

Parcel Number 0487-12-0005

2018

Wetland Restoration Plan



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**PARCEL NUMBER 0487-12-0005
ENGLEWOOD, FLORIDA**

**ENVIRONMENTAL NARRATIVE IN SUPPORT OF A
WETLAND RESTORATION PLAN
FOR LEMON BAY**

October 2018

Prepared for:
Mr. Bruce Anderson
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Englewood, FL 34223

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Parcel Number 0487-12-0005
Environmental Narrative in Support of
A Wetland Restoration Plan
For Lemon Bay

I. Introduction

The project area is in Section 15, Township 40 South, and Range 19 East, in Sarasota County, Florida. The subject property is a single-family residential parcel identified by the Sarasota County Property Appraiser's Identification Number system as Parcel Number 0487-12-0005 described as Lot No. 919, within the Englewood Gardens Unit 5 (Exhibit 1). Sarasota County Environmental Protection staff determined during a site inspection that mangroves along the shoreline of Lemon Bay have been altered without County authorization (Exhibit 2). The County received delegation from the state of Florida to administer local mangrove trimming and alteration permits in 2016.

The project site can readily be accessed by Sarasota County staff by taking Sarasota Center Boulevard approximately 1.0 miles to Fruitville Road. Turn right onto Fruitville Road and head west approximately 2.50 miles to Interstate-75. Merge onto Interstate-75 south and head toward Exit 193 (Jacaranda Boulevard). Take Jacaranda Boulevard off ramp heading west and continue for approximately 5.20 miles to State Road 776. Turn left onto State Road 776 approximately 2.50 miles. Turn right onto Overbrook Drive. Take Overbrook Drive until it dead ends into Bayshore Road and turn left. The parcel is located approximately 0.2 miles on the right (Exhibits 3 and 4).

II. Soils

Table 1: NRCS Mapped Soils Parcel Number 0487-12-0005.

Soil Type	Map Symbol	Acres	Percentage Of Total Site	Hydric Y/N
EauGallie and Myakka Fine Sands	010	1.67	100.00	N

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EauGallie and Myakka Fine Sands (Map Unit: 010)

EauGallie and Myakka Fine Sands are sandy, siliceous, hyperthermic Alfic Haplaquods, poorly drained soils formed in thick beds of sandy and loamy marine sediments. These nearly level soils are on broad flatwoods, with slope ranges from 0 to 2 percent. The individual units are irregular in size and are comprised of EauGallie soils with additional inclusions of Myakka soils or other soil units. The water table is usually encountered at 6 to 18 inches below surface for three months annually, and then recedes to a depth of more than 40 inches during extended dry periods. The available water capacity and natural fertility are low. Permeability is rapid on the surface as well as the subsurface layer and substratum.

EuaGallie soils are associated with Myakka and Wabasso soils. The EuaGallie and similar soils generally make up about 45 percent of this map unit, and the Myakka and similar soils make up about 40 percent. Myakka soils do not have an argillic horizon and Wabasso soils are shallower to a Bt Horizon than the EauGallie soils. Under natural conditions, these soils have a seasonal high water table at a depth of 6 to 18 inches for 1 to 3 months and within a depth of 40 inches for 2 to 6 months. The available water capacity is low in both soils. Typically, this combined soil unit supports natural vegetation associated with Pine Flatwoods, or mixed upland pine and oak forests with scattered cabbage palm. This soil type is found in the central portion of the project area.

The Natural Resource Conservation Service (NRCS) did not map the mangrove portion of this parcel as a separate soil type; however, adjacent mangrove habitats found along Lemon Bay are mapped Kesson and Wulfert mucks (Exhibit 5). Based on a soil sample taken within the parcel's mangrove habitats, the NRCS' descriptions for the Kesson and Wulfert mucks better defines the soils found within the parcel's mangrove habitats. In their natural unaltered condition, these soils are nearly level, very poorly drained soils located in tidal marshes and tidal swamps adjacent to coastal islands and estuaries. The Kesson and Wulfert components do not occur in a regular percentage or pattern and maybe entirely Kesson and similar soils or entirely Wulfert and similar soils. Under normal conditions, these soils are flooded during normal high tides, with a high fertility for salt water plants. Typical native wetland vegetation includes red mangrove (*Rhizophora mangle*), white mangrove (*Laguncularia racemosa*), black mangrove (*Avicennia germinans*), saltwort (*Batis maritima*), glasswort (*Salicornia bigelovii*), seashore salt grass (*Distichlis spicata*), and seashore paspalum (*Paspalum vaginatum*).

