



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
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02/25/2019

Operations Division
Regulatory Branch
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SUBJECT: MVN 2018-01508-MS

PUBLIC NOTICE

Public Notice Purpose: Pursuant to Section 10 of the Rivers and Harbors Act of March 3, 1899 (30 Stat. 1151; 33 USC 403) and Section 404 of the Clean Water Act (86 Stat. 816; 33 USC 1344), the U.S. Army Corps of Engineers, New Orleans District, Regulatory Branch is soliciting comments from all interested parties on the development, utilization and long-term management of a proposed mitigation bank. The purpose of this mitigation bank is to provide compensatory mitigation for unavoidable impacts to wetland resources, including other waters of the United States, that result from projects authorized through the Department of the Army permit program.

PROPOSED SUCRE BRUT COASTAL MITIGATION BANK IN LAFOURCHE PARISH

NAME OF APPLICANT: Delta Land Services, LLC, 1090 Cinclare Drive, Port Allen, Louisiana 70767

LOCATION OF WORK: The 597.5 acre proposed site is located in Section 37, Township 16 South, Range 20 East, Section 67, Township 16 South, Range 19 East, Section 75, Township 17 South, Range 19 East and Section 100, Township 17 South, Range 20 East north of LA 308 near Valentine. The site is centered on the point 29.637577° N, -90.472062° W, located in Hydrologic Unit Code 08090301, as shown in the attached prospectus.

CHARACTER OF WORK: Site restoration shall be accomplished through hydrological restoration and afforestation of the native vegetative community. This includes backfilling agricultural ditches with in situ soil material, site preparation and replanting of appropriate species in order to generate bottomland hardwood and cypress-tupelo swamp credits that could be used as compensation for unavoidable impacts to wetlands associated with Department of the Army (DA) permits authorized under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Additional details of the mitigation plan are included in the attached prospectus.

The Corps of Engineers is soliciting written comments from the public; federal, state,

and local agencies and officials; Indian Tribes; and other interested parties. The comment period will close **30 days** from the date of this public notice advertisement. Written comments, including suggestions for modifications or objections to the proposed work, stating reasons thereof, are being solicited from anyone having interest in this prospectus. Letters must reference the applicant's name and the subject number, be addressed and mailed to the above address,
ATTENTION: REGULATORY BRANCH.

You are requested to communicate the information contained in this notice to any other parties whom you deem likely to have interest in the matter.

Martin S. Mayer
Chief, Regulatory Branch

Enclosure

Prospectus for the Proposed Sucre Brut Coastal Mitigation Bank

Lafourche Parish, Louisiana

February 6, 2019



Sponsored by

**Delta Land Services, LLC
1090 Cinclare Drive
Port Allen, Louisiana 70767**

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1. Introduction

Delta Land Services, LLC (DLS) has prepared this prospectus in accordance with 33 CFR § 332.8(d)(2) to establish and operate the Sucre Brut Coastal Mitigation Bank (Bank). The Bank is a 597.5-acre proposed mitigation bank to provide compensatory mitigation for unavoidable impacts to “Waters of the United States” authorized through the issuance of Department of the Army (DA) Permits by the U.S. Army Corps of Engineers (USACE) New Orleans District (CEMVN) pursuant to Sections 9 and 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act of 1972. Additionally, the Bank may provide compensatory mitigation for unavoidable impacts to coastal wetland resources under the Louisiana Coastal Resources Program (LCRP) per the provisions of LAC 43:724 and RS 49:214.22 (8).

1.1 Site Location

The approximate center of the proposed Bank is located at Latitude 29.637577° North and Longitude -90.472062° West¹. The Bank is located in Section 37, Township 16 South, Range 20 East; Section 67 Township 16 South, Range 19 East; Section 75, Township 17 South, Range 19 East; and Section 100 of Township 17 South, Range 20 East in Lafourche Parish, Louisiana (Attachment A: Figures 1 and 2). The Bank is located on the United States Geological Survey (USGS) 7.5-minute quadrangle “Gheens, LA”. The Bank is also located entirely within the Louisiana Coastal Zone boundary and with portions either within or directly adjacent to the Coastal Conservation Plan boundary. The site lies within the East Central Louisiana Coastal Subregion (United States Geologic Survey [USGS] Hydrologic Unit Code [HUC] 08090301) and the Barataria Drainage Basin. Natural elevations on the site range from approximately -3 to 5 feet² (Attachment A: Figure 3). The entire site is located within the 100-year flood zone (Zone A) per the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) (Attachment A: Figure 4).

The proposed Bank is located in the Mississippi Alluvial Plain Level III Ecoregion and the Inland Swamps Level IV Ecoregion (74d; Environmental Protection Agency [EPA] 2003; Omernik 1987), the Mississippi Delta Cotton and Feed Grains Region Land Resource Region (LRR O), and the Southern Mississippi River Alluvium Major Land Resource Area (MLRA 131A; Natural Resources Conservation Service [NRCS] 2006).

¹ Coordinates are reference in North American Datum of 1983 (NAD83)

² All elevations referenced within the report are from digital elevation models (DEM) derived from light detection and ranging (LIDAR) datasets obtained from the Louisiana State University CADGIS Research Laboratory. Elevations are purported in North American Vertical Datum of 1988 (NAVD).

2. Project Goals and Objectives

The goal of the Bank is to restore a successful 597.5-acre mitigation site for permitted wetland impacts within the Barataria Drainage Basin. The re-establishment of coastal BLH and coastal swamp wetland forests will provide additional wetland functions³ and values not currently realized under the existing conditions and land use (e.g. outdoor recreational experiences, flood storage, Nearctic-Neotropical bird habitat, threatened and endangered species habitat and habitat for other aquatic fauna). Localized and downstream water quality will improve by retiring the land from intensive agricultural use (i.e., conventional tillage crop production) and increasing surface-water retention time. Wildlife habitat will improve for resident biota and Nearctic-Neotropical migrating bird species (e.g., staging, resting, feeding, escape cover, etc.) through afforestation⁴ with native wetland tree and shrub species.

Specifically, the project goals and objectives are to re-establish and protect the physical, chemical, and biological functions of a bottomland hardwood (BLH) and baldcypress-tupelo swamp (Swamp) wetland ecosystem as follows:

- Restoration and protection of historic and self-sustaining surface hydrology within the 597.5-acre Bank through hydrology restoration activities such as backfilling artificial drainages;
- Restoration of native BLH (119.0 acres) and Swamp (207.0 acres) communities through hydrology restoration and afforestation of native species (Attachment A: Table 1 and Figure 5);
- Improvement of water quality by means of cessation of agricultural activities and reduction of non-point source runoff through hydrology restoration activities;
- Restoration of forested habitat for aquatic fauna through afforestation of a diversity of indigenous species and control of invasive/noxious species;
- Afforestation and protection of nonforested land located next to larger, contiguous forested habitat for breeding birds in accordance with existing bird conservation plans;

³ Wetland function is defined in 33 CFR § 332.2 as *the physical, chemical, and biological processes that occur in ecosystems*.

⁴ The SAF (1998) defines afforestation (afforest) as *“the establishment of a forest or stand in an area where the preceding vegetation or land use was not forest whereas reforestation is the re-establishment of forest cover either naturally (by natural seeding, coppice, or root suckers) or artificially (by direct seeding or planting) —note reforestation usually maintains the same forest type and is done promptly after the previous stand or forest was removed —synonym regeneration”*.

- Protecting existing BLH hardwood (51.4 acres) and Swamp (109.0 acres) habitats through the inclusion of these stands in the 597.5-acre perpetual conservation servitude;
- Ensuring long-term viability and sustainability of the Bank through active and adaptive management including, but not limited to, invasive species control, appropriate monitoring, and long-term maintenance;
- Establishing financial assurances to achievement of long-term success criteria;
- Providing long-term protection utilizing a perpetual term conservation servitude on the 597.5-acre Bank and provide sufficient long-term funds to cover annual expenditures associated with maintenance and management;
- Implementing a project consistent with the strategies and goals of conservation and watershed as identified in the Lafourche Parish Code of Ordinances Section 19:401⁵; the Barataria-Terrebonne National Estuary Program (BTNEP) Comprehensive Conservation and Management Plan (CCMP)(BTNEP 2018); the Coastal Master Plan (Coastal Protection and Restoration Authority [CPRA] 2017); the Louisiana Wildlife Action Plan (Lester et al. 2005; Holcombe et al. 2015) and other various wetland, watershed, ecological, conservation, and community resiliency initiatives.

3. Ecological Suitability of the Site/Baseline Conditions

This section provides the baseline/current site conditions on and adjacent to the proposed site per 33 CFR § 332.4(c)(5). This section describes the ecological suitability of the site to achieve the objectives of the proposed mitigation bank, including the physical, chemical, and biological characteristics of the bank site and how the site will support the planned types of aquatic resources and function, as stated in 33 CFR § 332.8(d)(2)(vii)(A).

3.1 Land Use

3.1.1 Historical Land Use

The Bank is located within the approximately 25 million-acre Lower Mississippi Alluvial Valley (LMAV). Prior to European settlement and colonization, the LMAV consisted of mostly contiguous BLH and swamps with some alterations due to activities of Native Americans (Gardiner and Oliver 2005). Significant deforestation began after colonization due to the need to convert these lands to agricultural uses and satisfy a growing demand for timber. The rate of deforestation increased in the 20th Century due to major flood control

⁵ Section 19:401 is the Coastal Zone Management Regulations, Purposes and Construction.

projects particularly with major levee construction following the passage of the 1928 Flood Control Act. Soybean (*Glycine max*)⁶ demand following World War II increased the need for agricultural property within the LMAV (Oswalt 2013). Advancements in land clearing technology and inflation in the price of agricultural commodities during the 1960s and 1970s resulted in an acceleration of the deforestation (Lower Mississippi River Joint Venture [LMRJV] 2007). By the mid-1980s, only 6.6 million acres of the LMAV remained forested (Oswalt 2013). Approximately 20 percent of the original forested acreage remains with much of it in fragmented blocks averaging a total 158 acres in size (Twedt et al. 1999).

A review of historical aerial photography reveals that much of the area of the Bank which is currently in crop/pasture/rangeland production has been in this use since prior to 1980. Prior to 1998, the entire site was in the current land uses which exist today (Attachment A: Figures 6 through 12).

3.1.2 Existing/Current Land Use

The mitigation area is currently used for agricultural production with sugarcane (*Saccharum officinarum*) being the predominate crop and grazing/rangeland that is maintained by annual mowing.

3.2 Soils

The soils mapped within the project area are Allemands muck (AE); Barbary-Fausse (BB), Cancienne silty clay loam (Co); Schriever silty clay loam (Sk); and Schriever clay, occasionally flooded (Sr) according to the Soil Survey Geographic (SSURGO) database (NRCS 2018²) (Attachment A: Figure 12). The AE, BB, Sk and Sr map units are listed as a hydric soil series by the NRCS (2018³).

3.3 Hydrology

3.3.1 Contributing Watershed

The Bank's contributing watershed is comprised almost entirely of the site itself. Its location near the historic banks and headwaters of Bayou Portugese makes the area subject to significant backwater flooding. Surface waters from this area affect the site as a result of backwater flooding of natural and artificial drainage features and tidal influence from the adjacent swamp/marsh.

3.3.2 Historical Hydrology and Drainage Patterns

The primary sources of surface water on the Bank were historically surface water flooding from the surrounding coastal swamp area given the sites physiographic position on a lower natural levee and backswamp area. Some

⁶ All scientific plant nomenclature is from NRCS¹

overbank flooding from Bayou Portugese likely occurred during periods of higher precipitation.

3.3.3 Existing/Current Hydrology and Drainage Patterns

Surface hydrology in the Bank is primarily driven from precipitation and controlled drainage via interior surface ditches and pumps. The agricultural and rangeland areas area drained via surface ditches into the Forty Arpent canal, then into a parish operated pump located to the south (Attachment A: Figure 13). The parish operated pump discharges water into the adjacent tidal forested and emergent wetlands. These drainage features were installed to accommodate specific management goals of the land owner and are maintained as such to date. The existing forested wetland and fresh marsh is directly connected to a large expanse of unmanaged flooded forested swamp and marsh habitat.

A federal hurricane and storm levee system, the Morganza to the Gulf of Mexico, Louisiana Project (Morganza to Gulf Project) is identified in the 2017 Coastal Master Plan (CPRA 2017). This project was authorized in the Water Resources Development Act (WRDA) of 2007. Following an analysis of the impacts of Hurricanes Katrina and Rita in 2005, updates were made in 2013 and reauthorized in the Water Resources Reform and Development Act (WRRDA) of 2014. The overall system, which has been partially constructed by the non-federal sponsor, consists of 98 miles of vegetated earthen levee, 22 floodgates, 23 environmental water control structures, 9 road gates and a lock complex on the Houma Navigation Canal. The current alignment of the overall system is proposed to enclose approximately 1,891 square miles. A proposed reach of this system, the Lockport to Larose Reach, is planned to traverse the Bank project area and partially enclose the Bank. The Morganza to Gulf Project incorporates the usage of Environmental Water Control Structures to maintain connectivity to tidal fluctuations. One environmental water control structure is located within the Bank project area and will consist of two sets of box culverts with sluice gates. This structure will provide a direct tidal connection from the Bank to the adjacent tidal wetlands, should the Morganza to Gulf Project be constructed and put into operation.

3.3.4 Jurisdictional Wetlands

A wetland delineation report was conducted in accordance with the protocols of Army Corps of Engineers (USACE) 1987 and 2010. The report and associated request for a preliminary jurisdictional determination (PJD) for a tract totaling 1,074.2 acres, which encompassed the entire Bank, was submitted to the CEMVN on June 14, 2018. The CEMVN issued a PJD issued on December 7, 2018 that showed approximately 753.4 acres of wetlands, 211.6 acres of non-wetlands, and 109.2 acres of other waters (Attachment C).

A wetland delineation has been conducted on the remaining portion of the proposed project area and has been submitted to CEMVN for a PJD. Per the wetland delineation report, all areas proposed for preservation within the Bank were mapped as wetlands per USACE 1987 and 2010.

3.4 Vegetation

3.4.1 Historical Plant Community

Given the soil type, landscape position and observation of neighboring, extant forests, the native plant community on the Bank was likely mixed, deciduous BLH and swamp tree species with elements of freshwater, emergent and/or floating marsh.

3.4.2 Existing Plant Community

A portion of the Bank is currently in crop production with sugarcane (*Saccharum officinarum*) being the predominate crop produced over the last several years. In addition to crop production, the site is also utilized for rangeland. The rangeland vegetation consists mainly of scattered mature trees, such as black willow (*Salix nigra*), water oak (*Quercus nigra*), green ash (*Fraxinus pennsylvanica*) and Chinese tallowtree (*Triadica sebifera*). The herbaceous layer is dominated by southern dewberry (*Rubus trivialis*), sawtooth blackberry (*Rubus argutus*), Long's sedge (*Carex longii*), annual marsh elder (*Iva annua*), common rush (*Juncus effusus*), maidencane (*Panicum hemitomon*) and bulltongue (*Sagittaria lancifolia*). Other herbaceous species include marsh bristlegrass (*Setaria parviflora*), seaside goldenrod (*Solidago sempervirens*) and seashore vervain (*Verbena littoralis*). The existing forested wetlands are dominated by baldcypress (*Taxodium distichum*) and water tupelo (*Nyssa aquatica*). The existing fresh marsh/flotant is comprised of maidencane, wax myrtle (*Morella cerifera*), bulltongue, manyflower marsh-pennywort (*Hydrocotyle umbellata*) and cattail (*Typha latifolia*) (Attachment A: Figure 14).

3.5 General Need for the Project in this Area

The re-established and rehabilitated wetland forest should resemble the adjacent BLH and swamp forests. The restoration of BLH and swamp wetlands on the Bank will provide additional wetland functions and values, which are not realized in the site's current condition. These include, but are not limited to, expanding the acreage of existing BLH and swamp forest; increasing the quality of wildlife habitat; and increasing watershed water quality by retiring existing agricultural land from production. On a watershed level, the Barataria basin has lost an average of 5,700 acres per year between 1974 and 1990 through natural erosion from sea-level rise, subsidence, wind, tides, currents and herbivory in addition to anthropogenic activity such as channelization, levee construction and development. The restoration of wetlands and preservation of existing wetlands is vital to this watershed in terms of storm protection as well as recreational and

economically important fish and wildlife resources (i.e. migratory waterfowl and other birds; finfish, shellfish, furbearers, alligators and threatened/endangered species (Coastal Wetlands Planning, Protection and Restoration Act [CWPPRA] 2018; CPRA 2017).

Bottomland hardwoods in Louisiana are known to support 61 Species of Greatest Conservation Need (SGCN) which include 1 mollusk species, 1 crustacean species, 6 arthropods species, 5 amphibian species, 4 reptile species, 20 bird species, 10 mammal species, and 14 plant species. Baldcypress-Tupelo-Blackgum Swamps support 37 SGCN which include 4 arthropod species, 3 amphibian species, 3 reptile species, 9 bird species, 6 mammal species, and 12 plant species. Freshwater floating marshes support 18 SGCN which include 1 arthropod species, 1 reptile species, 13 bird species, 1 mammal species, and 2 plant species (Holcombe et al. 2015).

BTNEP (2018) identifies the Barataria and Terrebonne basins as providing habitat for 735 native species of birds, finfish, shellfish, reptiles, amphibians and mammals. BTNEP has identified strategies for the protection and enhancement of native biological resources within six categories of living resources which are 1) plants, 2) pollinators, 3) fish and shellfish; 4) birds, 5) wildlife, and 6) threatened and endangered species. The restoration and protection of the BTNEP includes elements of the goals and objectives identified to support the conservation of these living resources. These include encouragement of ecological succession patterns of plant diversity, maximizing habitat for pollinators; maximize available habitat for migratory and resident birds, amphibians, reptiles, mammals, vertebrate and invertebrate fish/shell fish as well as supporting recovery and conservation of threatened and endangered species.

