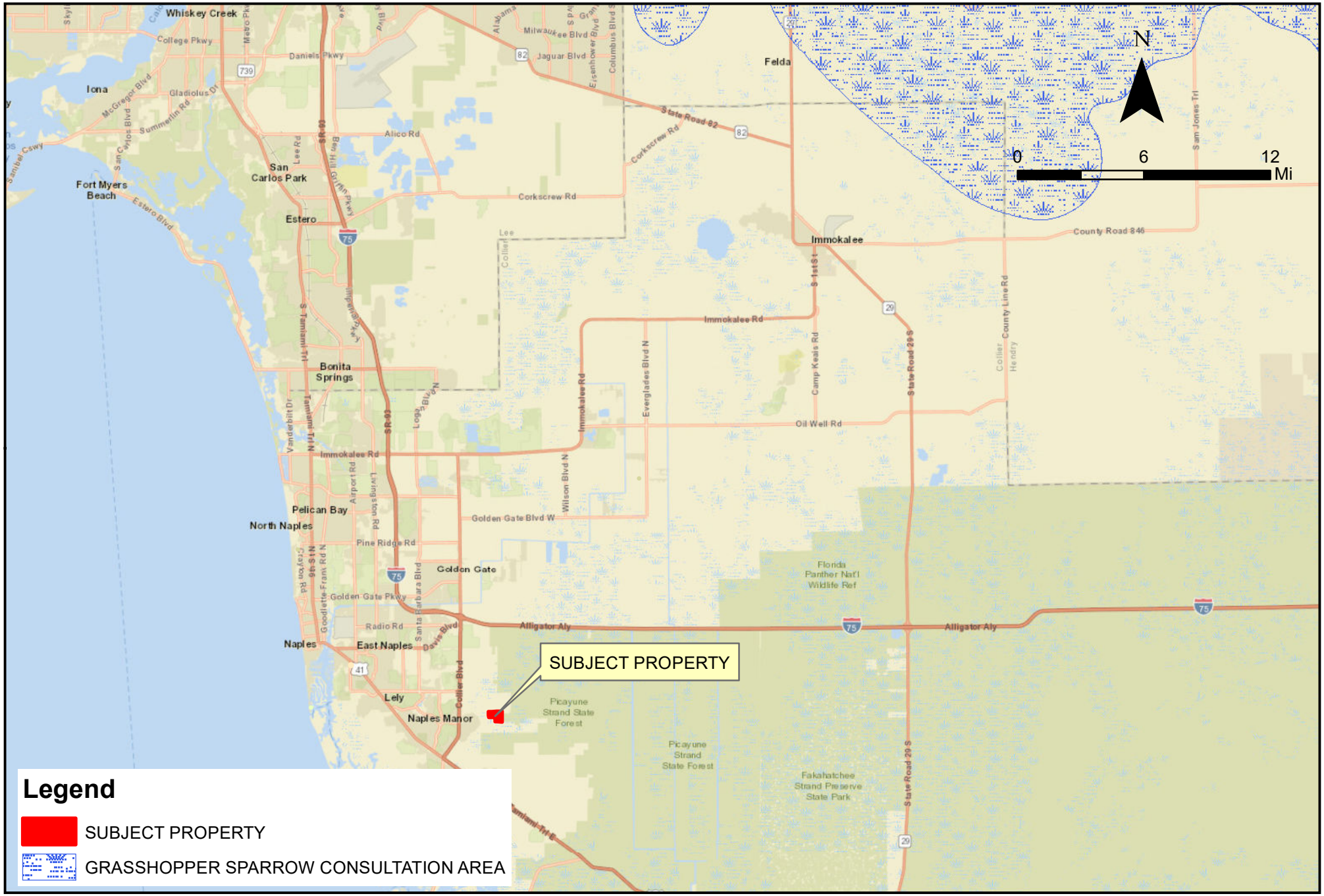

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341 SABAL PALM RD
GRASSHOPPER SPARROW CONSULTATION AREA

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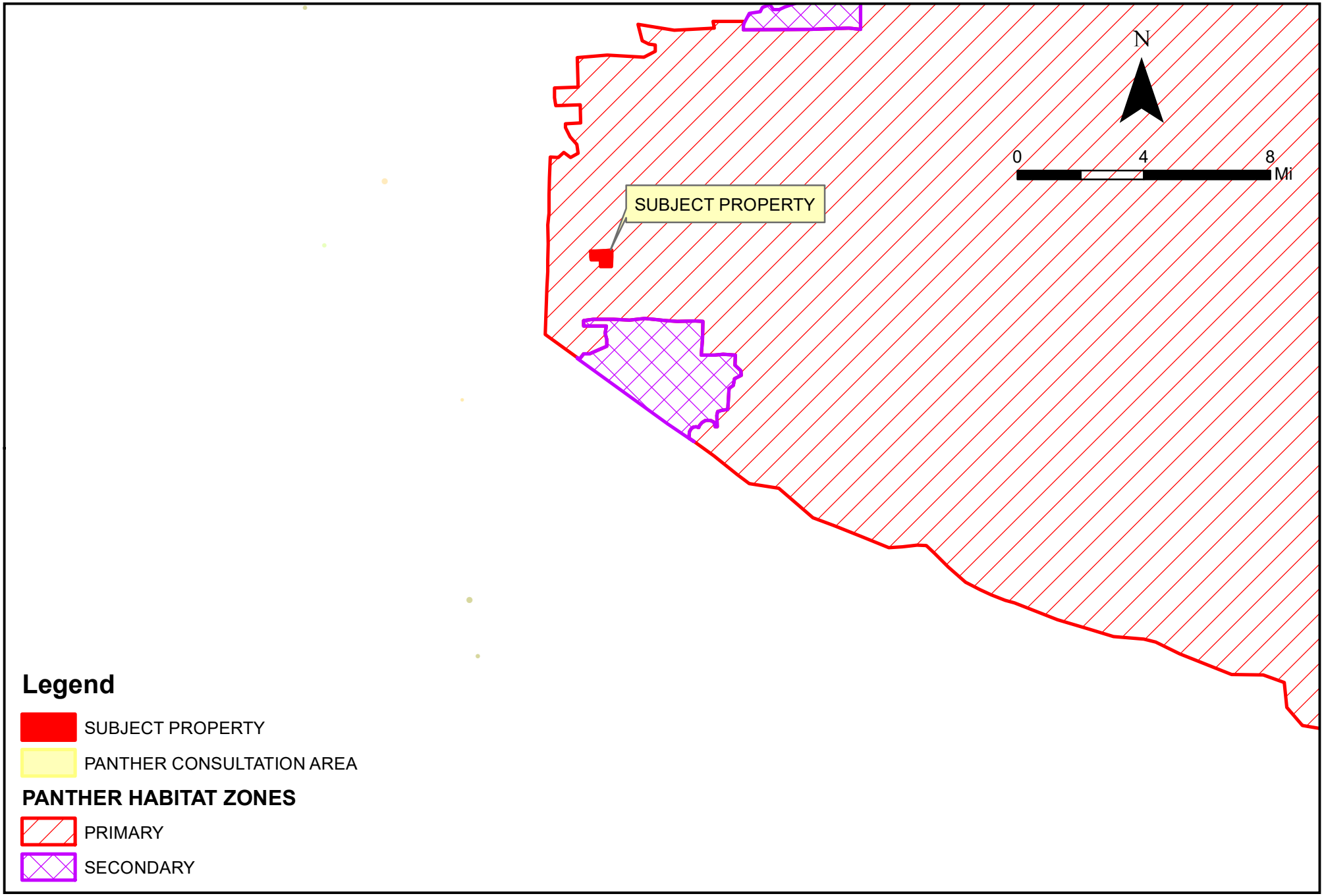

Legend

- SUBJECT PROPERTY
- PANTHER CONSULTATION AREA

PANTHER HABITAT ZONES

- PRIMARY
- SECONDARY

Turrell, Hall & Associates, Inc.
Marine & Environmental Consulting
3484 Exchange Ave. Suite B. Naples, FL 34104-3732
Email: tuna@thanaples.com Phone: (239) 643-0166 Fax: (239) 643-6632

341 SABAL PALM RD
PANTHER CONSULTATION AREA

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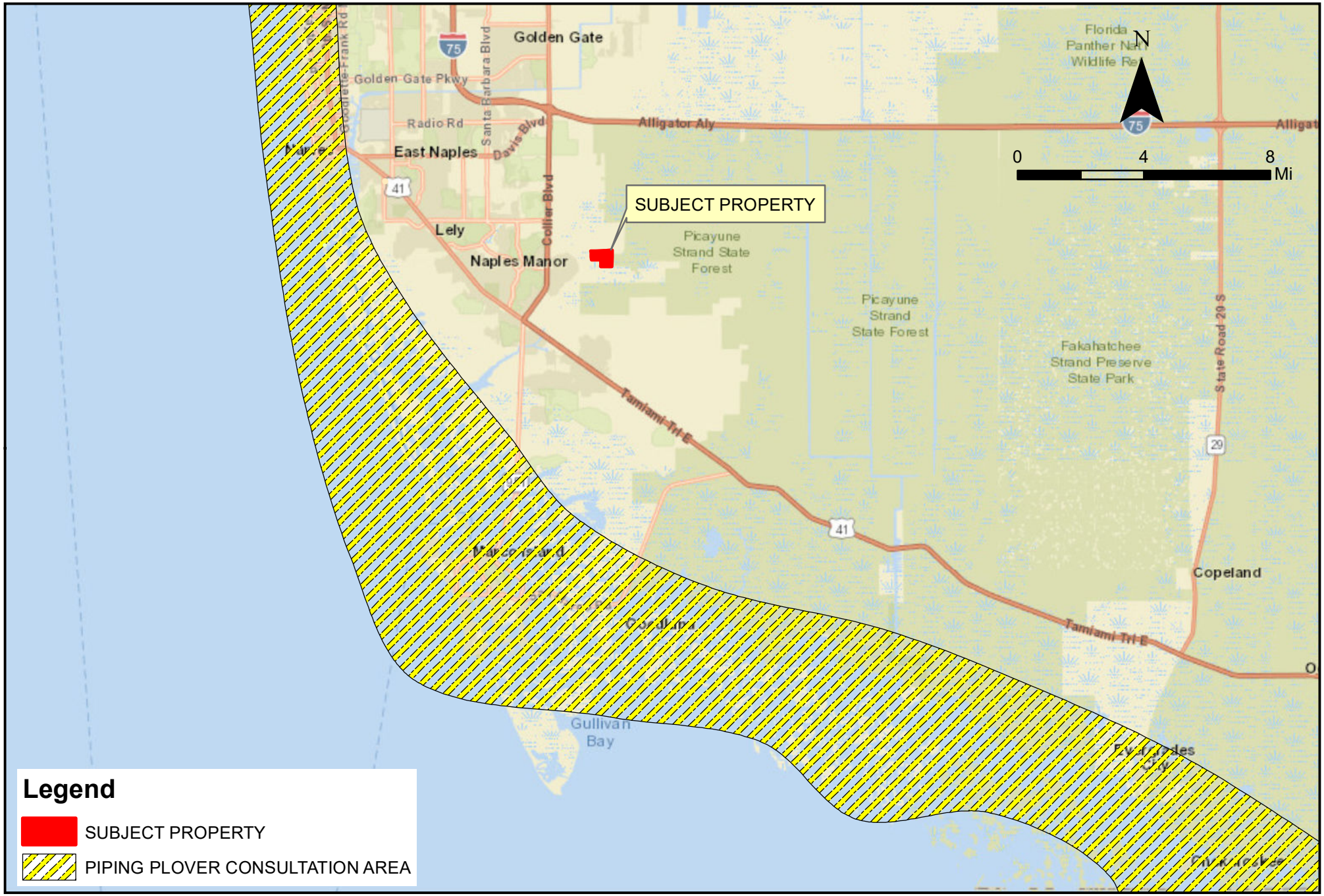

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Email: tuna@thanaples.com Phone: (239) 643-0166 Fax: (239) 643-6632

341 SABAL PALM RD
PIPING PLOVER CONSULTATION AREA

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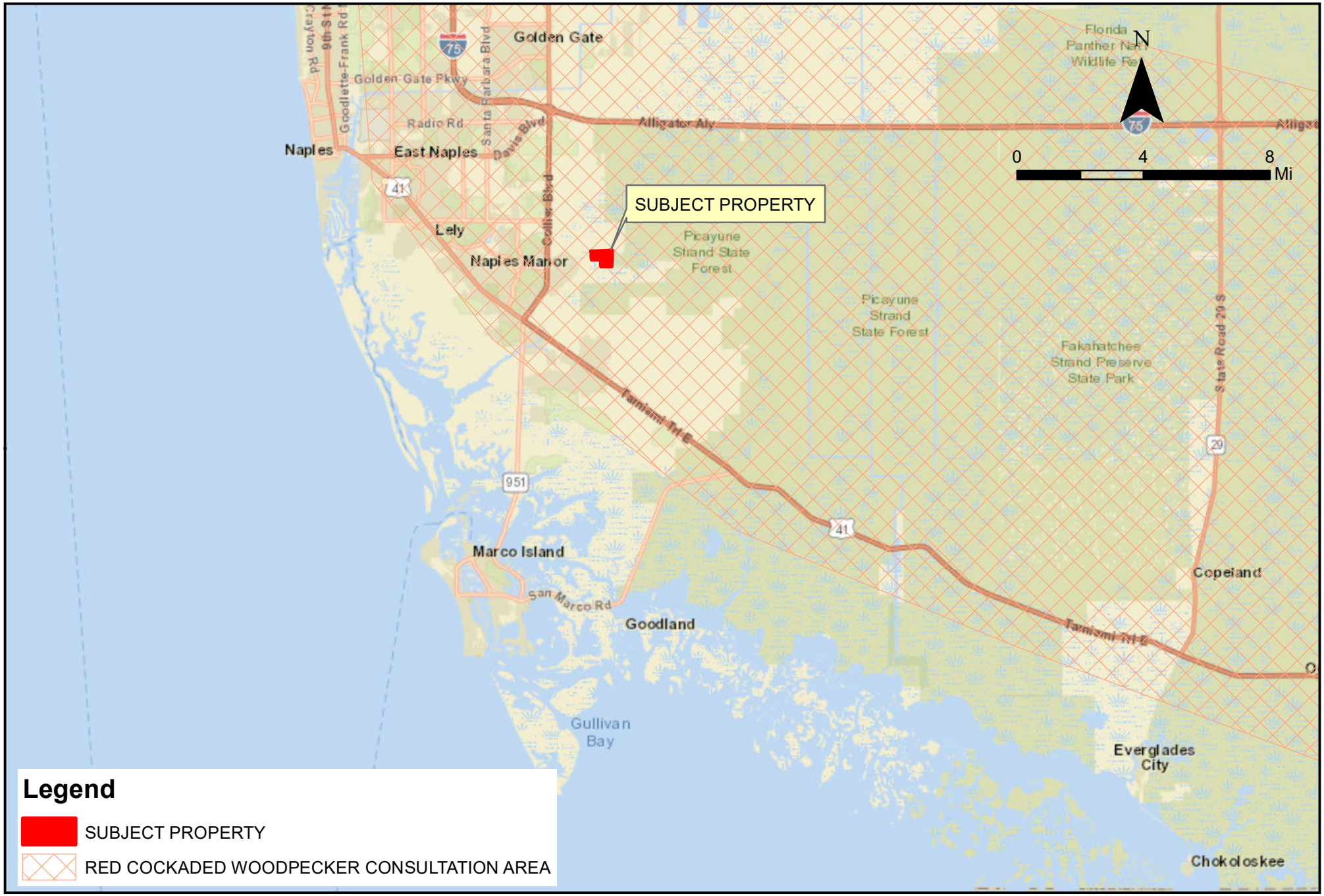

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Marine & Environmental Consulting
3484 Exchange Ave. Suite B. Naples, FL 34104-3732
Email: tuna@thanaples.com Phone: (239) 643-0166 Fax: (239) 643-6632

341 SABAL PALM RD
RED COCKADED WOODPECKER CONSULTATION AREA

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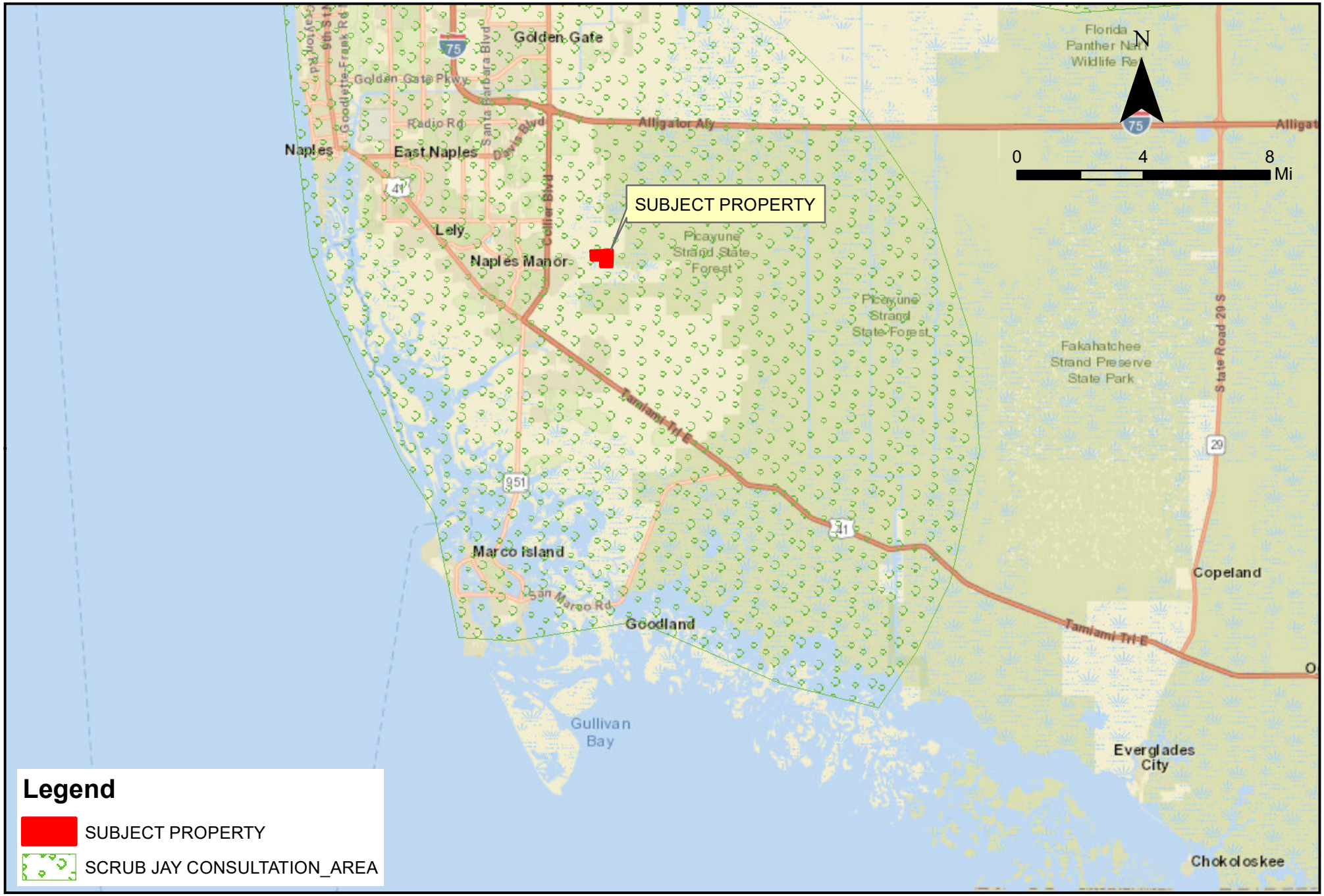

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Marine & Environmental Consulting
3484 Exchange Ave. Suite B. Naples, FL 34104-3732
Email: tuna@thanaples.com Phone: (239) 643-0166 Fax: (239) 643-6632

341 SABAL PALM RD
SCRUB JAY HABITAT

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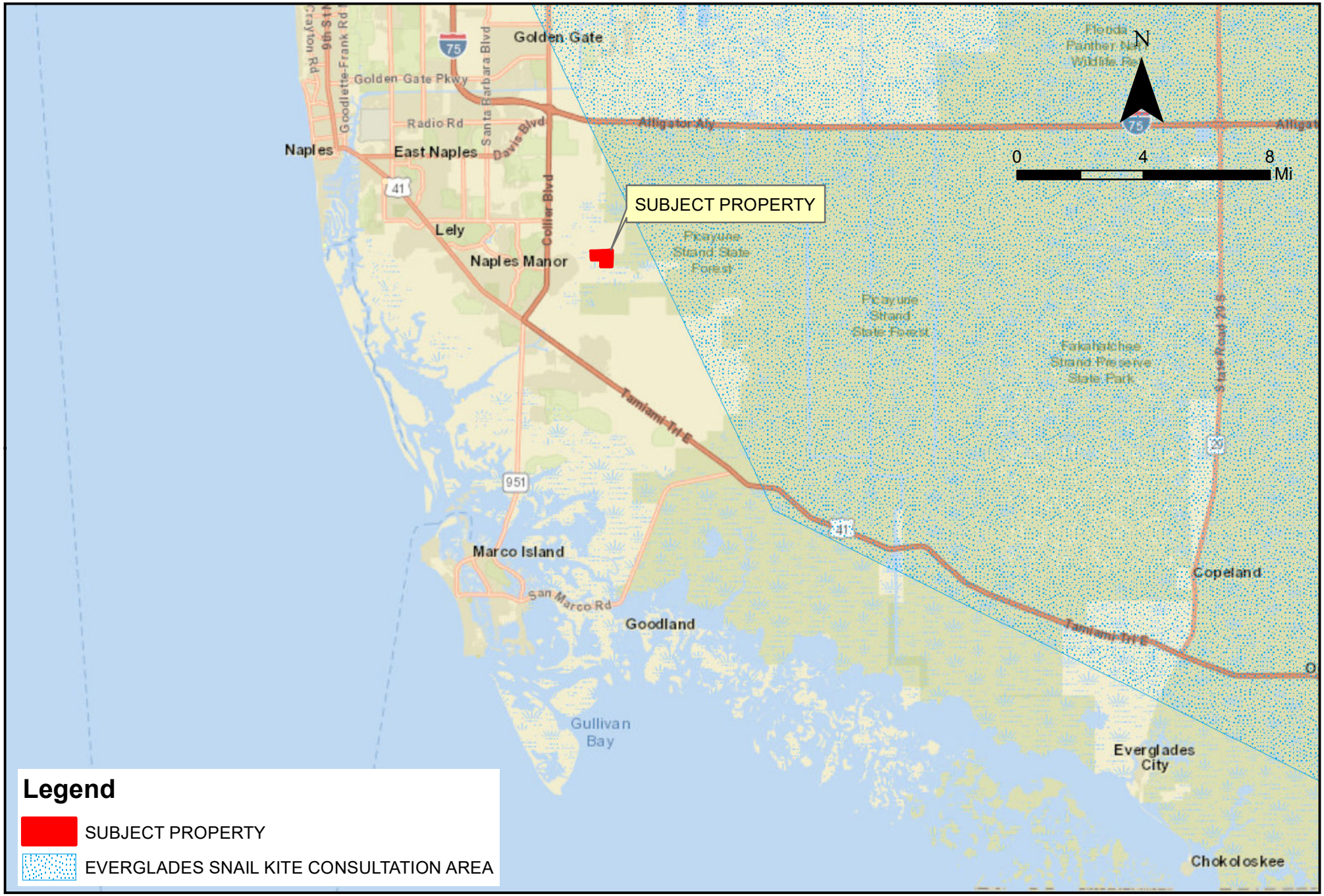

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Marine & Environmental Consulting
3484 Exchange Ave. Suite B. Naples, FL 34104-3732
Email: tuna@thanaples.com Phone: (239) 643-0166 Fax: (239) 643-6632

341 SABAL PALM RD
EVERGLADES SNAIL KITE CONSULTATION AREA

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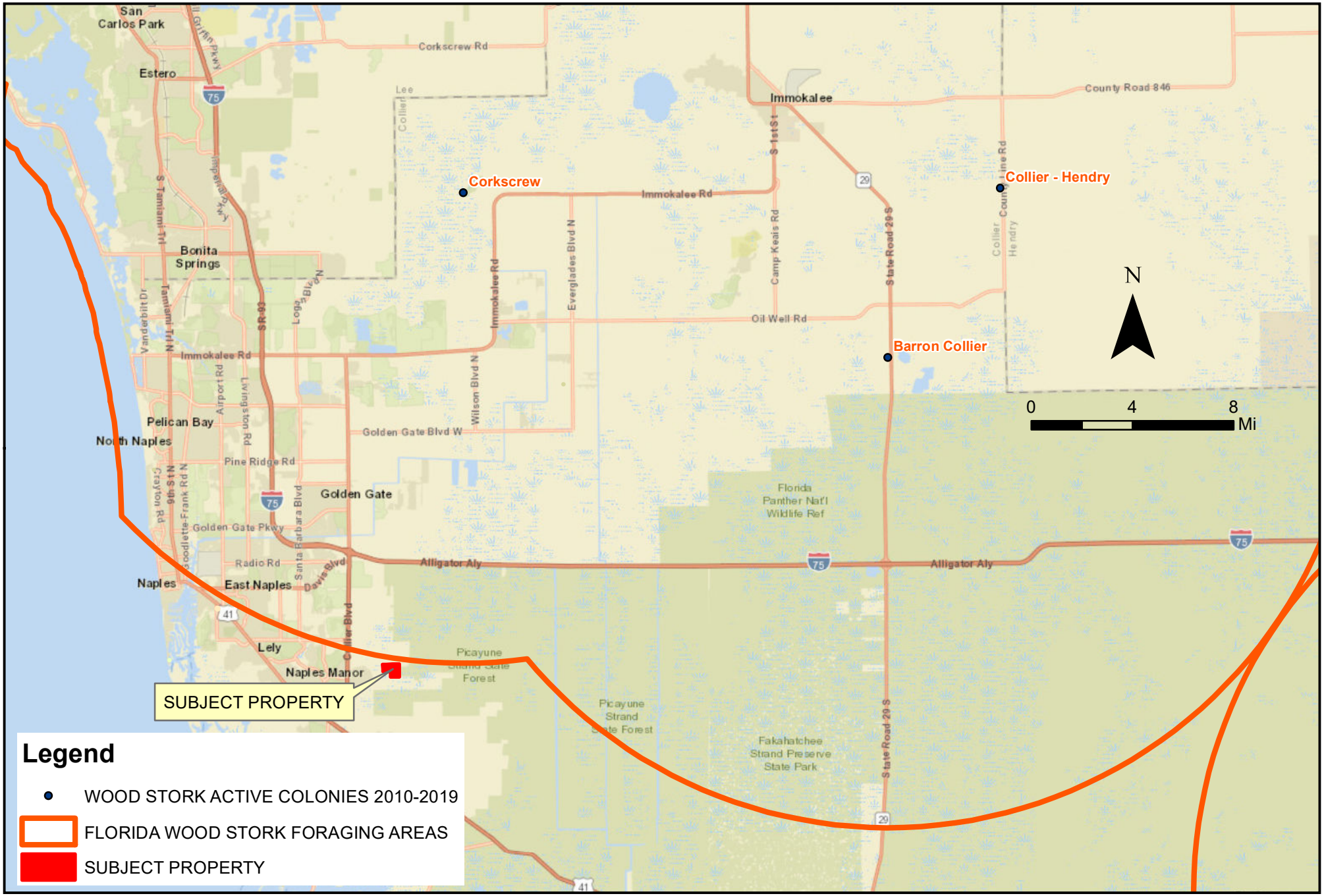

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Email: tuna@thanaples.com Phone: (239) 643-0166 Fax: (239) 643-6632

341 SABAL PALM RD
WOOD STORKS

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SHEET:	01 OF 01	N/A	

SECTION-25 TOWNSHIP-50S RANGE-26E

APPENDIX III:
ARCHAEOLOGICAL EXHIBITS

13377

Ent D (FMSF only)__/__/__ **Survey Log Sheet**

Survey # (FMSF only)

Florida Master Site File
Version 2.0 9/97

Consult *Guide to the Survey Log Sheet* for detailed instructions.