III. Upland Habitat Assessment

The specific parcel and surrounding upland land covers were mapped in 2011 by the Southwest Florida Water Management District, using designations from the *Florida Land Use, Cover and Forms Classification System* (FLUCFCS), Florida Department of Transportation, 1999 (Exhibit 6). The SWFWMD identified land use type is described with only a single land use type FLUCFCS 110 (Residential, Low Density < 2 Dwelling Units Per Acre).

Table 2: SWFWMD Mapped Upland Land Use Covers on Parcel No. 0487-12-0005 .

Land Cover	FLUCFCS Code	Acre(s)	Percentage Of Total Site	Features Where Found
Residential, Low Density	110	6.75	71.50	Western Portion

Residential Low Density -- FLUCSFCS 110 (1.67 Acres)

Residential land uses range from high-density urban housing developments to low-density rural areas characterized by a relatively small number of homes/structures per acre. The latter is consistent with the Englewood Gardens Subdivision and the surrounding residential areas. This area of low intensity residential land use (generally less than one dwelling unit per five acres), such as farmsteads or estate lots, will be incorporated in other categories to which they relate. However, rural residential and recreational type subdivision will be included in the residential category since this land is almost entirely committed to residential use even though it may include forest or range types. This area of low intensity residential land use is not currently occupied, but will be as soon as the residential structure is completely renovated. In this area of Englewood, some of the residential boundaries may be difficult to discern, since the residential development has been very sporadic and has occurred in small isolated units developed over an extensive period. Vegetation present in this community includes scattered cabbage palm, slash pine (*Pinus elliottii*), live oak (*Quercus virginiana*), and laurel oak (*Quercus laurifolia*) are also present within this community.

VI. Wetland Habitat Assessment

The specific parcel and surrounding land covers were mapped in 2011 by the Southwest Florida Water Management District, using designations from the Florida Land Use, Cover and Forms Classification System (FLUCFCS), Florida Department of Transportation, 1999. This area of Englewood is described with only a single land use type, FLUCFCS 612 (Mangrove Swamps).

Table 3: SWFWMD Mapped Wetland Land Use Covers Present on the Parcel Number 0487-12-0005.

Land Cover	FLUCFCS Code	Acre(s)	Percentage Of Total Site	Features Where Found
Mangrove Swamps	612	0.33	19.77	Western Portion

Mangrove Swamps -- FLUCFCS 612 (0.33 Acres)

The parcel's coastal hardwood community is comprised of mostly red and/or black mangroves. Typically, this hardwood community is closely associated with white mangroves, buttonwood (*Conocarpus erectus*), cabbage palm (*Sabal palmetto*), and sea grape (*Coccoloba ovifera*). The adjacent parcel bordering Lemon Bay follow these vegetative associations. The parcel's coastal hardwood community also includes a high percentage (greater than 50 percent coverage) of Brazilian pepper (*Schinus terebinthifolius*), an exotic invasive hardwood species that is widespread in Florida, and poses a significant threat to Florida's natural areas. Brazilian pepper is a pioneer of disturbed sites, such as highways, canal and power line rights-of-way, but it is also successful in many undisturbed natural environmental, such as those mangrove habitats along Lemon Bay.

V. Proposed Restoration Plan

ESA ecologists' efforts to restore the western portion of Parcel No. 0487-12-0005 will follow the Society of Ecological Restoration's definition of ecological restoration as the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. In addition, ESA ecologists' efforts will concentrate on the shoreline of Lemon Bay as it existed prior to the unauthorized alteration, without the dense coverage of Brazilian pepper.

All three mangrove species are found along the parcel: red mangrove, black mangrove, and white mangrove, having floating seeds that are produced annually in large numbers and can float to new sites for colonization. As long as normal tidal hydrology is not disrupted and the waterborne seeds or seedlings (propagules) of mangroves from adjacent stands are not limited or blocked, mangroves can successfully undergo secondary succession. Key to this self-repair includes the planting of an emergent species that can trap the floating mangrove propagules, such as saltmarsh cord grass (*Spartina alterniflora*) initially planted to facilitate the secondary succession to a climax community of predominant mangrove community, but with some remnant of the original tidal marsh species remaining.

This natural recruitment of mangrove seedlings can significantly exceed densities of planted seedlings in wetland creation/restoration areas and is a cost-effective way to restore mangrove ecosystems through natural colonization by volunteer mangroves endemic to the specific ecosystem being restored. In addition, most mangrove zonation patterns in Florida include a tidal marsh component dominated by such species as black needle rush (*Juncus roemerianus*), saltgrass (*Distichlis spicata*), marsh-elder (*Iva frutescens*), and sea-purslane (*Eluvium potulacastrum*) that adds plant diversity and facilitates access for wading birds (Exhibits 8 and 9).