The restoration and afforestation of the Bank, near larger extant tracts of forested wetlands, will provide benefit to various species of wildlife such as Nearctic-Neotropical migrant birds. Over 107 bird species nest regularly within the LMAV with 70 of these species utilizing BLH as their primary habitat (Twedt et al. 1999). The Partners in Flight (PIF) Bird Conservation Plan (BCP) for the LMAV recommends increasing the interior area of forested fragments to increase habitat for silvicolous (forest-dwelling) bird species (Twedt and Loesch 1999). Twedt et al. (1999) listed 14 forest breeding species as species of high concern and three of these species are identified as high priority conservation species (i.e., Swainson's warbler [*Limnothlypis swainsonii*], Cerulean warbler [*Dendroica creulea*] and swallow-tailed kites [*Elanoides forficatus*]). The planting and long-term management of densely-spaced seedlings will provide habitat stability and encourage the recruitment of breeding populations of thamnisc (scrub-dwelling) and silvicolous bird species (Twedt et al. 1999, Twedt et al. 2010).

The protection, conservation and restoration of corridors is identified as a strategy to facilitate wildlife and plant migration in response to transitions anticipated with predicted climate change (National Fish, Wildlife and Plants

Climate Adaptation Strategy Management Team [*Strategy*] 2012). Species other than nongame migratory bird species will benefit from the restoration of the Bank. Large expanses of BLH forests are vital for the management of mallards (*Anas platyrhynchos*), wood ducks (*Aix sponsa*) and American woodcock (*Scolopax minor*) (North American Waterfowl Management Plan 2004, Kelly and Rau 2006). The Mississippi Museum of Natural Science (MMNS 2005) purports that old-growth BLH forests are critical habitat for 11 of the 18 species of bats known to the Southeast. Two of these species, the Southeastern myotis (*Myotis austroriparius*) and Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) prefer large, hollow trees in mature BLH and swamp habitats, respectively (LMRJV 2007; Taylor 2006). Loeb (2013) purports that unfragmented, contiguous forest with small openings maintained for flight corridors are important components in maintaining and sustaining bat populations as these are critical for roosting and predator protection.

4. Establishment of a Mitigation Bank

This section described how the mitigation bank will be established, as stated in 33 CFR § 332.8(d)(2) (ii); the technical feasibility of the proposed mitigation bank, as stated in 33 CFR § 332.8(d)(2) (iv); and the assurance of sufficient water rights to support the long-term sustainability of the mitigation bank, as stated in 33 CFR § 332.8(d)(2)(vii)(A). The site will include 326.0 acres of restoration and 160.5 acres of preservation. All the restoration and preservation acreage are anticipated to be below 5.0 feet in elevation upon implementation of the mitigation work plan. Although the Morganza to Gulf Project described in Section 3.3.3 has not been allocated federal funding and no real estate acquisition for the project has taken place on the Property to date, this plan was designed with consideration given to the future construction and operation of the project as it is currently authorized. The restoration plan will serve to re-establish, rehabilitate and protect wetlands in accordance with the goals and objectives described in Section 2 whether or not the Morganza to Gulf Project is constructed and operated within the proposed Bank.

4.1 Site Restoration Plan

Section 4.1 describes the proposed activity to be conducted in the proposed 326.0-acre BLH and Swamp restoration area.

4.1.1 Soils/Hydrologic Work

Hydrology restoration will increase surface water retention and soil saturation, reduce nonpoint source runoff, and improve water quality through nutrient immobilization (uptake) by vegetation. The Sponsor anticipates no long-term structural management requirements will be needed to assure sustained hydrology. The restoration of a forested wetland plant community will reduce runoff by canopy and leaf litter interception of rainfall and increased stem density will reduce surface water sheet flow velocities. The result is a reduction in

erosion runoff and an increase in soil infiltration (Richardson et al. 2001). The restoration of a forested ecosystem will increase organic matter deposition, decrease soil bulk density, increase hydraulic conductivity, increase soil saturation potential, and increase the formation of redoximorphic features (Collins and Kuehl 2001). Soil organic carbon is critical to soil reduction which will increase as soil organic material increases from the deposition of leaf litter, coarse woody debris, and decaying root material (Collins and Kuehl 2001).

Hydrology restoration will be accomplished by backfilling agricultural drainages with *in situ* soil material and re-establishing the natural slopes of these drainages to the extent practical (Attachment B). To restore wetland hydrology on the Bank, approximately, 16,735 linear feet of drainage ditch/laterals will be degraded to natural grade to facilitate water retention and saturation. Approximately 31,550 cubic yards of earthen fill from *in situ* sources (i.e., adjacent ditch spoil) will be utilized for such purposes.

The interior access road will remain as it currently exists. The road may be maintained, and ruts may occasionally be smoothed out with the use of a box blade or similar implement to maintain a flat surface. In total, approximately 31,550 cubic yards of earthen material will be removed from interior levees/spoil banks and deposited in 16,735 linear feet of adjacent borrow ditches currently designated to be “other waters of the US” per the wetland data report. No areas currently designated to be wetlands per the wetland data report will be impacted.

The result of the proposed hydrology restoration will restore sheet flow and increase retention time of surface/rain water within the Bank. The Bank is located adjacent to a maintained levee; however, the levee contains three open culverts that drain directly into the Forty Arpent Canal. The proposed hydrology work, including site preparation, will be completed in its entirety before the initiation of the plant community restoration.

4.1.2 Vegetative Work

DLS will restore the original wetland vegetation by preparing the Bank for planting within the restoration areas. Overall 119.0 acres of coastal BLH wetlands and 207.0 acres of coastal swamp wetlands will be re-established and rehabilitated by planting selected tree species as described by the Louisiana Natural Heritage (LNH 2009), Lester et al. (2005), and Barrow et al. (2005). Site preparation for planting will be accomplished by applying herbicide as needed, cultivating the soil surface, and sub-soiling (ripping) at equidistant intervals to a depth of approximately 18 inches (Allen et al. 2001). Site preparation will include the removal and control of any invasive species through herbicide treatments, mechanized clearing, cutting, shredding, or a combination thereof.

Afforestation activities will include the planting of native BLH and swamp species during the first planting season (December 15 through March 15)

following site preparation. The species selected will be site-appropriate in terms of habitat design, soil-moisture regime, and species richness. Ten or more species may be represented in the planting assemblage to insure adequate species richness (Twedt and Best 2004). The distribution of stems will create a mosaic of hard and soft mast species that will provide seasonally available forages for a wide range of indigenous wildlife (Barrow et al. 2005).

The potential planting list is a selection of species founded on experience and a review of literature. The proposed species for wetland areas are OBL, FACW, and FAC per the 2016 National Wetland Plant List (NWPL) (Lichvar et. al. 2016) (Attachment A: Table 2).

Hard mast species should account for at least 60 to 70 percent of all BLH plantings with the remaining percentage accounted for by soft mast tree species. The exact species and quantities for planting will be determined by the availability of such species from commercial nurseries providing localized ecotype seedlings. Planting densities will be at approximately 538 stems per acre for all plantings. Seedlings will be pre-mixed prior to planting so that areas are not comprised of a single species (Twedt and Best 2004).

4.2 Technical Feasibility

The construction work required to develop the Bank is routine, feasible, and will consist of site preparation, back filling of artificial drains, re-establishment of historic drainage patterns, and afforestation. The relatively flat landscape and the documented presence of hydric soils implies that minimal soil work will be required to successfully restore wetland hydrology and a BLH and Swamp ecosystem. The observed existence of BLH and Swamp forests at comparable elevations and on similar soil types in the watershed are indicators for successfully restoring the Bank as a productive BLH and Swamp wetland. The surrounding land use and cover within one mile of the site perimeter is emergent herbaceous wetlands (37%), cultivated crops (31%), woody wetlands (28%), and hay/pasture (3%). The remained land use and cover types are open water (> 1%), barren land (> 1%), developed (> 1%), and shrub/scrub (> 1%). These land uses are compatible with the intended habitat to be restored at the Bank (Attachment A: Figure 15).

4.3 Current Site Risks

The Sponsor does not foresee any adverse impacts to the mitigation site resulting from the continued existence and operation of the neighboring land uses. Much of the land use and cover type surrounding the Bank are existing forestlands and agriculture fields.

Several surface encumbrances exist within the Bank, including servitudes for powerline utilities, pipeline rights-of-way, and access roads. There is also an

existing mineral lease and associated surface leases for active mineral exploration operations. Any mineral exploration will not affect surface use within the project boundary. These features will remain in their current use; however, the Sponsor does not anticipate any adverse impacts to the successful restoration and management of the Bank as a result of these features. The powerline and pipeline servitudes are maintained with natural assemblages of emergent vegetation and at grade so as not to impede restoration of the natural hydrologic flow. The Mitigation Banking Instrument (MBI) will contain a final survey plat of the proposed conservation servitude area, a metes and bounds description, and a title opinion.

4.4 Long-Term Sustainability of the Site

Long-term viability and sustainability of the Bank will be ensured through active and adaptive management including, but not limited to, invasive species control, appropriate monitoring, and long-term maintenance. No long-term structural management will be required because there are no water control structures to maintain.

Regarding water rights, Article 490 of the Louisiana Civil Code treats water resources under the theory of absolute ownership and rule of capture provided that such capture does not result in harm to neighboring properties. The proposed Bank will depend primarily on precipitation, perched water table, and runoff from surrounding areas, localized high-water tables, and potential overbank/backwater flooding of surrounding creeks. As such, long-term hydrology maintenance will not depend on the utilization of water captured from irrigation wells or any other artificial source; therefore, sufficient water rights are ensured for such purposes. The Sponsor does not foresee any adverse impacts on neighboring properties resulting from this project.

In the future, a portion of the Bank maybe enclosed by the proposed Morganza to the Gulf levee and storm protection project described in Section 3.3.3. The operation plan per the EIS calls for the structures within the proposed levee to remain open to allow for existing gravity drainage which also allows for normal tidal exchange between the wetlands enclosed by the levee (protected side) and the surrounding tidal swamps on the unprotected side. The Water Control Structure Operating Plan in Section 4.3.8 of the EIS calls for the Environmental Water Control Structure located within the project area to remain open unless either a named storm is in the Gulf and threatening the Louisiana coast or the stage measured at the gate location reaches +3.0 ft. NAVD88 (USACE 2013). Given the operation plan, the construction and operation of the levee and drainage system will have no adverse impacts on the hydrologic functioning of the Bank.

5. Proposed Geographic Service Area

The Barataria Basin will serve as the Bank's geographical service area (Attachment A: Figure 16). The basin is defined by the East Central Louisiana Coastal Subregion (USGS HUC 08090301).

6. Operation of the Mitigation Bank

This section describes how the proposed Bank will be operated, as stated in 33 CFR § 332.8(d)(2) (ii) and provides details on the proposed ownership arrangements and long-term management strategy for the mitigation bank, as stated in 33 CFR § 332.8(d)(2) (v).

6.1 Project Representatives⁷

Sponsor: *Delta Land Services, LLC*
1090 Cinclare Drive
Port Allen, LA 70767
Attn: Daniel Bollich
Phone: 225-388-5146
daniel@deltaland-services.com

Landowner *Delta Land Services, LLC*
1090 Cinclare Drive
Port Allen, LA 70767
Attn: Winship Songy
winship@deltaland-services.com
225-388-5187

6.2 Qualifications of the Sponsor

Per 33 CFR § 332.8(d)(2)(vi.), this section describes the Sponsor's qualifications to successfully complete all work associated with establishment and operation of the proposed Bank. DLS will serve as the Sponsor for the Bank. DLS will also serve as the Agent and is a land management and restoration company whose technical staff includes Certified Wildlife Biologists, Professional Wetland Scientists, Certified Ecological Restoration Practitioners, and Certified Foresters. In addition, DLS has construction specialists experienced in wetland construction activities such as heavy equipment operation, vegetation establishment, herbicide application, and contractor management. The biographies of DLS personnel are available at www.deltaland-services.com.

DLS currently sponsors and/or operates 19 approved wetland and/or stream mitigation banks within the CEMVN, CEMVK, CESWG and CESWF totaling

⁷ These represent the proposed bank sponsor and owner upon mitigation bank approval per 33 CFR § 332.8(d)(2)(v).

8,349.0 acres. These are the Bayou Conway Mitigation Bank (MVN-2010-01111), Roseland Refuge Mitigation Bank (MVK-2010-01423), Oak Land Mitigation Bank (MVK-2011-00308), Bayou Choupique Mitigation Bank (MVN-2011-00824), Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213), Ponderosa Ranch of Pointe Coupee Mitigation Bank Amendment One (MVN-2015-00393), Danza del Rio Mitigation Bank (SWG-2011-00566), Moss Lake Mitigation Bank (MVN-2012-02652), Phillips Creek Mitigation Bank (SWF-2012-00417), Graham Creek Mitigation Bank (SWF-2011-00309), Bayou Fisher Mitigation Bank (MVN-2013-02342), Bayou Fisher Mitigation Bank Amendment One (MVN-2014-02764), Little Bayou Pierre Mitigation Bank (MVK-2012-00555), Laurel Valley Coastal Mitigation Bank (MVN-2013-02798), Laurel Valley Coastal Mitigation Bank Amendment One (MVN-2015-0149), Belle Pointe Coastal Mitigation Bank (MVN-2014-02764), South Fork Coastal Mitigation Bank (MVN-2014-01888), and Bayou Maringouin Umbrella Mitigation Bank (MVN-2015-01994). DLS currently has 5 pending mitigation banks that are under review with the CEMVN, CEMVK and CESWG totaling 3,020.9 acres. These include the proposed Long Island Cove Mitigation Bank (SWG-2014-00210), Crooked Bayou Mitigation Bank (MVK-2015-00527), Cane River Mitigation Bank (MVK-2015-00472), and the Bayou La Carpe Coastal Mitigation Bank (MVN-2016-00147). In addition to mitigation banking, DLS serves as the responsible party for the establishment and maintenance of 3,936.6 acres of approved Permittee-Responsible Mitigation (PRM) wetland and stream projects.

6.3 Proposed Long-Term Ownership and Management Representatives

DLS will serve as the Sponsor, long-term owner, and steward of the Bank. However, the Sponsor may appoint a long-term steward if such an appointment is approved by the CEMVN. The anticipated long-term management will consist of monitoring, invasive species control, site management, boundary maintenance, and site protection.

6.4 Site Protection

To provide conservation protection, DLS shall execute a perpetual conservation servitude (pursuant to the Louisiana Conservation Servitude Act, R.S. 9:1271 *et seq.*) on all acreage identified as the Bank and record it in the Mortgage and Conveyances Records Office of Lafourche Parish. DLS will utilize a not-for-profit conservation group as the entity that will hold the servitude. The servitude will allow for the future construction and operation of the Morganza to Gulf Project within the 31.9-acre area depicted on Figure A5.

6.5 Long-Term Strategy

Long-term management will consist of monitoring, vegetation management, invasive species control, boundary maintenance, site protection, and the funding of such activities. The forest will be managed to maintain or increase the biological, chemical and physical wetland functions and to achieve and maintain

the desired forest conditions, which will provide forested habitat capable of supporting populations for priority wildlife species. The desired forest conditions are defined by the LMVJV (2007). A long-term management plan will be included with the MBI, which will detail long-term management needs, costs and identify a funding mechanism in accordance with 33 CFR § 332.7 (d). The Sponsor (or Long-term Steward) and the Owner (or its heirs, assigns or purchasers) shall be responsible protecting lands contained within the Bank in perpetuity.

7. References

Allen, J.A., B.D. Keeland, J.A. Stanturf, A.F. Clewell, and H.E. Kennedy (2001 [rev. 2004]). *A guide to bottomland hardwood restoration*: US Geological Survey, Biological Resources Division Information and Technology Report USGS/BRD/ITR-2000-0011. USDA Forest Service, Southern Forest Research Station, General Technical Report SRS-40, 132 pp.

Barataria Terrebonne National Estuaries Program (2018) *The Comprehensive Conservation and Management Plan 2018*. Thibodaux, LA, 337 pp.

Barrow, W.C. Jr., L.A. Johnson Randall, M.S. Woodrey, J. Cox, E. Ruelas, I.C.M. Riley, R.B. Hamilton, and C. Eberly (2005) *Coastal Forests of the Gulf of Mexico: A Description and Some Thoughts on Their Conservation*. USDA Forest Service General Technical Report PSW-GTR-191.

Coastal Protection and Restoration Authority (2017). Louisiana's Comprehensive Master Plan for a Sustainable Coast. Coastal Protection and Restoration Authority of Louisiana. Effective June 2, 2017.

Coastal Wetlands Planning, Protection and Restoration Act (2018). The Barataria Basin. Accessed 19 December 2018. Available URL: http://lacoast.gov/new/About/Basin_data/ba.

Collins, M.E. and R.J. Kuehl (2001) Organic Matter Accumulation and Organic Soils In Richardson, J.L and M.J. Vepraskas (eds.) Chapter 6, *Wetland Soils. Genesis, Hydrology, Landscapes and Classification*. pp. 137-162. Boca Raton, London, New York: CRC Press.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe (1979) *Classification of wetlands and deepwater habitats of the United States*. U.S. Fish and Wildlife Service, Office of Biological Services, FWS/OBS-79/31, Washington, DC.

Environmental Protection Agency (2003) Level III ecoregions of the continental United States (revision of Omernik 1987): Corvallis, OR, U.S. Environmental Protection Agency - National Health and Environmental Effects Research Laboratory, Map M-1, various scales.

