

**RESTORATION BAY  
ECOLOGICAL ASSESSMENT  
Listed Species Survey and Habitat Evaluation  
Report**

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**September 2019**

**Project No. 2019-0195-00**

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Exhibit 3	GIS Land Use (FLUCS) Map
Exhibit 4	Topographic Map
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## ENVIRONMENTAL RESOURCE EVALUATION

### 1.0 METHODOLOGY

Ardurra Group, Inc. (Ardurra) Ecologists conducted field reconnaissance of the subject property on September 4, 2019. The purpose of this field review was to characterize the onsite vegetative community types and extents, to identify existing natural resources on or in the vicinity of the project site relative to regulatory agency requirements and permitting implications, as well as to identify conspicuous evidence of state and/or federally protected wildlife species on the property.

The project site is located on approximately 100 acres of land that was previously occupied by a golf course and is situated along the northeast shoreline of Boca Ciega Bay. The property is located south of 66<sup>th</sup> Avenue North and west of 133<sup>th</sup> Street, within Section 33, Township 30S, Range 15E, Pinellas County (**Exhibit 1**). An aerial map of the property is provided with **Exhibit 2**.

Upland and wetland habitats within the subject property were surveyed on the ground via meandering pedestrian and vehicular transects. Special attention was given to detecting the presence of listed species such that while transecting the site, frequent stops were made to survey the surrounding area for signs (i.e., tracks, nests, vocalizations) of listed species.

The land use/habitat types that occur on the property were characterized and adjusted (from the original SWFWMD GIS mapping) where appropriate based on field reconnaissance and observed conditions, and were classified using nomenclature provided in "The Florida Land Use, Cover, and Forms Classification System" (FLUCS) published by the Florida Department of Transportation (1999 Edition). These land use types (see **Exhibit 3**) are further described under Section 2.3 below.

With respect to the evaluation of onsite protected species occurrence, Ardurra initially reviewed the document entitled "Florida's Endangered Species, Threatened Species and Species of Special Concern, Official Lists" published by the Florida Fish and Wildlife Conservation Commission (FWC). This list was then cross-referenced with the known range of occurrence of each species relative to the property location and was also evaluated with respect to the available onsite habitat types and the listed species that can be expected to utilize or depend on such cover types. These data sources were then utilized to develop a "potential presence" list for the site. A review of the standard literature and available web-based data on those "potentially present" listed species was made including specific searches as follows:

- An automated search was made of the FWC website Waterbird Colony Locator records to identify any documented Waterbird breeding colonies in the vicinity of the property.

- An automated search was made of the current FWC website Bald Eagle Nest Location Data Records to identify any documented Bald Eagle nests in the vicinity of the property.
- Current FWC Wildlife Observation Records GIS Database.
- 1999 Florida Natural Areas Inventory (FNAI) Element Occurrence GIS Records.

Additional data sources referenced as part of this evaluation included:

- 1942, 1951 and 1957 series historic aerial photography
- USGS Quadrangle Topographic Maps
- SWFWMD GIS Topographic Maps (5' contours)
- SWFWMD 1977 Aerial Topographic Maps (1' contours)
- SCS (NRCS) Soils Mapping
- FEMA Flood Map
- SWFWMD 2005 FLUCS Mapping GIS Database
- FWC Wood Stork Core Foraging Areas
- FWC Wading Bird Rookeries, 1999
- USFWS Critical Habitat Polygons

Plant and wildlife species scientific names are provided only with their initial usage in the text. The results of this site assessment are provided in the following sections.

## 2.0 SITE CHARACTERISTICS

### 2.1 Topography and Drainage

The primary physical land feature in the vicinity of this property is Boca Ciega Bay, which marks the southern landward edge of the property, and influences the onsite topography and drainage patterns. Land elevations on the property range from approximately 25' (NGVD) in the northeast portion of the property (up to nearly 30' at the site of the clubhouse building), down to approximately elevation 1' along the tidal interface with the bay. Topographic change is relatively gradual on the property with exception of areas in the northeastern portion of the site where the ground surface slopes down relatively rapidly from the remnant building and parking areas. Drainage from on- and offsite contributing areas is conveyed through ditches, pipes and constructed ponds toward the bay. A topographic map is provided with **Exhibit 4**.