Bosire et. al. found that no re-colonization of mangrove propagules occurred in any bare sites, whereas a number of species had recruited into the comparable reforested or natural stands with tree cover and areas with emergent vegetation. These findings suggest these wetland plants have modified site conditions in a way that facilitates settling and establishment of propagules. Smith suggests that this could be due to red and black mangrove roots aerating the soil, increasing redox and decreasing sulfide concentrations. The aerial roots of established mangroves or the emergent vegetation help in breaking waves, slowing tidal currents, and physically trapping floating mangrove propagules assuring the establishment of a sapling bank, much like a whale's baleen traps food particles. This daily tidal movement exposes the propagules to these waves and currents, which helps move the mangroves into the substrate. ESA ecologists have had good success with this technique at the City of Venice: Legacy Park project with the creation of 1.0 acre of tidal marsh planted to ultimately be colonized by mangroves. In the three years since grading and planting of this site, thousands of mangrove propagules have floated into the created tidal marsh; re-affirming the research of Bosire and Smith.

In discussing potential resolution options to meet the requirements of Sarasota County Code Enforcement Notice of Code Violation and Order to Correct Violations No. CP 18-249 with Ms. Alyssa Vinson, Code Enforcement Official, Environmental Permitting Department (EPD), she agreed that potted mangroves may not be readily available and would consider alternatives that would meet the other success criteria listed within the 25 July 2018 Unauthorized Alteration of Mangrove letter. Based on a field review and discussions with Ms. Vinson, ESA ecologists will oversee the removal of all previous cut material, cut and treat the Brazilian pepper, and install a tidal marsh component dominated by such species as cord grass, black needle rush, salt grass, marsh-elder, and sea-purslane into the openings between remaining cut mangroves (Exhibit 9). During the field review, numerous mangrove propagules were observed along Lemon Bay that are anticipated to quickly colonize the planted tidal marsh areas.

VI. Wetland Monitoring and Maintenance Plan

The wetland restoration area(s) will be monitored with permanent photographic stations for three (3) years with reports submitted annually (Exhibit 10). Replanting of the tidal marsh species will be conducted on an as-needed basis determined at the end of each year if survival of planted species or coverage of planted and naturally recruited species falls below specified levels. Supplemental plants will be limited to these number of plants needed to equal a cumulative survival of 85 percent or coverage of 75 percent. Desirable native plants that recruit within the wetland restoration area(s) will be included in the minimal survival or coverage requirements. Maintenance activities will be completed at a frequency necessary to control exotic and/or nuisance plant species below 5 percent of the vegetation within the wetland restoration area(s). The property owner will maintain the wetland restoration area(s) in perpetuity to ensure its intended functions are met.

1. A "Time Zero" Monitoring Report will be submitted within 30 days of completion of the debris removal, Brazilian pepper removal, and planting of the wetland restoration area(s); and, is proposed to include the following:
 - a. Date the planting was complete;
 - b. Color photographs to provide an accurate representation of the wetland restoration area(s). The photographs will be taken from fixed reference points and directions which area shown on the scaled plan view; and,
 - c. A table depicting numbers, spacing, and sizes of each species planted.

e. Coverage by exotic and/or nuisance plant species does not exceed five (5) percent, as specified.

This criterion must be achieved in three (3) years. The property owner or designee with responsibility for hiring an environmental scientist, ecologist, biologist or person with similar training to undertake the required maintenance activities within the wetland restoration area(s) as needed at any time between restoration completion and termination of monitoring except for the final year.

A Wetland Restoration Completion Report shall be submitted to the County within 30-days of completing the removal of debris, removal of Brazilian pepper, and planting of the wetland restoration area(s) along Lemon Bay. Upon County inspection and approval of the wetland restoration area(s), the monitoring program shall be initiated with the data of the County field inspection being the construction completion date of the wetland restoration area(s). An Annual Wetland Restoration Monitoring Report shall be submitted upon the anniversary date of the County approval to initiate monitoring.

Upon receipt of the monitoring reports, the County will evaluate the wetland restoration area(s) to determine if the Success Criteria Condition have been met and maintained. The County will notify the property owner or designee in writing of the evaluation results. The property owner or designee shall perform corrective actions for any portions of the wetland restoration area(s) that fail to maintain the criteria set forth in the Success Criteria Condition. The restoration of the mangrove habitat along Lemon Bay shall be supervised by a qualified environmental scientist/specialist/consultant, listed by the County.

VIII. References

Barnett, Michael R. and David W. Crewz. (1983). An Introduction to Planting and Maintaining Selected Common Coastal Plants in Florida. Florida Sea Grant Report No. 97.