- Gardiner, E.S. and J.M. Oliver (2005) Restoration of bottomland hardwood forest in the Lower Mississippi Alluvial Valley In: *Restoration of boreal and temperate forests in the Lower Mississippi Alluvial Valley*, Stanturf, J.A.; Madsen, P., eds. Boca Raton, FL.
- Holcomb, S.R., A.A. Bass, C.S. Reid, M.A.Seymour, N.F. Lorenz, B.B. Gregory, S.M. Javed, K.F. Balkum (2015) Louisiana Wildlife Action Plan. Louisiana Department of Wildlife and Fisheries. Baton Rouge, Louisiana.
- Kelly, J.R., Jr. and R.D. Rau (2006) *American Woodcock Population Status, 2006*. U.S. Fish and Wildlife Service, Laurel, Maryland. 15 pp.
- Lester G., S. Sorenson, P. Faulkner, C. Reid, and I. Maxit (2005) Louisiana Comprehensive Wildlife Strategy (Wildlife Action Plan). Louisiana Department of Wildlife and Fisheries.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List: 2016 wetland ratings*. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X
- Louisiana Natural Heritage Program (2009) The Natural Communities of Louisiana. Louisiana Department of Wildlife and Fisheries.
- Lower Mississippi Valley Joint Venture (2007) Restoration, Management and Monitoring of Forest Resources in the Mississippi Alluvial Valley: Recommendations for Enhancing Wildlife Habitat, Version 5.2 (FINAL REPORT). Wilson, R., K. Ribbeck, S. King, and D. Twedt. Lower Mississippi Valley Joint Venture Forest Resource Conservation Working Group.
- National Fish, Wildlife and Plants Climate Adaptation Partnership (2012). National Fish, Wildlife and Plants Climate Adaptation Strategy, Association of Fish and Wildlife Agencies, Council on Environmental Quality, Great Lakes Indian Fish and Wildlife Commission, National Oceanic and Atmospheric Administration, and U.S. Fish and Wildlife Service. Washington, DC.
- Natural Resources Conservation Service (2006) Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. United States Department of Agriculture Handbook 296.
- Natural Resources Conservation Service (2018)¹ The PLANTS Database. U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey Staff. Accessed 19 December 2018. Available URL: <http://plants.usda.gov>

- Natural Resources Conservation Service (2018)² Web Soil Survey. U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey Staff. Accessed 30 June 2018. Available URL: <http://websoilsurvey.nrcs.usda.gov/app/>
- Natural Resources Conservation Service (2018)³ Official Soil Series Descriptions (OSD) [website]. U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey Staff. Accessed June 30, 2018. Available URL: [http:// https://soilseries.sc.egov.usda.gov/osdname.aspx](http://https://soilseries.sc.egov.usda.gov/osdname.aspx)
- Natural Resources Conservation Service (2018)³ National Hydric Soils List by State [website]. U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey Staff. Accessed June 29, 2018. Available URL: [http:// https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/](http://https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/)
- Omernik, J.M. (1987) Ecoregions of the Conterminous United States (map supplement): *Annals of the Association of American Geographers*, v. 77, no. 1, p. 118-125, scale 1:7,500,000.
- Society of American Foresters (1998) *The Dictionary of Forestry*. Society of American Foresters. J.A. Helms (ed).
- Taylor, D. (2006) *Forest Management and Bats*. Bat Conservation International Publication.
- Twedt, D.J. and J. Portwood (1997) Bottomland hardwood reforestation for Neotropical migratory birds: are we missing the forest for the trees? *Wildlife Society Bulletin* 25:647-652.
- Twedt, D., D. Pashley, C. Hunter, A. Mueller, C. Brown and B. Ford (1999)¹ *Partners in Flight Bird Conservation Plan for the Mississippi Alluvial Valley, Version 1.0*.
- Twedt, D.J. and C.R. Loesch (1999)² Forest area and distribution in the Mississippi Alluvial Valley: implications for breeding bird conservation. *Journal of Biogeography*. 26:1215-1224
- Twedt, D.J. and J. Portwood (2003) Synergy of agroforestry and bottom land hardwood afforestation. *Proceedings 6th Conference on Agroforestry in North America*. 6: 8598.
- Twedt, D.J. and C. Best (2004) Restoration of floodplain forests for conservation of migratory land birds. *Ecological Restoration* 22 (3): 194-203.

- Twedt, D.J, Uihlein III, W.B., and A.B. Elliott (2006) A spatially explicit decision support model for restoration of forested bird habitat. *Conservation Biology* Vol. 20(1): 100-110.
- Twedt, D.J, S.G. Somershoe, K.R. Hazler, R.J. Cooper (2010) Landscape and vegetation effects on avian reproduction on bottomland forest restorations. *Journal of Wildlife Management* 74(3): 423-436, 2010; DOI: 10.2193/2008-563.
- U.S. Army Corps of Engineers (2010) Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (ver 2.0). ERDC/EL TR-10-20. U.S. Army Corps of Engineers, Environmental Laboratory, Vicksburg, MS, November 2010.
- U.S. Army Corps of Engineers (2013) Final Post Authorization Change Report and Revised Environmental Impact Statement, Morganza to the Gulf of Mexico, Louisiana. May 2013. New Orleans District, Louisiana Coastal Protection and Restoration Authority Board and the Terrebonne Levee and Conservation District.
- U.S. Army Corps of Engineers (2017) Louisiana Wetland Rapid Assessment Method For use within the Boundaries of the New Orleans District, Version 2.0
- Wiedenfield, D.A, M. Swan, D.P. Muth (1996) Migratory Bird (Neotropical and Shorebirds) Management Plan for the Barataria and Terrebonne Basins of Louisiana. Barataria-Terrebonne National Estuary Program Publication 30, August 1996.

Attachment A: Tables and Figures

Table 1. Baseline Conditions and Proposed Mitigation Habitat Types at the Proposed Sucre Brut Coastal Mitigation Bank in Lafourche Parish, Louisiana.

Baseline Condition	Proposed Mitigation Habitat and Type	Acres
Wet Rangeland/Pasture	Coastal Baldcypress Swamp Rehabilitation	207.0
Swamp Forest/Fresh Marsh Mosaic	Coastal Swamp Preservation	109.0
	<i>Total Coastal Swamp Mitigation Credit Acreage</i>	316.0
Non-Wet Rangeland/Pasture/ Cropland ¹	Coastal Bottomland Hardwood Re-establishment	119.0
Wet Bottomland Hardwood	Coastal Bottomland Hardwood Preservation	51.4
	<i>Total Coastal Bottomland Hardwood Mitigation Credit Acreage</i>	170.4
Non-Wet Rangeland/Pasture/Cropland ²	Hardwood Buffer Restoration	11.8
	<i>Total Restored Buffer Acreage</i>	11.8
Gravel Access Road/Utility ROW ³	Non-mitigation/Open Space/Access Road	67.4
Non-Wet Rangeland/Pasture/Cropland//Forested Wetland	Future Morganza to Gulf Levee Corridor	31.9
	<i>Total Non-mitigation Acreage</i>	99.3
	Total Conservation Servitude Acreage	597.5

¹ Of the coastal BLH Re-establishment, rangeland/pasture comprises 89.5 acres while cropland comprises 29.5 acres.

² Of the restored buffer acreage, rangeland/pasture comprises 10.2 acres while cropland comprises 1.6 acres.

³ Of the Non-mitigation acreage, existing utility rights-of-way comprises 63.7 acres and gravel access roads comprise 3.7 acres.

Table 2. Species Planting Composition at Proposed Sucre Brut Coastal Mitigation Bank in Lafourche Parish, Louisiana.

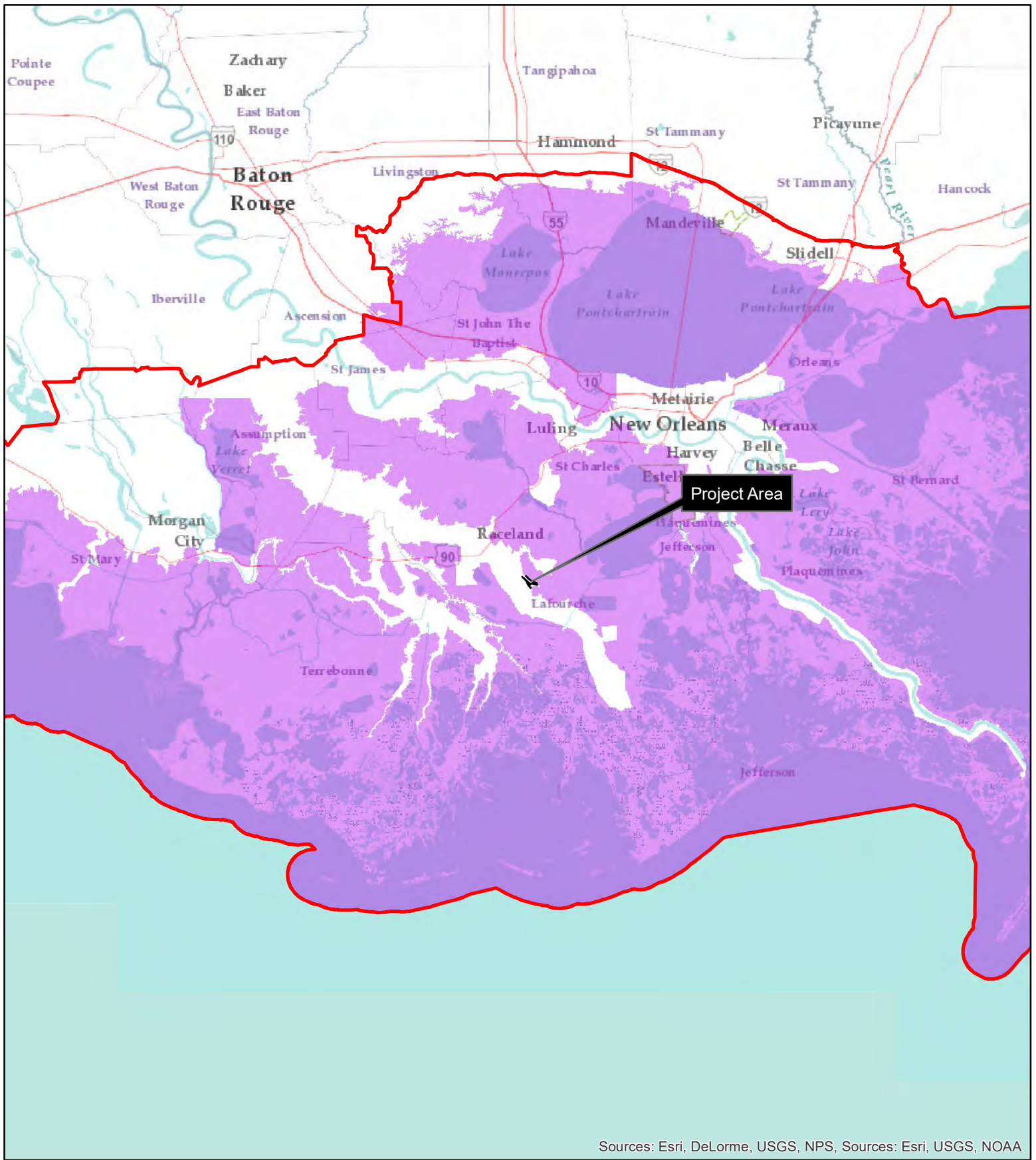
Baldcypress Swamp Species			
Common Name	Scientific Name	Indicator Status¹	Composition²
baldcypress	<i>Taxodium distichum</i>	OBL	60-70%
swamp tupelo	<i>Nyssa biflora</i>	OBL	10-20%
Drummond red maple	<i>Acer rubrum var. drummondii</i>	OBL ³	<10%
mayhaw	<i>Crataegus opaca</i>	OBL	<10%
pumpkin ash	<i>Fraxinus profunda</i>	OBL	<10%
overcup oak	<i>Quercus lyrata</i>	OBL	<10%
buttonbush	<i>Cephalanthus occidentalis</i>	OBL	<5%
Nuttall oak	<i>Quercus texana</i>	FACW	<5%
Bottomland Hardwood Hard Mast Species (approximately 40 to 70%)			
Common Name	Scientific Name	Indicator Status	Composition
overcup oak	<i>Quercus lyrata</i>	OBL	10-20%
Nuttall oak	<i>Quercus texana</i>	FACW	10-20%
willow oak	<i>Quercus phellos</i>	FACW	10-20%
water hickory	<i>Carya aquatica</i>	OBL	10-20%
Bottomland Hardwood Soft Mast Species (approximately 30 to 60%)			
Common Name	Scientific Name	Indicator Status	Composition
baldcypress	<i>Taxodium distichum</i>	OBL	10-20%
Drummond red maple	<i>Acer rubrum var. drummondii</i>	OBL ³	≤10%
mayhaw	<i>Crataegus opaca</i>	OBL	≤10%
green ash	<i>Fraxinus pennsylvanica</i>	FACW	≤10%
Hardwood Buffer Hard Mast Species (approximately 40-70%)			
Common Name	Scientific Name	Indicator Status	Composition
cherrybark oak	<i>Quercus pagoda</i>	FACW	10-20%
willow oak	<i>Quercus phellos</i>	FACW	10-20%
Nuttall oak	<i>Quercus texana</i>	FACW	10-20%
water oak	<i>Quercus nigra</i>	FAC	10-20%
sweet pecan	<i>Carya illinoensis</i>	FACU ⁴	10-20%
Hardwood Buffer Soft Mast Species (approximately 30-60%)			
Common Name	Scientific Name	Indicator Status	Composition
sugarberry	<i>Celtis laevigata</i>	FACW	≤10%
common persimmon	<i>Diospyros virginiana</i>	FAC	≤10%
green ash	<i>Fraxinus pennsylvanica</i>	FACW	≤10%
sweetgum	<i>Liquidambar styraciflua</i>	FAC	≤10%
red mulberry	<i>Morus rubra</i>	FACU ⁴	≤10%
American sycamore	<i>Platanus occidentalis</i>	FACW	≤10%
eastern cottonwood	<i>Populus deltoides</i>	FAC	≤10%
American elm	<i>Ulmus americana</i>	FAC	≤10%

¹ Indicator status from 2013 National Wetland Plant List (Lichvar and Kortes 2009)

² Exact species and quantities to be determined by seedling availability from commercial sources providing seedlings grown from localized ecotypes.


³ Indicator status from 1988 National Wetland Plant List, Region 2

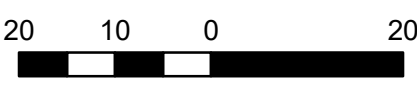
⁴ These species are designated as UPL on the 2013 National Wetland Plant List but were FAC species on the 1988 National Wetland Plant List for Region 2. Although potentially upland species, these are native to the site and will provide increased habitat value given the goals of the project.



Legend

- Coastal Wetland Conservation Plan Boundary
- Coastal Zone Boundary





Miles

Sucre Brut Coastal Mitigation Bank

VICINITY MAP

Lafourche Parish, Louisiana


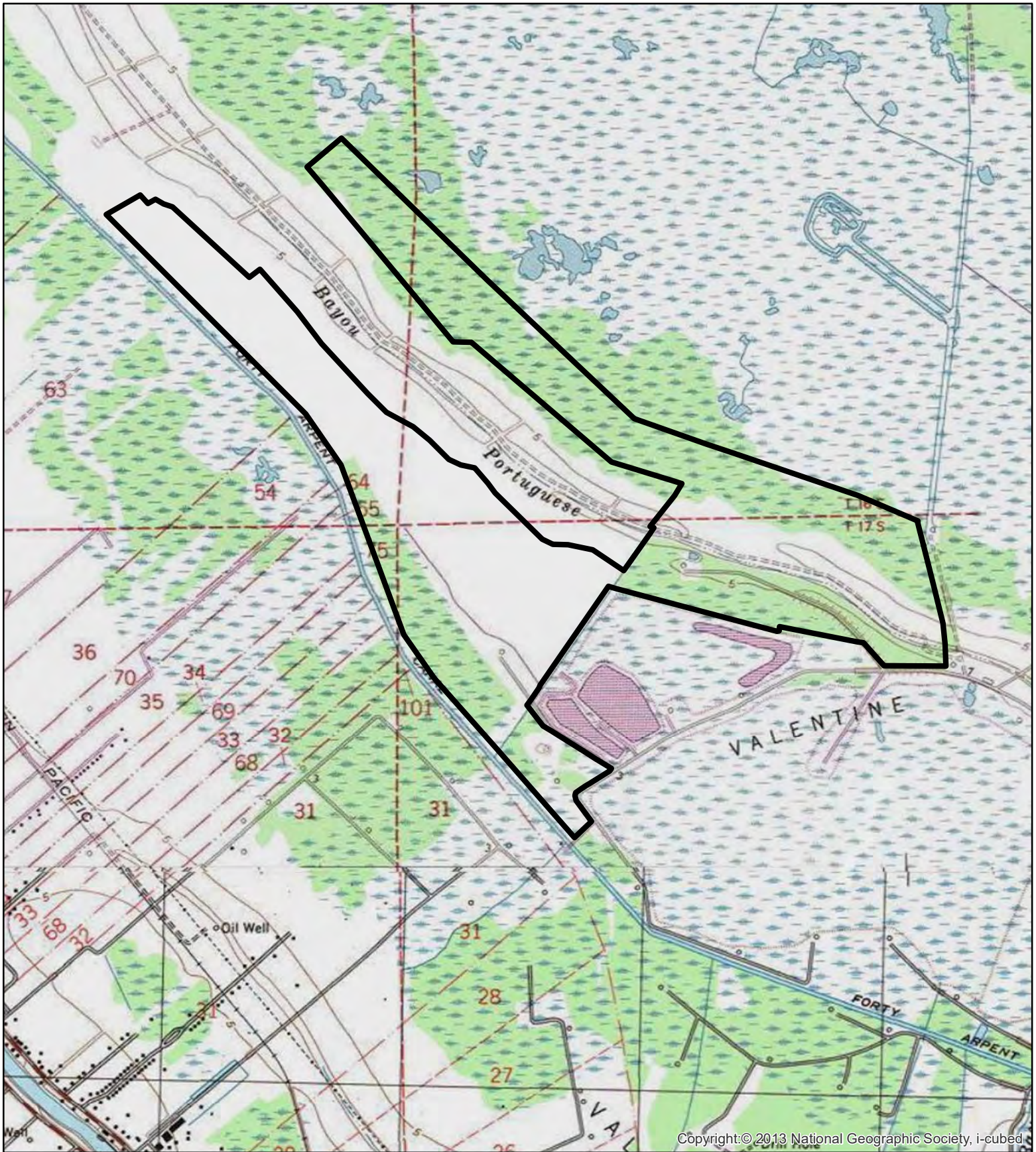

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Approved : JMJ	
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FIGURE A1