## 2.2 Soils

Based on review of the S.C.S. Soils Map for Pinellas County, there are a number of different mapped soil types that occur on the property (see **Exhibit 5**). In consideration that the subject property was previously cleared and developed as a golf course, it has been subject to grading or re-working of surface soils. Therefore, it is not clear to what extent the natural (mapped) soil profiles have remained intact. A separate, more detailed report of existing onsite subsurface conditions was prepared by a Geotechnical Engineer HAS. Each of the mapped soils units on the property is described below.

One of the most common mapped soil type by areal extent is **Myakka Fine Sand**. This soil type occurs primarily in the western portion of the property, above elevation 5' NGVD. In its natural condition, this is a nearly level, poorly drained soil that occurs on broad flats/flatwoods between sloughs or swamps. The water table typically occurs at a depth of 10-30 inches, occasionally rising to the surface during the wet season, or dropping below 30 inches during dryer periods.

**Immokalee Fine Sand** is also prevalent on the subject property. This soil type occurs primarily in the eastern portion of the property, above elevation 5' NGVD. In its natural condition, this is a nearly level, poorly drained soil that occurs on broad flats/flatwoods between sloughs or swamps. The water table typically occurs at a depth of 10-40 inches, rising to within 10 inches of the surface during the wet season.

A small area mapped as **Orlando Fine Sand, wet variant** occurs in the north-central portion of the property. Similar to the two adjacent soils mapping units described above, this soils unit is a nearly level, and somewhat poorly drained sandy soil that occurs on low ridges in the flatwoods or near the base of slopes on the upland ridge. The water table typically occurs at a depth of 10-40 inches, rising to within 10 inches of the surface during the wet season, or dropping below 40 inches during dryer periods.

**Oldsmar Fine Sand** is the soils unit that is mapped in the southern portion of the property, and which is generally coincident with uplands lying between the bay shoreline and elevation 5' NGVD. This is a nearly level, poorly drained sandy soil that naturally occurs on broad, low ridges in the flatwoods. The water table is at a depth of less than 10 inches during the wet season, and drops to between 10 and 30 inches during dryer times of the year.

Soils mapped as **Made Land** occur in the southern portion of the property, and are apparently coincident with linear "spits" of spoil material that border one of the tidal channel cuts along the bay interface in this area.

Made land soils may consist of clay, shell fragments, rock and/or sand, and typically result from local dredging activities. The soil composition below the spoil material may differ depending on the native soil type(s) in place prior to the disturbance.

Soils mapped as **Tidal Swamp** occur along the landward boundary of the bay in the southern portion of the property. This soil type typically occurs in low, broad coastal areas that are covered with sea water, with water level varying based on tides. Tidal swamps are typically vegetated with mangroves and may be subject to wave action.

The small island(s) present just off the southern landward boundary of the property are mapped as **Spoil Banks**. Similar to the Made Land soils described above, these spoil islands were created as a result of local dredging activity where material (of varying composition) was disposed of in tidal portions of the coast or bay.

## 2.3 Land Use and Habitat Types

### Upland Land Use Types

The subject property was developed as a **Golf Course (FLUCS Code 182)** in the early 1970's and had been under operation until recently. The property still bears most of the features inherent to the golf course use, but with elimination of standard maintenance (mowing, etc.) has begun to transition to fallow land. This land use type occupies the entire upland portion of the property. Appurtenant features of the golf course that remain include the cart path system that traverses the property, as well as the clubhouse facility and various out-buildings (e.g., maintenance shed, pump house, shelters, etc.).

Patches of vegetation, which may include planted ornamentals as well as native and "volunteer" species, exist within interior portions of the golf course. Native tree species observed onsite include live oak (*Quercus virginiana*), slash pine (*Pinus eliottii*), longleaf pine (*Pinus palustris*), cabbage palm (*Sabal palmetto*), sweet gum (*Liquidambar styraciflua*) and southern magnolia (*Magnolia grandiflora*). Non-native, exotic tree species observed include Brazilian pepper (*Schinus terebinthifolius*), carrotwood (*Cupaniopsis anacardioides*), bottlebrush (*Callistemon* sp.), oleander and Australian pine (*Casuarina equisetifolia*). Groundcover species within these areas include primarily weedy and opportunistic colonizers such as dog fennel (*Eupatorium capillifolium*), Spanish needles (*Bidens alba*), caesarweed (*Urena lobata*), groundsel bush (*Baccharis halimifolia*), tasselflower (*Emilia sagittata*), saltmarsh aster (*Symphotrychum subulatum*) and balsam apple (*Charantia momordica*).