Bonham, C. D. (1989). Measurements for Terrestrial Vegetation. John Wiley and Sons, New York, New York.

Bosire, J. O., F. Dandoun-Guebas, J. G., Kairo, and N. Koedam. (2003) Colonization of Non-Planted Mangrove Species into Restored Mangrove Stand in Gazi Bay, Kenya. Aquatic Botany. (76) 267-279.

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Florida Department of Transportation, Surveying and Mapping Office, Thematic Mapping Section. January 1999. Florida Land Use, Cover, and Forms Classification System.

Haehle, R. G. and J. Brookwell. (2004). Native Florida Plants. Taylor Trade Publishing, New York. 400 pp.

Lewis, Roy, R. III. (2005). Ecological Engineering for Successful Management and Restoration of Mangrove Forests. Ecological Engineering. (24) 403-418.

Nelson, G. (2003). Florida's Best Native Landscape Plants. University Press of Florida, Gainesville. 411 pp.

Osorio, R. (2001). A Gardener's Guide to Florida's Native Plants. University Press of Florida, Gainesville. 345 pp.

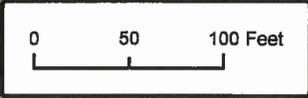
Smith, T. J., III., M. B. Robblee, H. R. Wanless, and T. W. Doyle. (1994). Mangroves, Hurricanes, and Lightning Strikes. Bioscience. (44) 256.

United States Department of Agriculture, Soil Conservation Service. 1991. Soil Survey of Sarasota County, Florida.



Legend

 Project Boundary (1.71 ac.)



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

DATE: 09-27-18
 FILE: 1850_BayshoreDrive
 AerialMap.mxd
 AERIAL: ESRI Imagery
 SCALE: 1" = 100'

AERIAL MAP
MANGROVE TRIM VIOLATION
 1850 BAYSHORE DRIVE, ENGLEWOOD, FL. 34223
 SARASOTA COUNTY, FLORIDA

 **Ecological**
 Services Associates
 280 Abalone Road
 Venice, Florida 34293
 P (941) 330-5549

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July 25, 2018

Mr. Bruce Anderson
1850 Bayshore Drive
Englewood, Florida 34223

Subject: **Unauthorized alteration of mangroves**
Address: **1850 Bayshore Drive**
PID #: **0487-12-0005**
CP Number: **CP-18-249**

Dear Mr. Anderson:

This letter is to inform you that Environmental Protection Division staff has determined that your property is in violation of Sarasota County Ordinance; Chapter 54, Article XXXV (Mangrove Trimming and Preservation). Environmental Protection staff conducted a site assessment on July 24, 2018, after receiving a referral from a concerned citizen. During that inspection, staff observed that an approximately 7,000 sq. ft. peninsula containing mangroves had been altered without authorization. Several large red mangroves (*Rhizophora mangle*) were cut to the root with no remaining foliage.

The Sarasota County Mangrove Trimming and Preservation Ordinance (Chapter 54, Article XXXV of the Sarasota County Code) was created to protect and preserve mangroves, which are valuable to our environment and economy, from unregulated removal, defoliation, and destruction and to provide property owners with a riparian right of view.

We are seeking your cooperation to resolve this matter. Based on staff assessment of the site, the County is requesting you do the following:

- 1) Immediately cease any further trimming of mangroves at the property. Any future trimming shall be consistent with the provisions of the Mangrove Trimming and Preservation Ordinance, Chapter 54; Sections 1071 through 1085, Sarasota County Code of Ordinances.
- 2) No later than **August 27, 2018**, submit a restoration plan prepared by an environmental scientist, ecologist, biologist or person with similar training (See attached list). The restoration plan shall include the maintenance, monitoring schedule, success criteria and a diagram showing the location, dimensions and square footage of the impacted area.
 - a. The approved restoration plan must include the planting of 3-gallon red mangroves (*Rhizophora mangle*) and black mangroves (*Avicennia germinans*) within the impacted area in a sufficient number to replace the defoliated canopy. Additional species may be planted to facilitate establishment of the planted mangroves. These species may include; marsh elder (*Iva frutescens*), railroad vine (*Ipomea pes-caprae*), sea purslane (*Sesuvium portulacastrum*), glasswort (*Salicornia virginica*), saltwort (*Batis maritima*) and marsh hay (*Spartina patens*).
 - i. Mangroves shall be sourced according to the Florida Nursery Grades and Standards from nurseries within the same climatic zone as the subject property (10a).
 - ii. 3-gallon red mangroves shall meet the following criteria:

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1. Height of at least 36 inches
 2. Caliper of at least 3/4 inches
 3. Crown of at least 24 inches
 4. Roots of at least 12 inches (branched)
 5. Time in container of at least 9 months
- b. The success of any vegetation effort shall be monitored by the owner(s) (or designee) and shall also be subject to monitoring and enforcement by the County during the three-consecutive-year period following installation of vegetation. Photographs of the vegetated area shall be taken and forwarded to the Sarasota County Environmental Protection Division office following the initial vegetation effort and every year thereafter for a period of three years.
- c. A minimum annual survival rate of 85% over a three-year period is required.
- d. If the survival rate of planted vegetation falls below 85% during any year of the three-year monitoring period, supplemental planting shall be conducted at the end of that year. The vegetation effort shall be deemed successful and monitoring may cease when the number of plants needed to equal a cumulative survival of 85% is established for a period of one year without supplemental planting or irrigation during the monitoring period.

Please contact me at (941) 254-3225 if you have any questions or to arrange an on-site meeting.

Sincerely,



Alyssa Vinson
Environmental Specialist II
Environmental Protection

alipstein
@scgov.net

Attachment 1: Environmental Consultant List

avinson @
scgov.net

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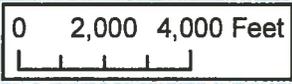


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Legend

Project Boundary

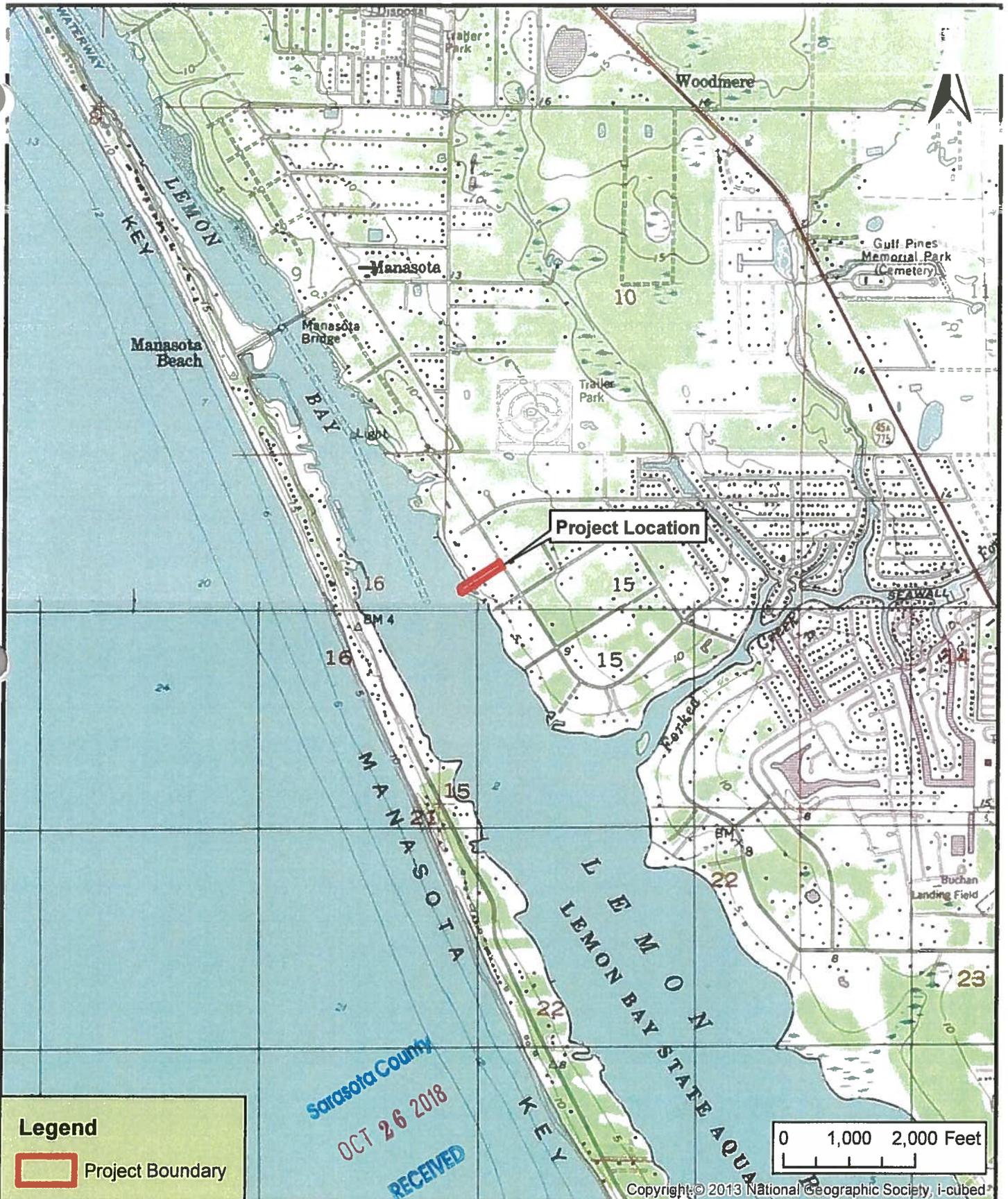


Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

DATE: 09-27-18
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 LocationMap.mxd
 AERIAL: ESRI World Street
 SCALE: 1" = 4,500'