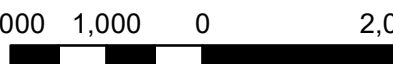
Copyright: © 2013 National Geographic Society, i-cubed

Legend

 Project Area (597.5 ac)



2,000 1,000 0 2,000



Feet

Sucre Brut Coastal Mitigation Bank
USGS 7.5-MINUTE QUADRANGLE MAP
"GHEENS, LA"
Lafourche Parish, Louisiana


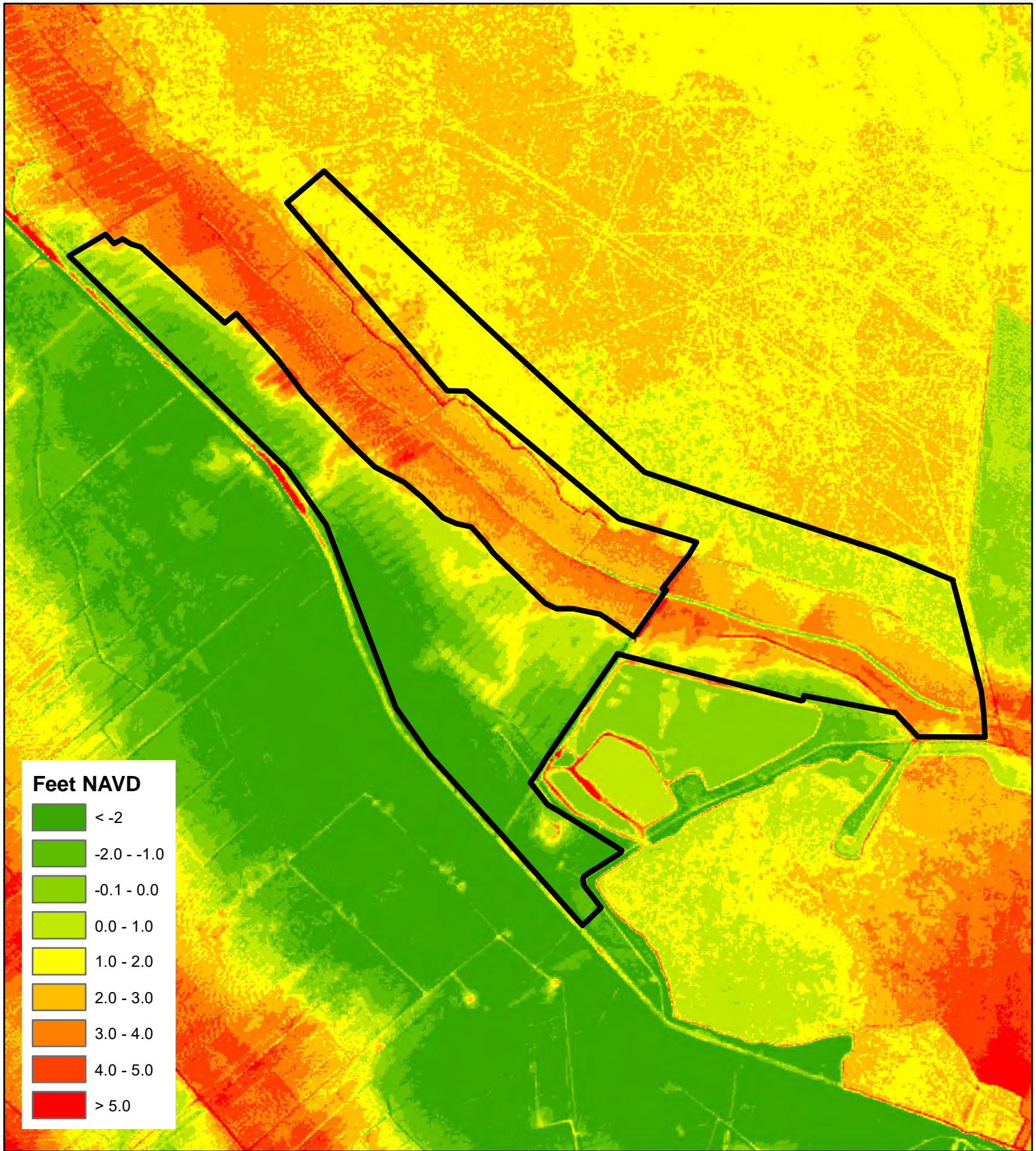
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Date : 12/17/2018	
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FIGURE A2



Legend

Project Area (597.5 ac)

1,600 800 0 1,600

 Feet

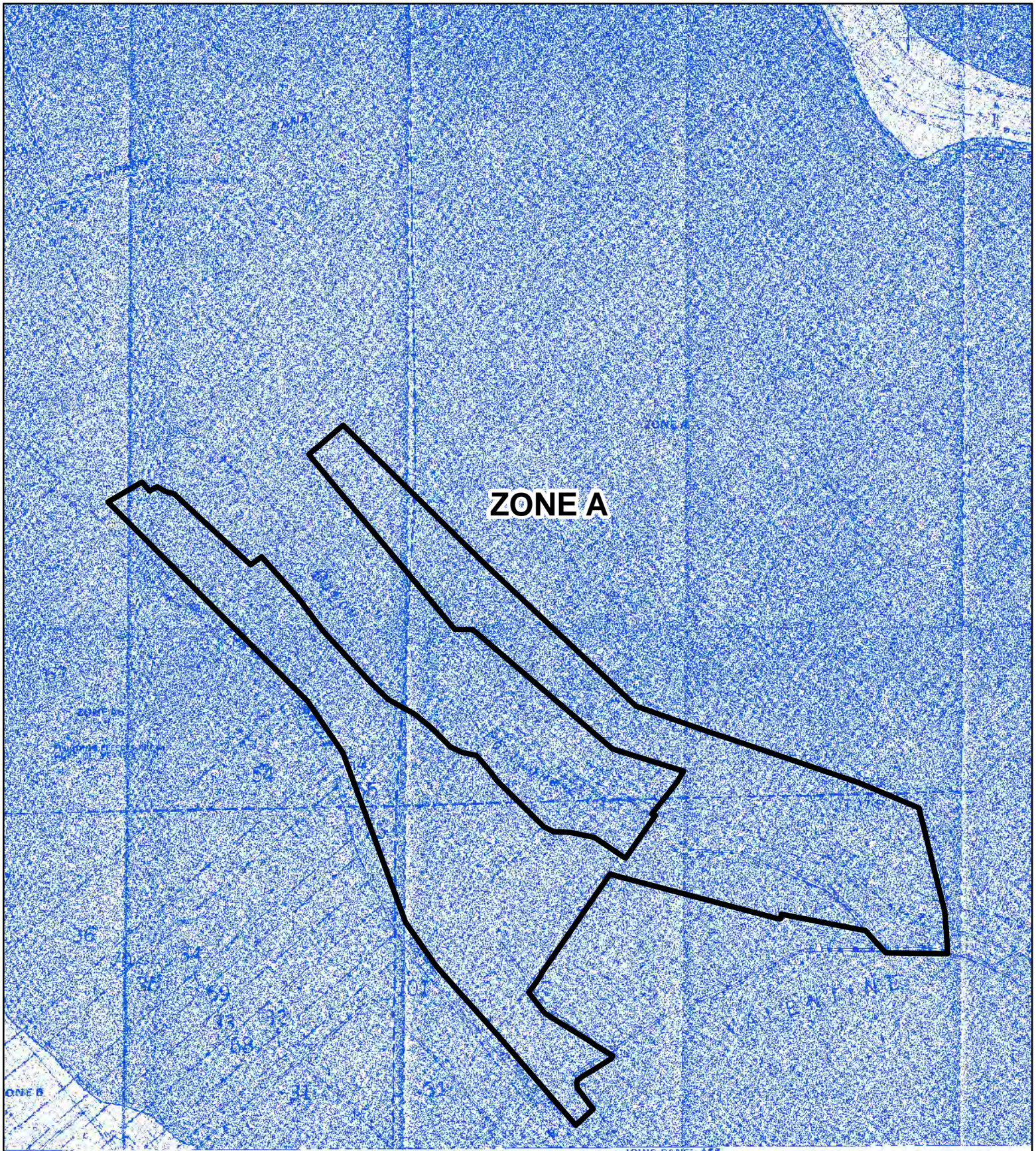
Sucre Brut Coastal Mitigation Bank

LIDAR DIGITAL ELEVATION MODEL

Lafourche Parish, Louisiana

Created :	TSC/AM10.2	
Approved :	JMJ	
Date :	12/17/2018	
Map No. :	FA03_Lidar.mxd	

FIGURE A3



Legend

 Project Area (597.5 ac)



NOTE: FEMA FLOOD PANEL 225202 0340 C EFFECTIVE DATE: APRIL 17, 1985

Feet

Sucre Brut Coastal Mitigation Bank

FEMA FLOOD INSURANCE RATE MAP

Lafourche Parish, Louisiana

Created : TSC/AM10.2

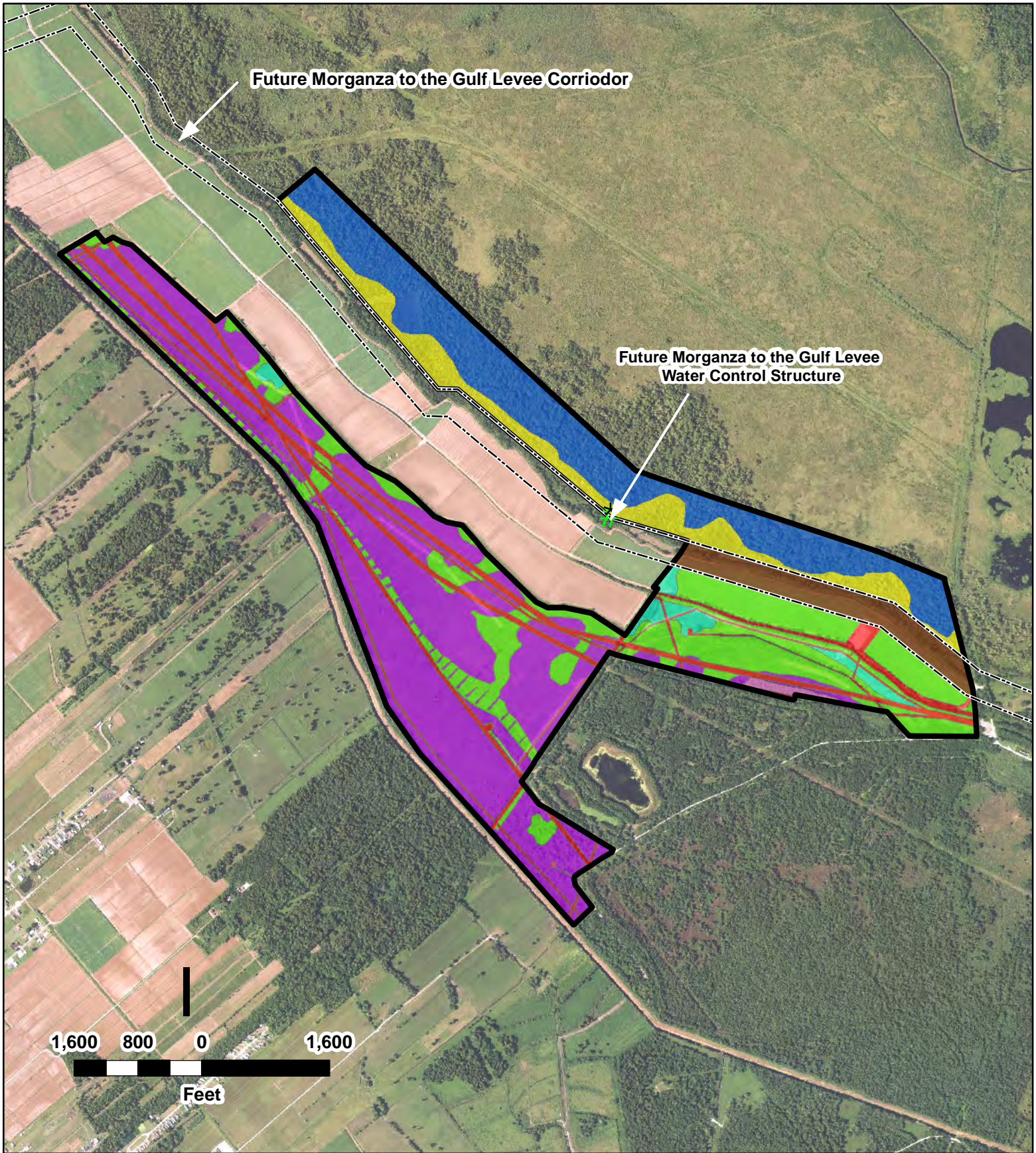
Approved : JMJ

Date : 12/17/2018

Map No. : F04A_FEMA.mxd



FIGURE A4



Legend	
Project Area (597.5 ac)	Coastal BLH Preservation (inside levee) (2.6 ac.)
Coastal BLH Re-establishment (119.0 ac.)	Hardwood Buffer Restoration (11.8 ac.)
Coastal Swamp Rehabilitation (207.0 ac.)	Non-mitigation/ Roads/ Utility ROW (67.4 ac.)
Coastal BLH Preservation (outside levee) (48.8 ac.)	Morganza to the Gulf Levee (31.9 ac.)
Coastal Swamp Preservation (outside levee) (109.0 ac.)	

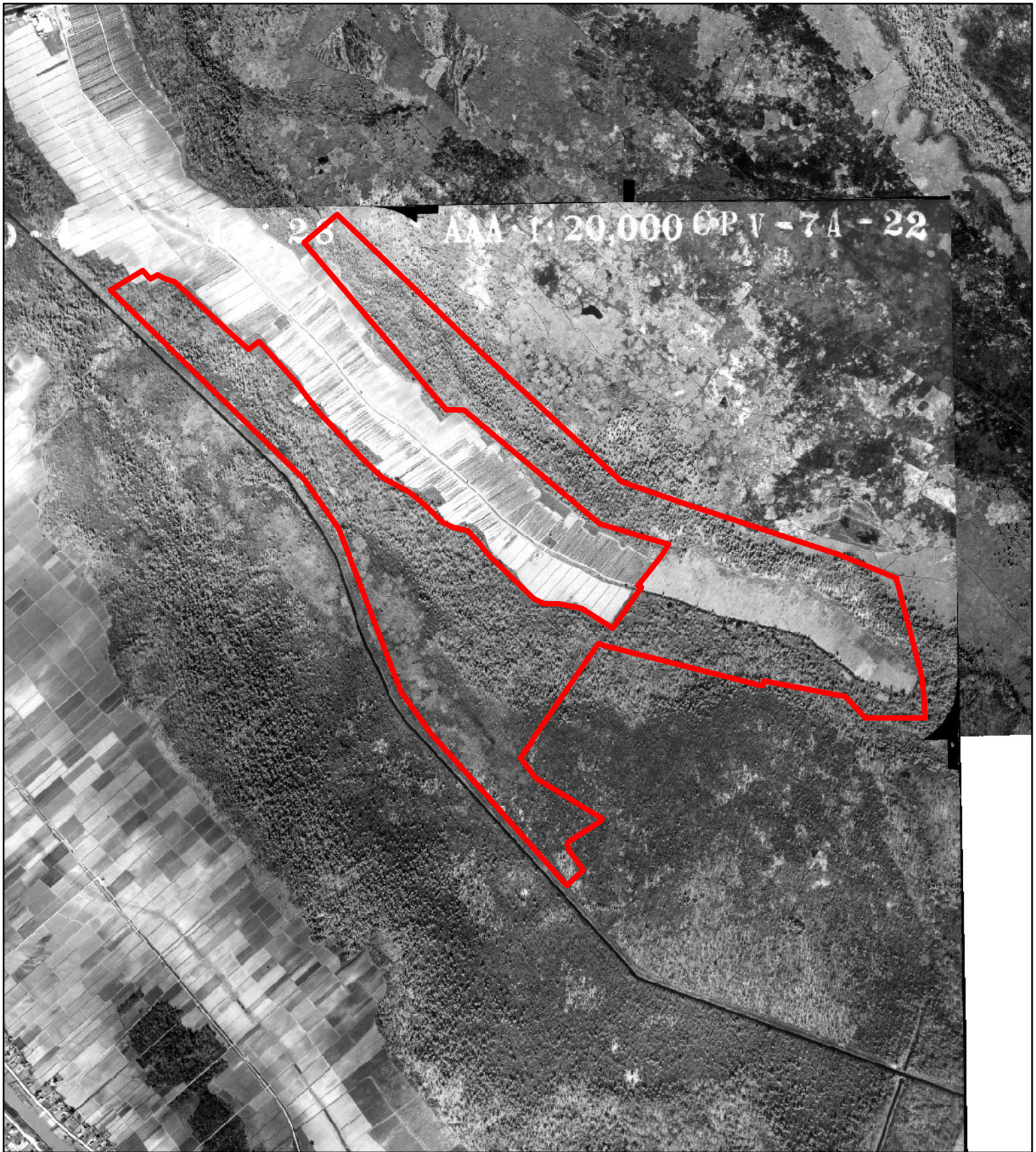
Sucre Brut Coastal Mitigation Bank

MITIGATION FEATURES MAP

Lafourche Parish, Louisiana

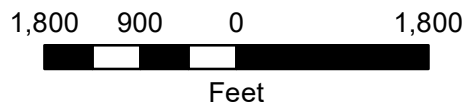
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FIGURE A5



Legend

 Project Area (597.5 ac)