Identification and Bibliographic Information

Survey Project (Name and project phase) Toll-Rattlesnake Parcel Phase One

Report Title (exactly as on title page) A Phase One Archaeological Assessment of the Feathers 2 Parcel, Collier County, Florida

Report Author(s) (as on title page— individual or corporate; last names first) Beriault, John G., Weaver, Craig A.

Publication Date (year) _2005_ **Total Number of Pages in Report** (Count text, figures, tables, not site forms) ___66_____

Publication Information (If relevant, series and no. in series, publisher, and city. For article or chapter, cite page numbers. Use the style of *American Antiquity*: see *Guide to the Survey Log Sheet*.) Archaeological and Historical Survey Technical Report #

Supervisor(s) of Fieldwork (whether or not the same as author[s]; last name first) Carr, Robert S.

Affiliation of Fieldworkers (organization, city) Archaeological and Historical Conservancy(AHC), Miami FL

Key Words/Phrases (Don't use the county, or common words like *archaeology*, *structure*, *survey*, *architecture*. Put the most important first. Limit each word or phrase to 25 characters.) Feathers, Belle Meade, Rattlesnake Hammock, Sable Palm Road

Survey Sponsors (corporation, government unit, or person who is directly paying for fieldwork)
Name Sembler Company, Inc.
Address/Phone

Recorder of *Log Sheet* __John G. Beriault Date

Log Sheet Completed __1_/_20__/_05__

Is this survey or project a continuation of a previous project? X No θ Yes: **Previous survey #(s) [FMSF only)**

Mapping

Counties (List each one in which field survey was done - do not abbreviate; use supplement sheet if necessary)
County Collier

USGS 1:24,000 **Map(s) : Map Name/Date of Latest Revision** (use supplement sheet if necessary): Belle Meade and Belle Meade NW

Description of Survey Area

Dates for Fieldwork: Start _1_/15__/_04__ End _12_/15__/_05__ **Total Area Surveyed** (fill in one) _____ hectares _2300_____ acres

Number of Distinct Tracts or Areas Surveyed ___one_____

Survey Log Sheet of the Florida Master Site File

~~Research and Field Methods~~

Types of Survey (check all that apply): x archaeological θ architectural θ historical/archival θ underwater θ other: ____

Preliminary Methods (4Check as many as apply to the project as a whole. If needed write others at bottom).

θ Florida Archives (Gray Building)
θ Florida Photo Archives (Gray Building)
x FMSF site property search
θ FMSF survey search
x other (describe)grayline aerial photographs and USGS Map

θ library research- *local public*
θ library-special collection - *nonlocal*
θ Public Lands Survey (maps at DEP)
θ local informant(s)

θ local property or tax records
θ newspaper files
θ literature search
θ Sanborn Insurance maps

θ windshield
x aerial photography

Archaeological Methods (Describe the proportion of properties at which method was used by **writing in** the corresponding letter. Blanks are interpreted as "None.")

F(-ew: 0-20%), S(-ome: 20-50%); M(-ost: 50-90%); or A(-ll, Nearly all: 90-100%). If needed write others at bottom.

θ Check here if **NO** archaeological methods were used.

_S__ surface collection, controlled
___ surface collection, uncontrolled
__A_ shovel test-1/4"screen
___ shovel test-1/8" screen
___ shovel test 1/16"screen
___ shovel test-unscreened
___ other (describe):

___ other screen shovel test (size: ____)
___ water screen (finest size: ____)
___ posthole tests
___ auger (size:____)
___ coring
___ test excavation (at least 1x2 M)

___ block excavation (at least 2x2 M)
___ soil resistivity
___ magnetometer
___ side scan sonar
___ unknown

Historical/Architectural Methods (Describe the proportion of properties at which method was used by **writing in** the corresponding letter. Blanks are interpreted as "None.")

F(-ew: 0-20%), S(-ome: 20-50%); M(-ost: 50-90%); or A(-ll, Nearly all: 90-100%). If needed write others at bottom.

X Check here if **NO** historical/architectural methods were used.

___ building permits
___ commercial permits
___ interior documentation
___ other (describe):

___ demolition permits
___ exposed ground inspected
___ local property records

___ neighbor interview
___ occupant interview
___ occupation permits

___ subdivision maps
___ tax records
___ unknown

Scope/Intensity/Procedures Review of USGS maps and aerial photos followed by walking and vehicular survey, assessment of all established targets with gridded and selective judgmental excavation of ninety-six 45cm screened shovel tests in twenty of thirty six targets.

~~Survey Results (cultural resources recorded)~~

Site Significance Evaluated? XYes θNo If *Yes*, circle NR-eligible/significant site numbers below.

Site Counts: Previously Recorded Sites ~~one~~ five Newly Recorded Sites ~~four~~ none

Previously Recorded Site #'s (List site #'s without "8." Attach supplementary pages if necessary) CR556, CR878, CR87

Newly Recorded Site #'s (Are you sure all are originals and not updates? Identify methods used to check for updates, ie, researched the FMSF records. List site #'s without "8." Attach supplementary pages if necessary.) CR880, CR88

~~CR878~~, ~~CR879~~, ~~CR880~~, ~~CR881~~;

Site Form Used: X SmartForm θ FMSF Paper Form θ Approved Custom Form: Attach copies of written approval from FMSF Supervisor.

DO NOT USE ♣♣♣♣♣SITE FILE USE ONLY♣♣♣♣♣DO NOT USE

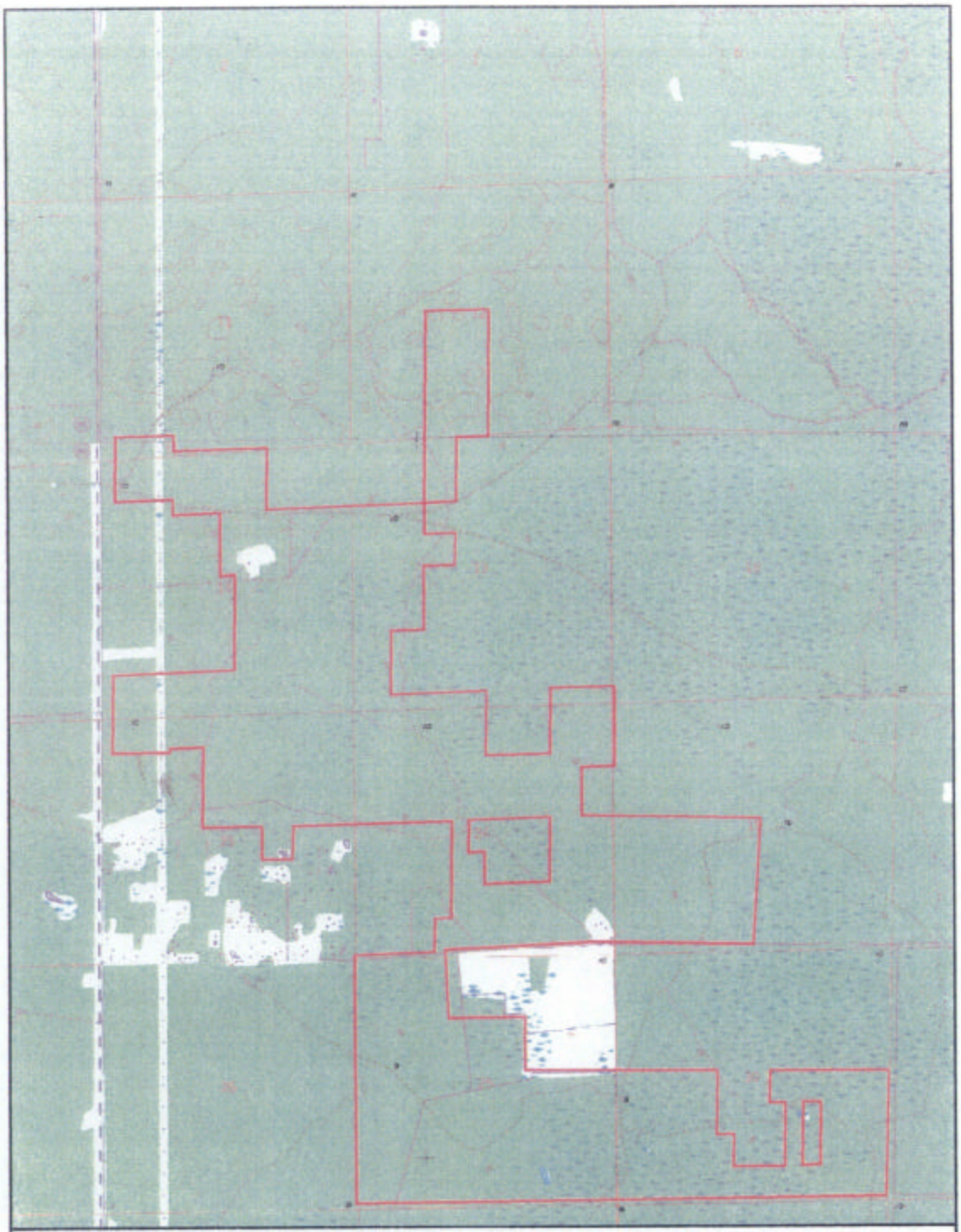
BAR Related

θ 872
θ CARL
#_____

θ 1A32
θ UW

BHP

θ State Historic Preservation Grant
θ Compliance Review: CRAT



Map of the Toll-Rattlesnake parcel area

N

0 1/4 1/2 1 Mile

USGS MAPS: BELLE MEADE AND BELLE MEADE NW, 1991

FLORIDA DEPARTMENT OF STATE
Sue M. Cobb
Secretary of State
DIVISION OF HISTORICAL RESOURCES

Mr. Robert S. Carr, M.S.
Archaeological and Historical Conservancy
4800 SW 64th Avenue, Suite 107
Davie, Florida 33314

October 25, 2006

Re: DHR Project File No. 2006-02562B / Additional Information Received: September 28, 2006; *A Phase 1 Archaeological Assessment of the Toll-Rattlesnake Parcel, Collier County, Florida*

Dear Mr. Carr:

Our office received the above referenced survey report in accordance with this agency's responsibilities under Section 380.06, *Florida Statutes*, for assessment of possible adverse impact to cultural resources (any prehistoric or historic district, site, building, structure, or object) listed, or eligible for listing, in the *National Register of Historic Places (NRHP)*, or otherwise of historical, architectural or archaeological value.

In December 2005, AHC conducted survey testing of the Toll-Rattlesnake Parcel on behalf of the Sembler Company, Inc. AHC located five archaeological sites (8CR556, 8CR878, 8CR879, 8CR880, and 8CR881) during the course of the investigation and determined that all of them are potentially eligible for listing in the *NRHP*. AHC recommended avoidance of the identified sites or if avoidance is not feasible, further investigation of the subject sites should be conducted.

Based on the information provided, our office concurs with the determinations of eligibility for 8CR556, 8CR878, 8CR879, 8CR880, and 8CR881. This office also concurs with the recommended avoidance of all recorded sites within the project area. The proposed project should be granted clearance but if cultural material is encountered during any ground disturbing activities, further consultation with this office will be required.

If you have any questions concerning our comments, please contact Scott Sorset, Historic Sites Specialist, by phone at (850) 245-6333, or by electronic mail at srsorset@dos.state.fl.us. Your continued interest in protecting Florida's historic properties is appreciated.

Sincerely,

Frederick P. Gaske

Frederick P. Gaske, Director, and
State Historic Preservation Officer

500 S. Bronough Street • Tallahassee, FL 32399-0250 • http://www.flheritage.com

☐ Director's Office (850) 245-6300 • FAX: 245-6436
☐ Archaeological Research (850) 245-6444 • FAX: 245-6452
■ Historic Preservation (850) 245-6333 • FAX: 245-6437
☐ Historical Museums (850) 245-6400 • FAX: 245-6433
☐ Southeast Regional Office (954) 467-4990 • FAX: 467-4991
☐ Northeast Regional Office (904) 825-5045 • FAX: 825-5044
☐ Central Florida Regional Office (813) 272-3843 • FAX: 272-2340

Archaeological and Historical Conservancy, Inc.

4800 S.W. 64th Avenue, Suite 107 Davie, FL 33314
954/792-9776 Fax 954/792-9954 archlgcl@bellsouth.net

October 23, 2006

Scott Sorset
Florida Division of Historic Sites
R.A. Gray Building
500 S. Bronough Street
Tallahassee, FL 32399-0250

RE: Toll Rattlesnake Parcel – DHR Project No. 2006-2526
Archaeological Assessment

Dear Mr. Sorset,

I am contacting you to request a letter of concurrency regarding the completion of a review by your agency for the Toll-Ratllesnake Phase I Archaeological project. A summary of the project timeline is as follows:

March 6, 2006: The archaeological report is initially submitted to your agency.

April 6, 2006: Your agency requests additional information to be submitted and certain items clarified.

June 1, 2006: A revised report is resubmitted by AHC.

August 7, 2006: Your agency requests additional data regarding maps.

October 10, 2006: Additional data is emailed to DHR by AHC.

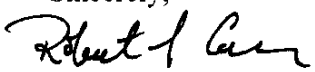
Attached are various figures in response to that request. These figures depict the sites and "targets" tested and visited that were identified from either aerial photographs or during the field investigations. Most of the targets are low elevated islands of pine and palmetto, which are considered low probability zones for archaeological sites. Higher probability zones are the various islands characterized by tropical hardwood hammocks and oaks. Other areas not specifically tested are wetlands characterized by cypress and/or hydric hammocks that cover most of the parcel.

There is no practical way to test the parcel's wetlands where the site probability is low (except for within springs or sinks). The site model I used was one I developed while working for the National Park Service during the Big Cypress and Everglades surveys (see Ehrenhard et al. 1978, Carr 2002, and more recently Schwadron 2005 -- which is an archaeological overview and assessment of the Big Cypress - Volume I).

In summary, our research design to assess this parcel was to identify and visit all the islands in the wetlands, and test all higher probability zones, and some lower probability zones. That goal was accomplished.

Please call or email if you have any other questions. Thanks for your consideration.

Sincerely,



Robert S. Carr
Archaeological Historical Conservancy, Inc

13377

A Phase One Archaeological Assessment of the Toll-Rattlesnake Parcel, Collier County, Florida

by

John G. Beriault, B.A.
Craig A. Weaver, M.A.G.

conducted under the direction of
Robert S. Carr, M.S.
Archaeological and Historical Conservancy

for
Sembler Company, Inc.

AHC Technical Report #678
December 2005
2005.142

Table of Contents

List of Figures

Consultant Summary

In October through December 2005, the Archaeological and Historical Conservancy Inc. (AHC) conducted an archaeological assessment for the Sembler Company, Inc. of the Toll-Rattlesnake parcel located east of State Road 951 and spanning the north and south sides of Sabal Palm Road in southwestern Collier County. The +2300 acre parcel was surveyed to locate sites of archaeological and/or historical significance. This assessment represents the completion of an earlier stage of survey, when the parcel footprint was smaller.

This assessment was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966 (Public Law 89-665), as amended in 1992, and 36 C.F.R., Part 800: Protection of Historic Properties. The work and the report conform to the specifications set forth in Chapter IA-46, Florida Administrative Code.

The parcel encompasses parts of Sections 11, 12, 13, 14, 23, 24, 25 in Township 50S, Range 26E and Sections 18, 19, and 30 in Township 50S, Range 27E. The parcel is an area of mixed impacts and natural areas containing tropical hardwood hammocks, sloughs, deep marshes, and slash pine and cypress communities. The parcel contains one structure, a modern hunting camp. None of the structures on the parcel are in excess of 50 years old.

This assessment resulted in the identification of thirty-six targets or anomalies which were identified as being possible hammocks that could be associated with archaeological sites. A total of ninety five shovel tests (45 cm square) were dug across the parcel on selected medium to high probability targets, usually oak, cabbage palm, or hardwood hammocks. These tests were excavated to sterile sediments or to limestone caprock.

Five prehistoric sites were documented on the parcel. Four of these were previously unrecorded (CR878-881) and one site, 8CR556, was previously recorded. The four previously unrecorded sites are the Clamshell Cove Midden (8CR878), White Shell Hammock Midden (8CR879), Deep Marsh Hammock Midden (8CR880), and the Jump-Start Hammock Midden (8CR881). Three sites were delineated with systematic shovel testing. The other two sites are small and are encompassed within discreet upland hammock "islands." All five are regarded as being of local significance, of which three are potentially eligible for listing on the National Register of Historic Places, based on criteria (d) for sites "that have yielded or may be likely to yield, information important in history or prehistory" important to southwest Florida.

Sites CR556, CR878, CR879, CR880, and CR881 should be preserved if possible. If preservation of all or parts of these five sites is not feasible, then additional archaeological investigations should be conducted there to fully assess their significance. There are also three other areas of archaeological concern, Targets 3, 13 and 18, which should be further investigated if developmental plans call for these three areas to be impacted. Although our phase 1 testing there yielded no archaeological materials, a phase 2 investigation is recommended because of the possibility that such materials might occur

Project Setting

The subject parcel is located in parts of Sections 11, 12, 13, 14, 23, 24, and 25 in Township 50S, Range 26E and Sections 18, 19, and 30 in Township 50S, Range 27E. east of State Road 951 and immediately south and north of Sabal Palm Road in the Rattlesnake Hammock/Sabal Palm Road area of southwestern Collier County, Florida (Figure 1). The ± 2300 acre project area is a many-sided polygon with sides more or less oriented to the cardinal points, containing several smaller outparcels which are not subjects of the present survey (Figure 2). The relevant USGS maps are Belle Meade and Belle Meade NW, Fla.

The Toll-Rattlesnake parcel is situated near the eastern side of an extensive and amorphous series of cabbage palm, live oak, tropical hardwood hammocks flanked by and containing deep marsh/slough systems. This area is collectively known as Rattlesnake Hammock. This several-square mile area contains great floristic and topographic diversity. High ground areas include live oak/saw palmetto/cabbage palm hammocks with varying percentages of tropical hardwoods that can include myrsine, white indigo berry, white stopper, camphorwood, soft-leafed and shiny leafed wild coffee, wild lime, lancewood, strangler fig, gulf gray twig, gumbo limbo, willow bustic, mastic, hog plum, coral bean, fire bush, hackberry, red mulberry, and others. Other moderately high-ground areas are rounded slash pine/ saw palmetto islands containing red bay, dahoon holly, myrsine, staggerbush, rusty lyonia, pennyroyal mint, gallberry, ferns, and wax myrtle among other plants.

Flanking these high ground areas and running as north-south linear transverse depressions are deep sloughs and bald cypress swamps and marsh ponds. These areas even with present-day drainage activities contain standing water much of the year and support a rich diversity of plant and animal life. Some of the plant species present include cordgrasses (*Spartina* spp.) and succulent marsh plants such as pickerelweed (*Pontederia lanceolata*) and arrowhead (*Sagittaria* spp.) and ferns such as swamp fern (*Blechnum serrulatum*), *Thelypteris* and *Osmunda* ferns. The deep open marshes of the area are likely relict burnt cypress solution holes and pond features as evinced by the abundant dead snags and logs of that species. At present, many of these features contain pop ash (*Fraxinus caroliniana*), pond apple (*Annona glabra*), coastal plain willow (*Salix caroliniana*), and buttonbush. Many acres, particularly in the eastern part of the parcel contain extensive areas of open, low "hatrack" cypress which are flooded much of the year. Many of the individual trees, though stunted, are quite old. Selective coring of these and similar cypress has revealed many of these broad-buttressed trees can be several centuries old. All of these environmental zones were heavily exploited by prehistoric Indians, early white settlers, and more recently recreational hunters.

The geology of the Rattlesnake Hammock area is characterized by solutioned limestone caprock lying exposed or overlain to various depths by sands or shelly marls. In cypress sloughs, but particularly in cypress dome/solution ponds there are potentially deep deposits of muck or peat. A fine tan sand found extensively in the district is Immokalee fine sand which usually overlies relict marine deposits of shelly marl and marly limestone caprock that are part of the Pleistocene Caloosahatchee and Fort Thompson formations.

percentages of sand. These clays may have been a source for ceramic manufacture by the Formative period Native Americans. Mantling the Immokalee sands are windblown deposits of gray sands of varying depths.

Other areas contain tan and gray sand surfacial zones overlying a dense brown sand spodic horizon (often referred to as "hardpan"). This formation is a zone of organic leaching accumulation. Occasionally, harder "nuggets" or nodules of an iron oxide precipitate will be found in this zone, which is sometimes a basal archaeological zone.

Both the Caloosahatchee and Fort Thompson marls and the associated limestone caprock contain the index fossil bivalve, *Chione cancellata,* in quantity. Depths of sand or marl overburden seldom exceed 70 centimeters. Many higher ground formations in the area appear to be bedrock unconformities that consist of fully exposed tabular slabs of limestone caprock containing numerous rounded solution holes.

Figure 2. Aerial photograph of the Toll-Rattlesnake parcel

N

0 1/4 1/2 1 Mile approx.

Previous Research

Southwest Florida has been a focus of archaeological investigations since the 1880s, although much of the early work was directed toward the recovery of museum quality artifacts rather than understanding cultural processes. Griffin (1988:48-50) discussed some of the very early references to archaeological sites in south Florida. He noted that these early reports were mostly casual observations, and few appear to refer to southwest Florida, but rather refer to the southeast and Key West areas.

Kenworthy's (1883) informal report on shell mounds and ancient canals was one of the first reports of Southwest Florida archaeological sites. At about the same time as Kenworthy's investigations, Simons (1884) gave a narrative account of some of the very large coastal shell middens, and Douglass (1885) provided further information about prehistoric canals (although he did not accept that they were prehistoric). One described canal near Gordon's Pass is probably the Naples Canal (8CR59), and one further north may be the Pineland Canal. Douglass' diaries record excavations of a post-contact era site (8CR41) on Horrs Island, as evidenced by the presence of European artifacts (Griffin, 1988:50-51). Douglass visited Lostman's River and other areas in the Ten Thousand Island area, and a visit to Horrs Island was briefly narrated in Douglass (1890).

In 1895 Durnford reported that cordage and other artifacts were recovered from a mangrove muck pond on Marco Island (site 8CR49). The material was shown to Cushing, who mounted a major project to recover more material from the site. Cushing (1897) reported recovering wood and other perishable artifacts from the muck pond on Marco Island, adjacent to a large shell works and midden village site. Publication of illustrations of the spectacular finds generated a great deal of subsequent interest. Wells M. Sawyer, a young artist accompanying the expedition, produced an excellent and presumably accurate contour map for the entire Key Marco Shell Midden. This map is valuable to present-day efforts in understanding many of the now obliterated features and interpreting (reconstructing) the "architecture" of the shell midden. Widmer (1983) notes that Cushing also focused attention on the nonagricultural chiefdom level of social organization supported by the rich estuary and marine resources, although his anthropological observations have remained overshadowed by the wealth of artifacts.

Moore (1900, 1905, 1907) investigated a number of sites along the Collier/Lee County coast, apparently attempting to find material comparable to Cushing's finds. Although Moore provided information about site locations and general contents, most of his work was extremely crude and uncontrolled, by both contemporary archaeological standards, and by modern standards.