## **Surface Water and Wetland Land Use Types**

The designation of open water polygons and habitat classifications largely depends on the scale and resolution of the aerial photography that is used as a basis for land use mapping on a particular site. Generally, the **Streams and Waterways (FLUCS Code 510)** cover type includes rivers, creeks, canals and other linear water bodies. On the subject property, the streams and waterways land use type is associated with the surface water ditches that occur within the property, and which serve to convey stormwater runoff from both onsite and offsite sources. These ditches convey flow between pipes and culverts, drains and stormwater ponds toward the bay waters to the south. Some of these ditches and swales are unvegetated with sandy or silty bottoms, while others are vegetated with grasses, low-growing emergent vegetation or submerged vegetation.

The onsite surface water ponds, most of which were constructed with the golf course to provide water storage and treatment, can be classified as man-made **Reservoirs Less than 10 acres which are Dominant Features (FLUCS Code 534)**. One of the open water ponds serves as a reclaimed water reservoir, which receives reclaimed water from offsite sources controlled by Pinellas County. For the most part, onsite ponds are open-water in nature with little to no emergent vegetation, or with mats of floating vegetation such as water lettuce (*Pistia stratiotes*).

**Mangrove Swamp (FLUCS Code 612)** occupies the southern shoreline of the property and serves to define the water-land interface. Mangrove swamps are dominated by white mangrove (*Laguncularia racemosa*), black mangrove (*Avicennia germinans*) and red mangrove (*Rhizophora mangle*). Exotic, invasive species such as Brazilian pepper and carrotwood also occur extensively in these areas, and in a few cases have crowded out the mangroves to dominate the vegetative cover. Due to the dense canopy coverage exhibited by these low-growing tree species, there is minimal coverage of groundcover vegetation. It is expected that the spoil island that occurs just south of the shoreline includes a similar vegetative composition to that described above, possibly with some higher elevations that lie above the zone of regular tidal inundation. Australian pine are also visible on the island.

Some portions of the mangrove swamp shoreline have apparently been subject to periodic trimming, as evidenced by the pruned condition (e.g., removal of smaller side branches and foliage) of the lower trunk area of these stands which has resulted in a relatively open view corridor between roughly two and eight feet above the substrate. The canopy portion of these trees has remained intact with healthy foliage, suggesting that this trimming activity and pattern were established years ago.

The open water area that occurs beyond the mangrove swamps at the shoreline is part of Boca Ciega Bay, and can therefore be classified under the **Bays and Estuaries (FLUCS Code 540)** land use category.

### **3.0 HISTORIC CONDITIONS AND LAND USE ACTIVITIES**

Ardurra reviewed historic aerial photography of the subject property, including 1942, 1951 and 1957 black and white aerials, as well as the 1970 series SCS soils overlay aerials and the 1977 Southwest Florida Water Management District (SWFWMD) topographic aerials.

The historic aerial photography reveals that the property was in an undeveloped condition in 1942, with exception of possible conversion to pasture or rangeland of the uplands. Natural drainage sloughs, evident as darker “signatures” on the aerial, occur in the north portion of the property and extend across the eastern third of the property toward the bay. Much of the southern third of the property appears to be treed and the shoreline appears to be intact with no evidence of ditching or spoil deposition. Surrounding lands are also undeveloped, but areas to the north and east were already in agricultural use (e.g., citrus and row crops) by this time.

In the 1951 aerial photography, with exception of what appears to be more intensive agricultural use of lands to the north and east, and some new road construction further to the north, little change is evident in the property vicinity.

In review of the 1957 aerial photography, some additional land clearing activities are evident on the subject property, with apparent conversion to open pasture areas and channelization of the easternmost drainage slough. Linear trails are also evident on the 1957 aerial. Lands to the east exhibit continued agricultural use, and also some new residential development, including a roadway network.

The 1970 aerial photograph (taken from the Pinellas County SCS Soil Survey) reveals that the property remained undeveloped, but likely under continued agricultural use. The drainage channel/ditch is mapped on the soil survey and the spoil islands (shown as two distinct, but adjacent features) are evident. While property to the west remains undeveloped, lands to the east exhibit extensive new residential development, including street patterns and areas where dredging and spoil deposition apparently created more waterfront residential development land along the bay. It is likely that the spoil islands to the south of the property were created as a result of related dredging activities.