Sucre Brut Coastal Mitigation Bank

1941 AERIAL PHOTOGRAPH

Lafourche Parish, Louisiana

Created : TSC/AM10.2

Approved : JMJ

Date : 12/17/2018

Map No. : FA06_1941.mxd

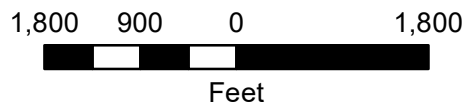


FIGURE A6



Legend

 Project Area (597.5 ac)



Sucre Brut Coastal Mitigation Bank

1953 AERIAL PHOTOGRAPH

Lafourche Parish, Louisiana

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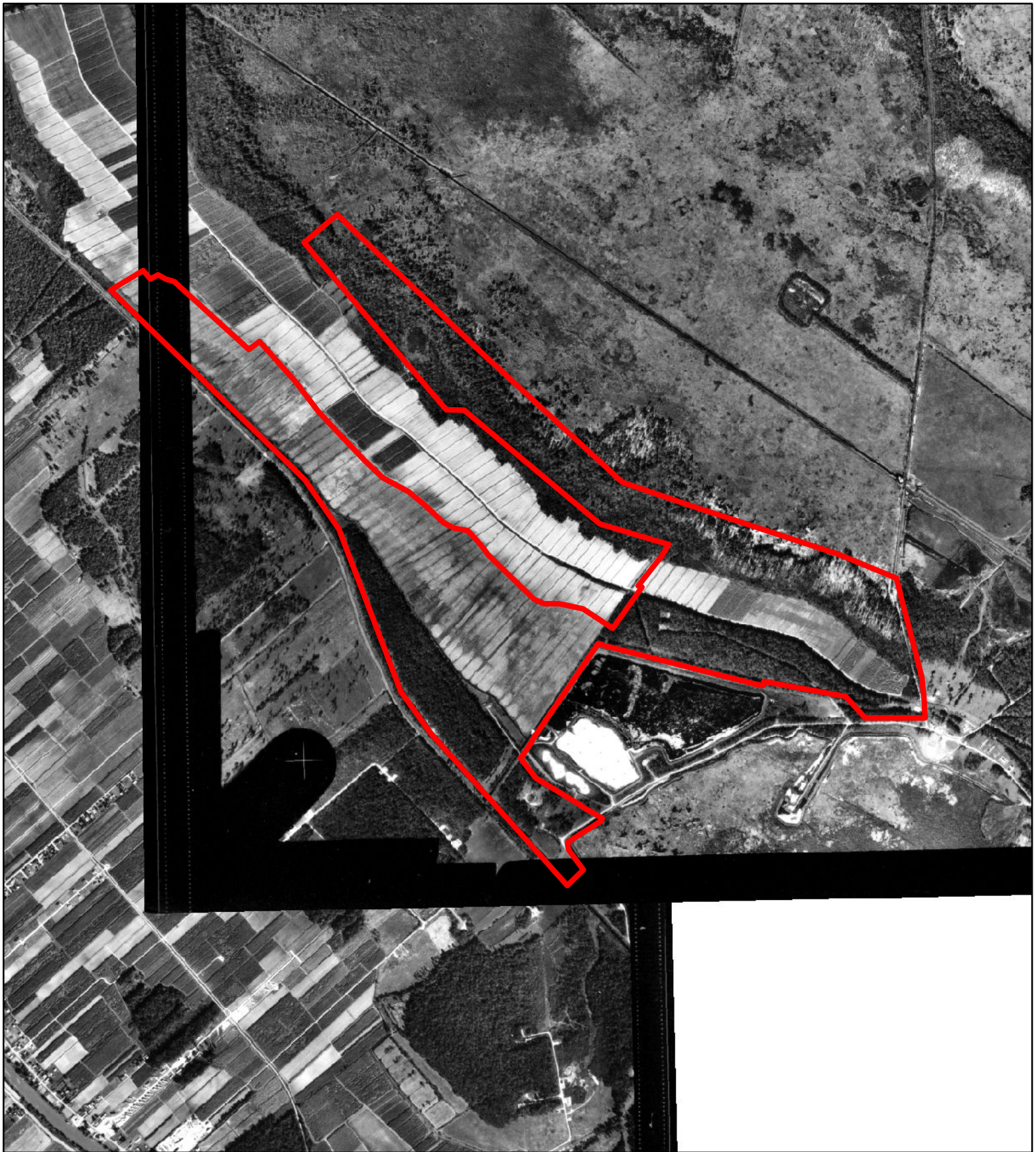
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Date : 12/17/2018

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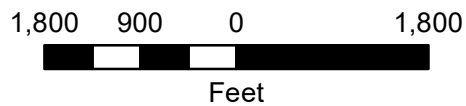


FIGURE A7



Legend

 Project Area (597.5 ac)



Sucre Brut Coastal Mitigation Bank

1980 AERIAL PHOTOGRAPH

Lafourche Parish, Louisiana

Created : TSC/AM10.2

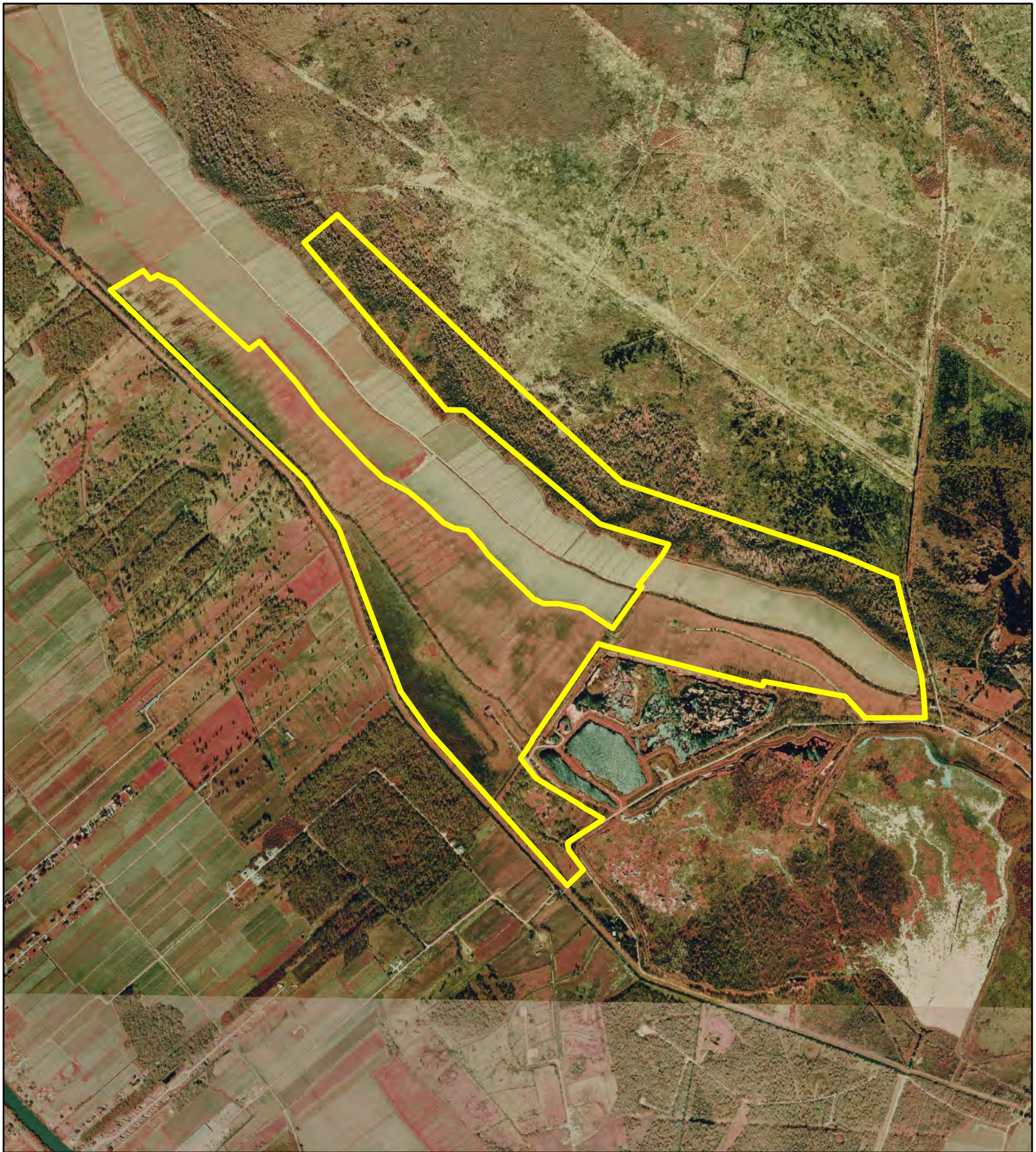
Approved : JMJ

Date : 12/17/2018

Map No. : FA08_1980.mxd

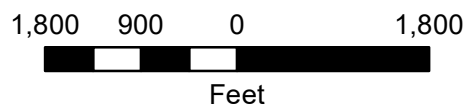


FIGURE A8



Legend

 Project Area (597.5 ac)



Sucre Brut Coastal Mitigation Bank

1998 AERIAL PHOTOGRAPH

Lafourche Parish, Louisiana

Created : TSC/AM10.2

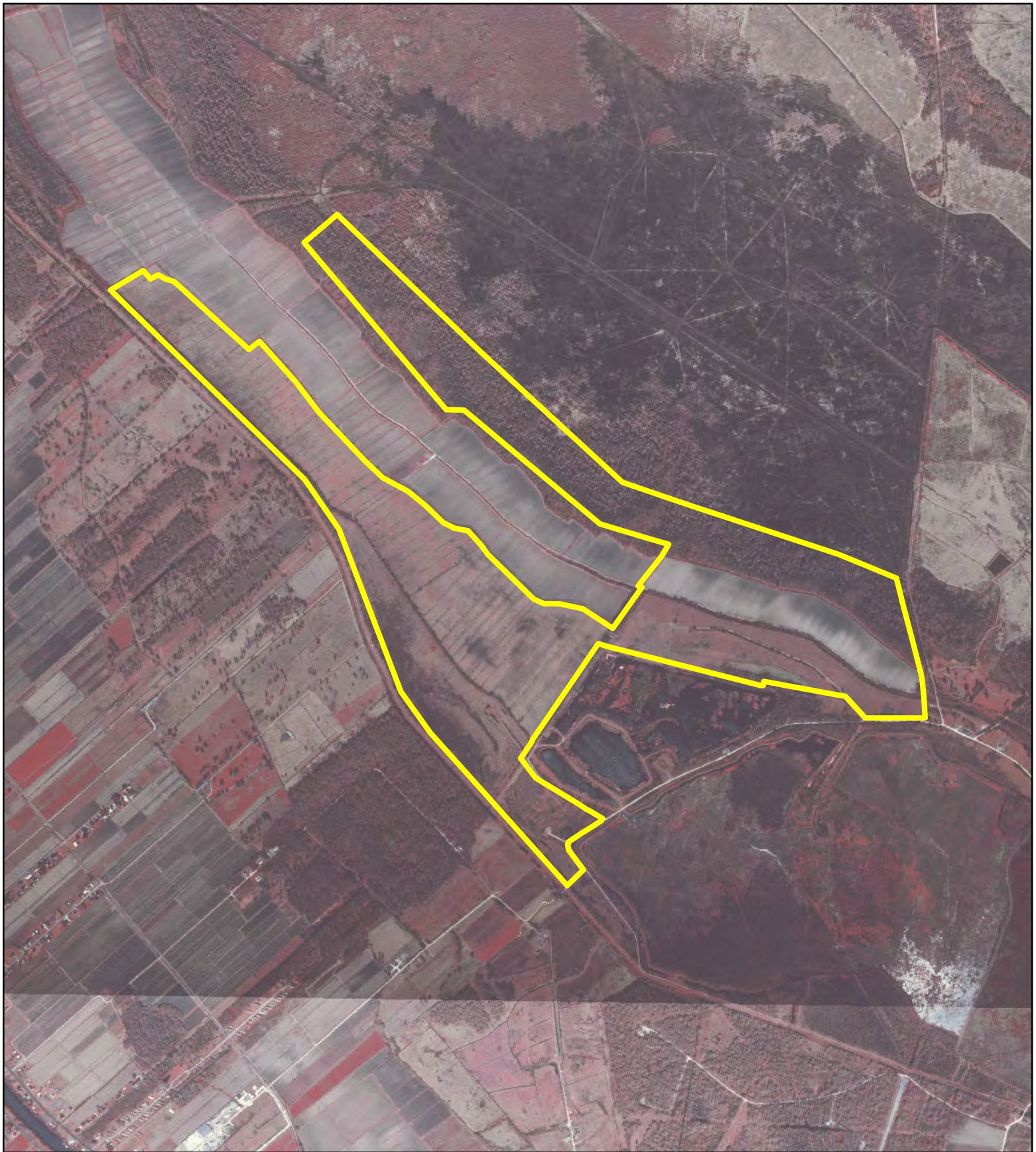
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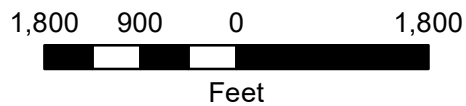


FIGURE A9



Legend

 Project Area (597.5 ac)



Sucre Brut Coastal Mitigation Bank

2004 AERIAL PHOTOGRAPH

Lafourche Parish, Louisiana

Created : TSC/AM10.2

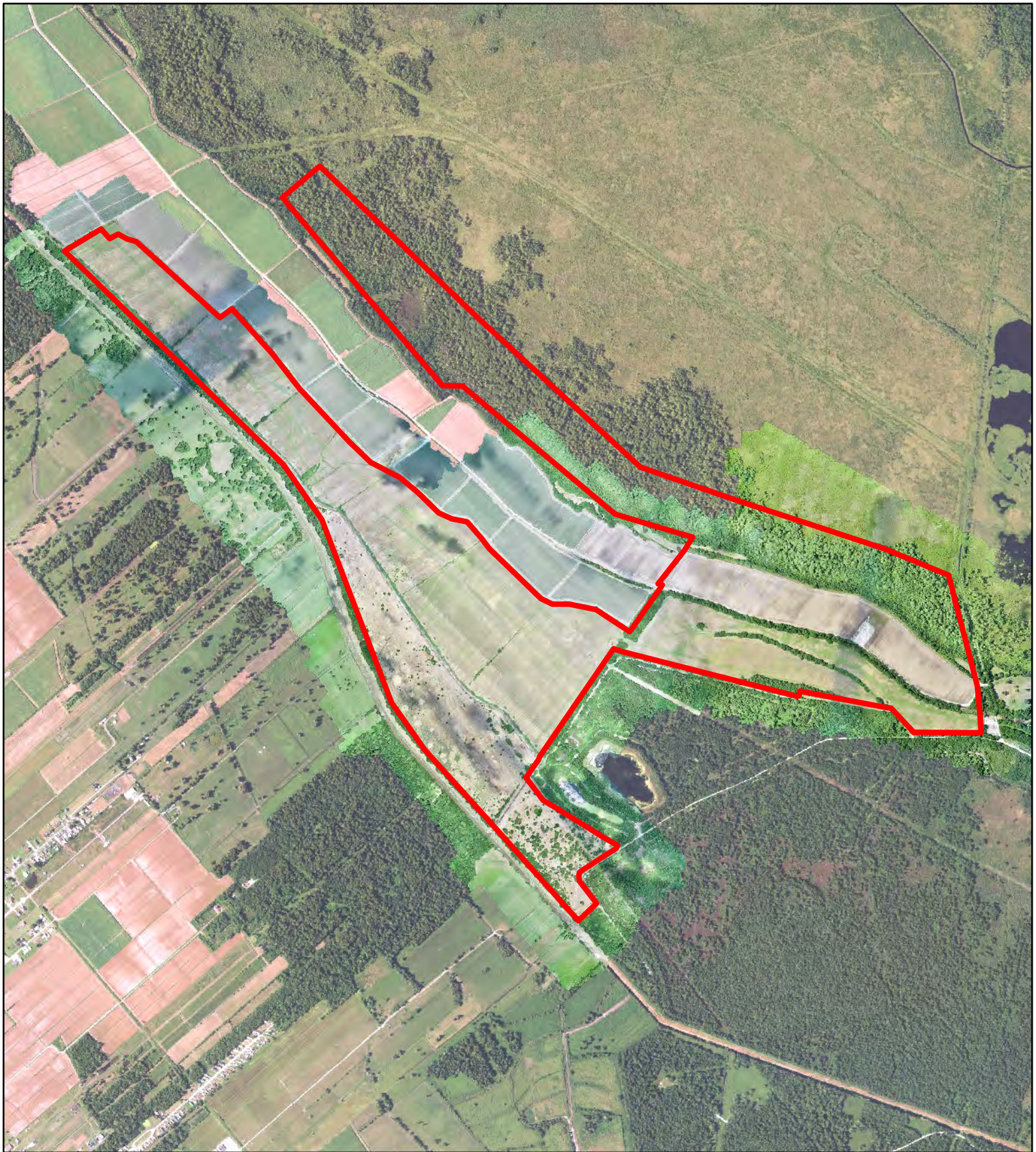
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Date : 12/17/2018

Map No. : FA10_2004.mxd

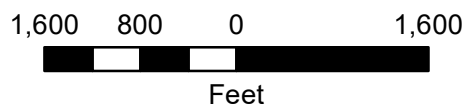


FIGURE A10



Legend

 Project Area (597.5 ac)