The first attempt to systematically survey and investigate archaeological sites was initiated by Ales Hrdlička, who visited a number of sites along the coast and tidal mangrove estuaries in 1918, focusing on the Ten Thousand Island region (Hrdlička 1922). Hrdlička noted that southwest Florida was a distinct region within south Florida and made an attempt to type sites by function.

Matthew Stirling's (1931, 1933) excavation of a burial mound on Horrs Island represents one of the first controlled excavations in Collier/Lee Counties (although he attempted stratigraphic control, Cushing had little success in his wet site excavation). The site was named the Blue Hill Mound, but it is not recorded under that name in the FMSF (either as a primary or secondary name), so it is unclear exactly which site he excavated, although it was probably site 8CR41 (McMichaels, 1982). These reports by Stirling are preliminary, and apparently neither a final report nor a skeletal analysis has been published.

John M. Goggin was the first to define a south Florida cultural area (Glades Area), and describe south Florida ceramics (Glades ware), establishing a basis for later archaeological work. He published an analysis of the ceramic sequence in south Florida (Goggin, 1939, 1940). In later reports (Goggin, 1947, 1949a, 1949b), he formulated a basic framework of cultural areas and chronologies that is still current (although modifications with additional data have been made, see further discussion below). Goggin (1949b) summarized much of this information in an unpublished manuscript, which Griffin (1988) thoroughly described.

In passing, one unfortunate aspect of Goggin's work was a dependence on informant information for location of sites (especially interior sites) and he had a real concern that existing sites would be looted. This concern resulted in his either deliberately or incidentally reporting vague locational data for many sites. Some of these sites have never been satisfactorily relocated, although a few have undoubtedly been re-recorded by later investigators.

For several decades, much of the subsequent archaeological investigations in the region took place in Lee and Charlotte Counties, especially in the Cape Haze, Charlotte Harbor and Pine Island areas. It is rumored that Goggin had a "gentleman's agreement" with many of the other leading practicing Florida archaeologists of the time that the South Florida area was his exclusive province to investigate. If this rumor is correct, it might explain the neglect shown the southwest Florida area in the archaeological arena from the end of World War II to Goggin's death in 1964.

In 1956, Sears reported on a large village and mound complex at the mouth of Turner River on Chokoloskee Bay south of Marco Island, and in 1967 he reported on the results of a survey of the Cape Coral area (Sears, 1956, 1957). Laxson (1966) reported on excavations at Turner River Jungle Garden site, which is upriver from the Turner River site, although these have been confused in recent accounts.

Van Beck and Van Beck (1965) excavated three small test pits on Marco Island (at the Marco midden, 8CR48) associated with the Cushing site (8CR49). The resulting publication of this work was some of the first reported scientific archaeological work to come from the southwest Florida area in nearly twenty years (Van Beck and Van Beck, 1965).

In 1967 through 1969, Marco Island was extensively surveyed and a few sites were tested through excavation by Cockrell, Morrell, and others (Morrell, 1969). No complete site

report was ever published, although an unpublished and incomplete manuscript is available. Some of these sites were discussed in Cockrell's master's thesis (1970). Widmer performed a survey of Big Key, John Stevens Creek, Barfield Bay, Blue Hill Bay, and Collier Bay, which are proximal to Marco Island (Widmer, 1974). Widmer eventually utilized his southwest coast experience to write a doctoral dissertation on the Calusa that not only remains the definitive work on that group, but also explored the relationship between subsistence adaptation and cultural evolution (Widmer, 1983).

In Lee County, Arlene Fradkin and other investigators from the University of Florida began an ongoing involvement with the Pine Island Sound/Sanibel Island area in the 1970s. Her first investigations were at the Wightman site on northern Sanibel Island (Fradkin, 1976).

Several archaeologists excavated at Horrs Island in the 1980s. McMichaels (1982) reviewed sites on Horrs Island in a Master's thesis. In 1983, Marquardt began a series of investigations at Josslyn Key, Useppa Island, Pineland, Buck Key, Galt Island in Lee County, and at Big Mound Key in Charlotte County (Marquardt, 1984, 1987, 1988, 1992). Marquardt and Russo have investigated Horrs Island in Collier County. A number of the large shell midden village sites they excavated appear to be late Archaic, and they expect to document a more elaborate social organization at these sites and larger sedentary or semi-sedentary population sizes than previously known for that period (Russo, 1990, and pers. comm.).

Most of these studies focused on the coastal sites, as have subsequent summaries and discussions. Recent work on the interior has made significant advances in documenting the extent and intensity of inland resources, especially in the Big Cypress and Everglades parks (Ehrenhard *et al.*, 1978, 1979; Ehrenhard and Taylor 1980; Ehrenhard *et al.*, 1980; Taylor and Komara 1983; Taylor, 1984, 1985). Griffin's (1988) synthesis of the Everglades Park data is the defining work on south Florida archaeology to date. Athens (1983) summarized some of the results of the Big Cypress survey, but more analysis of this data resource is needed.

Beriault and colleagues (1981) reported on salvage excavations at Bay West Nursery (8CR200). Their description of the site includes a well known but rare and infrequently documented Early and Middle Archaic use of ponds for cemeteries.

In 1995, Widmer and Story began an ongoing investigation at the Key Marco Midden (Widmer, 1996). In the first season they excavated with the help of graduate students and volunteers. The results of their work have appeared in the *Florida Anthropologist*.

In the last two decades the pressure of development, as well as a recognized need for preservation or mitigation of prehistoric sites has led to a number of reports by commercial cultural resource management consultants. While most of these reports are limited in scope due to restriction to a small tract of land, many have produced useful summaries of regional archaeology, as well as insightful analysis of the relationship between site types and location and ecotypes. (Almy and Deming, 1982, 1986a, 1986b,

1986c, 1987; Austin, 1987; Carr and Allerton 1988a, 1988b; Deming and Almy, 1987, 1988; Fay and Carr 1990; Fuhrmeister *et al.,* 1990; Martinez, 1977; Miller and Fryman, 1978; Swift and Carr, 1989).

Arthur W. Lee, John Beriault and others in the Southwest Florida Archaeological Society (SWFAS) have recorded and investigated a large number of archaeological sites in Collier and Lee Counties. It is an ongoing effort of the Society to publish and disseminate reports and manuscripts (Lee *et al.,* 1993, 1997, 1998; Beriault, 1973, 1982, 1986, 1987; Beriault and Strader, 1984). Many of these reports deal with small interior seasonal sites. This avocationist society is one of the strongest voices for the protection of Collier and Lee County archaeological resources, and they have been careful to document their excavations, the majority of which are salvage operations on sites that have been heavily impacted or threatened with pending development. In addition, Beriault has provided several unpublished manuscripts as to site types and areas (Beriault 1982, 1987).

The Archaeological and Historical Conservancy has investigated several large parcels in the Rattlesnake Hammock area. In 1993, AHC personnel investigated the Lely Estates Parcel west and directly adjoining the present subject parcel locating seven prehistoric sites (Carr and Steele, 1993). In 1998, AHC personnel conducted a Phase One assessment of the three square mile Winding Cypress adjoining the present subject parcel locating eleven prehistoric sites (Beriault and Carr, 1998). In July 2003, the AHC worked in the 43 acre Newton PUD Parcel between Johns and Amity Roads east and adjoining the present subject parcel and documented four sites including an eastern component of the Buschelman Site, 8CR726 (Beriault 2003). In November, 2003, AHC personnel worked on the proposed CR951 (Collier Blvd.) road widening area adjacent to and west of the subject parcel. The area of the western (main) part of the Buschelman Site, 8CR726 to be impacted was examined, and one previously unrecorded archaeological site, the Sable Palm Road Site, located one half mile south of the Buschelman Site, was investigated.

In the early 1980s, the Southwest Florida Archaeological Society through the efforts of John Beriault and Charlie Strader endeavored to record all archaeological sites in Collier and southern Lee County known to the group. Nearly 100 site forms were submitted to the State Site File. One of the sites in the subject parcel, Hunting Camp Hammock, 8CR556, is located in the project parcel and was filed at that time by Strader. Beriault had visited the site in 1983 and noted it was a midden with sand-tempered plain ceramics on the surface and a recently abandoned modern hunting camp on the site, however, an error was made in recording the distance and direction of the site. The site is actually located approximately 900 feet to the southwest of the location reported in the 1985 site form.

Cultural Summary

Stirling was the first to distinguish the indigenous prehistoric cultures of southern Florida in 1936 by defining a Glades cultural area, including all of south Florida (Carr *et al.*, 1994b:9; Milanich, 1994:5-6). Griffin (1988) pointed out that this was not formulated as a strict cultural area, but it was rather a geographic region with some common cultural traits. Kroeber (1939), in a review of North American prehistory, utilized a slightly different term, the "South Florida Area," basing his definition on both environmental and cultural factors. Subsequently Goggin delineated more particular boundaries for southern Florida and divided the region into three sub-areas: "Okeechobee" around Lake Okeechobee, "Tekesta" for southeast Florida and the Florida Keys, and "Calusa" for Southwest Florida (Carr *et al.*, 1994b:10; Goggin, 1947:114-127).

Following Goggin's study, subsequent researchers have refined or altered the cultural distinctions attributed to southern Florida's prehistoric populations. There has been criticism that Goggin's names and definitions were based on historic accounts of the main (proto) historic groups found in the respective regions and not on the archaeological evidence of spatial, temporal, and cultural differences (Sears, 1966; Griffin, 1974; Carr and Beriault, 1984; Griffin, 1988). Griffin, in particular, questioned the distinctions. He believed that South Florida cultures varied only by local environmental conditions and ceramic exchange rates. Griffin believed the inhabitants of prehistoric southern Florida were mainly dwelling on the coast and that the interior was nearly uninhabited and under-utilized. Griffin designated the entire southern Florida region as the "Circum-Glades" area (Eck, 1997:5; Griffin, 1974:342-346). This new designation for the area was furthered by a widely circulated book on Florida archaeology by Milanich and Fairbanks (1980). Griffin later (1988) retreated to some extent from his earlier position as further research (particularly by Ehrenhard, Carr, Komara, and Taylor in the Big Cypress and Carr in the eastern Everglades in the 1970s and 1980s) showed abundant sites (and concomitant use and habitation) in the interior and Everglades.

Carr and Beriault, in particular, have taken issue with the concept of a Circum-Glades region. Carr's research in the Big Cypress and Everglades and his subsequent analysis demonstrating variation of key cultural markers (particularly in decorated ceramics) formed the basis for this contention. There is abundant evidence for cultural (and probably political or tribal) diversity in the various areas of south Florida. Carr and Beriault particularly noted and defined differences between the lower southwest Florida coast, which they termed the "Ten Thousand Island" region, and the area to the north, which they called the "Caloosahatchee" region. This latter area they believed to be the seat of the historic Calusa chiefdomship, although previous (and some subsequent) researchers have called the entire southwest Florida from Cape Sable to the Cape Haze peninsula (and beyond) in Charlotte County "Calusa."

Griffin, in his definitive 1988 synthesis on Everglades archaeology, attempted to reconcile and refine some of the conflict in the definition of south Florida prehistoric and historic culture areas. As stated by Carr and colleagues (1994b), "the issue...appears in part to be one of trying to determine the significance of regional and temporal variation, rather than whether these differences are real." There is evidence that changes through

time in regional political affiliations or realties makes any model *not* addressing this complex issue two-dimensional. The Calusa hegemony that was in place by the time of the arrival of Europeans may have begun as early as 800 AD in the Ten Thousand Island "district" or area (Griffin, 1988:321; Carr *et al.,* 1994b:12). There is currently ongoing research to further refine present thought as to cultural affiliations in south Florida. It would seem only a matter of time before new directions and emphases provide a more accurate summation of south Florida cultural affinities.

Using the present models, the coastal zones of Collier County and southern Lee County contain three distinct culture areas. Indian Hill on Marco Island lies thirty miles from the projected interface by Carr and Beriault (1984) of the Caloosahatchee area (called the "the 'heartland' of the Calusa," Carr *et al.,* 1994b:12) to the north, and the Ten Thousand Islands area to the south. At a yet undefined point to the east lies the Okeechobee cultural area, but the boundary, if it is a definite, fixed one, is likely to occur in the vicinity of the Immokalee rise forty miles or more to the northeast of Indian Hill. Further work is in progress by Carr to address the issue of where the southwest boundaries of the Okeechobee culture area occur.

Temporal Periods and Adaptations

At the same time that the south Florida archaeological cultural models have evolved over the past 60-plus years, so have the temporal markers or framework on which we base evolution of that culture. Much of this latter effort has resulted from comparisons made between the recovered artifacts from the 100-year period of scientific and *non*scientific excavation and collection by the various individuals and institutions (and others) enumerated in part above. This Floridian effort must be seen against the broader background of archaeological work in eastern North America and the New World as a whole. All of these efforts have been mutually complimentary and certainly not exclusive.

In south Florida, the following periods and adaptations are generally accepted. Part of this chronology involving the later or Formative period is called the Glades sequence in honor of Goggin, the greater part of whose work in defining the ceramic sequence or markers has withstood the test of time and subsequent criticism (Goggin, 1939, 1947, 1949c). From Goggin's day to present, pottery variability in form, substance, and decoration has proven useful for providing time markers, at least during the archaeologically-brief (± 3500 year) period spanning the late Archaic and Formative periods that it was produced. Other artifact types and their variations have, to present, proven somewhat less reliable as absolute indicants of prehistoric age. Radiocarbon dating, a phenomena of the last 30-plus years, provides, within the standard deviation expressed in plus-or-minus years BP (before present), a relatively absolute date for a given sample and provides a yardstick to measure traits or distinctions in provenienced artifacts. Determining and adequately defining what traits we can discern against this absolute is part of the ongoing function of the regional archaeological effort.

The following information is generalized and abbreviated. The dates are approximate; transitions between periods are in reality more gradual that the manner they are expressed for convenience.

Paleo Period (14,000 - 8,500 BP)

During the Paleo Period, the first Native Americans began moving into the southeastern portion of North America and Florida. Most evidence of their presence in Florida can be reliably dated to about 10,000 BP.

There are no known Paleoindian sites in Collier County. Several are documented from elsewhere in south Florida, including Warm Mineral Springs and Little Salt Springs in Sarasota County (Cockrell and Murphy, 1978; Clausen and Gifford, 1975), Harney Flats in Hillsborough County (Daniel and Wisenbaker, 1987) and the Cutler Fossil Site in Dade County (Carr, 1986).

During this period, the terminal Wisconsian ice age, the climate was probably less extreme, with cooler summers and warmer winters. The climate was also drier, and sea levels were lower (Carbone, 1983; Allerton and Carr 1988a; Griffin, 1988).

One reason that possible Paleo period sites have not been discovered in Collier and Lee Counties is that the shoreline may have been as much as 100 miles further west due to lower sea levels. Drier conditions may have made the interior very inhospitable, and the shallow estuarine and littoral sites that existed were flooded by post-ice age Holocene sea rises.

Any possible interior sites from the Paleo Period may be unrecognizable due to lack of diagnostic artifacts, subsequent reuse of site areas, low population density, and few permanent camps. These and other factors may help explain the absence to date of identifiable Paleo period sites in Collier and Lee Counties. On the other hand, the southwest Florida coast south of Charlotte Harbor may have been uninhabitable during this period due to an absence of key conditions for the successful hunting of large game, a trait of the Paleo period.

Archaic Period (8,500 - 2,500 BP)

The Archaic period reflects a post-Pleistocene shift in adaptation marked by an increase in the seasonal exploitation of a broad spectrum of food resources, a more restricted use of territory due to regional specialization, and more semi-sedentary habitation sites. No ceramics are known until the Late Archaic. During the Archaic, regional specializations became more marked, not only with material culture but also with distinct local utilization of local plant and animal resources.

As mentioned above, there is, as yet, no firm evidence of human presence in southwest Florida during the Paleo period. This apparently is also true for the Early Archaic (8500-7000BP), as there is evidence of an environment too arid to support scrub oak, and the presence of shifting wind formed dunes (Watts, 1975; Widmer, 1983). No early Archaic sites are known from southwest Florida (Allerton and Carr, 1988:14).

By about 6500 BP mesic conditions began to spread, although localized xeric conditions continued (and still exist in some areas) through south Florida. Middle Archaic sites dating from this time are rare, although the Bay West Nursery site (8CR200) in Collier County and the Ryder Pond site (8LL1850) in Lee County near Bonita Springs provide evidence of occupation, as do several sites in southeast Florida. The Bay West site is a Middle Archaic cypress pond cemetery, associated with a lithic scatter. The Ryder Pond site is a similar mortuary pond site surrounded by pine flatwoods (Carr and Heinz, 1996). Beriault has also recorded several aceramic shell scatters in coastal sand hills (paleo dunes), some of which may date to the Middle Archaic. Griffin (1988) summarizes evidence indicating that despite the rise of available surface water, brackish estuaries and other major modern landscape features had not formed, and population (or repopulation) was still sparse.

During the Archaic period sea levels began to rise at a fairly rapid rate, estimated at 8.3 cm. per 100 years 6000-3000 BP, and 3.5 cm per 100 years afterwards (Scholl *et al.*, 1969), although whether sea levels were steadily rising or oscillating is still unclear (see Griffin 1988; Allerton and Carr, 1990 for recent reviews of the literature). Data is somewhat difficult to sort out as sea level rise was accompanied by both shore regression and transgression in places. As conditions became wetter (and warmer) in the interior, cypress swamps and hardwood sub-tropical forests established themselves by about 5000 BP (Carbone 1983, Delcourt and Delcourt 1981).

By late Middle or early Late Archaic times (4000 years BP) there were significant shell mounds and middens on Horrs Island, Marco Island, and elsewhere in the coastal regions, suggesting that the estuary system had been established and was being utilized to provide the subsistence basis for denser populations and semi-sedentary settlements (Morrell, 1969; Cockrell, 1970). At Useppa Island in Lee County, excavations have provided radiocarbon dates from pre-ceramic shell middens ranging between roughly 4900 BP and 5600 BP, suggesting that the Middle Archaic as well as Late Archaic periods saw a growing dependence on shellfish resources (Milanich *et al.*, 1984). There are aceramic coastal sand hill and interior wetland sites as well, but these have not been demonstrated to be Archaic despite some investigators equating aceramic with preceramic. Radiocarbon dates for these sites would clarify this point.

Allerton and Carr (1988) noted that a number of stratified sites in the wet mangrove and marsh areas of the Everglades, as well as on Horrs Island, contain Archaic preceramic horizons, although it is unclear if aceramic was equated with preceramic. Additional supporting evidence of interior use by Archaic peoples will provide a new dimension to the archaeological understanding of Archaic resource utilization. Allerton and Carr point out that if the wet tree islands were initially used by Archaic people, then at least some of the hardwood hammocks in swamp environments were raised in elevation (with subsequent changes in vegetation) due to human activities. Post-Archaic people extensively utilized these hammocks and continued to advance their development as distinct geomorphic features. This is obviously an area where additional archaeological investigations have a potential to contribute to understanding the interaction of geomorphic and cultural evolution in southwest Florida.

Toward the end of the Archaic there was the introduction of fiber-tempered pottery into the archaeological record, often used as a marker of the Orange Phase, commencing at about 4000 BP, either coincident with or soon after the development of the extensive shell middens. The Late Archaic Orange Phase subsistence strategy is characterized by intensive use of shellfish and marine resources, as well as being marked by an accelerated trend toward regional specializations.

A number of the large shell middens on Marco Island (Cockrell, 1970), Horrs Island (Russo n.d.), Cape Haze (Bullen and Bullen, 1956), and elsewhere date from this period or earlier, as they contain fiber-tempered ceramics, although there are known aceramic (preceramic?) levels below the Orange Phase deposits that may date to the Middle Archaic. These shell middens are usually capped by deposits from later occupations as well.

Formative Stage or Glades Periods (2500 BP - 500 BP)

The Formative or Glades adaptation, based on hunting, fishing, and the harvesting of shellfish and plants, was similar to the Archaic, but was characterized by increasing specializations in gathering strategies and tool-making. Earlier writers have typed this hunter-gatherer society as primitive or "low-level" (Kroeber, 1939). However, there is certainly evidence from the specialization of tools, from the beautifully-executed wood carvings from Key Marco in Collier County and those from Fort Center near Lake Okeechobee (Cushing, 1897; Sears, 1982), and from the historic accounts of the Calusa hegemony, that the south Florida area had an advanced culture that Goggin (1964) has called a "stratified non-agrarian society."

The preceding Late Archaic late Orange phase (also known as the transitional phase) was marked by changes in pottery, and terminated with the relatively rapid replacement of fiber-tempered pottery with sand-tempered, limestone-tempered, and chalky "temperless" pottery. It was also characterized by changes in ceramic style and often by reduction in the size of stone projectile points.

The Formative Stage (beginning about 2500 BP) is divided in south Florida into the Glades Periods sequence. Subsistence adaptation is marked by a narrowing spectrum of resource use, as well as continued trends toward regional diversity and ecological specializations, marked in part by the proliferation of inland resource extraction encampments.

Formative Period cultural evolution eventually led to increased political sophistication, perhaps initially of modest dimensions, but culminating in broad regional political alliances and regulation of materials and goods (*i.e.* resources) between the coast and inland areas (Milanich and Fairbanks, 1980). By protohistoric and contact times the Calusa were the dominant tribal group, gaining broad political influence and at least partial control over much of south Florida as far north as central Brevard County. Historically, the main Calusa village has been regarded as "Calos" on Mound Key in Estero Bay in Lee County, although 50 to 70 large villages were under direct Calusa control by contact times (Griffin, 1988).

During the Formative Periods, village sites grew to the proportions of large multi-use complexes, particularly along the coast and barrier islands of southwest Florida. Some of the projected intra-site functions of the elements of these complex shellworks were as temples, canals, causeways, temple and platform mounds, courtyards and watercourts. Current research involving the excavating of large contiguous areas of these shell mound complexes is beginning to establish demonstrable uses for the features of these large sites, upon which heretofore were merely speculated (Widmer, 1996).

Tidal estuary rivers and inland hammocks along deep water sloughs, marshes, and permanent ponds were seasonally visited for extraction of natural resources, and are now marked by small to relatively large black dirt middens, some of which may have been semi-permanent hamlets. The pine and cypress flatwoods appear to have supported few sites, although areas around Lake Trafford and other rich interior areas developed substantial sites, including sand mounds, and may be more similar to the Okeechobee cultural area than to the coastal cultures.

In 1992, Dickel and Carr excavated an apparent Deptford Period burial mound (the Oak Knoll Site) in the Bonita Bay Tract north of the Imperial River. Exotic trade items and seventy or more human burials were among the material findings. The resulting conclusions and subsequent surveying and testing of the Bonita Bay Shell works (8LL717) suggest social stratification and complexity may extend further back into the past than the Formative period (Dickel and Carr, 1992).

Coastal sites (shell middens) reflect a predominate dependence on fish and shellfish, wild plant foods and products, and larger inland game. The inland sites show a greater reliance on interior resources, including large, medium and small mammals, turtle, small freshwater fish, alligator, snake, frogs, and, sometimes, freshwater shellfish. Interior and coastal resource exchange can be documented by the consistent finds of moderate amounts of marine shell in many interior middens, as well as interior resources in coastal middens.

The Formative Stage (with a nod to Goggin) has been often termed the Glades cultural tradition. Much of this "tradition" is focused on decorated ceramics, the minority in the archaeological record, although the majority of recovered (rim) sherds are plainware. However, despite this, pottery (and its decorations) is usually utilized as the major temporal marker(s) for fitting sites into a temporal framework. Changes in pottery do not represent mere changes in artistic motifs, but reflect inter- and intra-regional trade contacts and outside cultural influences (possibly through exogamy, shifting of populations, and even the through evolution of a culture through time). Whatever the influences, the Glades tradition is continuous from post-Archaic times to contact times.

Despite the fact that exogamy is likely to have been practiced, traders or other specialists probably moved between major cultural areas in small numbers, and genetic flow probably accompanied cultural exchange, although perhaps not on the same scale. This may have increased in later times due to use of traditional obligations of kinship and intermarriage to stabilize alliances that were not codified into a formal legal system.

The following table has been modified from several sources, but it is predominantly based on Milanich and Fairbanks (1980), Griffin (1988), and Allerton and Carr (1990). Dates have been rounded somewhat and translated to Before Present (BP). There are some differences of opinion in the dates, particularly about the timing of the Glades Ia and Ib division.

TABLE 1: GLADES CULTURAL SEQUENCE

Glades Ia (2500 BP - 1500 BP)	First appearance of sand tempered plain pottery, but little else to mark a difference and the preceding Late Archaic. Sand tempered plain remains a predominate type throughout the Glades sequence.
Glades Ib (1500 BP - 1250 BP)	First appearance of decorated sand-tempered ceramic (Ft. Drum Incised, Ft. Drum Punctated, Cane Patch Incised, Turner River Punctate), plainware common. Pottery rim grooving and incision decorations become widespread.
Glades IIa (1250 BP - 1100 BP)	First appearance of Key Largo Incised, Sanibel Incised, Miami Incised, and plainware is common. Distinction between ceramics of southeast and southwest Florida becomes apparent. Ten Thousand Island area distinct from Caloosahatchee area. First mound construction- increased social stratification? Population size may have approximated that at contact.
Glades IIb (1100 - 1000 BP)	First appearance of Matecumbe Incised; Key Largo Incised common on east coast, Gordon's Pass Incised common on the west, and plainware common throughout.
Glades IIc (1000 BP - 800 BP)	First appearance of Plantation Pinched, but few decorated wares with a preponderance of plainware (there is some evidence of population reduction- perhaps due to a cataclysmic event). Non-local pottery (*e.g.* St. Johns Plain and Check Stamped, Belle Glade Plain) appears.
Glades IIIa (800 - 600 BP)	First appearance of Surfside Incised, increasing quantities of St. Johns pottery (especially on East Coast), and Belle Glade pottery.
Glades IIIb (600 BP - 500 BP)	Glades Tooled rims appear (rare on West Coast), zoned punctate designs, but general decline in incised decoration. Belle Glade ceramics common

	on west coast. St. Johns ware present but rare on West Coast, common on East Coast.
Glades IIIc (500 BP - 300 BP)	Continuation of IIIb ceramics, with pronounced flaring of rims and embossing on Glades Tooled ceramics. Mound burial construction less common with intrusive burials into existing mounds, appearance of European goods, plainware common.