LOCATION MAP
MANGROVE TRIM VIOLATION
 1850 BAYSHORE DRIVE, ENGLEWOOD, FL. 34223
 SARASOTA COUNTY, FLORIDA

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DATE: 09-27-18
 FILE: 1850_BayshoreDrive
 USGS_Map.mxd
 AERIAL: USGS Topo Maps
 SCALE: 1" = 2,000'

USGS QUAD MAP
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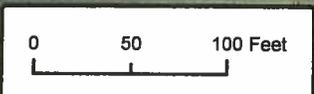
 Project Boundary (1.71 ac.)

 NRCS Soils Line

Code, Description, Acreage

10, EauGallie and Myakka fine sands, 1.66 ac.

99, Water, 0.05 ac.



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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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 SoilsMap.mxd
 AERIAL: ESRI Imagery
 SCALE : 1" = 100'

NRCS SOILS MAP
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 SARASOTA COUNTY, FLORIDA

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Legend

 Project Boundary (1.71 ac.)

 FLUCFCS Line (ESA)

Code, Description, Acreage

110, RESIDENTIAL LOW DENSITY < 2 DWELLING UNITS, 1.37 ac.

540, BAYS AND ESTUARIES, 0.01 ac.

612, MANGROVE SWAMPS, 0.33 ac.



Bayshore Drive

110

110

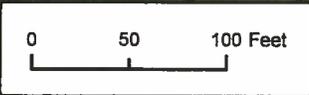
540

612

110

540

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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

DATE: 09-28-18
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FLUCFCSMap.mxd
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SCALE: 1" = 100'

FLUCFCS MAP
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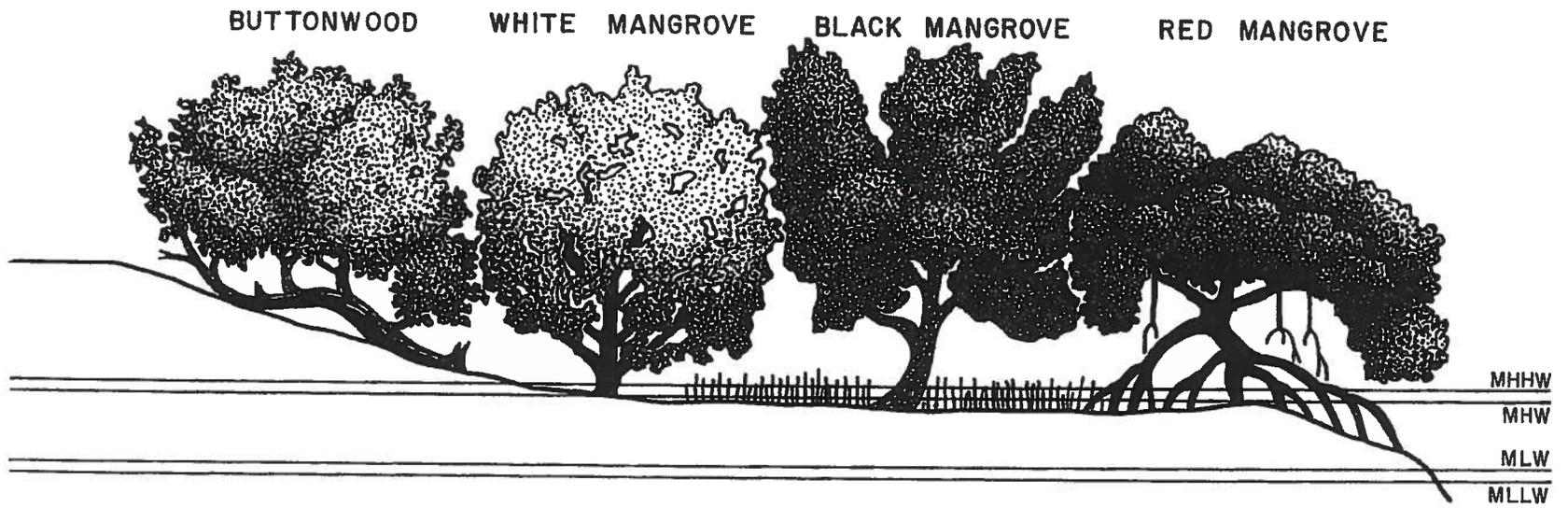
RESTORATION AREA PLANTING PLAN