Sucre Brut Coastal Mitigation Bank

**2018-2017 AERIAL
PHOTOGRAPH**

Lafourche Parish, Louisiana

Created : TSC/AM10.2

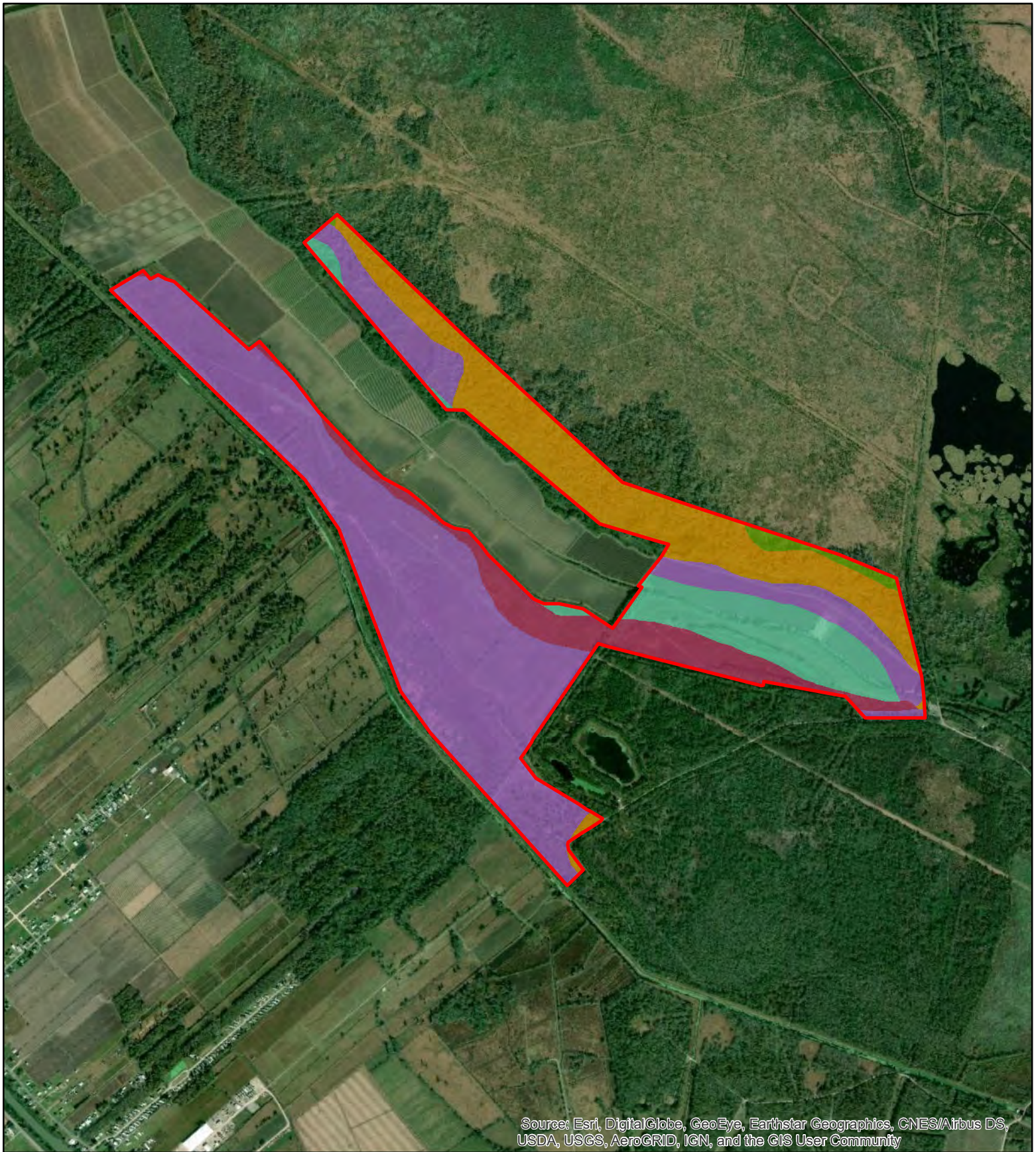
Approved : JMJ

Date : 12/17/2018

Map No. : FA11_2018UAS.mxd




FIGURE A11




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

Legend

- Project Area (597.5 ac)
- AE: Allemands muck
- BB: Barbary-Fausse
- Co: Cancienne silt clay loam
- Sk: Schriever silty clay loam
- Sr: Schriever clay, occasionally flooded
- W: Water



1,800 900 0 1,800




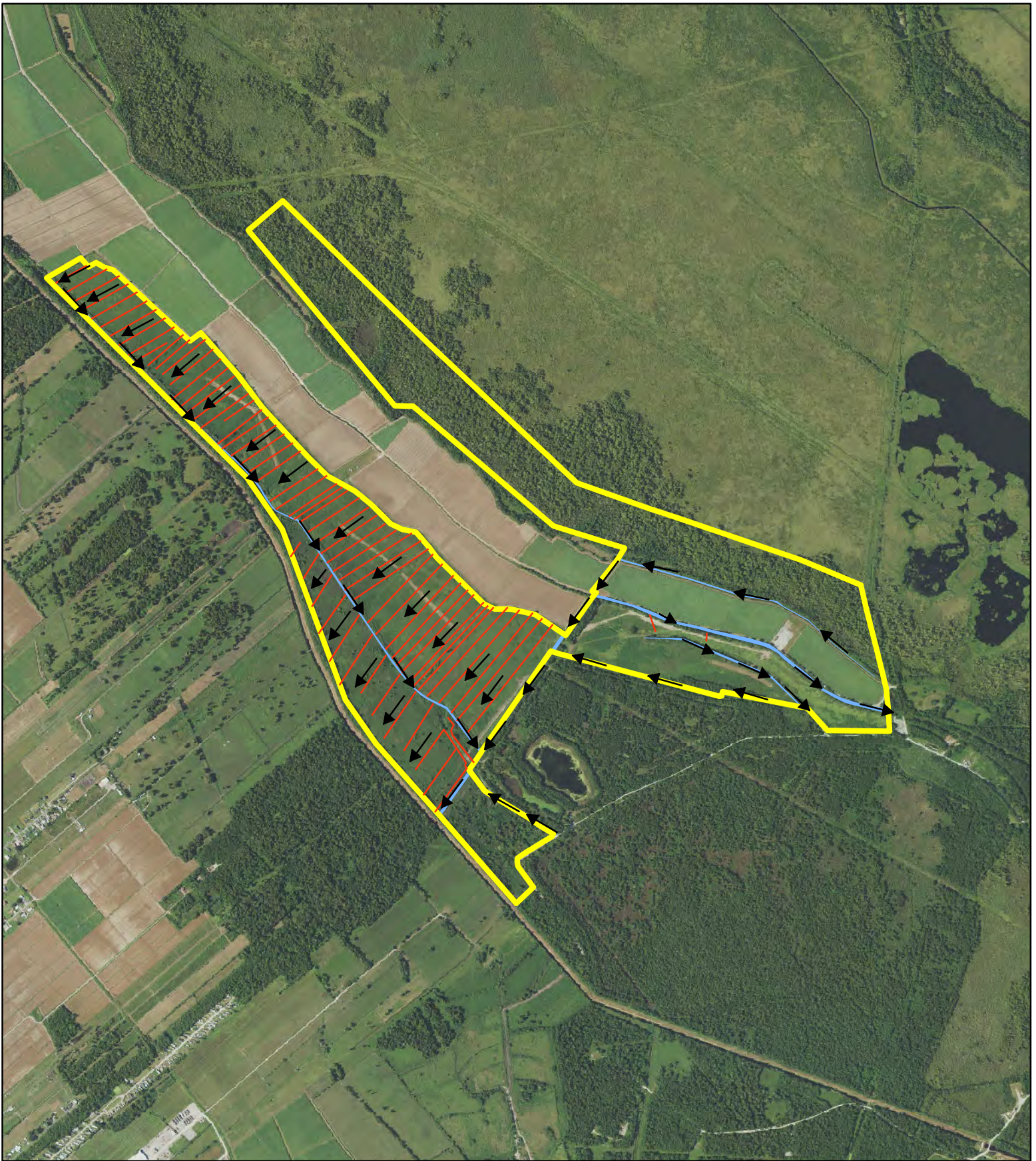
Feet

Sucre Brut Coastal Mitigation Bank

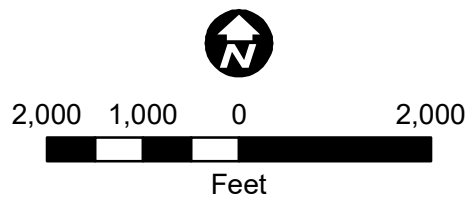
SSURGO SOILS MAP

Lafourche Parish, Louisiana

Created : TSC/AM10.2	
Approved : JMJ	
Date : 12/17/2018	
Map No. : F12A_Soils.mxd	
FIGURE A12	



- Legend**
- Project Area (597.5 ac)
 - Drainage Lateral
 - Other Waters of the U.S.



Sucre Brut Coastal Mitigation Bank

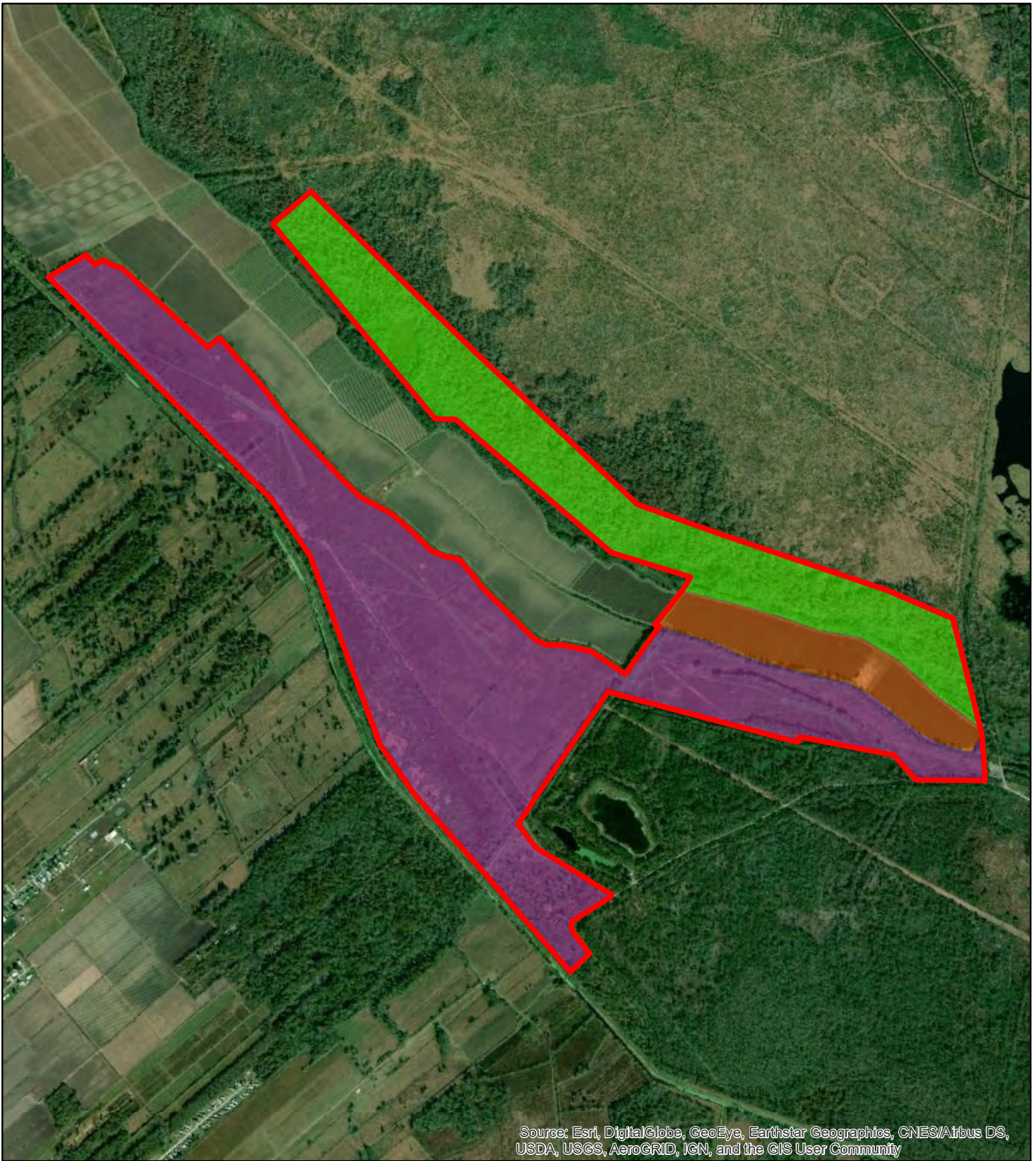
EXISTING SITE HYDROLOGY

Lafourche Parish, Louisiana

Created : TSC/AM10.2
Approved : JMJ
Date : 06/28/2018
Map No. : FA13_ExistingHydro.mxd



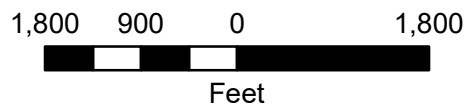
FIGURE A13



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

Legend

-  Project Area (597.5 ac)
-  Rangeland/Pasture
-  Crops
-  Forested Wetlands/Marsh



Sucre Brut Coastal Mitigation Bank

EXISTING COVER TYPES

Lafourche Parish, Louisiana


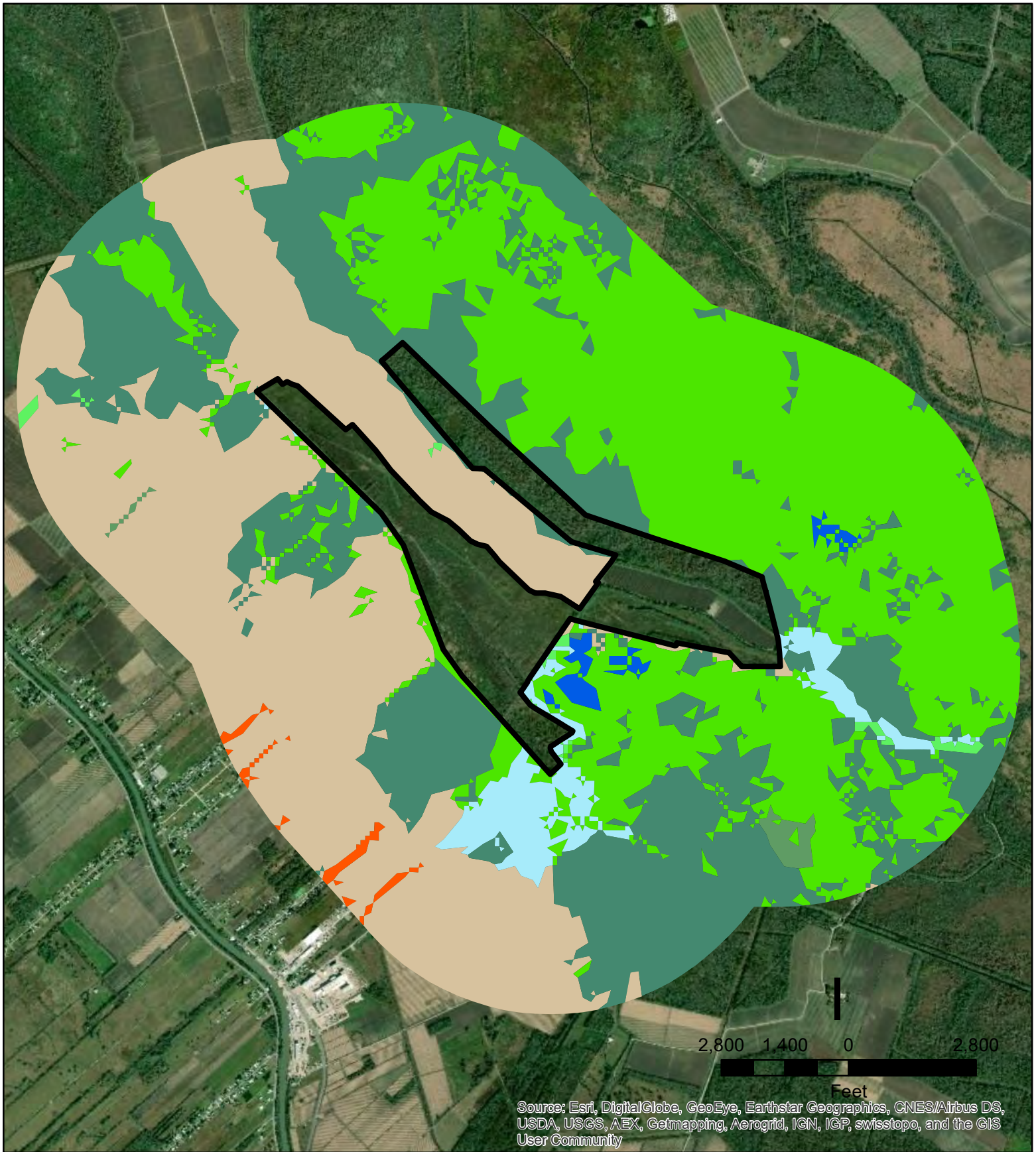
Created : TSC/AM10.2	
Approved : JMJ	
Date : 12/17/2018	
Map No. : FA14_ExistingCover.mxd	

FIGURE A14



Legend

Project Area (597.5 ac)	Barren Land (>1%)
Emergent Herbaceous Wetlands (37%)	Developed (>1%)
Cultivated Crops (31%)	Open Water (>1%)
Woody Wetlands (28%)	Shrub/Scrub (>1%)
Hay/Pasture (3%)	

Sucre Brut Coastal Mitigation Bank
SURROUNDING LAND USE
(WITHIN 1-MILE)
Lafourche Parish, Louisiana