By European contact times (the first half of the 16th century), the southwest coast of Florida was maintaining a vigorous, possibly expanding political chiefdom with a broad network of alliances, as well as a rich and ancient cultural tradition without an agricultural base. However, direct conflict with Europeans and, more importantly, exposure to European diseases led to the rapid decline of the Calusa. By the mid 1700s their numbers had greatly diminished. The remnants of this once-powerful tribe may have left south Florida in the 1760s with the Spanish for relocation in Cuba. Others may have become indistinguishable from Spanish Cuban fishermen who worked the great fishing "ranchos" in the Pine Island Sound region catching and salting fish for export to Cuba. Other groups of Native Americans may have fused with the Creek-derived Seminoles.

In the late 1700s, members of the Creek tribe were forced into Florida from Georgia and Alabama. They were later called Seminoles, from the Spanish term "cimmarones." Pressures from colonial (and later) white encroachment on their traditional territories forced them into the Big Cypress and Everglades area by the 1830s. By this time, most of the cultural identity of pre-contact times had been lost, although some of the Calusa subsistence strategies may have been partly adopted by Seminoles. A number of Seminole period sites have been documented on earlier Glades middens. This coincidence may in part reflect the paucity of high land in the interior (Ehrenhard *et al.*, 1978, 1979, 1980; Ehrenhard and Taylor, 1980; Taylor and Komara, 1983; Taylor, 1984, 1985). Older midden sites (particularly those called "black dirt" middens) can be rich agriculturally as well as archaeologically, making these foci for historic Seminole gardens and fruit groves.

Seminole periods in south Florida are divided into I (1820-1860), II (1860-1900) and III (1900-1940) (Ehrenhard *et al.*, 1978). Post-1940 Seminole camps are designated "Late Seminole" in some reports. These designations reflect the different stages of Seminole migration into south Florida, Seminole displacement and active conflict with the expanding American culture, and the eventual refuge by Seminole remnants in Big Cypress and Everglades regions. Military records, and, in particular, several sketch maps by military personnel done in the 1830s and 1840s and the Ives military map of South Florida (1856) shows evidence of investigations at and near "Malco Inlet," "Casimba," "Good Land," and "Cape Romans."

Seminole Wars in the Southwest Florida Area

The advent of the Second and Third Seminole Wars (1834-38, 1855-58) disrupted the peaceful settlement of the Southwest Florida region. There were a number of forts, "temporary" and permanent, established along the Caloosahatchee River during this time. Fort Dulaney was established at Punta Rassa near the mouth of the Caloosahatchee in 1837 and was occupied intermittently through 1841, and again in 1855. After a hurricane destroyed Ft. Dulaney in 1841, Fort Harvie was established upriver. The name of this fort was changed in 1850 by its commander General Twiggs to honor his new son-in-law, Col. Abraham Myers. Fort Myers was thus created, and became the chief fort of the region.

From this central administrative point, a line of forts was established up the Caloosahatchee River. They were: Fort Denaud, Fort Adams, Fort Thompson, and Fort Center on Fisheating Creek leading into Lake Okeechobee. Other forts and "temporary depots" were established south into the Big Cypress Swamp such as Fort Simon Drum, Temporary Depot Number One, Fort Doane, Fort Simmons, Fort Keis, Fort Foster, Fort Shackleford, and others.

A number of military expeditions were sent south along the coast during the Second and Third Seminole Wars with the objectives of interdicting trade in guns and ammunition between the Seminoles and the Spanish-Cuban fishing community, and hunting and capturing Indians. General Thomas Lawson, who had just been appointed Surgeon General of the United States, commanded one of the early notable expeditions. Lawson's expedition left Fort Harvie (Fort Myers) in February 1838. Elements of Lawson's command explored the area in and around the Caxambas Point area, discovering two abandoned Indian villages in the Blackwater River/Palm Bay area. Other expeditions bivouacked at Cape Romano and Caxambas Point. Colonel Rogers, of the ill-fated Parkhill expedition, wrote several dispatches from Cape Romano in the Caxambas area in 1858, describing the ambush of Captain Parkhill's party at the headwaters of Turner River. The Collier County Museum is the repository for a collection of military artifacts purportedly found by a local collector near Indian Hill in the early 1960s. This material may have originated with one of the various military expeditions stopping at Caxambas Point.

In the Rattlesnake Hammock area, Old Fort Foster was established and occupied several times as a "temporary depot." This installation was situated along a trail crossing a hammock and deep slough area somewhere west of the subject parcel. A skirmish was also reportedly fought near this locale in 1837.

Rattlesnake Hammock Area History

The Rattlesnake Hammock area has always been attractive to various people, both during prehistoric and historic times. There is evidence from military maps of Seminole Wars period that various villages and encampments of Seminoles were in the general area of the hammock. By the 1880s, various white settlers and homesteaders such as the Whiddens, Carrolls, Smiths, and Kirklands had settled the area of Henderson Creek

immediately south of Rattlesnake Hammock. These early settlers farmed the Henderson Creek area and hunted up into Rattlesnake Hammock. Various early sportsmen visiting or wintering in Naples took oxcart trips into the Rattlesnake Hammock area to hunt. The advent of the Tamiami Trail in the late 1920s further opened access to the area. The completion of the Atlantic Coastline Railway by 1928 also enabled logging of pine and cypress in the Belle Meade area south of Rattlesnake Hammock. State Road 951 was built in the late 1950s/early 1960s and opened up Rattlesnake Hammock to development by landholders. The Sabal Palm Road community was created during that time period. Landscaping demands in the rapidly-developing Naples area caused early residents such as the Langford family and "Monkey" Hunter to dig and transport cabbage palms from the hammock. Other individuals such as Seth and Buster Johns harvested cypress trees for their sawmill on Johns Road near the subject parcel.

In the early 1980s, a Naples area tradition, the Swamp Buggy Races, was moved from a locale it had occupied since 1953 on Radio Road to a larger modern facility at the newly created Florida Sports Park east of the intersection of Rattlesnake Hammock Road and CR951. This venue comprised a series of races by "classes" of homemade off-road vehicles, generally utilizing outsized tires and custom made chassis called "swamp buggies". The first swamp buggy was reputed to have been created by Ed Frank Sr. of Naples in the 1920s with the original purpose of using the vehicle for hunting. Formal races the week prior to hunting season were first held in the late 1940s at a marsh called Newman's Pond slightly north of downtown Naples. The present-day Races continue this local tradition and feature ever more powerful and creative machines driven by drivers who are now members of an association and featured on various television Sports Channels.

The Sable Palm Road/Rattlesnake Hammock area today is seeing increasing density of development with condominium communities and upscale single family home construction being created along the Collier Boulevard (State Road 951) corridor.

Methodology

Prior to conducting fieldwork in the project parcel, relevant archives and literature were reviewed. This included, but was not limited to, studying previous archaeological reports for sites in Collier County, reviewing information from the Master Site File in Tallahassee concerning nearby sites, and examining USGS maps of the project area. Also, black and white and color aerial photographs from the project area, which could aid in revealing anthropogenic changes to the topography and floral communities, were interpreted. A site search made with the Department of Historic Resources indicated there were two previously-recorded sites in the project site. These were Hunting Camp Hammock, 8CR556 (a site previously recorded by Beriault and Strader) and the Silver Hard Hat Site, 8CR826 recorded by Christine Newman and Mary Glowacki during their survey of the Picayune Preserve. It has been determined that this latter site lies in a 20-acre out-parcel within the present parcel.

Research Design

This phase 1 archaeological survey of the Toll-Rattlesnake parcel incorporated the use of certain predictive models. These models are based on topographic and vegetative attributes that are associated with prehistoric and historic sites in southwestern Collier County. These models postulate that high ground live oak/tropical hardwood hammocks in close proximity to deep sloughs or marshes are high probability areas for prehistoric archaeological sites. The elevational information on the USGS Belle Meade and Belle Meade NW Quadrangle maps for the area also were used. It was determined that overall, the project parcel had a medium to high probability of containing archaeological sites because of its elevational variation, known sites in the area, as well as its proximity to Rattlesnake Hammock. The information and profiling of vegetative communities in the FLUCFCS map provided by project biologists Passarella and Associates, also was extensively used to locate and select targets for testing.

Fieldwork

Initial visual inspection of the subject parcel identified a wide range of topographic and vegetative features. A few areas of the parcel, particularly those closest to State Road 951 had been severely impacted by prior clearing, scraping and borrowing activities. Most of the invasive exotics such as meleleauca and brazillian pepper also are concentrated in dense stands in this westerly portion of the subject parcel. Areas to the east are largely unaltered woodland with the exception of a hunting camp and cleared fields in the southeastern portion of the parcel (Figure 2). Access to interior parts of the parcel consist of trails crisscrossing open cypress areas and densely vegetated pine islands.

All parts of the parcel were assessed by windshield or pedestrian survey and any additional targets noted for further investigation. A total of thirty-six targets of possible archaeological sites was identified from aerial imagery and from FLUCFCS map designations and ground truthing. Chris Emblage of Passarella and Associates was

interviewed by AHC personnel and gave additional valuable information that led to the identification of several of the targets to be ground truthed.

All thirty-six targets were visited in the field and decisions made as to whether to test them based on elevations, vegetation, and other elements associated with archaeological sites. Ninety-six shovel tests were dug as 45 cm squares to what was judged sterile zones, generally depths exceeding 50 centimeters. Systematic and judgmental shovel tests were dug in locations on twelve targets. All dug sediments were screened through ¼" mesh hardware cloth and any material judged to be of archaeological significance was saved. All collected material was placed in sealable plastic bags and sent to the AHC lab in Davie for evaluation and conservation. All recovered material will repose at the Historical Museum of Southern Florida in Miami.

Collections

All recovered materials (FS 1-18) were cleaned and quantified (Appendix 1).

Informants

Chris Emblage of Passarella and Associates, project biologist, was interviewed in Fort Myers as part of this assessment. He identified several hammocks across the parcel that were visited and assessed.

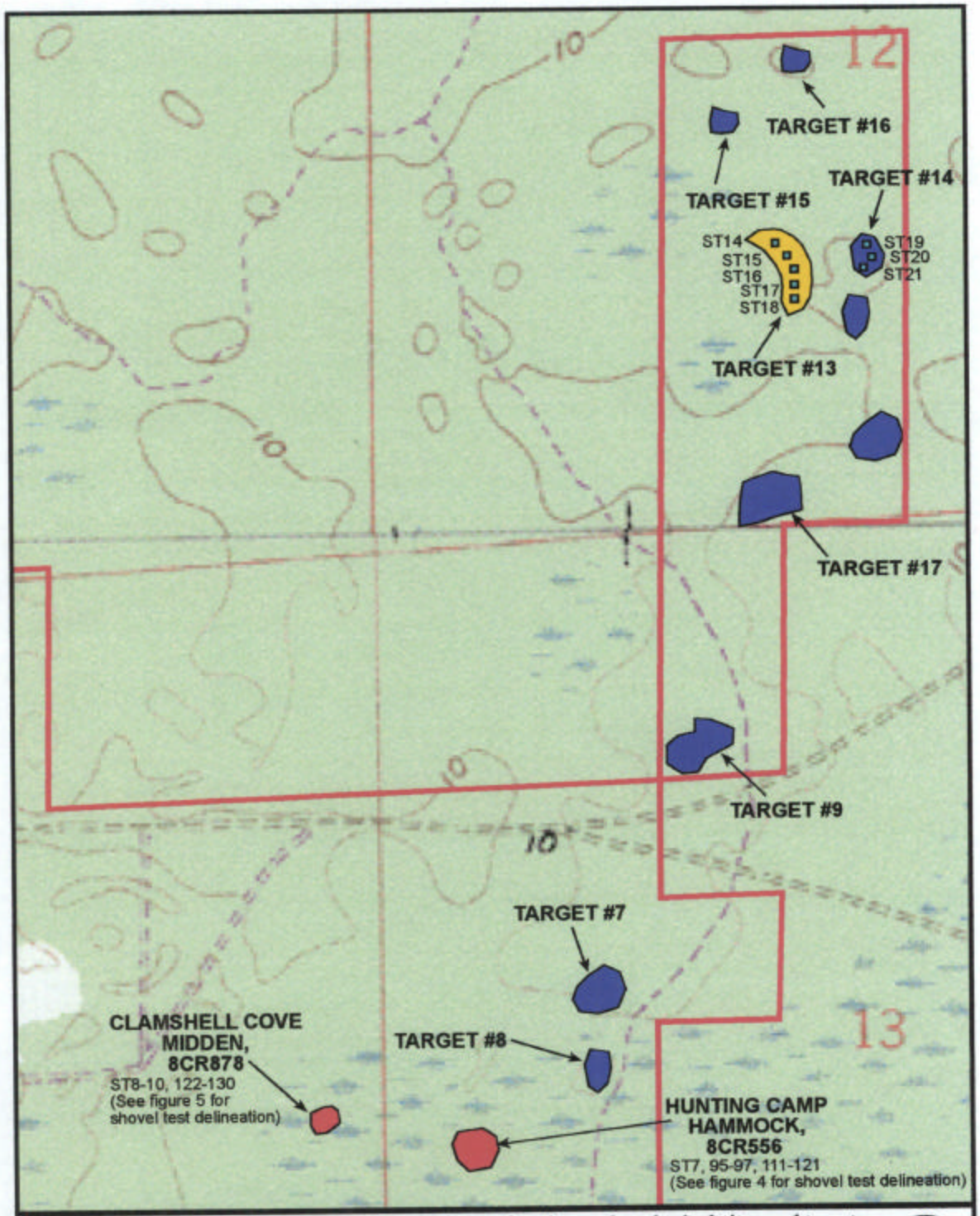


Figure X. Map A of the Toll-Rattlesnake parcel area showing archaeological sites and targets

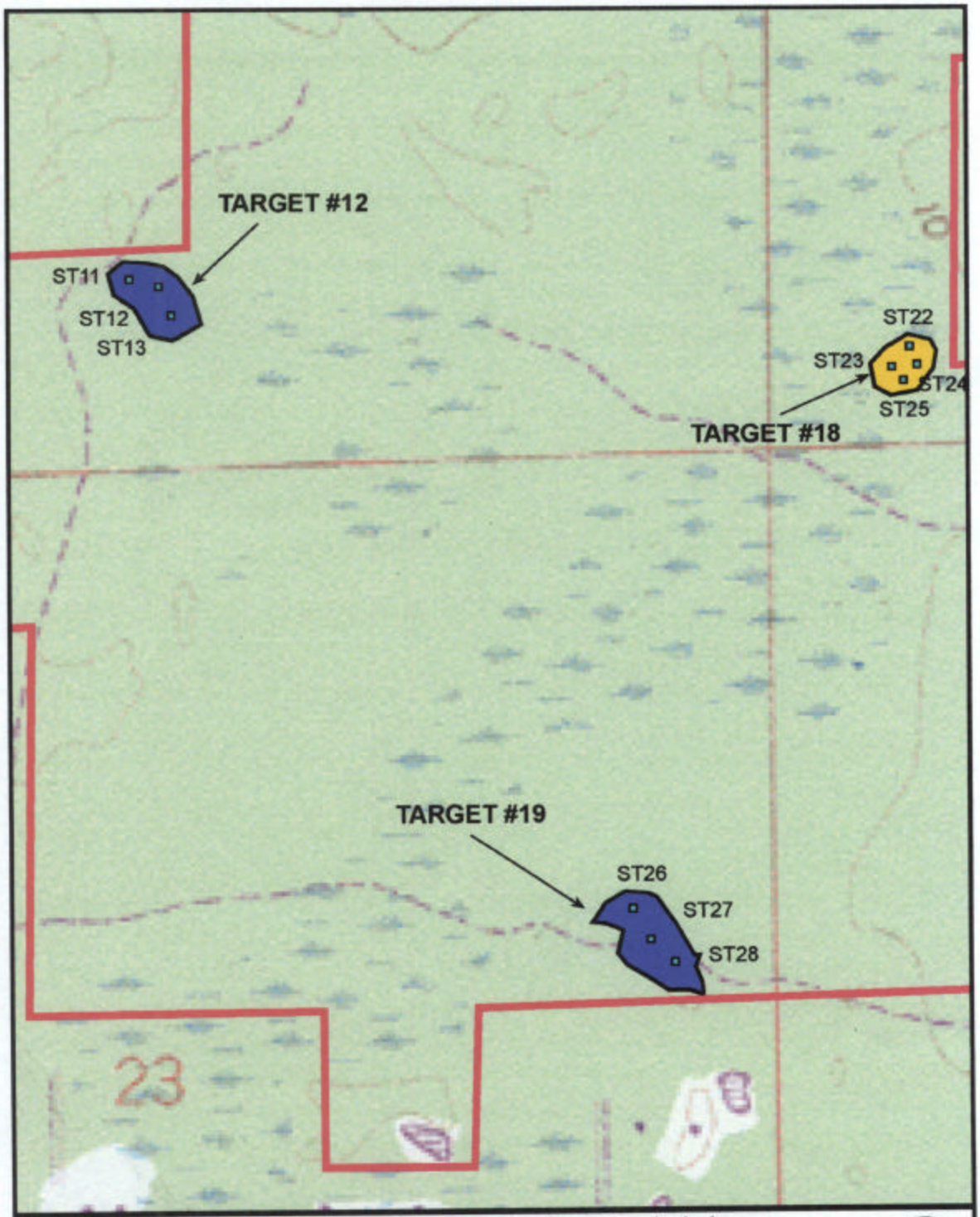


Figure X. Map B of the Toll-Rattlesnake parcel area showing archaeological targets

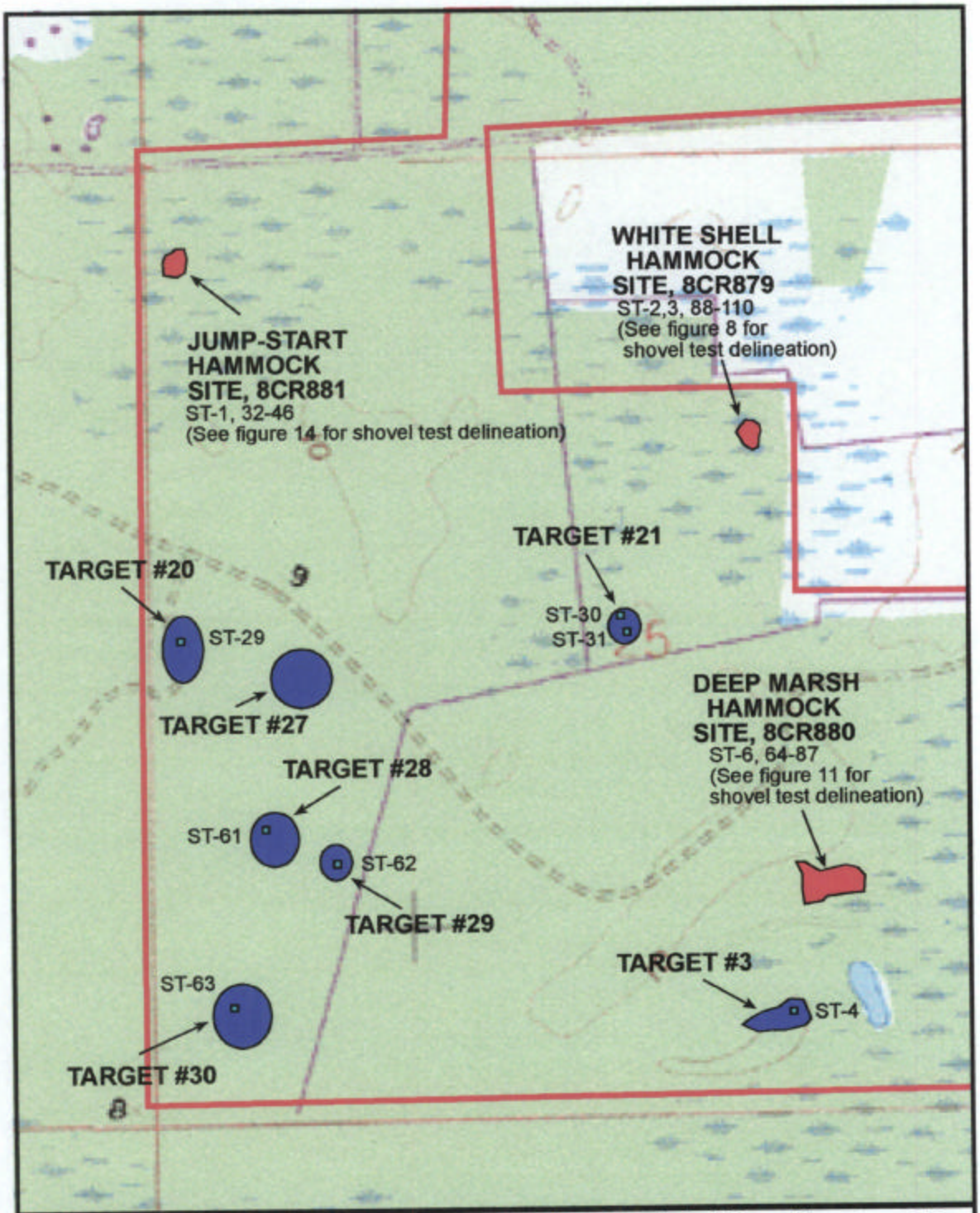


Figure X. Map C of the Toll-Rattlesnake parcel area showing archaeological sites and targets

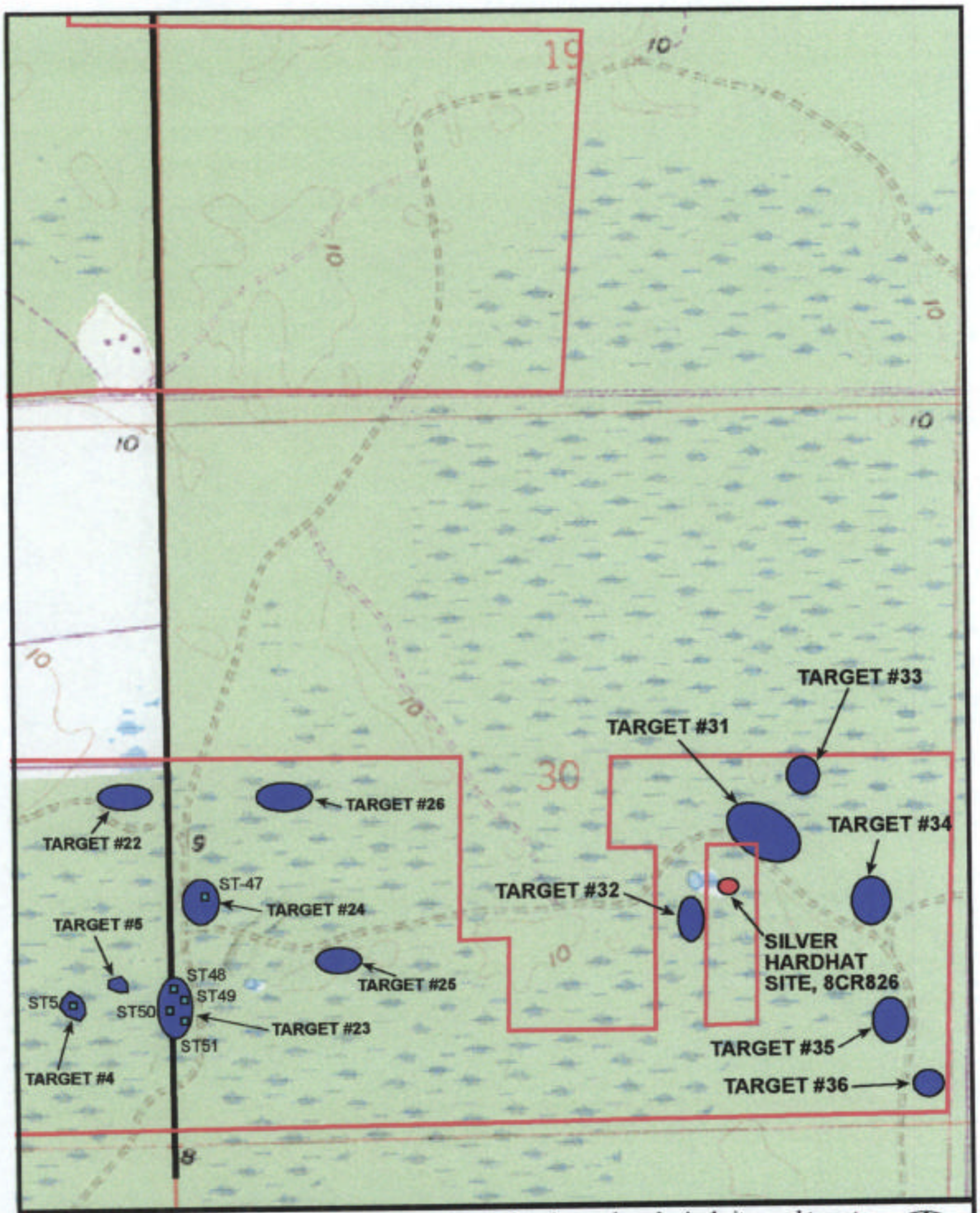


Figure X. Map D of the Toll-Rattlesnake parcel area showing archaeological sites and targets