Mangrove Restoration Planting Plan				
Groundcover				
Species Name	Common Name	Plant Size	Spacing (Feet O.C.)	Quantity
<i>Spartina alterniflora</i>	Smooth Cordgrass	4" Nursery	3	300
<i>Sesuvium portulacastrum</i>	Sea-Purslane	4" Nursery	3	200
<i>Borrichia frutescens</i>	Sea Ox-Eye Daisy	4" Nursery	Randomly	125
<i>Iva frutescens</i>	Marsh-Elder	4" Nursery	Randomly	125
<i>Distichilis spicata</i>	Saltgrass	4" Nursery	3	125
<i>Juncus roemerianus</i>	Needlerush	4" Nursery	1	100

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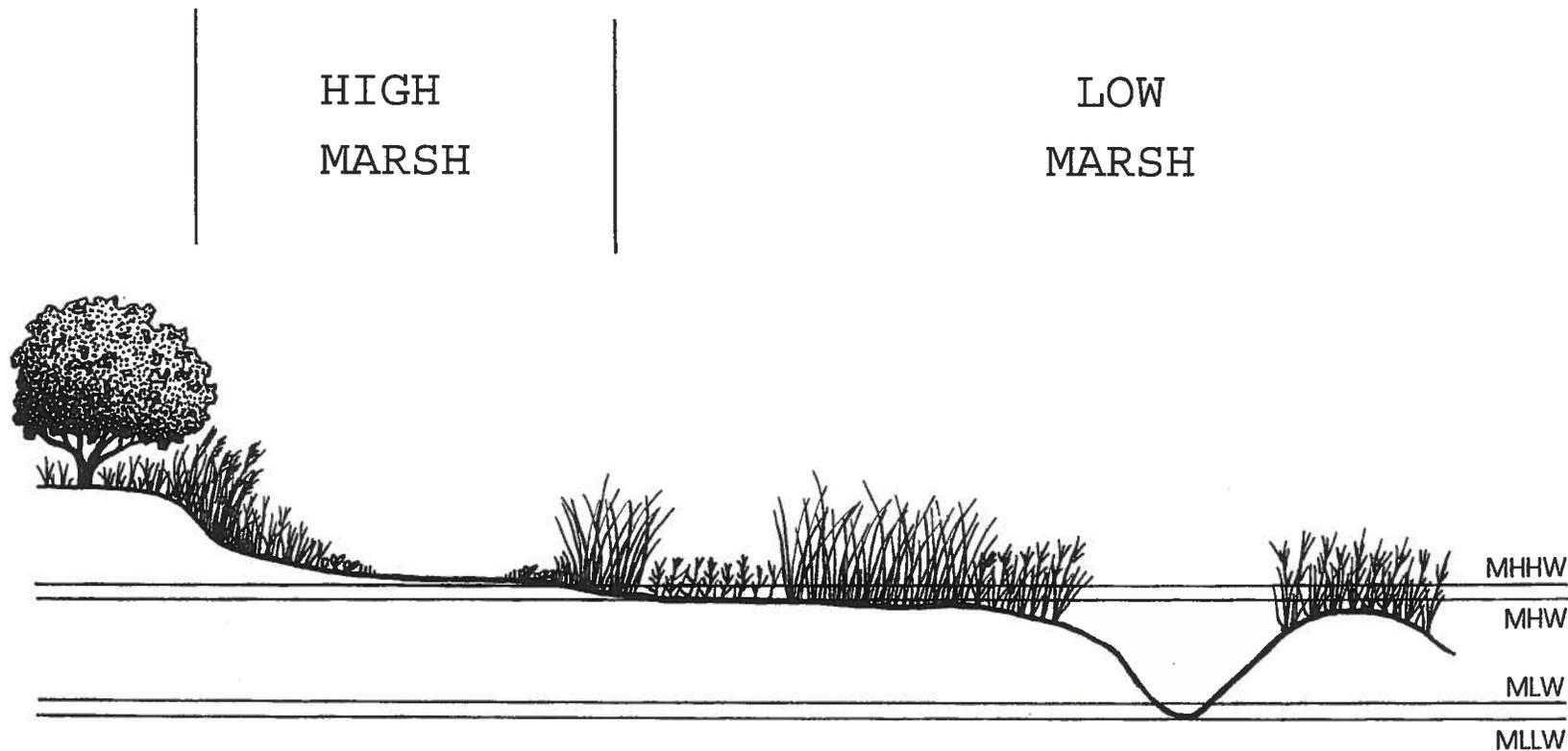
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Typical Florida Fringe Mangrove Showing the Commonly Recognized Zonation Pattern.
Source: Barnettt, Michael R. and David W. Crewz. (1983). Florida Sea Grant Report No. 97.