Created : TSC/AM10.2	
Approved : JMJ	
Date : 12/17/2018	
Map No. : FA15_LULC.mxd	

FIGURE A15



Sources: Esri, DeLorme, USGS, NPS, Sources: Esri, USGS, NOAA



Sucre Brut Coastal Mitigation Bank

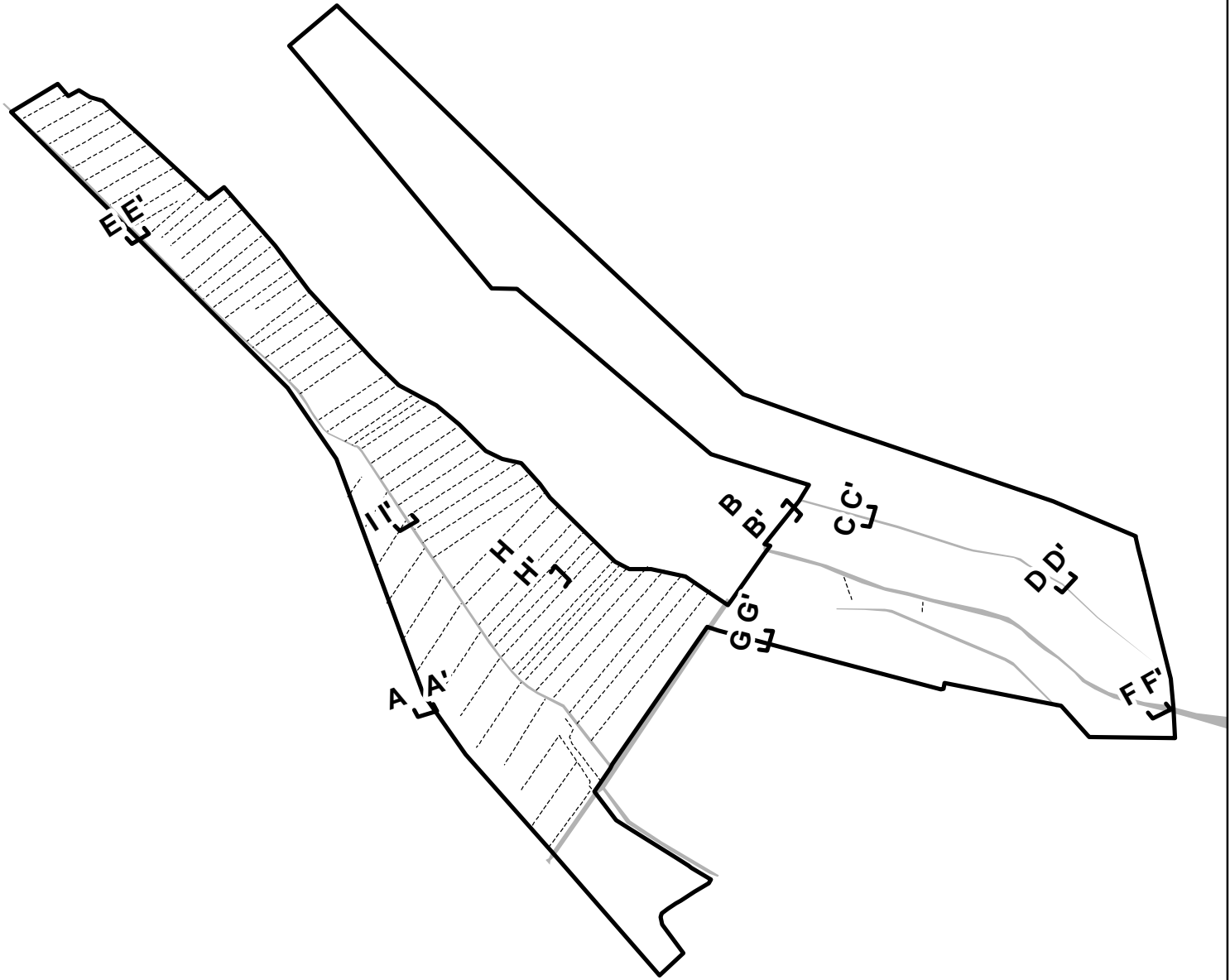
PROPOSED BANK SERVICE AREA




Lafourche Parish, Louisiana

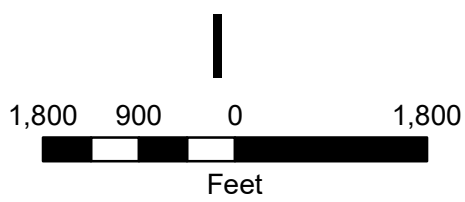
Created : TSC/AM10.2	
Approved : JMJ	
Date : 12/17/2018	
Map No. : F16_ServiceArea.mxd	

FIGURE A16

Attachment B: Proposed Hydrology Restoration Drawings



- Legend**
-  Project Area (597.5 ac.)
 -  Drainage Lateral
 -  Other Waters of the U.S.



Sucre Brut Coastal Mitigation Bank
HYDROLOGY RESTORATION
PLAN VIEW
 Lafourche Parish, Louisiana


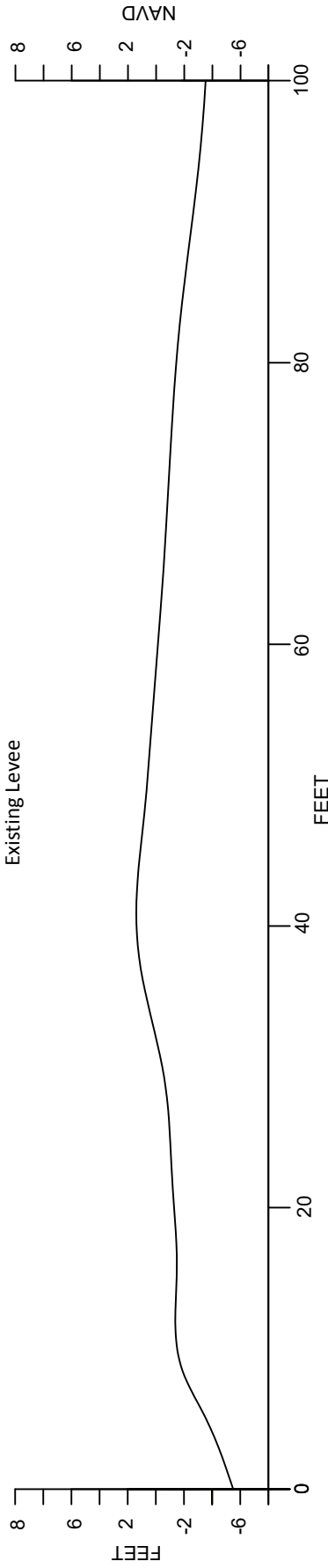
Created : TSC/AM10.2	
Approved : JMJ	
Date : 12/17/2018	
Map No. : F15_HydroRestPlanView	

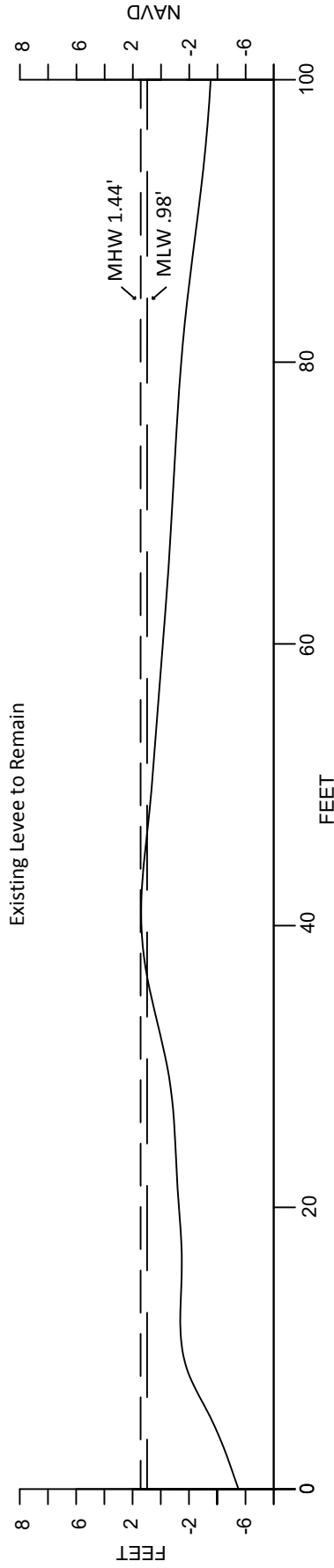
FIGURE B1

A

Existing Cross-Section A

**A'****A**

Proposed Cross-Section A

**A'****Sucre Brut Coastal Mitigation Bank**

Cross Section A-A'

LAFOURCHE PARISH, LA

Created: TSC/AutoCAD

Approved: JMJ

Date: 12/17/2018

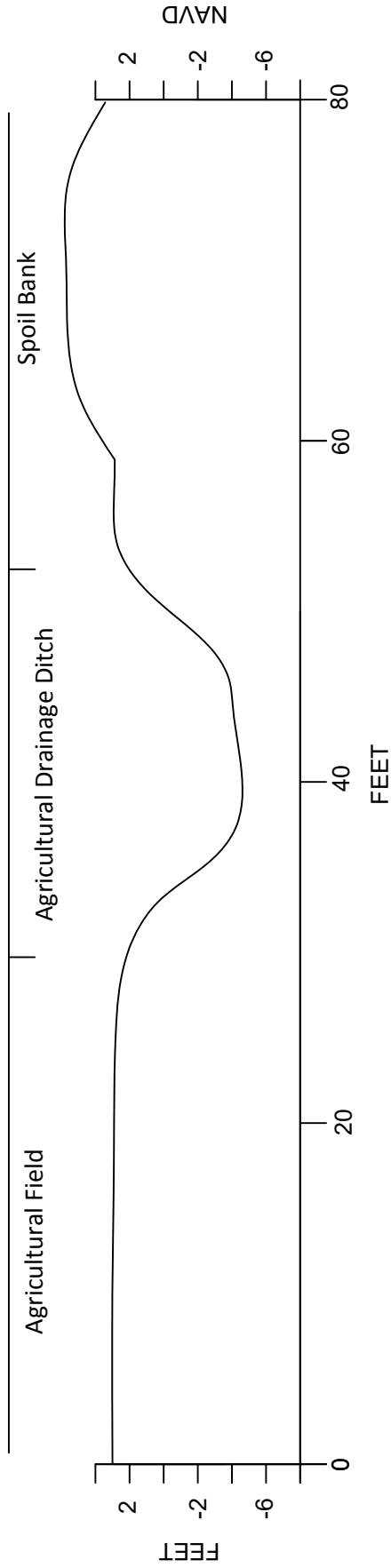
Dwg. No.: Xsection.dwg

**FIGURE B2****Notes:**

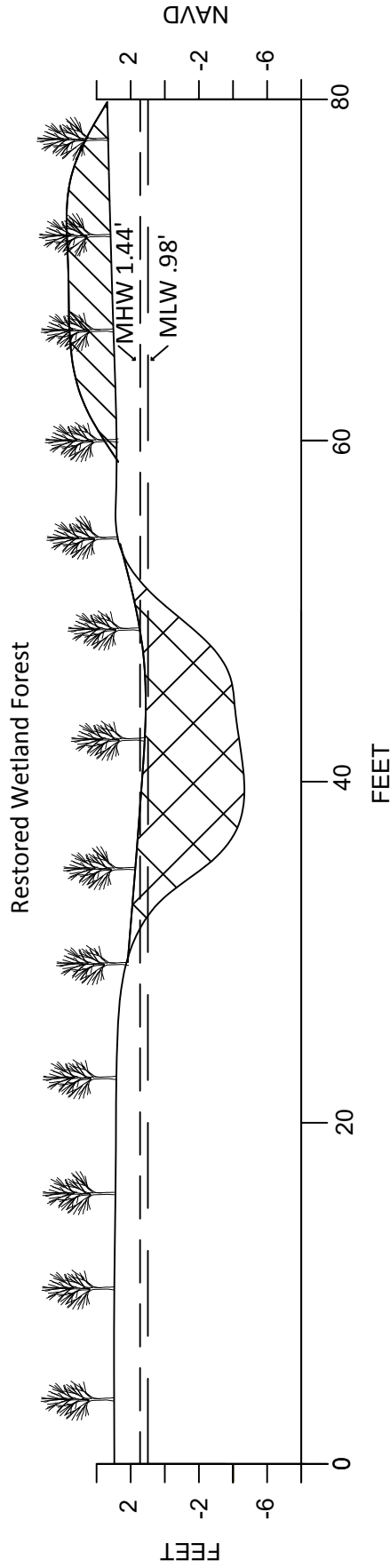
1. The Mean High Water (MHW) and Mean Low Water (MLW) levels are based on daily recordings from the Coastwide Reference Monitoring System (CRMS) station 2991 from January 2014 to July 2018.
2. The MHW level is the average of all recordings above the mean water level and the MLW is the average of all recordings below the mean water level.



B

Existing Cross-Section B

**B'****B**

Proposed Cross-Section B

**B'**

-  PROPOSED EXCAVATION
-  PROPOSED FILL

Notes:

1. The Mean High Water (MHW) and Mean Low Water (MLW) levels are based on daily recordings from the Coastwide Reference Monitoring System (CRMS) station 2991 from January 2014 to July 2018.
2. The MHW level is the average of all recordings above the mean water level and the MLW is the average of all recordings below the mean water level.

Sucre Brut Coastal Mitigation Bank

Cross Section B-B'

LAFOURCHE PARISH, LA

Created: TSC/AutoCAD

Approved: JMJ

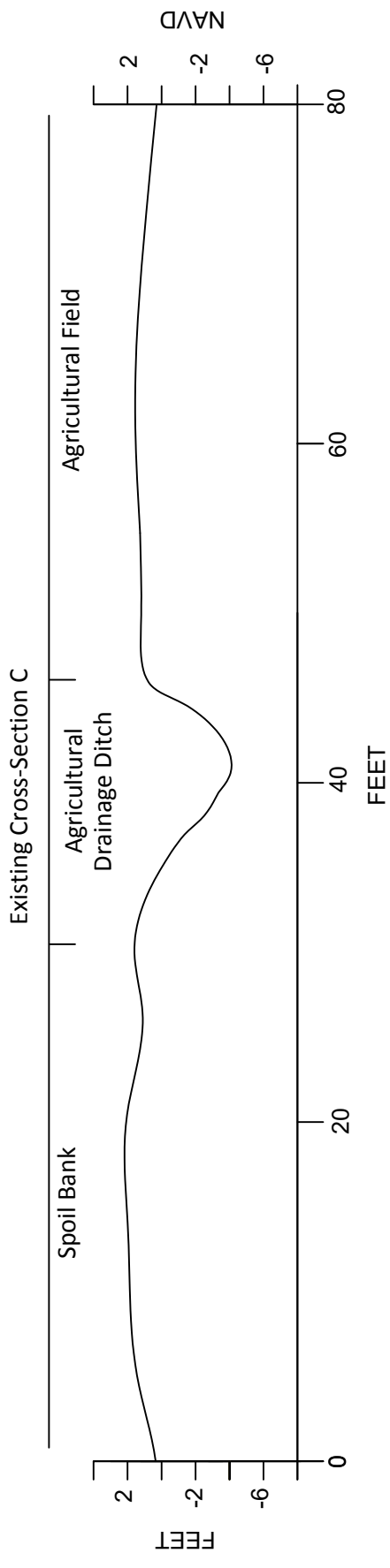
Date: 12/17/2018

Dwg. No.: Xsection.dwg

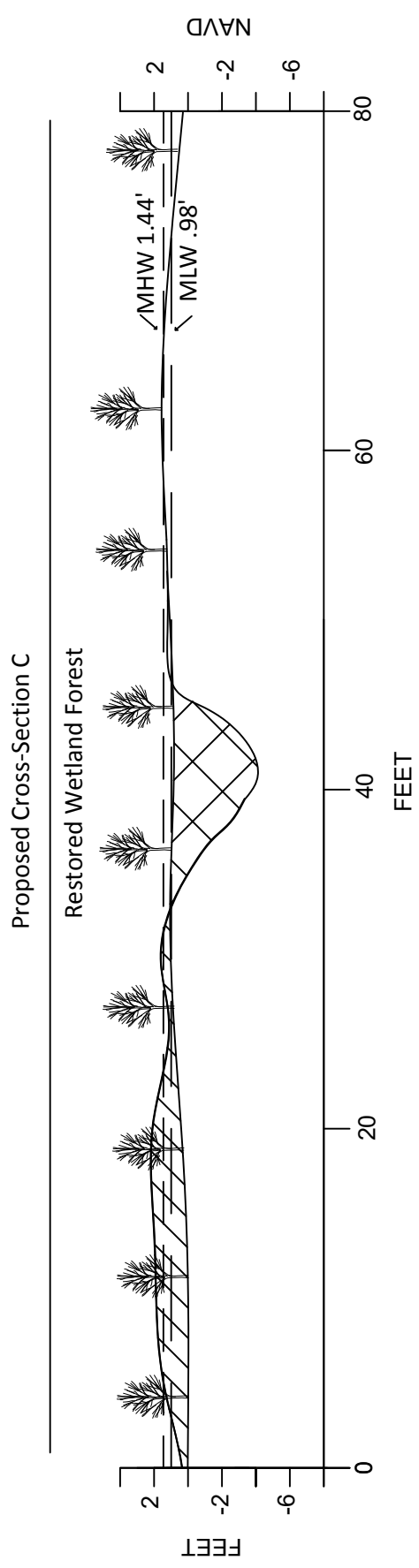


FIGURE B3

C'



C'



C

Sucre Brut Coastal Mitigation Bank

Cross Section C-C'



LAFOURCHE PARISH, LA

Created:	TSC/AutoCAD
Approved:	JMJ
Date:	12/17/2018
Dwg. No.:	Xsection.dwg

FIGURE B4

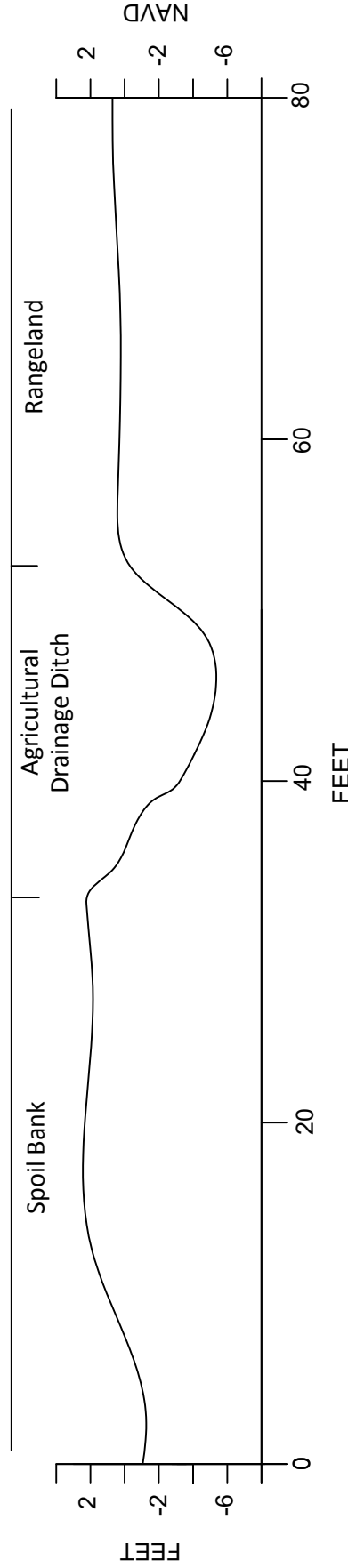
Notes:

- The Mean High Water (MHW) and Mean Low Water (MLW) levels are based on daily recordings from the Coastwide Reference Monitoring System (CRMS) station 2991 from January 2014 to July 2018.
- The MHW level is the average of all recordings above the mean water level and the MLW is the average of all recordings below the mean water level.