USGS MAPS: BELLE MEADE AND BELLE MEADE NW, 1991

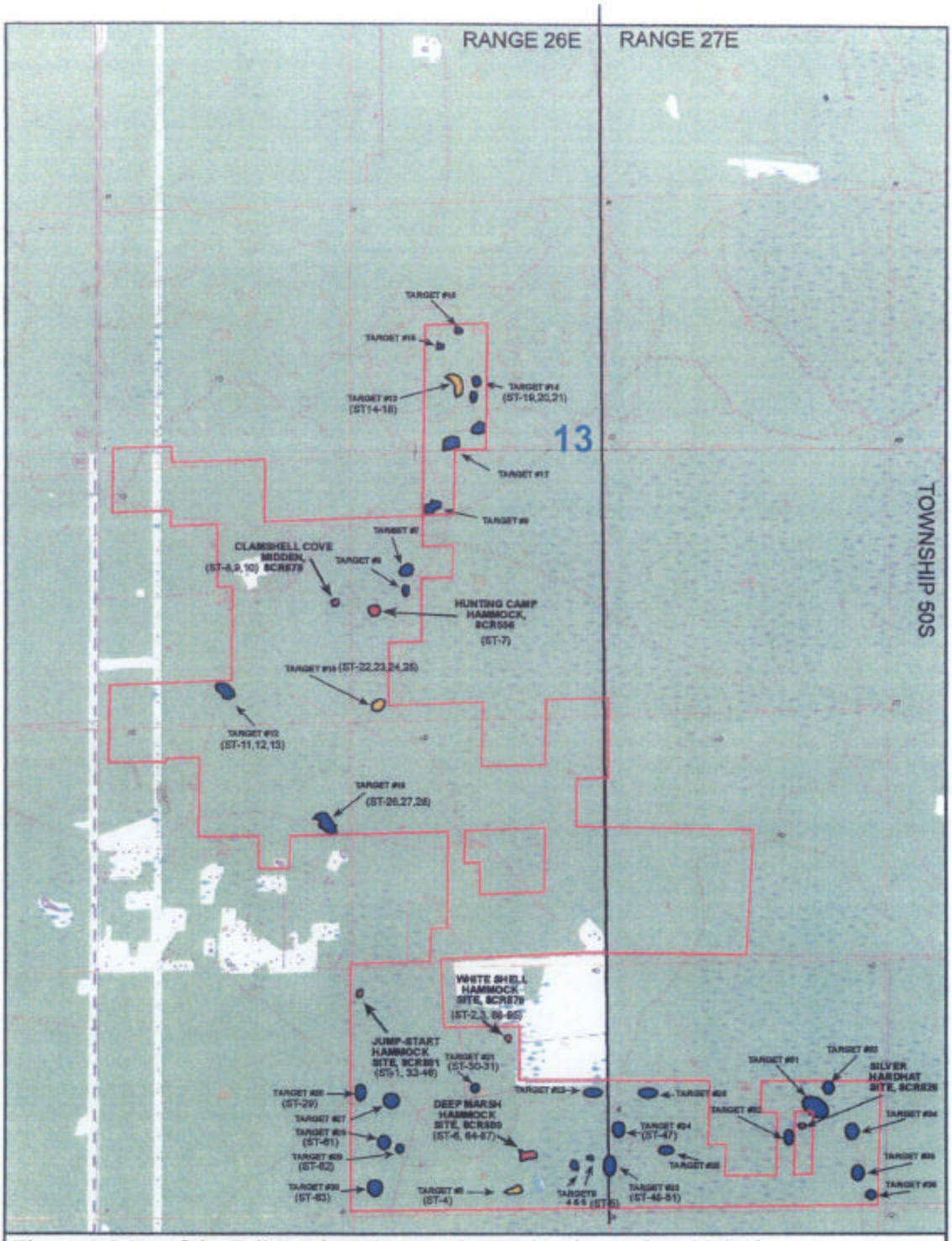


Figure 3. Map of the Toll-Rattlesnake parcel area showing archaeological targets and sites

= ARCHAEOLOGICAL SITE
= SELECTED TARGET
= TARGETS OF POTENTIAL ARCHAEOLOGICAL SITES

USGS MAPS: BELLE MEADE AND BELLE MEADE NW, 1991

Results and Conclusions

This phase 1 assessment of the Toll-Rattlesnake Parcel resulted in the investigation of all parts of the parcel and the documentation of five prehistoric sites. A total of ninety-six test holes were dug across the parcel (Figure 3). One building, a modern hunting cabin, exists on the parcel that is less than fifty years old and is not historic. Recovered cultural materials from the parcel are characterized by both artifacts and ecofacts—specifically faunal bone, marine shell, and sand-tempered ceramics.

One previously recorded site, 8CR556, the Hunting Camp Hammock, was assessed on the parcel. It is located in the mid-portion of the parcel. This site was reported twenty years ago by the present investigator Beriault. It was determined that an error of location had been made in the initial site form. The actual site location is approximately 900 feet southeast of the 1985 reported location, an error caused by confusion of the site with a small, discreet pine island (listed in the present report as Target #8 and determined to be a low probability area for archaeological remains). 8CR556 is located in a tropical hardwood hammock used as a modern hunting camp dating from circa 1970s. A shovel test in the central part of the site produced faunal bone and sand-tempered plain ceramics (FS 4).

Four previously unrecorded archaeological sites also were recorded on the parcel. All are prehistoric camps or small villages used for habitation and subsistence activities. The Jump-Start Hammock Midden (8CR881) is characterized by a shallow concentration of faunal bone located on a small discreet tropical hardwood hammock with a near-surface limestone caprock substrate. The White Shell Hammock Site, 8CR879, located 1000 feet southeast of the Jump Start Hammock Site, is characterized as a faunal bone midden located on the north end of a very large live oak/cabbage palm hammock adjoining a deep slough to the south and west. A columella "chisel" made from a *Busycon contrarium* (lightning whelk) and faunal bone was recovered during testing of this site (Figure 7).

The Deep Marsh Hammock Site (8CR880), located a little more than a quarter mile south of the White Shell Hammock Site, is situated in an ovoid cabbage palm hammock at the northern end of a tear-drop shaped deep marsh that is nearly permanently wet. No sand-tempered plain ceramic sherds were recovered from a shovel test in the easterly part of this site. The Clamshell Cove Midden Site (8CR878) is situated 1500 feet west-northwest of the Hunting Camp Hammock Site and is an elevated, midden yielding marine shell, faunal bone and sand-tempered plain ceramics. The vegetation is diverse tropical hardwoods. A ceramic body sherd recovered from this site has linear abrasions or scratches, likely done after the vessel was broken, suggesting the sherd may have been used as a sharpening tool, possibly for bone pins (Figure 5).

Considering the distance of the five sites from the coast, approximately 8 to 10 miles, it is possible that these sites were camps and stopping points along a principal canoe trail connecting the coast to the interior. The rich bio-diversity of the Rattlesnake Hammock area, suggests that it was a destination location over at least a thousand years for coastal

shell-mound Indians who traveled up interior river/slough systems to acquire needed resources. Very likely these Indians returned to the same locales seasonally over extended periods of time, maintaining camps and villages over the centuries.

All five prehistoric archaeological sites (8CR556, 8CR878, 8CR879, 8CR880, 8CR881) are of local significance, and, based on criteria (d), for sites "that have yielded or may be likely to yield, information important in history or prehistory," three are potentially eligible for listing on the National Register of Historic Places based on available data. The well preserved faunal bone assemblage and shell found at 8CR556, 8CR878, and 8CR881 could provide important information regarding prehistoric subsistence patterns and habitats. Sites 8CR879 and 8CR880 appear to be small camps and are not eligible for listing on the National Register, based on available data.

In addition to the five recorded sites on the subject parcel, there are three areas of possible archaeological concern (Figure 3). Target 13 lies in the northerly extension of the parcel. It is an elevated crescent shaped sand ridge flanked by marshes to the east and west. The vegetation on the ridge is characterized with large live oaks with saw palmetto understory. Areas of the ridge are three feet higher than the surrounding country. Five shovel tests failed to reveal archaeological material, but the prominence of this anomalous feature and its advantageous situation suggests that a site could be associated with it. If the area is to be impacted by future development, then phase 2 testing should be done. Similarly, Targets 3 and 18 were also shovel tested without any archaeological material encountered. These three features will need additional archaeological investigations if they are to be impacted by future development.

No human remains were recovered from any of the assessed sites. Midden graves are common in southern Florida, thus all of the sites have a medium to high potential of encompassing isolated human graves or cemeteries. If human remains are found, the provisions of Florida Statute 872.05, the Unmarked Human Graves Act, will apply.

A site search with the Florida Department of Historic Resources indicated that the Silver Hard Hat Site, 8CR826 recorded by Christine Newman and Mary Glowacki during their 2001 survey of the Picayune Preserve might have been present on the subject parcel. It has been determined that this site lies in a 20-acre out-parcel within the present parcel (Figure 3).

Summary of Sites

Site Name:	Hunting Camp Hammock
State Site Number:	8CR556
Environmental Setting:	Tropical hardwood hammock surrounded by low "hatrack" cypress
Location:	Range 26E, Township 50S, Section 13
Site Type:	Midden
Site Function:	Habitation, resource extraction
Description:	The site is located on a tropical hardwood hammock island with a limestone base surrounded by low hatrack cypress. The site peaks at around two feet (+ 80 cm) above surrounding lowlands near the center of the hammock. Site size is about 150 feet in diameter (approximately 20,000 square feet). Modern trash indicates the site was used as a hunting camp circa 25 years ago. Prehistoric material recovered includes faunal bone and sand-tempered plain ceramics. The site is vegetated in cabbage palm, mature camphorwood, marlberry, myrsine, hog plum, wax myrtle, and red bay. Note that the location recorded in the 1985 site form is wrong and has been revised as a result of this assessment to about 900 feet from its previous reported position.
Chronology:	Prehistoric: Glades unspecified
Collections:	Faunal bone, ceramics, marine shell (FS 4)
Previous Research:	Strader, site file form, 1985

Preservation Quality:	Good to excellent, a modern hunting camp has occupied the site, but with little apparent below-ground disturbance
Ownership:	Private
Significance:	Site is of local significance and is potentially eligible for listing on the National Register of Historic Places.

Site Name:	Clamshell Cove Midden
State Site Number:	8CR878
Environmental Setting:	A tropical hardwood hammock tree island surrounded by low cypress
Location:	Range 26E, Township 50S, Section 14
Site Type:	Midden
Site Function:	Habitation, resource extraction
Description:	The site is characterized by an intensive midden deposit. It is located on a hardwood hammock island surrounded by acres of low cypress swamp. The site area is estimated to cover the entire hammock with the highest concentrations of cultural remains occurring near the center. Estimated site size is about 250 by 150 feet. Maximum elevation approaches three feet (80-90 cm) above the surrounding cypress strands. The site is vegetated in a diverse tropical hardwood hammock which includes large gumbo limbos, very large mastics, satinleaf, marlberry, gulf gray twig, camphorwood, white stopper, hog plum, willow bustic, spanish stopper, myrsine, wild coffee, *Pisonia aculeata*, wild indigo, and other plants. The soil is a gray ashy midden. A total of three shovel tests revealed abundant faunal bone, sand-tempered plain ceramics, and marine shell consisting of venus clam, lightning whelk and Lucine.
Chronology:	Prehistoric: Glades I, II
Collections:	Faunal bone, ceramics (22 STP), marine shell (FS 5-8)
Previous Research:	None
Preservation Quality:	Good to excellent, the only disturbance noted was animal burrowing
Ownership:	Private
Significance:	Site is of local significance, and is potentially eligible for listing on the National Register of Historic Places.

Figure 4. View northwest at tall gumbo limbos growing on Clamshell Cove Midden Site, 8CR878

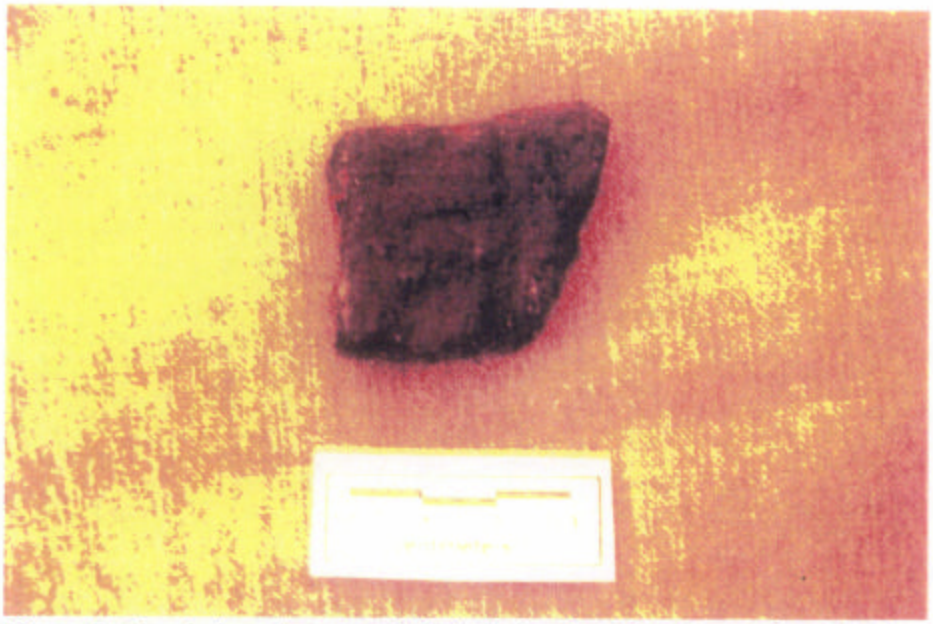


Figure 5. Abraded sand-tempered plain body sherd found at surface-level, ST-10, 8CR878. This sherd may have been used as an abrader for bone points.

Site Name:	White Shell Hammock
State Site Number:	8CR879
Environmental Setting:	Large live oak/cabbage palm hammock situated northeast of a deep circular marsh
Location:	Range 26E, Township 50S, Section 25
Site Type:	Midden
Site Function:	Habitation, resource extraction
Description:	This site as located on the northern end of a 2 to 3 acre hammock (Fig. 6). The topography at the north end of the hammock is moderately elevated, generally higher than the rest of the hammock. Estimated site size is 150 by 200 feet. Maximum elevation of the site is in the north-central part of the hammock at about 60-70 cm above surrounding cypress wetlands. Shovel testing recovered faunal bone and a shell "chisel" created from the columella of a lightning whelk (Fig. 7). This tool may have been used in woodworking. Further delineation at the site performed by Craig Weaver indicates distribution of material may be discrete and "spotty". Phase 2 testing would be necessary to determine the site's exact extent and significance. A total of 10 test holes were dug here but only one was positive for cultural materials.
Chronology:	Prehistoric: Glades unspecified
Collections:	Faunal bone, shell tool (FS-2)
Previous Research:	None
Preservation Quality:	Very good to excellent, there seems to be little below-ground disturbance
Ownership:	Private
Significance:	The site is of at least local significance, but based on current data, is not eligible for listing on the National Register of Historic Places. Phase 2 testing is recommended for a better determination of significance.

Figure 6. View east at White Shell Hammock containing the prehistoric site, 8CR879

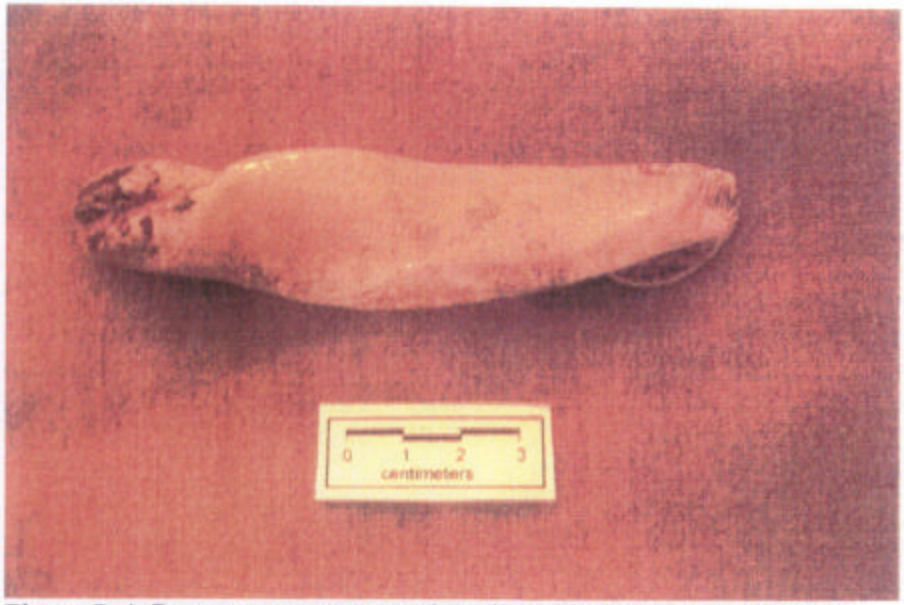


Figure 7. A *Busycon contrarium* columella "chisel" or gouge found at 15 cm depth, ST-2, White Shell Hammock Site, 8CR879

Site Name:	Deep Marsh Hammock
State Site Number:	8CR880
Environmental Setting:	Ovoid, slightly elevated cabbage palm hammock with deep marsh lying to immediate south
Location:	Range 26E, Township 50S, Section 25
Site Type:	Midden
Site Function:	Habitation, resource extraction
Description:	The site is located in an elongate cabbage palm hammock that is located south of Sabal Palm Road at the north end of a deep tear drop shaped marsh. The marsh has a nearly year-round hydroperiod. The site size is estimated to include most of the hammock and measures approximately 150 by 200 feet. Maximum elevation is about 10-20 inches (30-40 cm) above the immediate surroundings. Testing included nine shovel tests of which one was positive. Sand-tempered plain ceramics were uncovered at a 20-55 cm depth in the northern part of the hammock. These test results suggest sparse or discreet distribution of cultural material. Phase 2 testing will be necessary to determine the exact site extent and significance.
Chronology:	Prehistoric: Glades unspecified
Collections:	Sand-tempered plain ceramics (FS-3)
Previous Research:	None
Preservation Quality:	Very good to excellent, there is little below-ground disturbance
Ownership:	Private
Significance:	The site is of at least local significance, but based on available data, is not considered eligible for listing on the National Register of Historic Places, although Phase 2 testing could change that assessment.

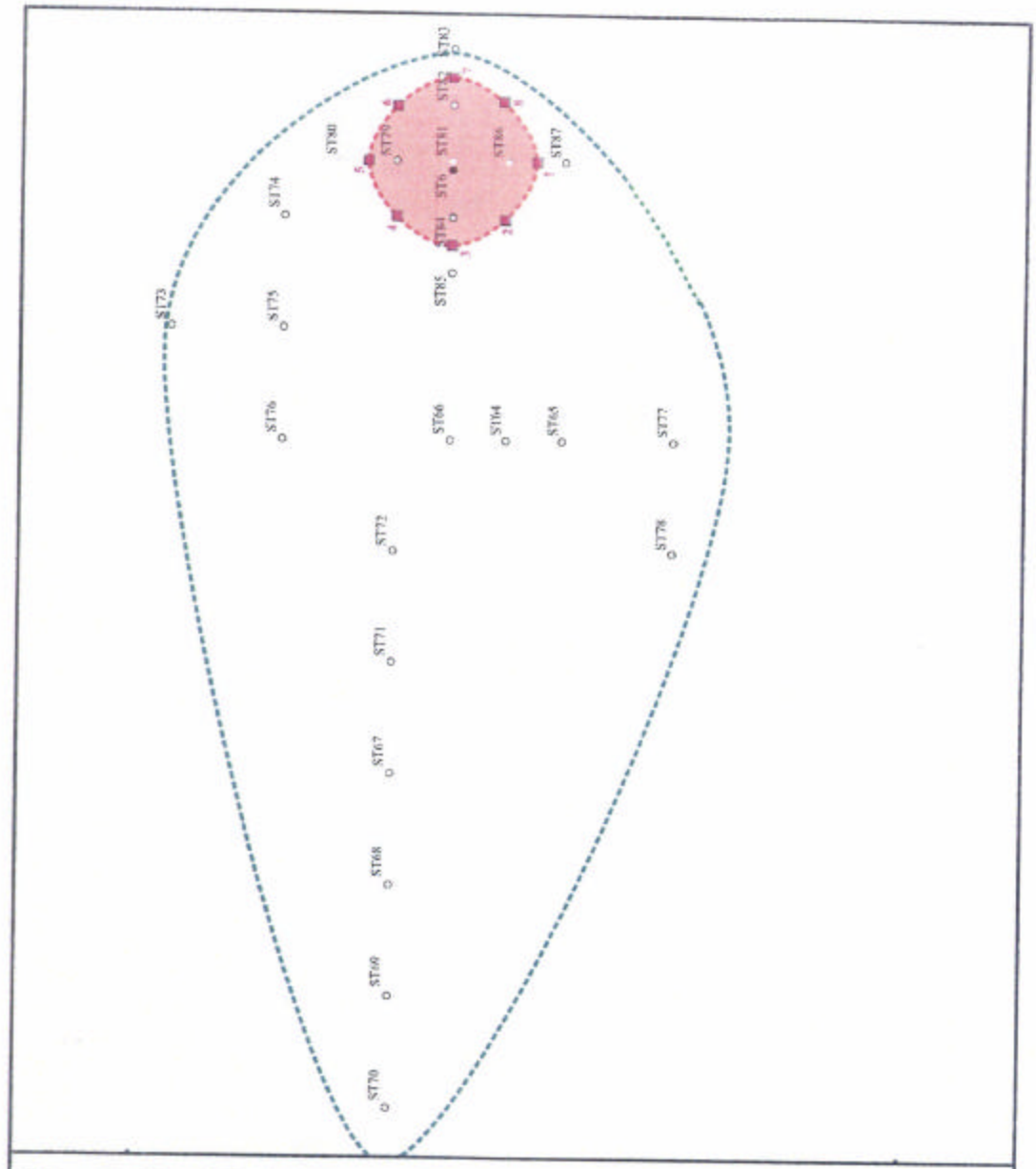


Figure 8. Deep Marsh Hammock Site, 8CR880, showing location of shovel tests.

Figure 9. View north. Vegetation in pond apple swamp south of Deep Marsh Hammock Site, 8CR880

Figure 10. View north. Gene Erjavec sifts material from Shovel Test 6 in Deep Marsh Hammock, 8CR880

Site Name:	Jump-Start Hammock
State Site Number:	8CR881
Location:	Range 26E, Township 50S, Section 25
Site Type:	Midden
Site Function:	Habitation, resource extraction
Description:	Estimated site size is about 150 feet (50 meters) in diameter. Elevation slopes upward from the surrounding cypress strand and peaks near the west-central part of the site at about + 70 cm. This site consists of a moderate quantity of faunal bone encountered at 20-65 cm. depth. The faunal bone is from turtle and other species. Also recovered was marine shell that includes lightning whelk and kings crown. The tropical hammock has areas of coppiced hardwoods such as camphorwood that may be indicants of areas of midden intensity. Systematic testing there indicates extensive faunal bone with 31 sand-tempered plain ceramic sherds indicating a Formative period component to the site.
Chronology:	Prehistoric: Glades unspecified
Collections:	Faunal bone, possible bone pin, marine shell, 31 sand-tempered plain pottery (FS-1, 9-18)
Previous Research:	None
Preservation Quality:	Very good to excellent, some surface trash indicates use of the hammock as a modern hunting camp, but there seems to be little below-ground disturbance
Ownership:	Private
Significance:	The site is of at least local significance, and is potentially eligible for listing on the National Register of Historic Places.