The 1977 SWFWMD aerial photography reveals that the golf course was already present, suggesting that it was constructed in the early 1970's. Residential development had expanded to the north of the subject property, but the lands to the west (currently the County park property) remained mostly undeveloped.



The surface water drainage ditches and ponds are evident on the 1977 aerial photography, but the reclaimed water reservoir (present on the property today) did not yet exist.

Recent aerial photographs (Google Earth images) were also reviewed, including images from 1995, 1998, 2002, 2004, 2006, 2007, 2010, 2011 and 2012. A summary of changes since 1977, and from 1995 to present time are itemized below:

- By 2002, a new roadway network, parking areas, ponds, trails and boardwalk had been constructed at the County park (Boca Ciega Millennium Park) to the west.
- In 2004 clearing is evident in the location of the reclaimed water reservoir.
- By 2006 the reclaimed water reservoir was in place and functional. The existing stormwater treatment vault in the southeast corner of the property, constructed along with a local (offsite) street drainage improvement project, was also present.

## 4.0 LISTED SPECIES ASSESSMENT

### 4.1 Web-based Listed Species Data Search Results

Preliminary review of the project area via query of available web-based and GIS data sources that included FWC Wildlife Observation Records, Strategic Conservation Habitat Areas, Water Bird Nesting Atlas and 1999 FNAI Element Occurrence Records databases were conducted. **Exhibit 6** depicts the composite results of the web-based listed species occurrences.

The database search revealed no documented listed species observations on the subject property. Observations notes within a one mile radius of the property included Oystercatcher (a non-listed shorebird species) and a number of West Indian Manatee mortality data points in the open water portions of Boca Ciega bay.

Review of the 2006 FWC Wildlife Observation Records and FNAI Element Occurrence Records databases, reveals that the property is located within the USFWS Manatee Consultation Area, which covers most of the Pinellas County coastal zone area.

### 4.2 Observed and Potentially Occurring Listed Species

During field reconnaissance of the property by Ardurra Ecologists, the following conspicuous vertebrate fauna were observed onsite: Great Egret, Mockingbird, Anhinga, Blue Jay, Ground Dove, Osprey, Red-shouldered Hawk, Loggerhead Shrike, White Ibis, **Little Blue Heron**, **Snowy Egret**, Mosquitofish.

In addition, a relatively large stick nest, which appears to be an Osprey nest, was observed in the east-central portion of the property in a large dead pine tree. Species identified above in bold text are state or federally listed species that were observed onsite. Those observed listed species, along with those listed species which may be expected to occur onsite based on existing habitats and known range of occurrence, are discussed in more detail below.

#### 4.2.1 Wood Stork (*Mycteria americana*) - Potential

The Wood Stork is a state and federally listed wading bird species that is commonly observed within wetlands, ponds and ditches throughout south and central Florida. This species was not observed during the recent field assessment but is expected to occur onsite occasionally based on the availability of shallow foraging habitats along the margins of onsite ponds and ditches. Wood Storks typically nest in colonies called “rookeries”, which generally consist of clusters of shrubs or trees in the middle of a forested swamp or floodplain pond. Review of available GIS data on active wading bird colonies revealed that there are no documented Wood Stork rookeries in the immediate vicinity of the project site. Additionally, review of the USFWS map of Core Foraging Areas for Wood Storks in the central Florida region reveals that the project site does not fall within a designated Core Foraging Area, and so impacts to this species would likely not be implied as a result of site development. In consideration that there will likely be an increase in surface water features in the post-development condition of the project, it is expected that Wood Storks will be afforded even greater opportunity to utilize the property for foraging purposes.

#### 4.2.2 Tricolored Heron (*Egretta tricolor*) - Potential

#### 4.2.3 Little Blue Heron (*Egretta caerulea*) - Observed

#### 4.2.4 Snowy Egret (*Egretta thula*) - Observed

These wading birds have been observed foraging along the margins of onsite ponds. These wading birds are listed as Threatened Species by the FWC. Like other Florida wading birds, these birds commonly forage along lake margins, shallow marshes and pools within forested wetlands, and they typically nest in colonies or “rookeries” within large contiguous forested wetland systems or on isolated treed islands along the coast. No evidence of nests or nesting activities was noted on the subject property. It is likely that these species utilize the subject property on a transient basis for foraging purposes and will continue to do so in the post-development condition within constructed stormwater ponds and coastal wetland habitats.