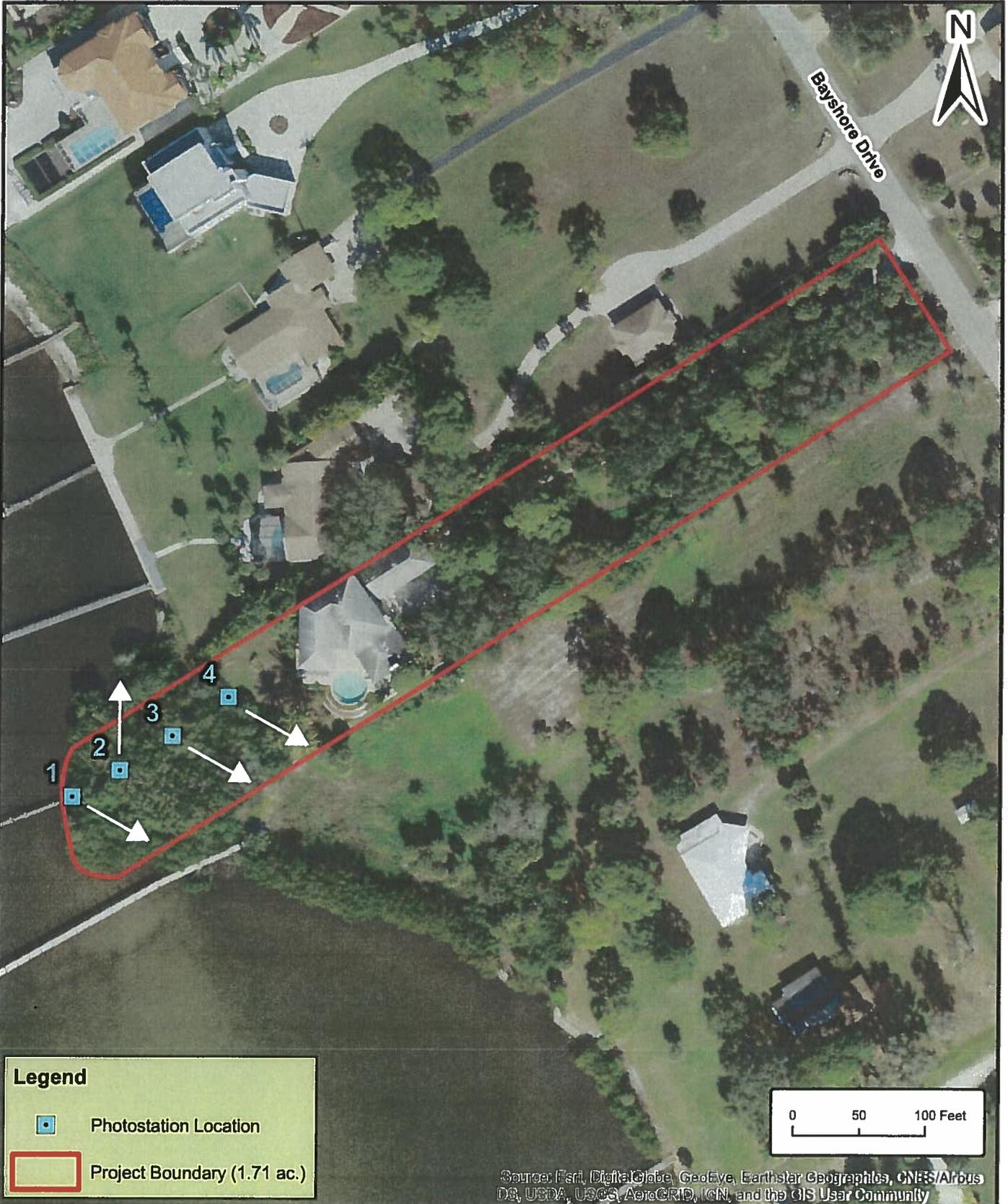
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Typical Florida Salt Marsh. Mangroves Displace Marsh Vegetation at Lower Elevations in Southern Regions.

Source: Barnett, Michael R. and David W. Crewz. (1983). Florida Sea Grant Report No. 97.

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DATE: 10-20-18
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