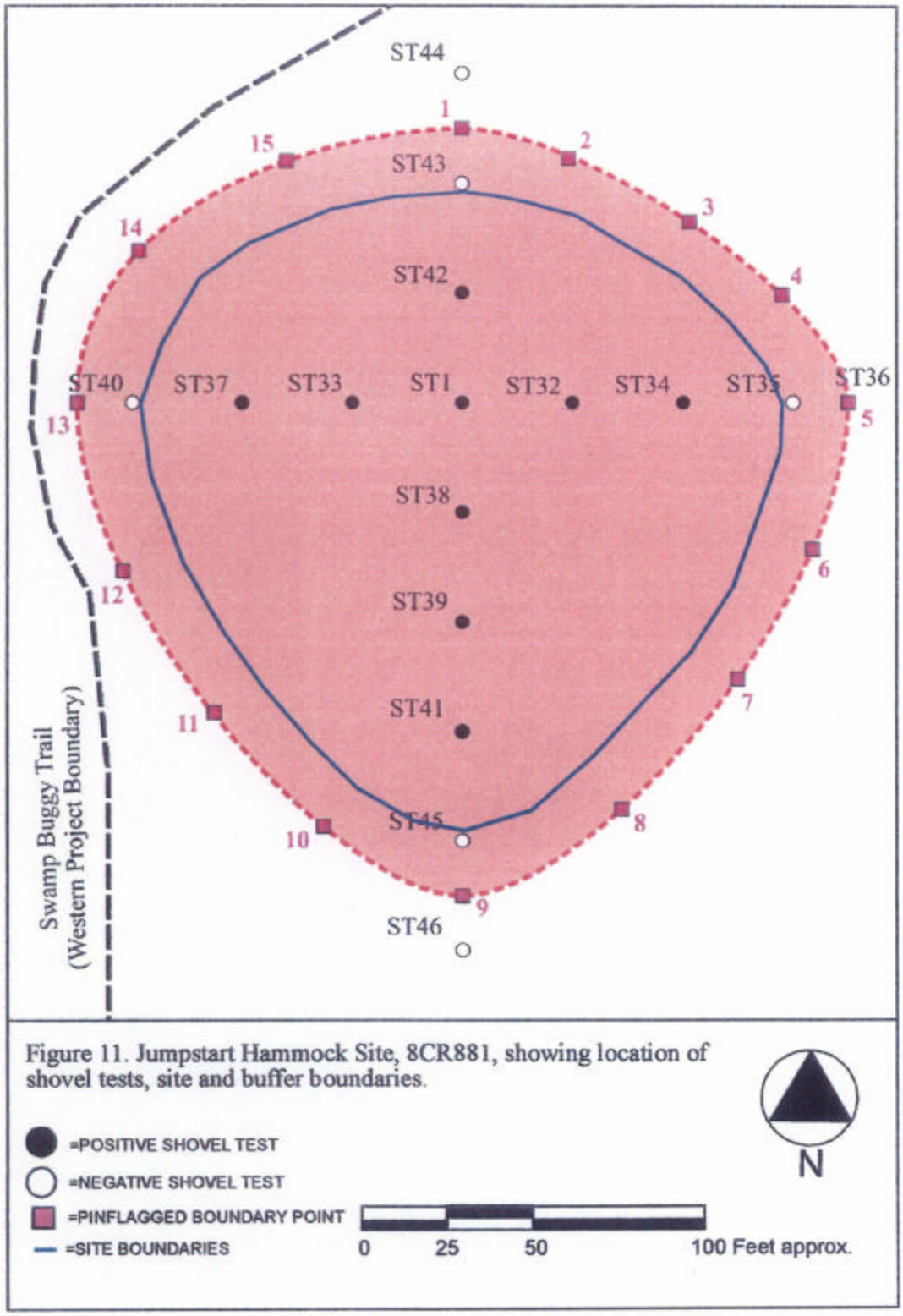


Figure 11. Jumpstart Hammock Site, 8CR881, showing location of shovel tests, site and buffer boundaries.

Figure 12. View west. Gene Erjavec sifts Shovel Test 1 in Jump-Start Hammock Site, 8CR881

Figure 13. View northeast at deep pond apple slough southeast of the Jump-Start Hammock Site. This was the likely water source for the site.

Recommendations

The archeological assessment of the Toll-Rattlesnake Parcel resulted in the documentation of five prehistoric archaeological sites: the Hunting Camp Site, 8CR556, the Clamshell Cove Midden Site, 8CR878, the White Shell Hammock Site, 8CR879, the Deep Marsh Hammock Site, 8CR880, and the Jump-Start Hammock Midden, 8CR881. All five sites provide evidence of prehistoric habitation typical of small camps or villages.

All five sites should be considered for preservation as green space areas, if feasible. If preservation of all or parts of the sites are not feasible, then additional archaeological investigations should be conducted to further document and mitigate these sites to offset any possible adverse impacts to these sites from clearing and development. If any or all of the sites are set aside as a green space preservation, then the following guidelines should be considered:

- Prior to any clearing or grubbing activities within 200 feet of the site, a temporary construction fence should be placed around the site.
- Any clearing of the site (*i.e.* removal of exotic vegetation) will need to be conducted by hand. No equipment should be used to clear the site or remove debris from the site area.
- All clearing, grubbing, and subsurface alterations (*i.e.* utility ditches, roads, planting) within 200 feet of the site should be subject to archaeological monitoring.
- No storage of fill, equipment, or supplies should be placed within the site preservation area.
- Any landscaping of an archaeological preservation area should be coordinated with the archaeologist.

Three other hammocks, Targets 3, 13 and 18 (Figure 3), are considered possible archaeological sites. Even though our testing on those targets uncovered no artifacts or cultural material, the features are consistent with other archaeological sites in the area. If future development grubbing, scraping or clearing is proposed for these three areas, then a Phase 2 assessment of the affected targets should be conducted.

It should be noted that cypress solution ponds have the potential of yielding Archaic Period human burials as similar features in the area have been used as mortuary ponds (Beriault *et al.,* 1981:57). The difficulty of adequately testing these features in a Phase 1 survey should be considered in the event that subsequent development proposes demucking these features. In this event, a plan should be in place to allow for monitoring by archaeologist of any pond related demucking. Particular attention should be provided to the possibility that human graves could be associated with any of these sites, particularly where midden deposits are relatively deep. If human remains are encountered, the provisions for Florida Statue, 872.05, the Unmarked Human Graves Act shall apply.

Although a thorough and systematic effort was made to document sites on the subject parcel, there is still the potential of other archaeological sites, features, or artifacts existing, and should subsequent development reveal this, efforts should be made to protect or document these resources, and if human remains are encountered then the provisions of Florida Statute 872.05 will apply.

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Appendix 1. Feathers Parcel General Field Specimen Log

FS	Site #	Provenience	Depth	Description	Collector	Date Collected
1	8CR881	ST 1, Target 1 (Jump-Start Hammock Site)	20-65 cm	Shell (61.2g), faunal bone (10.1g), charcoal (0.4g), wood (1.2g), Root mold (7 pc.)	JB,GE	1/15/04
2	8CR879	ST 2, Target 2 (White Shell Hammock Site)	0-15 cm	Faunal bone (3.5g), lightning whelk columella chisel	JB,GE	1/15/04
3	8CR880	ST 6, Target 6 (Deep Marsh Hammock Site)	20-55 cm	Sand-tempered plain ceramics (9 pc.), charcoal (0.1g)	JB,GE	1/15/03
4	8CR556	ST 7, Target 10 (Hunting Camp Hammock)	10-30 cm	Sand-tempered ceramics (3 pc.), faunal bone (1.6g), marine shell (3.0g)	JB,GE	1/16/04
5	8CR878	ST 8, Target 11 (Clamshell Cove Midden)	0-20 cm	1 pc. clam shell (11.4g)	JB,GE	1/16/04
6	8CR878	Surface-collected in eastern portion of Clamshell Cove Midden	0 cm	Whole clamshell half-shell (138.3g)	JB,GE	1/16/04
7	8CR878	ST-9, Target 11 (Clamshell Cove Midden)	0-35 cm	1 pc. wood	JB,GE	1/16/04
8	8CR878	ST 10	0-35 cm	Faunal bone (2.3g), sand-tempered plain ceramics (22 pc., 3 rims), marine shell (47.4g), marl rock (1 pc.)	JB, GE	1/16/04

Appendix 2. Site CR881, Jump Start Hammock, Field Specimen Log

FS#	Shovel Test #	Level	Depth (cmbs)	Description	Collector*	Date
9	32	1	0-18	sand-tempered plain ceramic body sherd (1)	RP/SF	10/18/05
				raccoon teeth (3) includes 2 molars, 1 premolar		
				faunal bone (...g total, ...g burnt) includes snake, turtle		
				shell (...g total, ...g burnt) includes clam		
				snail (...g)		
10	32	2	18-60	sand-tempered plain ceramic body sherds (2)	RP/SF	10/18/05
				faunal bone (...g total, ...g burnt) includes turtle		
				shell (...g) includes clam		
				snail (...g)		
11	33	1	0-50	sand-tempered plain ceramic body sherds (9)	CW	10/18/05
				faunal bone (...g total, ...g burnt) includes turtle, snake		
				faunal teeth (1 deer, 1 stingray)		
				shell (...g)		
				charcoal (...g)		
				burnt seeds (3)		
12	34	1	0-50	faunal bone (...g total, ...g burnt) includes snake, turtle	RP/SF	10/18/05
				seeds (2)		
13	37	1	0-50	faunal bone (...g total, ...g burnt) includes snake, turtle	CW	10/19/05
				charcoal (...g)		
14	38	1	0-20	sand-tempered plain ceramic body sherds (2)	RP/SF	10/19/05
				faunal bone (...g)		
				shell (...g) includes clam, oyster		
				snail (...g)		
				fish otolith (1)		
15	38	2	20-70	sand-tempered plain ceramic body sherds (8)	RP/SF	10/19/05
				faunal bone (...g) includes snake, turtle		
				shell (...g) includes conch, clam		

				snail (…g)		
				charcoal (…g)		
16	39	2	20-70	sand-tempered plain ceramic body sherds (4)	RP/SF	10/19/ 05
				faunal bone (…g) includes deer, turtle		
				faunal teeth (7 deer)		
				shell (…g total, …g burnt) conch, clam		
				snail (…g)		
17	41	1	0-15	faunal bone (…g) includes turtle	RP/SF	10/19/ 05
18	42	1	0-40	sand-tempered plain ceramic body sherds (5)	CW	10/19/ 05
				faunal bone (…g total, …g burnt) includes turtle		
				shell (…g) includes oyster		
				charcoal (…g)		
				burnt seeds (2)		

Site 8CR881 (Jump-start Hammock)
*CW=Craig Weaver, RP=Reve Pidgeon, SF=Scott Faulkner

Appendix 3: Toll-Rattlesnake Parcel Shovel Test and Target Log

John Beriault, Gene Erjavec – 1-15-04 to 1-22-04

ST1 (45 cm x 45 cm) Positive. Dug in west-central area of Target #1 (Jump-Start Hammock Midden (CR881) near highest point of hammock

0-20 cm	Silty black viscous soil, large lateral roots
20-50cm	Silty black soil, fewer roots, abundant faunal bone, turtle bone, possible bone pin, marine shell (whelk and kings crown) (**FS-1**)
50-65cm	Soil is grayer, marlier, still some faunal bone, marine shell, root casts
65cm	Limestone caprock

ST2 (45cm x 45 cm) Positive. On north end of Target #2, a prominent live oak cabbage palm hammock (White Shell Hammock Site, 8CR879)

0-15 cm	Black silty soil, faunal bone, whelk columella chisel (**FS-2**)
15cm	Limestone caprock

ST3 (45cm x 45 cm) Negative. As above, but 250 feet south of ST2 near south end of hammock island near highest ground

0-20cm	Black silty soil
20-25cm	Chalky, unconsolidated limestone marl

ST4 (45cm x 45 cm) Negative. In northeast-center of Target #3, an elevated crescent-shaped area of scattered large live oaks in the extreme southern portion of the parcel

0-35cm	Gray sand
35-55cm	Brown hardpan sand
55cm	Limestone caprock and loose Pleistocene *Chione cancellata* shells

ST5 (45cm x 45 cm) Negative. In west-central portion of Target #4, a round, elevated live oak, saw palmetto hammock in a deep cypress slough in the extreme southeastern corner of the subject parcel

0-15cm	Dark gray sand
15-55cm	Medium gray sand
55-75cm	Light gray sand

Target #5 is a small circular to ovoid higher ground area vegetated in 8-foot high saw palmettos, dahoon holly, wax myrtle, elevated +20 cm. higher than the surrounding cypress slough. The feature was judged to have minimal archaeological potential and was not shovel tested.

ST6 (45cm x 45 cm) Positive. In Target #6 (now called the Deep Marsh Hammock Site, 8CR880), a moderately elevated cabbage palm hammock situated immediately north of a very deep teardrop-shaped marsh pond in the southeastern corner of the parcel. Shovel test placed in southeast-central part of target.

0-20cm	Black silty soil

20-55cm	Light grayish-black soil, moderate quantity of Sand-tempered plain ceramics (**FS-3**)
55-70cm	Lighter gray sand

Target #7 is a poorly defined higher ground area vegetated in cabbage palm, dahoon holly, slash pine, and fern in the northern portion of the subject parcel. The FLUCFLS designation suggested the area could be a viable target but ground truthing determined that the target to be of minimal potential, and it was not shovel tested.

Target #8 lies 600 feet SSE of Target #7 and proved to be a very prominent ovoid formation of cabbage palms, emerging slash pine, and tall dahoon holly. The target lies immediately west of a prominent sand trail visible on aerial photographs. The low elevation and vegetative makeup suggested the feature was of minimal archaeological significance and thus it was not tested. The UTM coordinates of this feature were erroneously given as those for the Hunting Camp Hammock Site in 1985. The actual site lies about 900 feet SW of this feature.

Target #9 is a tight circular cluster of very tall cabbage palms situated 150 feet NNW of the intersection of two prominent trails in the northern portion of the subject parcel. The elevation of this feature is low and did not suggest a significant area and so was not shovel tested.

ST7 (45cm x 45 cm) Positive. In Target #10 (the Hunting Camp Hammock Site, 8CR556), an elevated circular hammock island about 80+ cm. higher than the surrounding open cypress area. The site is approximately 300 yards SW of the position indicated in the 1985 site form filed by this investigator. Shovel Test is placed in the west-central portion of the site area.

0-10cm	Silty black soil
10-30cm	Silty black soil becoming grayer with depth 9increasing concentration of limestone marl), faunal bone, marine shell, thin STP ceramics (**FS-4**)
30cm	Marly, ashy-looking chalky limestone

ST8 (45cm x 45 cm) Positive. In Target #11 (now called the Clamshell Cove Midden, 8CR000), a ovoid, high-elevation anomaly vegetated in a diverse tropical hardwood hammock. Elevation is 80+ cm. above surrounding open cypress area. Shovel test is in the southwestern-central area of the feature.

0-20cm	Black silty soil, 1 pc. of clamshell (**FS-5**)
20cm	Chalky, marly limestone caprock

Note: **FS-6** is a whole half-shell from a venus clam (*Mercenaria campechiensis*) surface-collected 8 meters east of ST8.

ST9 (45cm x 45 cm) Positive. As above, but 10 meters northwest in northwestern quadrant of site area

0-35cm	Black silty soil, one fragment faunal bone (**FS-7**)
35cm	Chalky, marly limestone

ST10 (45cm x 45 cm) Positive. 6 meters NE of ST8 near center of site area

0-35cm	Dark black silty soil, abundant STP ceramics, including one sherd with cross-hatched, after-the-fact etching that may represent wear from sharpening bone pins, *Spisula* and clam shell, and faunal bone (**FS-8**)
35cm	Limestone caprock

ST11 (45cm x 45 cm) Negative. In Target #12 an ovoid to slightly crescent-shaped cabbage palm/live oak/slash pine island SE of the bend in the road leading into the Florida Sports Park in the northwest part of the subject parcel. Shovel test is in SW quadrant of this feature near abrupt drop-off into former cypress areas to the southwest.

0-15cm	Black silty soil
15cm	Chalky, ashy limestone

ST12 (45cm x 45 cm) Negative. As above, but 20 meters east of ST11.

0-10cm	Marly gray soil
10cm	Chalky, ashy limestone caprock

ST13 (45cm x 45 cm) Negative. As above, but 15 meters NE of ST12

0-20cm	Marly gray soil
20cm	Chalky, ashy limestone caprock

ST14 (45cm x 45 cm) Negative. In Target #13, a crescent-shaped, elevated sand ridge vegetated in live oak with a saw palmetto understory situated between two flanking marshes in the northerly extension of the subject parcel. Shovel test is in the north-central portion of the ridge on the highest ground closest to both marshes

0-45cm	Gray sand, at 30 cm. depth are bits of compressed clayey loam initially thought to be ceramics but determined to be natural.
45cm	Hard dense tarry, brownish-black hardpan soil

ST15 (45cm x 45 cm) Negative. As above but 5 meters south of ST14

0-55cm	Gray sand
55cm	Tarry, blackish-brown hardpan

ST16 (45cm x 45 cm) Negative. As above, but 8 meters NE of ST14 on eastern slope of ridge as it drops to eastern marsh.

0-45cm	Gray sand
45cm	Brown hardpan sand

ST17 (45cm x 45 cm) Negative. As above, but 16 meters south of ST15

0-50cm	Gray sand
50cm	Dark brown hardpan

ST18 (45cm x 45 cm) Negative. As above, but 20 meters SE of ST17 in eastern part of ridge

0-60cm	Gray sand

60cm Dense brown hardpan

ST19 (45cm x 45 cm) Negative. In Target 14, a crescent-shaped higher ground oak hammock area 300 yards east of Target 13 on the eastern edge of the eastern marsh. Shovel Test is in a circular high area in the southerly portion of this feature.
0-50cm Gray sand
50cm Dark brown hardpan sand

ST20 (45cm x 45 cm) Negative. In area of Target 14 to the north 250 feet of ST19 in a moderately diverse hardwood coppice which includes mature camphorwood
0-40cm Dark black silty soil
40-60cm Admixture of dark silty soil with brown hardpan
60cm Increasing concentration of brown hardpan

ST21 (45cm x 45 cm) Negative. As above, but 4 meters east of ST20
0-45cm Dark black silty soil
45-50cm Soil lightens to dark tannish-brown

Target #15 is a cabbage palm/ slash pine area on only moderately elevated ground to the north of a very deep slough in the extreme northwesterly portion of the northern extension of the subject parcel. The area was visually examined but it was decided the Target had low probability of archaeological remains and was not shovel tested.

Target #16 is a circular to ovoid slash pine island with cabbage palms and limited tropical elements such as myrsine and with a dense saw palmetto understory. There is abundant remains of recent refuse including an old metal bunk bed, timbers and galvanized roofing suggesting a modern hunting camp may have occupied the feature. The area was examined but was not considered archaeologically significant and was not shovel tested.

Target #17 is an area of moderately dense and emerging cabbage palms in the southern portion of the northern extension of the subject parcel. The area shows no sign of topographic variation, is not close to deep marshes or other water sources, and contains few tropical hardwood elements. It was judged not archaeologically significant and was not shovel tested

ST22 (45cm x 45 cm) Negative. In Target #18, an elevated bedrock "unconformity, circular in shape and vegetated in a limited tropical hardwood hammock which includes red bay, myrsine, white indigo berry, wax myrtle, live oak with a dense boston fern understory. The feature, surrounded by a low area now vegetated in dense meleleauca is approximately 80+ cm higher than the surroundings. Recent refuse indicates the area may have been camped upon in modern times. Shovel test is in west-central portion of feature.
0-20cm Black silty soil
20cm Chalky limestone caprock

ST23 (45cm x 45 cm) Negative. As above, but 4 meters NNE of ST22

0-20cm Silty black soil
20cm Chalky limestone caprock
35-45cm Irregular limestone caprock

ST24 (45cm x 45 cm) Negative. As above, but 4 meters NNE of ST23
0-15cm Black silty soil
15cm Chalky limestone caprock

ST25 (45cm x 45 cm) Negative. As above, but 6 meters west of ST24 in NW quadrant of target
0-25cm Black silty soil
25cm Increasing chalky limestone caprock

ST26 (45cm x 45 cm) Negative. In Target #19 an elevated live oak/cabbage palm hammock feature 500 yards NW of the north end of Brandy Lane. Shovel test is in the east-central portion of target.
0-20cm Dark gray sand
20-45cm Brown sand, one 1-cm. quartz pebble, likely bird crop stone @ 25 cm. depth (not collected)
25-45cm Irregular solutioned limestone caprock

ST27 (45cm x 45 cm) Negative. As above, but 8 meters NNW of ST26, just south of the sand trail crossing the target.
0-30cm Grayish-brown sand
30cm Marly limestone caprock

ST28 (45cm x 45 cm) Negative. As above, but 8 meters north of ST27, just north of the sand trail crossing the target.
0-45cm Grayish brown sand
30-45cm Irregular limestone caprock

Feathers 2 Parcel Shovel Test and Target Log as Compiled by Craig Weaver beginning October 18th, 2005

October 18-21, 2005 - Crew: Craig Weaver, Scott Faulkner, Reve Pidgeon
December 5-9, 13, 2005 Crew - Craig Weaver, Jarrod Haymon

Jump-start Hammock Site (8CR881), Target #1 is a tropical hardwood hammock with diversified vegetation, including sabal palms, live oaks, camphorwood, wild coffee, myrsine, etc. One shovel test from 2004 investigations (ST-1) was relocated, and the site was delineated by shovel testing N-S and E-W transects centered on ST-1. Eight shovel tests were positive and seven were negative for cultural materials. Pin flags mark the shovel test locations. See the Field Specimen Log for details on artifacts and ecofacts (ceramic potsherds, faunal bone, faunal teeth, shell, charcoal, etc.) from the positive shovel tests. The hammock was investigated on October 18-19, 2005.

Whiteshell Hammock Site (8CR879), Target #2 from 2004 investigations, is a tropical hardwood hammock with diversified vegetation, including sabal palms, live oaks, camphorwood, ferns, wild coffee, myrsine, etc. One shovel test from 2004 investigations (ST-2, at the north end of the hammock) was positive for cultural materials, but its location could not be relocated. N-S and E-W transects were set up across the hammock, and 17 shovel tests (ST52 through ST60, and ST88 through ST95) were excavated. However, all 17 tests were negative for cultural materials, preventing delineation of the site and the flagging of its boundaries. Pin flags mark the shovel test locations. The hammock was investigated on October 21 and December 8, 2005

Deep Marsh Hammock Site (8CR880), Target #6 from 2004 investigations, is a tropical hardwood hammock with diversified vegetation, including sabal palms, live oaks, camphorwood, ferns, wild coffee, myrsine, etc. One shovel test from 2004 investigations (ST-6, at the NE end of the hammock) was positive for cultural materials. The location of ST6 was not immediately relocated, but eventually was. N-S and E-W transects were set up across the hammock, and 24 shovel tests (ST64 through ST87) were excavated. While all 24 shovel tests were negative for cultural materials, those centered on ST6 allowed for delineation of the site. Once delineated, flagging in trees and pin flags in the ground mark the perimeter of the small site. The hammock was investigated on December 5-7, 2005.

Target #20 is a small area of higher ground with a cluster of sabal palms amid the surrounding slash pine and melaleuca trees. One shovel test (ST29) was excavated, but the target area was considered to be lacking in archaeological site potential. Target #20 is situated near the western project boundary, off a north-south running swamp buggy trail, in the NW quarter of Section 25, to the south of Jump-start Hammock Site (8CR881). The target was investigated on October 18, 2005.

Target #21 is a small area of higher ground with a concentration of sabal palms. Other vegetation consists of slash pine, saw palmetto, fern, and Brazilian pepper. Slash pines and melaleuca trees surround the target area. Two shovel tests were excavated, but the target area was considered to have low archaeological site potential. Target #21 is situated SW of Whiteshell Hammock Site (8CR879), and NE of the juncture of N-S and E-W running swamp buggy trails, near the center of Section 25. The target was investigated on October 18, 2005.

Target #22 is an area of higher ground, which appears on the aerials as an area with potential, but on the ground has slash pine and melaleuca trees. A quick shovel probe revealed 1-cm of darker sand above light brown (tan) sand. As the area lacked archaeological site potential, no shovel tests were excavated. Target #22 is situated NW of the juncture of E-W and N-S swamp buggy trails, just west of the boundary between old project area and new project area (SE quarter of Section 25). The target was investigated on October 20, 2005.

Target #23 is a tropical hardwood hammock, with diversified vegetation (live oaks, wild coffee, fern, sabal palm, wild coffee, etc.), with archaeological site potential. The higher ground of the hammock meets swamp to the west and south. As the hammock appeared

to have site potential, four shovel tests (ST48 through ST51) were excavated, but all were negative for cultural materials. Pin flags mark the shovel test locations. Target #23 is situated in new project area at the SW quarter of Section 30, between two N-S running swamp buggy trails. The target was investigated on October 20, 2005.

Target #24 is an area of higher ground and diversified vegetation (slash pine, saw palmetto, sabal palm, holly) surrounded by slash pines and melaleucas. Target #24 is a little north of Target #23, in the new project area at the SW quarter of Section 30, T 50S R27E, east of a N-S running swamp buggy trail. While the site potential was low at Target #24, one shovel test (ST47) was excavated, and it substantiated the low potential of the target area. The target was investigated on October 20, 2005.

Target #25, located southeast of Target #23, appeared to have potential from the aerial, but in reality is a higher ground area of slash pine, melaleuca, saw palmetto, and a lone sabal palm. A quick shovel probe showed tan sand below the surface, which could also be seen on the surface. Considered to not have archaeological site potential, no shovel tests were excavated at Target #25. The target was investigated on October 20, 2005.

Target #26, located ESE of Target #22, was another target that appeared as a small area with some potential on the aerial. But again this was a higher ground area dominated by slash pine, melaleuca, and saw palmetto, with tan sand at the surface. A deer feeder was strung up between two pines. Considered to not have archaeological site potential, no shovel tests were excavated at Target #26. The target was investigated on October 20, 2005.

Target #27, located in the west-central part of Section 25 a little south of the SE-NW trail between the trail that runs past Jump-start Hammock and a N-S running canal that heads to the south end of the parcel. It appeared on the aerial as a circular anomaly, possibly a hammock. However, on the ground this is an area of saw palmettos amid slash pine/melaleuca stands, with tan sand at the surface. Considered not to have archaeological site potential, no shovel tests were excavated at Target #27. The target was investigated on December 5, 2005.

Target #28, located a little west of the N-S running canal in the SW quarter of Section 25, appears as a small circular anomaly. On the ground, the target was another area of saw palmettos mixed with a few wax myrtles, amid slash pine/melaleuca stands. While the site potential was low at Target #28, one shovel test (ST61) was excavated, and it substantiated the low potential of the target area. The target was investigated on December 5, 2005.

Target #29, located near Target #28, this also appears on the aerial as a smaller circular anomaly. On the ground, the target was another area of saw palmettos mixed with a few unidentified juvenile deciduous trees and a few Brazilian peppers, amid slash pine/melaleuca stands. While the site potential was low at Target #29, one shovel test (ST62) was excavated, and it substantiated the low potential of the target area. The target was investigated on December 5, 2005.