#### 4.2.5 Osprey (*Pandion haliaetus*) - Observed

During the field reconnaissance effort, an Osprey was observed flying over the central portion of the site and a single Osprey nest was observed in the east-central portion of the property. Ospreys are not listed as a state or federally listed species in this part of the state. However, Ospreys and their nests are protected by the Migratory Bird Treaty Act.

The observed Osprey nest is located in a standing dead pine tree within a tree/shrub cluster between golf holes. At the time of the site visit, there were no Ospreys observed in the vicinity of the nest. However, because the site visit was conducted later in the year than the recognized nesting season for Ospreys which extends from January through July, the activity status of the nest could not be determined. The nest did, however, appear to be largely intact.

If the nest site is located within the proposed development footprint, it will need to be removed/relocated prior to commencement of site clearing and construction activities. In accordance with the published guidelines, any replacement nest structure should be erected as near as possible to the original nest site.

Because only "inactive" Osprey nests, (i.e., nests that are unattended and do not include eggs or young birds) may be removed, the relocation activity would need to be conducted outside of the recognized breeding season. There are specific guidelines for relocating and/or erecting new Osprey nest platforms, as well as specific clearances/permits to be obtained through the FWC and USFWS prior to commencement of nest relocation or project clearing and construction.

## 5.0 SUMMARY

In summary, the Restoration Bay property is situated along the shoreline of Boca Ciega Bay. The property has been subject to prior clearing and development and was operated as a golf course for over 40 years. Aside from the tidal, mangrove shoreline, the property does not possess intact native vegetative communities. While the site does support certain avian listed species such as wading birds and Osprey, habitats are not present that would support other upland-dependent listed species. Aside from the single Osprey nest observed in the east-central portion of the site, no evidence of nesting or denning by Threatened or Endangered species was observed on the property. In consideration of the observed conditions and review of available current and historic data for the property, it does not appear that development of the property would result in adverse impacts to listed species or sensitive habitats in this region.

**EXHIBIT 1**

**LOCATION MAP**

# RESTORATION BAY

LOCATION MAP



- LEGEND -

 Property Boundary



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COLLABORATE. INNOVATE. CREATE.

SCALE - MILES



# PINELLAS COUNTY

GRAPHIC REPRESENTATIONS ARE GENERAL IN NATURE AND SHOULD BE USED FOR PLANNING PURPOSES ONLY

**EXHIBIT 2**  
**AERIAL MAP**

# RESTORATION BAY

Aerial Map



**- LEGEND -**

 Project Area



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SCALE - FEET

0 400 800

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## **EXHIBIT 3**

# **GIS LAND USE (FLUCS) MAP**



# RESTORATION BAY






FLUCCS MAP



**- LEGEND -**

 Property Boundary

**FLUCCS Code Descriptions**

-  5100 - STREAMS AND WATERWAYS
-  5340 - RESERVOIRS
-  5400 - BAYS AND ESTUARIES
-  6120 - MANGROVE SWAMPS
-  6410 - FRESHWATER MARSHES



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SCALE - FEET

0 300 600

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**EXHIBIT 4**  
**TOPOGRAPHIC MAP**

# RESTORATION BAY

1' CONTOUR MAP (LiDAR)