Target #30, located in the SW corner of Section 25 and the parcel, appears as a fairly large circular anomaly, possibly a hammock, on the aerial. On the ground, the target was another area of saw palmettos mixed with a few sabal palms, amid slash pine/melaleuca stands. While the site potential was low at Target #30, one shovel test (ST63) was excavated, and it substantiated the low potential of the target area. The target was investigated on December 5, 2005.

Target #31, located in the SE portion of Section 30 and the parcel, is a tropical hardwood hammock with diversified vegetation, including sabal palms, live oaks, camphorwood, ferns, wild coffee, myrsine, etc. The hammock is the location of a previously recorded prehistoric site known as Silver Hardhat Site, 8CR826. However, most, or all, of the hammock is situated in a rectangular cut-out not included in the Feathers parcel. With no survey stakes to represent the boundary, no shovel tests were excavated at the hammock. It is possible that the easternmost edge of the hammock may be within our project area, but it cannot be determined at this point in time. The target was investigated on December 13, 2005.

Target #32, located SE of Silver Hardhat Hammock in the SE portion of Section 30 and the parcel, appears a very small circular anomaly on the aerial, and as a small area of higher ground on the topographic map. On the ground, the target is a cypress dome, with the ground submerged by knee-deep water. As such, no shovel tests were excavated at Target #32. The target was investigated on December 13, 2005.

Target #33, located N of Silver Hardhat Hammock in the SE portion of Section 30 and the parcel, appears a very small circular anomaly on the aerial, and as a small area of higher ground on the topographic map. On the ground, the target is a cypress dome, with the ground submerged by knee-deep water. As such, no shovel tests were excavated at Target #33. The target was investigated on December 13, 2005.

Target #34, located in the SE corner of Section 30 and the parcel, and east of Silver Hardhat Hammock, appears as a circular anomaly on the aerial. On the ground, the target was another area of saw palmettos, amid slash pine/melaleuca stands, with tan sand at the surface. Considered not to have archaeological site potential, no shovel tests were excavated at Target #34. The target was investigated on December 13, 2005.

Target #35, located in the SE corner of Section 30 and the parcel, and south of Target #34, appears as a circular anomaly on the aerial. On the ground, the target was another area of saw palmettos, amid slash pine/melaleuca stands, with tan sand at the surface. Considered not to have archaeological site potential, no shovel tests were excavated at Target #35. The target was investigated on December 13, 2005.

Target #36, located in the SE corner of Section 30 and the parcel, and south of Target #35, appears as a circular anomaly on the aerial. On the ground, the target was another area of saw palmettos mixed with a few sabal palms, amid slash pine/melaleuca stands, with tan sand at the surface. Considered not to have archaeological site potential, no shovel tests were excavated at Target #36. The target was investigated on December 13, 2005.

ST29 (40 x 40 cm): Negative. At Target #20, a cluster of sabal palms on a small area of higher ground.
0-45 cm light brown (tan) sand, small root zone
45 cm limestone bedrock

ST30 (40 x 40 cm): Negative. At Target #21, a concentration of sabal palms and other diversified vegetation on higher ground. Surrounding the target area are slash pine and melaleuca trees.
0-2 cm black sand, small root zone
2-40 cm light gray sand, small root zone
40 cm limestone bedrock

ST31 (40 x 40 cm): Negative. At Target #21, a concentration of sabal palms and other diversified vegetation on higher ground. Surrounding the target area are slash pine and melaleuca trees. ST31 is 10-m E of ST30.
0-7 cm black sand, small root zone
7-45 light gray sand, small root zone, water table hit at 45 cm

ST32 (40 x 40 cm): Positive. At Jump-start Hammock Site, 10 m east of ST-1.
0-18 cm black sand, small root zone, cultural material **(FS-9)**
18-60 cm dark gray clayey sand, small root zone, cultural material **(FS-10)**
60 cm limestone bedrock

ST33 (40 x 40 cm): Positive. At Jump-start Hammock Site, 10 m west of ST1.
0-50 cm black sand, small root zone, cultural material **(FS-11)**
50-87 cm gray clayey sand, below water table
87 cm limestone bedrock

ST34 (40 x 40 cm): Positive. At Jump-start Hammock Site, 10 m east of ST32.
0-50 cm dark brown sand, small root zone, cultural material **(FS-12)**
50-60 cm dark gray sand, below water table

ST35 (40 x 40 cm): Negative. At Jump-start Hammock Site, 10 m east of ST34.
0-45 cm dark brown sand, small root zone
45-56 cm light gray sand, below water table

ST36 (40 x 40 cm): Negative. At Jump-start Hammock Site, 10 m east of ST35.
0-40 cm dark brown sand, small root zone
40-60 cm light gray sand, below water table

ST37 (40 x 40 cm): Positive. At Jump-start Hammock Site, 10 m west of ST33.
0-50 cm black sand, small root zone, cultural material **(FS-13)**
50-80 cm gray clayey sand, below water table
80 cm limestone bedrock

ST38 (40 x 40 cm): Positive. At Jump-start Hammock Site, 10 m south of ST1.
0-20 cm dark brown sand, small root zone, cultural material **(FS-14)**

20-70+ cm gray clayey sand, water table at 68 cm, cultural material **(FS-15)**

ST39 (40 x 40 cm: Positive. At Jump-start Hammock Site, 10 m south of ST38.
0-20 cm dark brown sand, small root zone
20-80 cm gray clayey sand, water table at 60 cm, cultural material **(FS-16)**
80 cm limestone bedrock

ST40 (40 x 40 cm): Negative. At Jump-start Hammock Site, 10 m west of ST37.
0-20 cm light brown sand, small root zone
20-50 cm mottled light brown and medium brown sand, small root zone
50-92 cm light brown (tan) sand, below water table
92 cm limestone bedrock

ST41 (40 x 40 cm): Positive. At Jump-start Hammock Site, 10 m south of ST39.
0-15 cm dark brown clayey sand, small root zone, cultural materials **(FS-17)**
15-50+ cm gray clayey sand, small root zone, below water table

ST42 (40 x 40 cm): Positive. At Jump-start Hammock Site, 10 m north of ST1.
0-40 cm black sand, small root zone, cultural material **(FS-18)**
40-80 cm medium gray sand, water table at 50 cm
80 cm limestone bedrock

ST43 (40 x 40 cm): Negative. At Jump-start Hammock Site, 10 m north of ST42.
0-20 cm gray brown sand, small root zone
20-84 cm light gray brown sand, water table at 40 cm, small roots above water table
84 cm limestone bedrock

ST44 (40 x 40 cm): Negative. At Jump-start Hammock Site, 10 m north of ST43.
0-20 cm gray brown sand, small root zone
20-76 cm light brown sand, water table at 40 cm, small roots above water table
76 cm limestone bedrock

ST45 (40 x 40 cm): Negative. At Jump-start Hammock Site, 10 m south of ST41, atop small dry depression on the surface.
0-30 cm gray brown sand, small root zone
30-95 cm very light gray sand, water table not hit

ST46 (40 x 40 cm): Negative. At Jump-start Hammock Site, 10 m south of ST45.
0-30 cm gray brown sand, small root zone
30-60 cm light gray sand, water table at 45 cm

ST47 (40 x 40 cm): Negative. At Target #24, an area of higher ground and diversified vegetation, north of the tropical hardwood hammock of Target #23.
0-67 cm gray sand, small root zone
67 cm limestone bedrock

ST48 (40 x 40 cm): Negative. At Target #23, a tropical hardwood hammock in the new project area. Soil appears very midden-like, but no cultural materials were encountered.

0-52 cm black sand, small root zone
52-62 cm brown sand, water table at 50 cm
62 cm limestone bedrock

ST49 (40 x 40 cm): Negative. At Target #23, a tropical hardwood hammock in the new project area, 10 m north of ST48.
0-40 cm dark gray brown sand, small root zone
40-45 cm brown sand
45 cm limestone bedrock

ST50 (40 x 40 cm): Negative. At Target #23, a tropical hardwood hammock in the new project area, 10 m NE of ST49.
0-42 cm gray brown sand, small root zone
42 cm limestone bedrock

ST51 (40 x 40 cm): Negative. At Target #23, a tropical hardwood hammock in the new project area, 10 m S of ST48.
0-15 cm dark gray sand, small root zone
15-50 cm brown sand, water table at 45 cm
50 cm limestone bedrock

ST52 (40 x 40 cm): Negative. At Whiteshell Hammock, toward the north end of the hammock, 10 m north of ST53.
0-10 cm dark brown sand, small root zone
10-40 cm gray brown sand, small root zone, water table at 35 cm
40-55 cm light gray sand
55 cm limestone bedrock

ST53 (40 x 40 cm): Negative. At Whiteshell Hammock, toward the north end of the hammock, 10 m south of ST52.
0-30 cm medium brown sand, small root zone
30 cm limestone bedrock

ST54 (40 x 40 cm): Negative. At Whiteshell Hammock, toward the north end of the hammock, 10 m north of ST52.
0-10 cm dark brown sand, small root zone
10-40 cm gray brown sand, small root zone
40-50 cm light gray clayey sand
50 cm limestone bedrock

ST55 (40 x 40 cm): Negative. At Whiteshell Hammock, toward the north end of the hammock, 10 m north of ST53.
0-35 cm dark gray sand, small root zone
35 cm limestone bedrock

ST56 (40 x 40 cm): Negative. At Whiteshell Hammock, toward the north end of the hammock, 10 m east of ST53.
0-30 cm dark gray brown sand, small root zone

30-40 cm light gray clayey sand, small root zone
40 cm limestone bedrock

ST57 (40 x 40 cm): Negative. At Whiteshell Hammock, toward the north end of the hammock, 10 m east of ST56.
0-20 cm dark brown sand, small root zone
20-35 cm gray sand, small root zone
35 cm limestone bedrock

ST58 (40 x 40 cm): Negative. At Whiteshell Hammock, toward the north end of the hammock, 10 m west of ST53.
0-32 cm dark gray sand, small root zone
32 cm marly limestone bedrock

ST59 (40 x 40 cm): Negative. At Whiteshell Hammock, toward the north end of the hammock, 10 m west of ST58.
0-30 cm dark gray sand, small root zone
30 cm marly limestone bedrock

ST60 (40 x 40 cm): Negative. At Whiteshell Hammock, toward the north end of the hammock, 10 m south of ST55.
0-32 cm dark gray sand, small root zone
32 cm marly limestone bedrock

ST61 (40 x 40 cm): Negative. At Target #28, a cluster of saw palmettos and wax myrtles.
0-22 cm light gray sand, small root zone
22-55 cm yellowish brown sand, water table at 42 cm

ST62 (40 x 40 cm): Negative. At Target #29, a cluster of saw palmettos, juvenile deciduous trees, and Brazilian peppers.
0-12 cm dark gray sand, root zone
12-45 cm light gray sand, root zone, water table at 45 cm
45-50 cm reddish brown sand

ST63 (40 x 40 cm): Negative. At Target #30, a cluster of saw palmettos and sabal palms.
0-30 cm dark gray sand, root zone
30-40 cm light gray sand, root zone
40-50 cm reddish brown sand

ST64 (40 x 40 cm): Negative. At Deep Marsh Hammock, center of hammock
0-29 cm dark gray sand, root zone, water table at 29 cm
29-80 cm gray brown sand

ST65 (40 x 40 cm): Negative. At Deep Marsh Hammock, 10 m S of ST64.
0-36 cm dark gray sand, root zone, water table at 36 cm
36-80 cm gray brown sand

ST66 (40 x 40 cm): Negative. At Deep Marsh Hammock, 20 m N of ST64.
0-45 cm dark gray sand, root zone, water table at 45 cm
45-85 cm gray brown sand

ST67 (40 x 40 cm): Negative. At Deep Marsh Hammock, west side of hammock.
0-33 cm gray sand, root zone
33-40 cm light brown sand, root zone

ST68 (40 x 40 cm): Negative. At Deep Marsh Hammock, 20 m W of ST67.
0-22 cm gray sand, root zone
22-40 cm light brown sand, root zone

ST69 (40 x 40 cm): Negative. At Deep Marsh Hammock, 20 m W of ST68.
0-8 cm black sand, root zone
8-40 cm light brown sand, root zone

ST70 (40 x 40 cm): Negative. At Deep Marsh Hammock, 20 m W of ST69.
0-23 cm gray sand, root zone
23-40 cm light brown sand, root zone

ST71 (40 x 40 cm): Negative. At Deep Marsh Hammock, 20 m E of ST67.
0-30 cm gray sand, root zone
30-40 cm light brown sand, root zone

ST72 (40 x 40 cm): Negative. At Deep Marsh Hammock, 20 m E of ST71.
0-33 cm gray to dark gray sand, root zone
33-40 cm light brown sand, root zone

ST73 (40 x 40 cm): Negative. At Deep Marsh Hammock, NE part of hammock.
0-21 cm gray sand, root zone
21-35 cm tan sand, water table at 23 cm

ST74 (40 x 40 cm): Negative. At Deep Marsh Hammock, NE part of hammock.
0-19 cm gray sand, root zone
19-26 cm tan sand, water table at 20 cm

ST75 (40 x 40 cm): Negative. At Deep Marsh Hammock, NE part of hammock.
0-36 cm gray sand, root zone
36-45 cm tan sand, water table at 38 cm

ST76 (40 x 40 cm): Negative. At Deep Marsh Hammock, NE part of hammock.
0-35 cm gray sand, root zone
35-50 cm tan sand, water table at 43 cm

ST77 (40 x 40 cm): Negative. At Deep Marsh Hammock, south central part of hammock.
0-6 cm dark gray sand, root zone

6-15 cm tan sand, water table at 7 cm

ST78 (40 x 40 cm): Negative. At Deep Marsh Hammock, south central part of hammock.
0-21 cm gray sand, root zone
21-35 cm tan sand, water table at 25 cm

ST79 (40 x 40 cm): Negative. At Deep Marsh Hammock Site, 10 m N of ST6 (positive test from 2004).
0-32 cm gray sand, root zone
32-40 cm tan sand, water table at 32 cm

ST80 (40 x 40 cm): Negative. At Deep Marsh Hammock Site, 10 m N of ST79
0-25 cm dark gray sand, root zone
25-30 cm tan sand, water table at 25 cm

ST81 (40 x 40 cm): Negative. At Deep Marsh Hammock Site, 0.5 m E of ST6 (positive test from 2004).
0-32 cm dark gray sand, root zone
32-35 cm tan sand, water table at 32 cm

ST82 (40 x 40 cm): Negative. At Deep Marsh Hammock Site, 10 m E of ST6 (positive test from 2004).
0-26 cm gray sand, root zone
26-30 cm tan sand, water table at 26 cm

ST83 (40 x 40 cm): Negative. At Deep Marsh Hammock Site, 10 m E of ST82
0-11 cm black sand, root zone
11-20 cm tan sand, water table at 11 cm
ST84 (40 x 40 cm): Negative. At Deep Marsh Hammock Site, 10 m W of ST6 (positive test from 2004).
0-33 cm dark gray sand, root zone
33-40 cm tan sand, water table at 33 cm

ST85 (40 x 40 cm): Negative. At Deep Marsh Hammock Site, 10 m W of ST84
0-16 cm gray sand, root zone
16-20 cm tan sand, water table at 16 cm

ST86 (40 x 40 cm): Negative. At Deep Marsh Hammock Site, 10 m S of ST6 (positive test from 2004).
0-21 cm dark gray sand, root zone
21-25 cm tan sand, water table at 21 cm

ST87 (40 x 40 cm): Negative. At Deep Marsh Hammock Site, 10 m S of ST86.
0-5 cm light gray sand
5-10 cm tan sand, water table at 5 cm

ST88 (40 x 40 cm): Negative. At Whiteshell Hammock, 20 m W of ST59.

0-24 cm gray brown sandy loam, root zone
24-35 cm very light gray clay

ST89 (40 x 40 cm): Negative. At Whiteshell Hammock, 20 m W of ST88.
0-23 cm gray brown sandy loam, root zone
23-35 cm white clay

ST90 (40 x 40 cm): Negative. At Whiteshell Hammock, 20 m W of ST89.
0-20 cm dark brown sandy loam, root zone
20-30 cm white clay

ST91 (40 x 40 cm): Negative. At Whiteshell Hammock, 20 m N of ST90.
0-23 cm dark brown sandy loam, root zone
23-35 cm white clay

ST92 (40 x 40 cm): Negative. At Whiteshell Hammock, 20 m N of ST91.
0-20 cm dark brown sandy loam, root zone
20-30 cm white clay

ST93 (40 x 40 cm): Negative. At Whiteshell Hammock, 20 m N of ST92.
0-15 cm dark brown silty loam, root zone
15-20 cm white clay

ST94 (40 x 40 cm): Negative. At Whiteshell Hammock, 20 m S of ST90.
0-4 cm dark brown silty loam, root zone
4-25 cm gray brown sand, root zone
25-30 cm white clay

ST95 (40 x 40 cm): Negative. At Whiteshell Hammock, 20 m S of ST94.
0-4 cm dark brown silty loam
4-40 cm gray brown sand, root zone, water table at 30 cm
40-50 cm white clay

AR=3
SS=0
CM=0
RG=0
BR=0
Total=3

Cultural Resource Roster

SiteID	Type	Site Name	Address	Additional Info	SHPO Eval	NR Status
CR00879	AR	White Shell Hammock	Naples		Eligible	
CR00880	AR	Deep Marsh Hammock	Naples		Eligible	
CR00881	AR	Jump Start Hammock	Naples		Eligible	

Appendix

Page 1
☐ Original
x Update

ARCHAEOLOGICAL SITE FORM
FLORIDA MASTER SITE FILE
Version 2.2 12/95

Site #8CR879
Recorder #
Field Date 1/15/04
Form Date 1/31/04

Site Name(s) White Shell Hammock [Multiple Listing #8]
Project Name Toll-Rattlesnake Parcel [Survey # 13377]
Ownership: X private-profit ☐private-nonprofit ☐private-individual private-unspecified ☐city ☐county ☐state ☐ federal ☐foreign ☐native american ☐unknown
USGS 7.5 map name & date Belle Meade (1991). County Collier
Township 50S Range 26E Section 25, ¼ Sect.: xNE ☐ NW ☐SE ☐ SW (check all that apply)
City / Town _ Naples in Current City Limits? Y NX
UTM: zone ☐16 x17 easting 0 northing 0
Address / Vicinity of / Route to _I-75 Exit 101, south on CR951 4 miles, thence east on Sable Palm Road 1 mile, thence south on woods road 600 feet and SE on compass bearing 1000 feet
Landgrant Tax Parcel #
Name of Public Tract (e.g., park)

TYPE OF SITE (Check all choices that apply; if needed write others in at bottom)

SETTING

X Land - *terrestrial*
☐ Cave/Sink - *subterranean*
- ☐ terrestrial
- ☐ aquatic
- ☐ intermittently flooded

☐ Wetland - *palustrine*
- ☐ usually flooded (historically)
- ☐ sometimes flooded
- ☐ usually dry

☐ Lake/Pond - *lacustrine*
☐ River/Stream/Creek - *riverine*
☐ Tidal - *estuarine*
☐ Saltwater - *marine*
- ☐ marine unspecified
- ☐ "high energy" marine
- ☐ "low energy" marine

other

STRUCTURES - OR - FEATURES

☐ aboriginal boat	☐ fort	☐ road segment
☐ agric/farm bldg	X midden	☐shell midden
☐ burial mound	☐ mill unspecified	☐ shell mound
☐ building remains	☐ mission	☐ shipwreck
☐ cemetery/grave	☐ mound unspecified	☐ subsurface features
☐ dump/refuse	☐ plantation	☐ surface scatter
☐ earthworks	☐ platform mound	☐ well

FUNCTION

☐ none specified
X campsite
X extractive site
X habitation (prehistoric)
☐ homestead (historic)
☐ farmstead
☐ village (prehistoric)
☐ town (historic)
☐ quarry

HISTORIC CONTEXTS (Check all that apply, except use most specific subphases only)

Aboriginal

☐ Alachua	☐ Fort Walton	☐ Hickory Pond	☐ Perico Island	☐ Seminole: Colonization	
☐ Archaic Unspecified?	☐ Glades Ia	☐ Late Archaic ?	☐ Safety Harbor	☐ Seminole: 1st War To 2d	
☐ Belle Glade I	☐ Glades Ib	☐ Late Swift Creek	☐ St. Augustine	☐ Seminole: 2d War To 3d	
☐ Belle Glade II	☐ Glades I Unspec	☐ Leon-Jefferson	☐ St. Johns Ia	☐ Seminole: 3d War On	
☐ Belle Glade III	☐ Glades IIa	☐ Malabar I	☐ St. Johns Ib	☐ Seminole-Unspecified	
☐ Belle Glade IV	☐ Glades IIb	☐ Malabar II	☐ St. Johns I Unspecified	☐ Swift Creek Unspecified	
☐ Belle Glade Unspec	☐ Glades IIc	☐ Manasota	☐ St. Johns IIa	☐ Transitional	
☐Cades Pond	☐ Glades II Unspec	☐ Middle Archaic ?	☐ St. Johns IIb	☐ Weeden Island I	
☐ Deptford	☐Glades IIIa	☐ Mount Taylor	☐ St. Johns IIc	☐ Weeden Island II	
☐ Early Archaic	☐ Glades IIIb	☐ Norwood	☐ St. Johns II Unspecified	☐ Weeden Island Unspec	
☐ Early Swift Creek	☐ Glades IIIc	☐ Orange	☐ St. Johns Unspecified	☐ Prehistoric Nonceramic	
☐ Englewood	☐ Glades III Unspec	☐ Paleoindian	☐ Santa Rosa	☐ Prehistoric Ceramic	
	X Glades Unspec	☐ Pensacola	☐ Santa Rosa-Swift Creek	☐ Prehistoric Unspecified	

Nonaboriginal

☐ 1st Spanish 1513-99
☐ 1st Spanish 1600-99
☐ 1st Spanish 1700-1763
☐ 1st Spanish Unspecified
☐ British 1763-1783
☐ 2nd Spanish 1783-1821
☐ Amer.Territor'l 1821-45
☐ Amer.Civil War 1861-65
☐ American 19th Century
☐ quarry American 20th Century
☐ American Unspecified
☐ African-American

☐ other (Less common phases are not checklisted. For historic sites, also give specific dates if known)

SURVEYOR'S EVALUATION OF SITE

Potentially eligible for local designation? Xyes ☐no ☐ insuff. info
Individually eligible for National Register? ☐ yes ☐no X insuff. info
Potential contributor to NR district? ☐ yes ☐no X insuff. info

Name of Local Register eligible for:

Explanation of Evaluation (Required if evaluated; limit to 3 lines; attach full justification)
Fairly intense midden containing faunal bone, marine shell in excellent condition
Recommendations for Site Preservation or further investigation

DHR USE ONLY======== OFFICIAL EVALUATIONS ========DHR USE ONLY

NR DATE __/__/____	*KEEPER-NR ELIGIBILITY:* ☐y ☐n	*Date* __/__/____
	SHPO-NR ELIGIBILITY: ☐y ☐n ☒pe ☐ii	*Date* 10/25/2004
DELIST DATE __/__/____	*LOCAL DESIGNATION:*	*Date* __/__/____
	Local office	

National Register Criteria for Evaluation ☐a ☐b ☐c ☐d

ARCHAEOLOGICAL SITE FORM

Site #8CR879

FIELD METHODS (Check one or more methods for detection and for boundaries)

Site Detection

☐ no field check
☐ literature search
☐ informant report
☐ literature search
☐ posthole digger
☐ exposed ground
☐ posthole digger
☐ auger–size:___
☐ unscreened shovel
☐ block excavations
X screened shovel
☐ aerial photo
☐ Field visit and survey
☐ remote sensing
☐ information

Site Boundaries

☐ bounds unknown
☐ none by recorder
☐ auger–size:___
☐ remote sensing
☐ insp exposed ground
X estimate or guess
☐ unscreened shovel
☐ screened shovel

Number, size, depth, pattern of units; screen size Eighteen 45cm square screened shovel test in the site.

SITE DESCRIPTION

Extent Size (m^2) 1000 m2 Depth/stratigraphy of cultural deposit 15cm.

Temporal Interpretation Components: ☐ single ☐ prob single X prob multiple ☐ multiple ☐ uncertain ☐ unknown
Describe each occupation in plan (refer to attached large scale map) and stratigraphically. Discuss temporal and functional interpretations.

Integrity Overall disturbance: ☐ none seen X minor ☐ substantial ☐ major ☐ redeposited destroyed-document! ☐ unknown
Disturbances / threats / protective measures _Development,
Pothunting
Area Collected ____ m^2 Surface: #collect. Units____ Excavation: #contiguous blocks

ARTIFACTS

Total Artifacts #____ (C)ount or (E)stimate? _c____ Surface #_____ Subsurface #_____

Overall Collection Strategy

☐ unknown
X unselective (all artifacts)
☐ selective (some artifacts)
☐ mixed selectivity
☐ uncollected
☐ general (not by subarea)
☐controlled (by subarea)
☐ variable spatial control
☐ Other _____

chisel_____

Artifact Categories / Artifact Depositions

____ unspecified
____ lithics, aboriginal
___ ceramic-aboriginal
____ ceramic-nonaboriginal
____ daub
____ brick/bldg matl
____ glass
____ precious metal/coin
____ nonlocal-exotic
____ metal, nonprecious
___ bone-human
_A_ bone-animal
____ bone-unspecif
__ unworked shell
__A _ worked shell
__A__ Other __possible whelk columella

Disposition List

A - this catagory always collected
O - observed, not collected
I - informant reported or collected
S - some items in catagory collected
R - collected & reburied at site
U - unknown

(Use abbreviation(s) from Deposition List to fill blank(s) of pertinent Artifact Categories)

DIAGNOSTICS (Type and frequency)

1._____ N=_ 5._____ N=_ 9._____ N=__

ENVIRONMENT

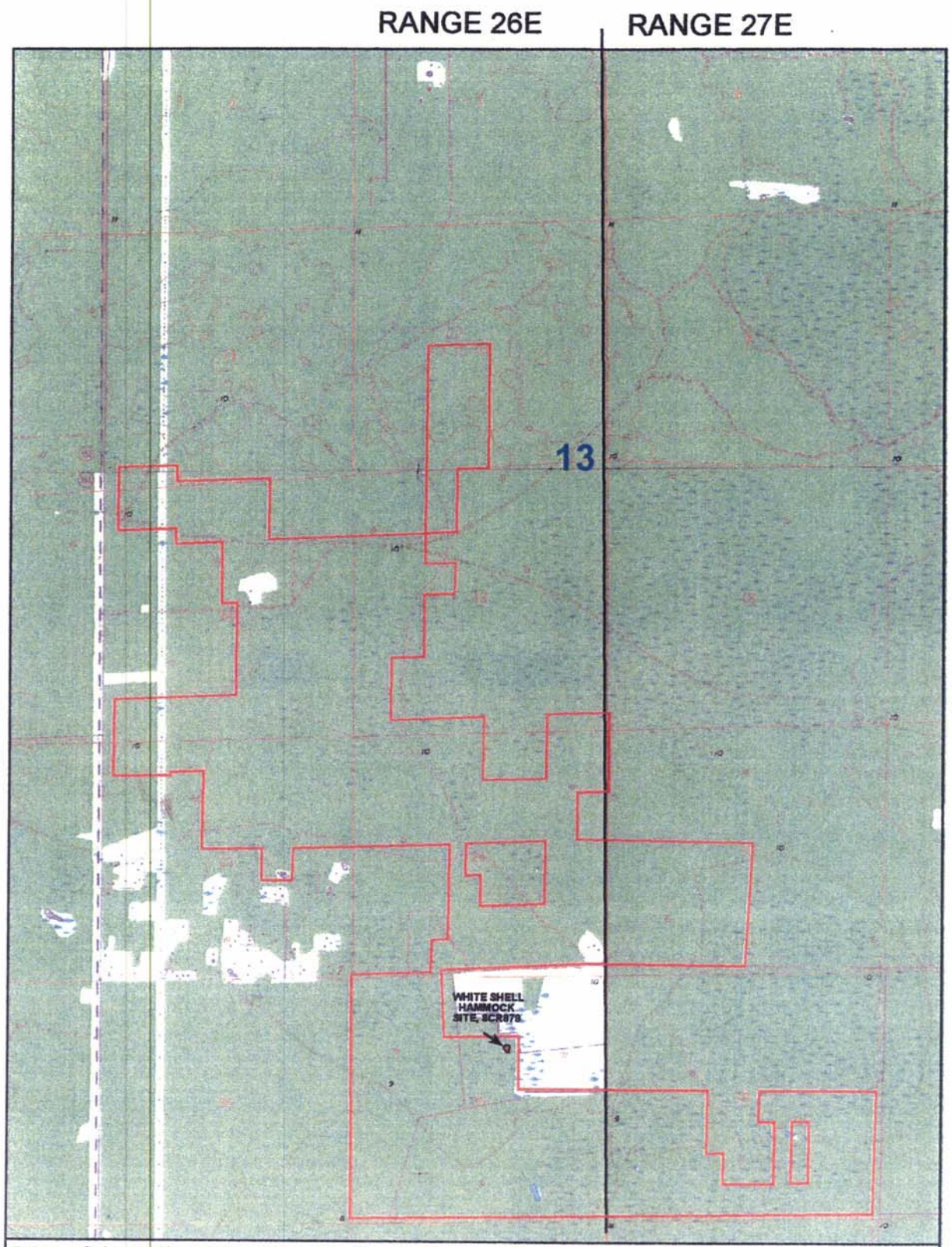
Nearest fresh water (type & name)marsh 250 feet southwest _____ Distance (m)/bearing 80 meters SW _____
Natural community Tropical hardwood hammock - live oak/cabbage palm hammock
Local vegetation Live oak, cabbage palm, camphorwood, white stopper, marlberry, myrsine
Topography elevated high ground_____ MIN Elevation __0___ m MAX Elevation _+.8 meters__
Present land use undeveloped woodland
SCS soil series Immokalee fine _____Soil association _____

FURTHER INFORMATION

Informant(s): Name/Address/Phone John G. Beriault
Location & File numbers (field notes, artifacts/accession nos, photographs/negative nos.) Archaeological and Historical Conservancy, Inc.
4800 S.W. 64th Avenue, Suite 107, Davie, FL 33314 (954) 792-9776 Fax: (954)-792-9554 email: AHCI@ATT.net
Manuscripts or Publications on the site (Use Continuation Sheet, give FSF# if relevant)_____
Recorder(s): Name/Address/Phone John G. Beriault
Affiliation or FAS Chapter FAS, SHA, AHC

* * * PLEASE INCLUDE SITE PLANS * * *

LARGE SCALE MAP: At 1"=200' or larger scale, show: site boundaries, scale, North arrow, datum, test/collection units, tie-ins to USGS.
NARRATIVE DESCRIPTION/CONTINUATIONS: Attach additional sheets with detailed information or with continuations.



Map of the Toll-Rattlesnake parcel area showing location of the White Shell Hammock Site, 8CR879.

USGS MAPS: BELLE MEADE AND BELLE MEADE NW, 1991

Appendix

D R S [illegible] P

Page 1

X Original
☐ Update

ARCHAEOLOGICAL SITE FORM
FLORIDA MASTER SITE FILE
Version 2.2 12/95

Site #8CR879
Recorder #
Field Date 1/15/04
Form Date 1/31/04

Site Name(s) White Shell Hammock [Multiple Listing #8]
Project Name Feathers Parcel [Survey # 9698]
Ownership: X private-profit ☐private-nonprofit ☐private-individual private-unspecified ☐city ☐county ☐state ☐federal ☐foreign ☐native american ☐unknown
USGS 7.5 map name & date Belle Meade (19). County Collier
Township 50S Range 26E Section 25 , ¼ Sect.: xNE ☐ NW ☐SE ☐ SW (check all that apply)
City / Town Naples in Current City Limits? Y NX
UTM: zone ☐16 x17 easting _ _ _ _ _ 0 northing _ _ _ _ _ _ 0
Address / Vicinity of / Route to I-75 Exit 101, south on CR951 4 miles, thence east on Sable Palm Road 1 mile, thence south on woods road 600 feet and SE on compass bearing 1000 feet
Landgrant Tax Parcel #
Name of Public Tract (e.g., park)

TYPE OF SITE (Check all choices that apply; if needed write others in at bottom)

SETTING
X Land - terrestrial
☐ Cave/Sink - subterranean
☐ terrestrial
☐ aquatic
☐ intermittently flooded
☐ Wetland - palustrine
☐ usually flooded (historically)
☐ sometimes flooded
☐ usually dry
☐ Lake/Pond - lacustrine
☐ River/Stream/Creek - riverine
☐ Tidal - estuarine
☐ Saltwater - marine
☐ marine unspecified
☐ "high energy" marine
☐ "low energy" marine

STRUCTURES - OR - FEATURES
☐ aboriginal boat
☐ agric/farm bldg
☐ burial mound
☐ building remains
☐ cemetery/grave
☐ dump/refuse
☐ earthworks
☐ fort
X midden
☐ mill unspecified
☐ mission
☐ mound unspecified
☐ plantation
☐ platform mound
☐ road segment
☐ shell midden
☐ shell mound
☐ shipwreck
☐ subsurface features
☐ surface scatter
☐ well

FUNCTION
☐ none specified
X campsite
X extractive site
X habitation (prehistoric)
☐ homestead (historic)
☐ farmstead
☐ village (prehistoric)
☐ town (historic)
☐ quarry

other

HISTORIC CONTEXTS (Check all that apply, except use most specific subphases only)

Aboriginal
☐ Alachua
☐ Archaic Unspecified?
☐ Belle Glade I
☐ Belle Glade II
☐ Belle Glade III
☐ Belle Glade IV
☐ Belle Glade Unspec
☐ Cades Pond
☐ Deptford
☐ Early Archaic
☐ Early Swift Creek
☐ Englewood
☐ Fort Walton
☐ Glades Ia
☐ Glades Ib
☐ Glades I Unspec
☐ Glades IIa
☐ Glades IIb
☐ Glades IIc
☐ Glades II Unspec
☐ Glades IIIa
☐ Glades IIIb
☐ Glades IIIc
☐ Glades III Unspec
X Glades Unspec
☐ Hickory Pond
☐ Late Archaic ?
☐ Late Swift Creek
☐ Leon-Jefferson
☐ Malabar I
☐ Malabar II
☐ Manasota
☐ Middle Archaic ?
☐ Mount Taylor
☐ Norwood
☐ Orange
☐ Paleoindian
☐ Pensacola
☐ Perico Island
☐ Safety Harbor
☐ St. Augustine
☐ St. Johns Ia
☐ St. Johns Ib
☐ St. Johns I Unspecified
☐ St. Johns IIa
☐ St. Johns IIb
☐ St. Johns IIc
☐ St. Johns II Unspecified
☐ St. Johns Unspecified
☐ Santa Rosa
☐ Santa Rosa-Swift Creek
☐ Seminole: Colonization
☐ Seminole: 1st War To 2d
☐ Seminole: 2d War To 3d
☐ Seminole: 3d War On
☐ Seminole-Unspecified
☐ Swift Creek Unspecified
☐ Transitional
☐ Weeden Island I
☐ Weeden Island II
☐ Weeden Island Unspec
☐ Prehistoric Nonceramic
☐ Prehistoric Ceramic
☐ Prehistoric Unspecified

Nonaboriginal
☐ 1st Spanish 1513-99
☐ 1st Spanish 1600-99
☐ 1st Spanish 1700-1763
☐ 1st Spanish Unspecified
☐ British 1763-1783
☐ 2nd Spanish 1783-1821
☐ Amer.Territor'l 1821-45
☐ Amer.Civil War 1861-65
☐ American 19th Century
☐ quarry American 20th Century
☐ American Unspecified
☐ African-American

☐ other (Less common phases are not checklisted. For historic sites, also give specific dates if known)

SURVEYOR'S EVALUATION OF SITE

Potentially eligible for local designation? Xyes ☐no ☐ insuff. info
Individually eligible for National Register? Xyes ☐no ☐ insuff. info
Potential contributor to NR district? ☐yes ☐no X insuff. info
Name of Local Register eligible for:

Explanation of Evaluation (Required if evaluated; limit to 3 lines; attach full justification)
Fairly intense midden containing faunal bone, marine shell in excellent condition
Recommendations for Site Preservation or further investigation

DHR USE ONLY======== OFFICIAL EVALUATIONS ========DHR USE ONLY

NR DATE / /
KEEPER-NR ELIGIBILITY: ☐y ☐n Date / /
SHPO-NR ELIGIBILITY: ☐y ☐n ☒pe ☐i/ Date 3/24/04
DELIST DATE / /
LOCAL DESIGNATION: Date / /
Local office
National Register Criteria for Evaluation ☐a ☐b ☐c ☐d

ARCHAEOLOGICAL SITE FORM

Site #8CR879

FIELD METHODS (Check one or more methods for detection and for boundaries)

Site Detection

☐ no field check
☐ literature search
☐ informant report
☐ literature search
☐ posthole digger
☐ exposed ground
☐ posthole digger
☐ auger--size:___
☐ unscreened shovel
☐ block excavations
x screened shovel
☐ aerial photo
☐ Field visit and survey
☐ remote sensing
☐ information

Site Boundaries

☐ bounds unknown
☐ none by recorder
☐ auger--size:___
☐ remote sensing
☐ insp exposed ground
x estimate or guess
☐ unscreened shovel
☐ screened shovel

Number, size, depth, pattern of units; screen size One 45cm square screened shovel test in northern part of site.

SITE DESCRIPTION

Extent Size (m^2) 1000 m2 Depth/stratigraphy of cultural deposit 15cm.

Temporal Interpretation Components: ☐ single ☐ prob single X prob multiple ☐ multiple ☐ uncertain ☐ unknown

Describe each occupation in plan (refer to attached large scale map) and stratigraphically. Discuss temporal and functional interpretations.

Integrity Overall disturbance: ☐ none seen X minor ☐ substantial ☐ major ☐ redeposited destroyed-document! ☐ unknown

Disturbances / threats / protective measures _Development, Pothunting

Area Collected ____ m^2 Surface: #collect. Units____ Excavation: #contiguous blocks

ARTIFACTS

Total Artifacts #____ (C)ount or (E)stimate? __c____ Surface #_____ Subsurface #_____

Overall Collection Strategy

☐ unknown
x unselective (all artifacts)
☐ selective (some artifacts)
☐ mixed selectivity
☐ uncollected
☐ general (not by subarea)
☐ controlled (by subarea)
☐ variable spatial control
☐ Other _____

chisel_____

Artifact Categories / Artifact Depositions

____ unspecified
____ lithics, aboriginal
__ __ ceramic-aboriginal
____ ceramic-nonaboriginal
____ daub
____ brick/bldg matl
____ glass
____ precious metal/coin
____ nonlocal-exotic
____ metal, nonprecious
___ bone-human
_A_ _ bone-animal
____ bone-unspecif
_ unworked shell
__A _ worked shell
__A__ Other __possible whelk columella

Disposition List

A - this catagory always collected
O - observed, not collected
I - informant reported or collected
S - some items in catagory collected
R - collected & reburied at site
U - unknown

(Use abbreviation(s) from Deposition List to fill blank(s) of pertinent Artifact Categories)

DIAGNOSTICS (Type and frequency)

1._____ N=_ 5._____ N=_ 9._____ N=__

ENVIRONMENT

Nearest fresh water (type & name)marsh 250 feet southwest Distance (m)/bearing 80 meters SW

Natural community Tropical hardwood hammock - live oak/cabbage palm hammock

Local vegetation Live oak, cabbage palm, camphorwood, white stopper, marlberry, myrsine

Topography elevated high ground MIN Elevation __0___ m MAX Elevation _+.8 meters__

Present land use undeveloped woodland

SCS soil series Immokalee fine Soil association

FURTHER INFORMATION

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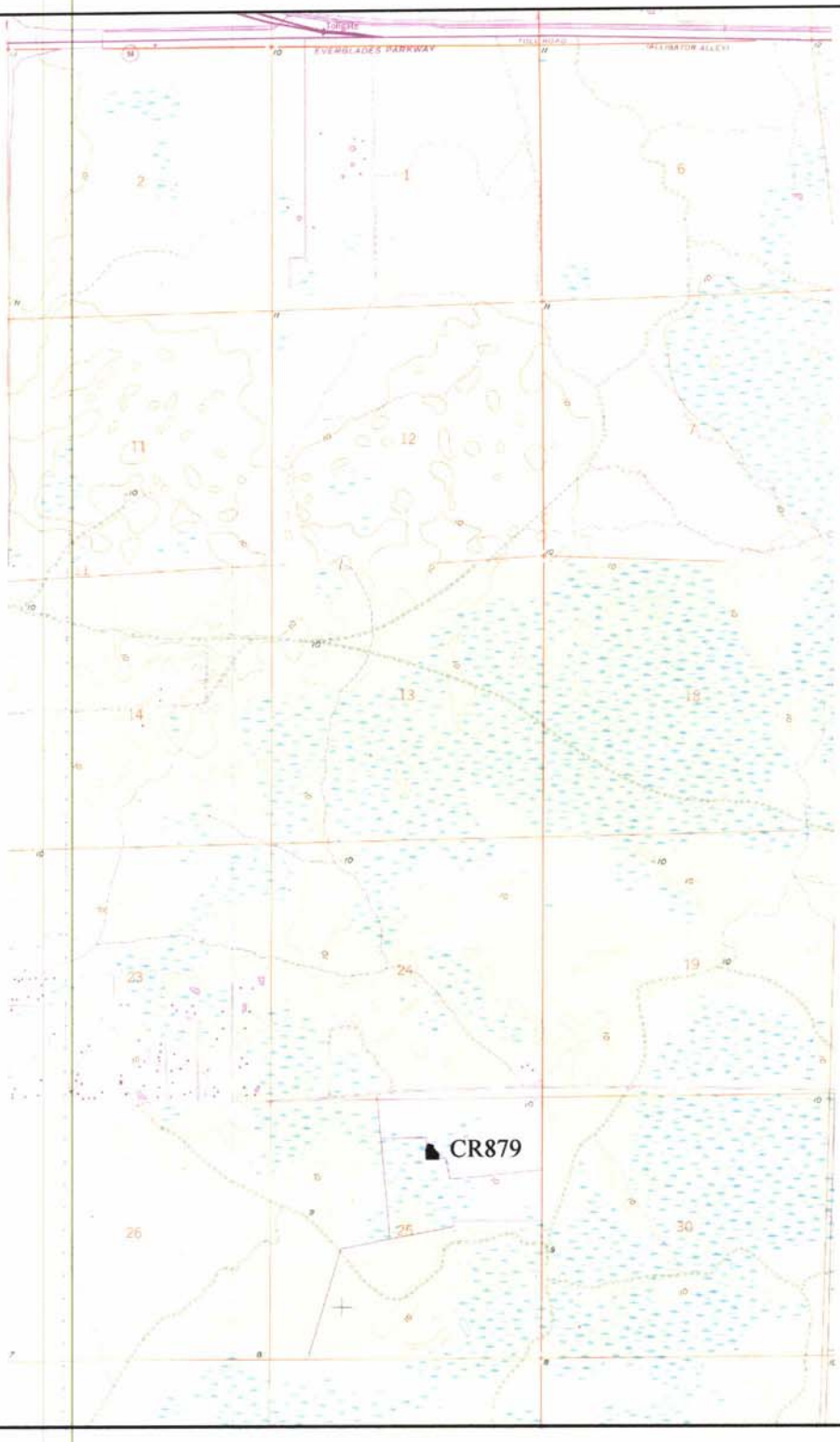


Source: USGS Belle Meade and Belle Meade NW (1958 rev. 1987)

CR879

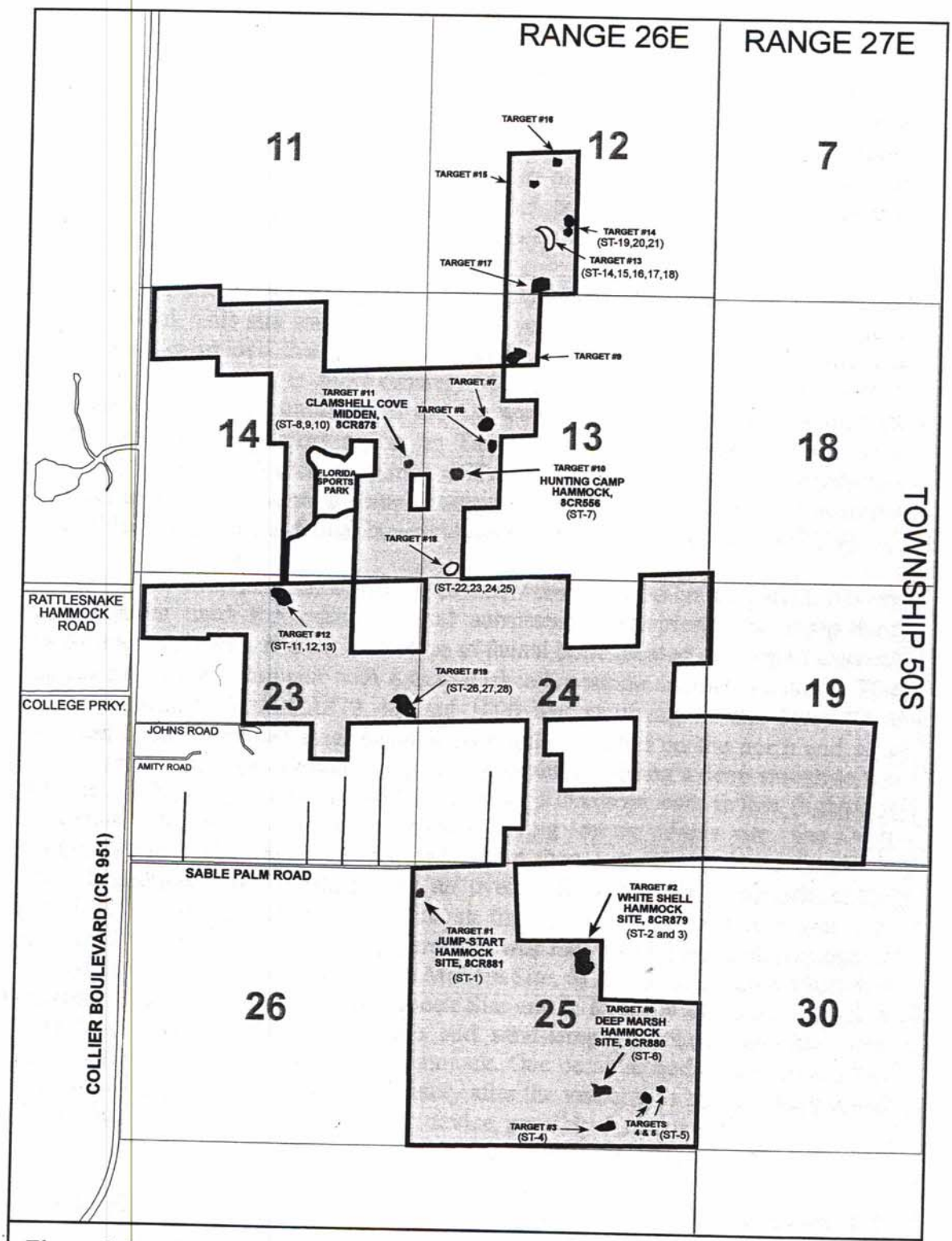
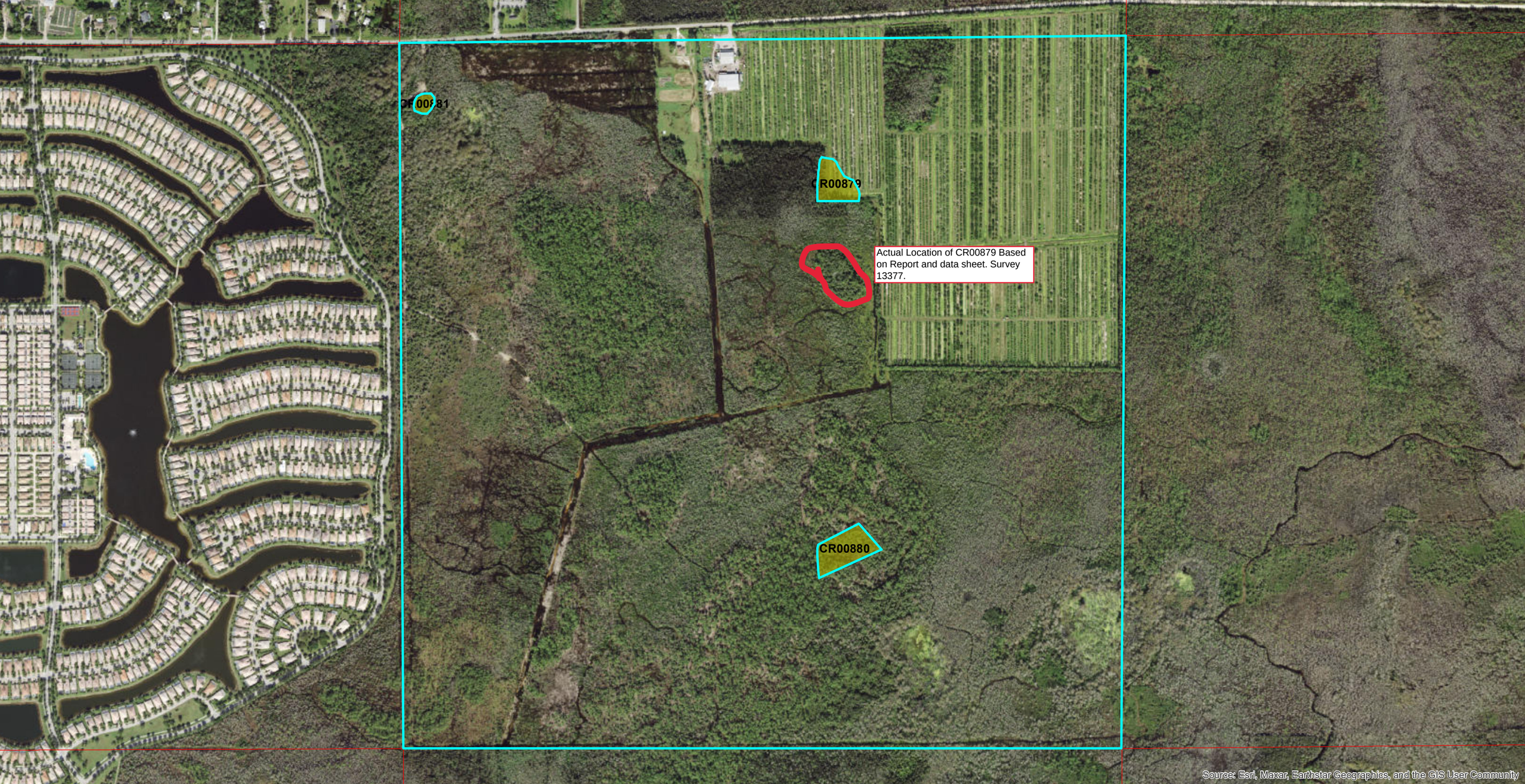


Figure 8. Map of Feathers Parcel showing targets and archaeological sites.


CR00879
Actual Location of CR00879 Based on Report and data sheet. Survey 13377.
CR00880
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community