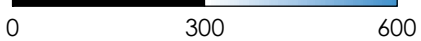
- LEGEND -

-  Property Boundary
-  1' Contours
-  5' Contours



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SCALE - FEET



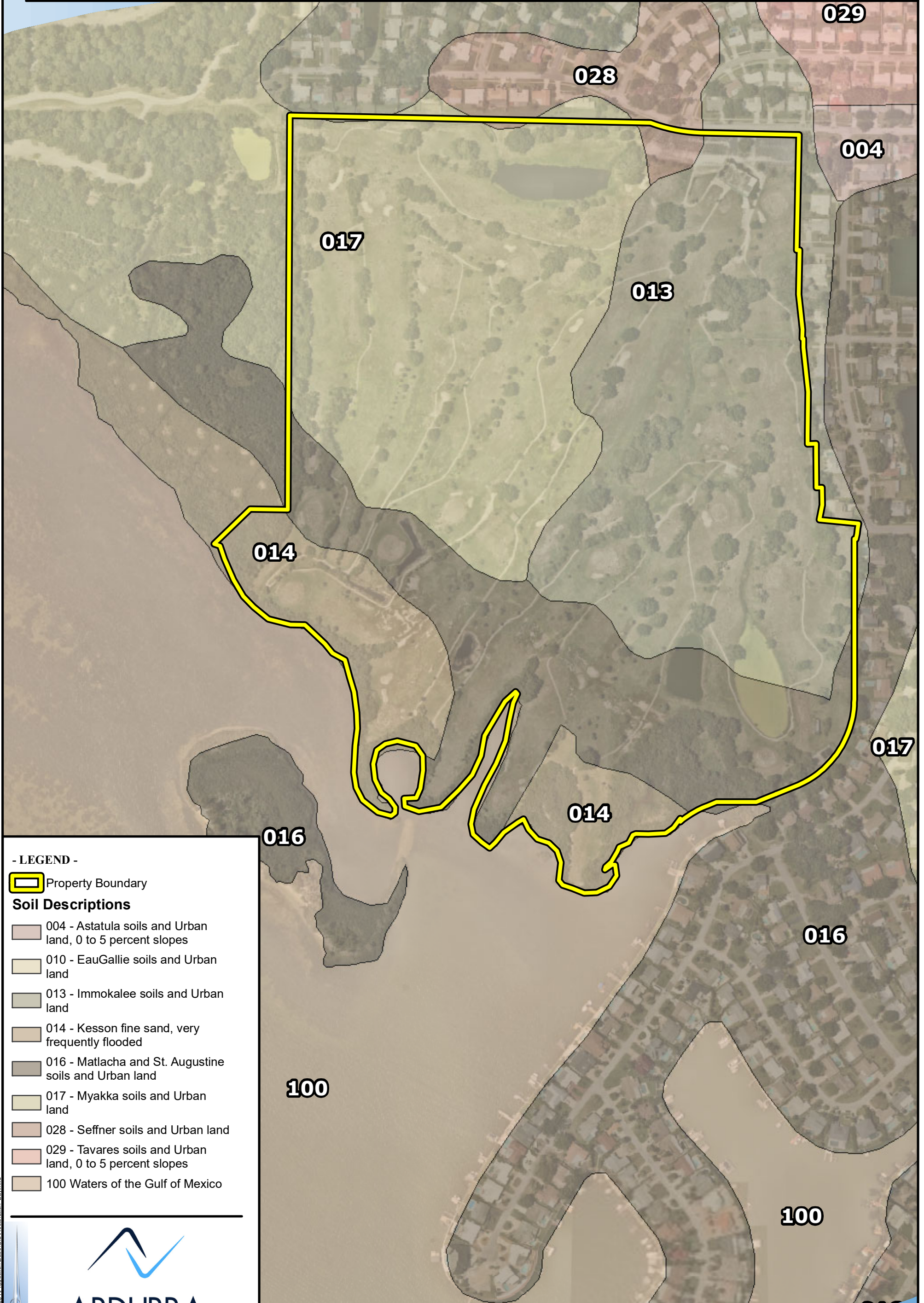
# PINELLAS COUNTY

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**EXHIBIT 5**  
**SOILS MAP**

# RESTORATION BAY

SOILS MAP



**- LEGEND -**

Property Boundary

**Soil Descriptions**

- 004 - Astatula soils and Urban land, 0 to 5 percent slopes
- 010 - EauGallie soils and Urban land
- 013 - Immokalee soils and Urban land
- 014 - Kesson fine sand, very frequently flooded
- 016 - Matlacha and St. Augustine soils and Urban land
- 017 - Myakka soils and Urban land
- 028 - Seffner soils and Urban land
- 029 - Tavares soils and Urban land, 0 to 5 percent slopes
- 100 Waters of the Gulf of Mexico



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SCALE - FEET



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## **EXHIBIT 6**

# **WEB-BASED DATA SEARCH MAP**

# RESTORATION BAY

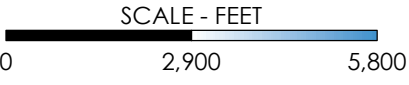
GIS Wildlife Data Search



**- LEGEND -**

- Project Area
- FWC Wading Bird Rookeries 1999
- FNAI Wildlife Observation Data 1999
- FWC Bald Eagle Nest Locations 2015
- FWC Wildlife Observation Data 2015
- USFWS manatee Consultation Area
- 2008 Manatee Mortality
- 1 mile buffer

RARE/ENDANGERED ANIMAL -contact FNAI for more info



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