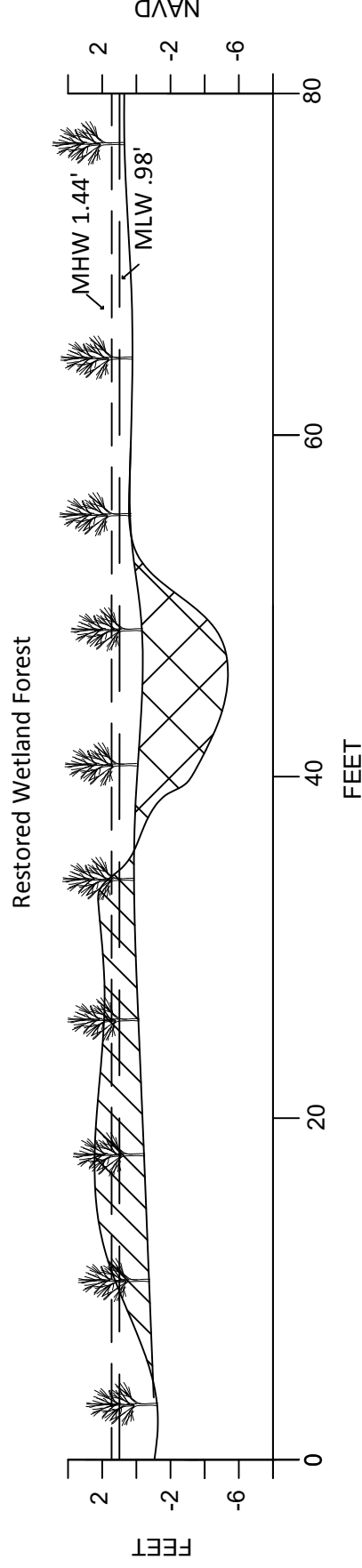
-  PROPOSED EXCAVATION
-  PROPOSED FILL



D

Existing Cross-Section D

**D'****D**

Proposed Cross-Section D

**D'**

-  PROPOSED EXCAVATION
-  PROPOSED FILL

Notes:

1. The Mean High Water (MHW) and Mean Low Water (MLW) levels are based on daily recordings from the Coastwide Reference Monitoring System (CRMS) station 2991 from January 2014 to July 2018.
2. The MHW level is the average of all recordings above the mean water level and the MLW is the average of all recordings below the mean water level.

Sucre Brut Coastal Mitigation Bank

Cross Section D-D'

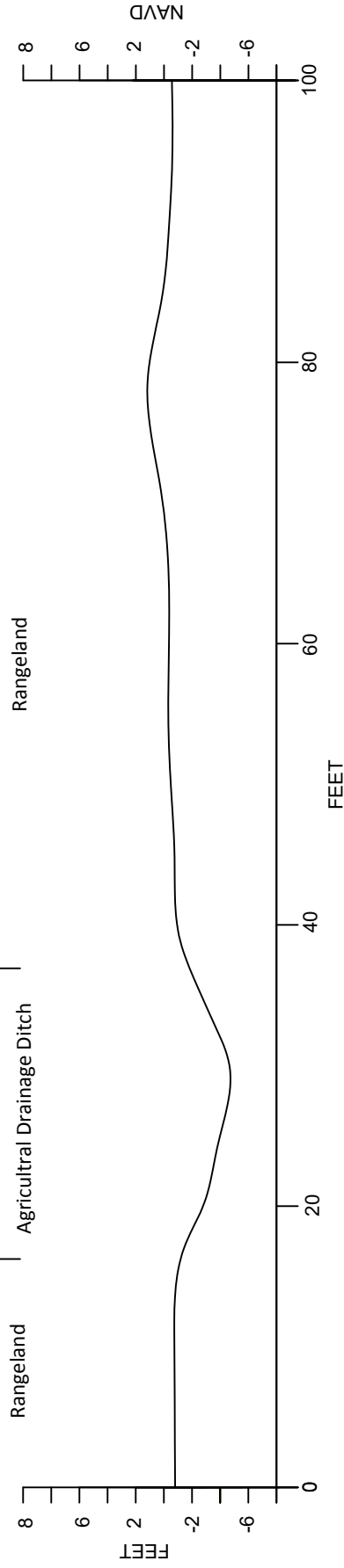
LAFOURCHE PARISH, LA

Created:	TSC/AutoCAD
Approved:	JMJ
Date:	12/17/2018
Dwg. No.:	Xsection.dwg

**FIGURE B5**

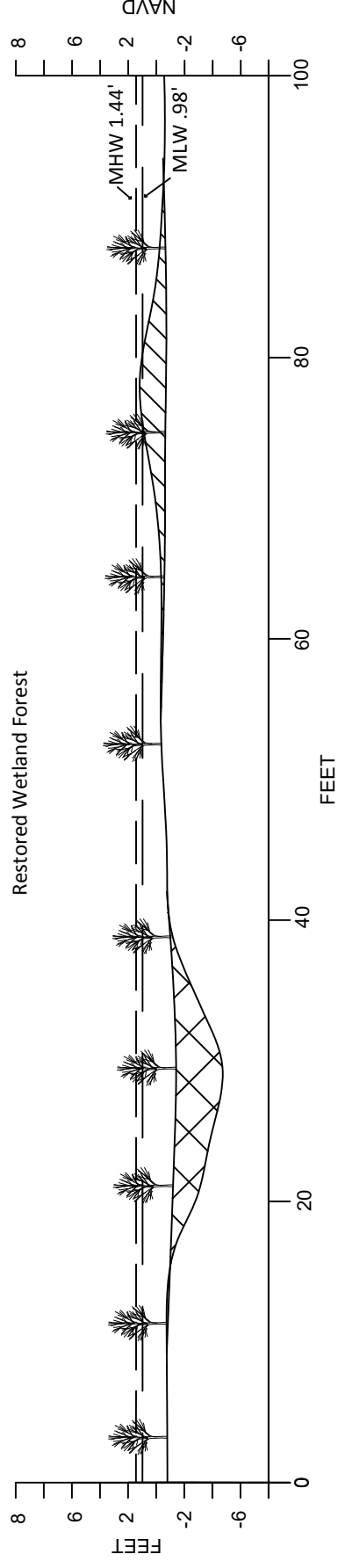
E



Existing Cross-Section E



E

Proposed Cross-Section E



-  PROPOSED EXCAVATION
-  PROPOSED FILL

Notes:

1. The Mean High Water (MHW) and Mean Low Water (MLW) levels are based on daily recordings from the Coastwide Reference Monitoring System (CRMS) station 2991 from January 2014 to July 2018.
2. The MHW level is the average of all recordings above the mean water level and the MLW is the average of all recordings below the mean water level.

Sucre Brut Coastal Mitigation Bank

Cross Section E-E'

LAFOURCHE PARISH, LA

Created: TSC/AutoCAD

Approved: JMJ

Date: 12/17/2018

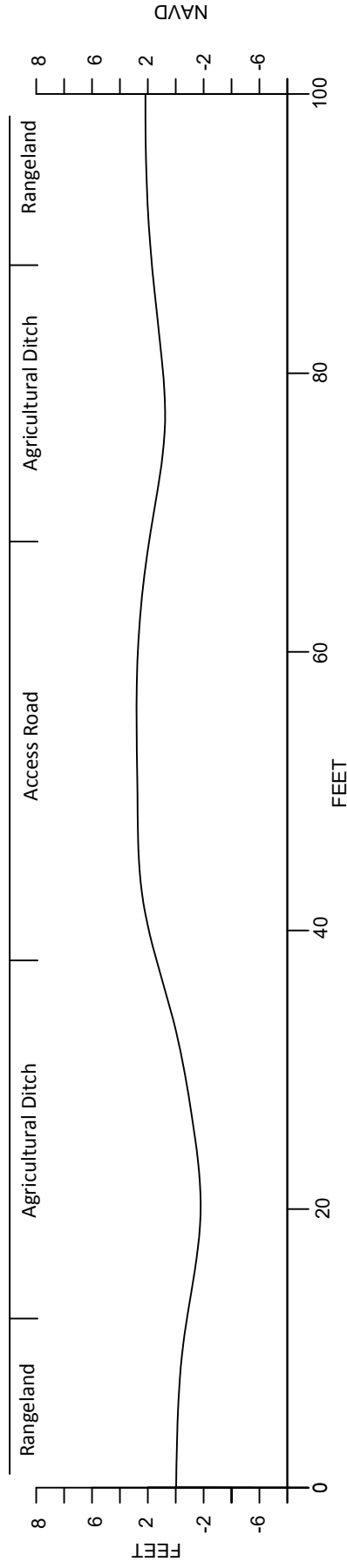
Dwg. No.: Xsection.dwg



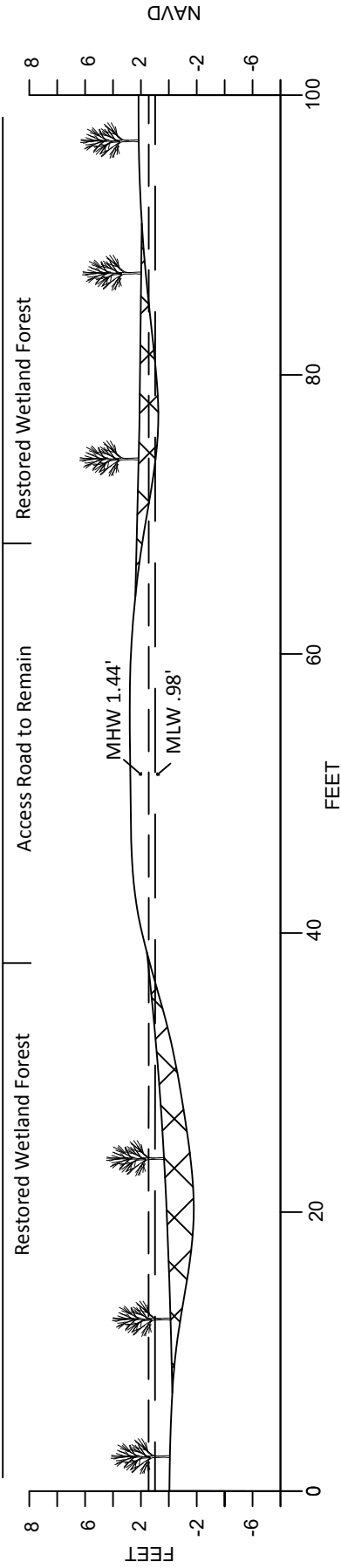
FIGURE B6



F

Existing Cross-Section F

**F**

Proposed Cross-Section F



-  PROPOSED EXCAVATION
-  PROPOSED FILL

Notes:

1. The Mean High Water (MHW) and Mean Low Water (MLW) levels are based on daily recordings from the Coastwide Reference Monitoring System (CRMS) station 2991 from January 2014 to July 2018.
2. The MHW level is the average of all recordings above the mean water level and the MLW is the average of all recordings below the mean water level.

Sucre Brut Coastal Mitigation Bank

Cross Section F-F'

LAFOURCHE PARISH, LA

Created: TSC/AutoCAD

Approved: JMJ

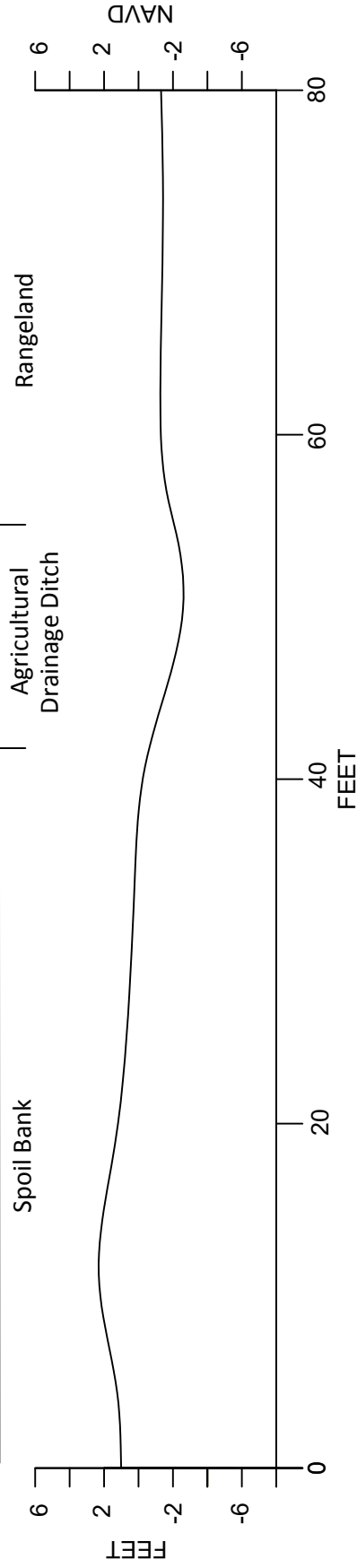
Date: 12/17/2018

Dwg. No.: Xsection.dwg

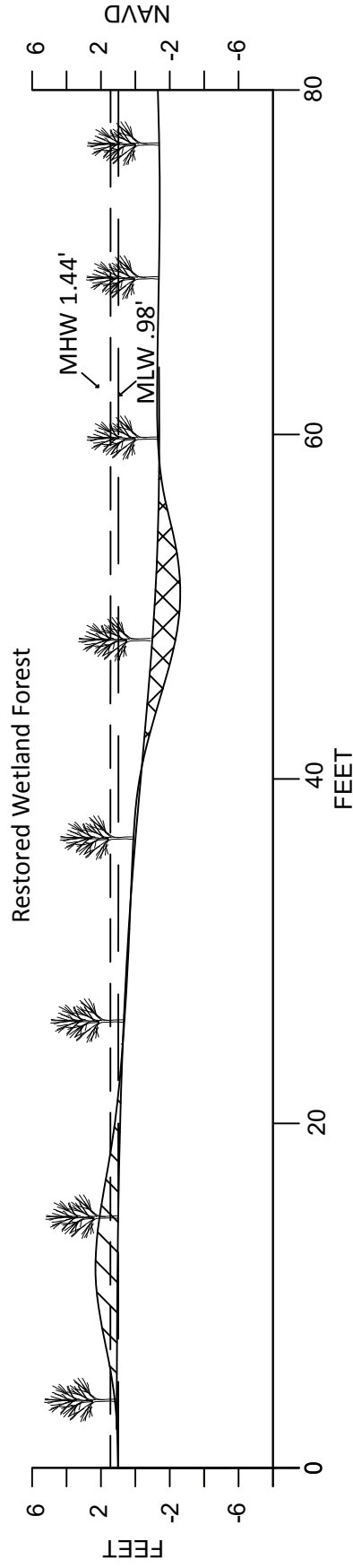
**FIGURE B7**



G

Existing Cross-Section G

**G'****G**

Proposed Cross-Section G



-  PROPOSED EXCAVATION
-  PROPOSED FILL

Notes:

1. The Mean High Water (MHW) and Mean Low Water (MLW) levels are based on daily recordings from the Coastwide Reference Monitoring System (CRMS) station 2991 from January 2014 to July 2018.
2. The MHW level is the average of all recordings above the mean water level and the MLW is the average of all recordings below the mean water level.

Sucre Brut Coastal Mitigation Bank

Cross Section G-G'

LAFOURCHE PARISH, LA

Created: TSC/AutoCAD

Approved: JMJ

Date: 12/17/2018

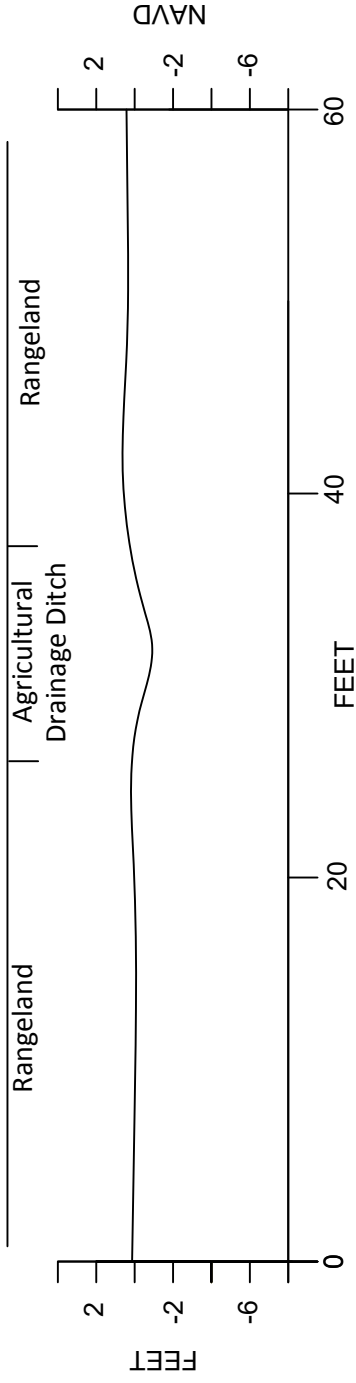
Dwg. No.: Xsection.dwg

**FIGURE B8**

H

H'

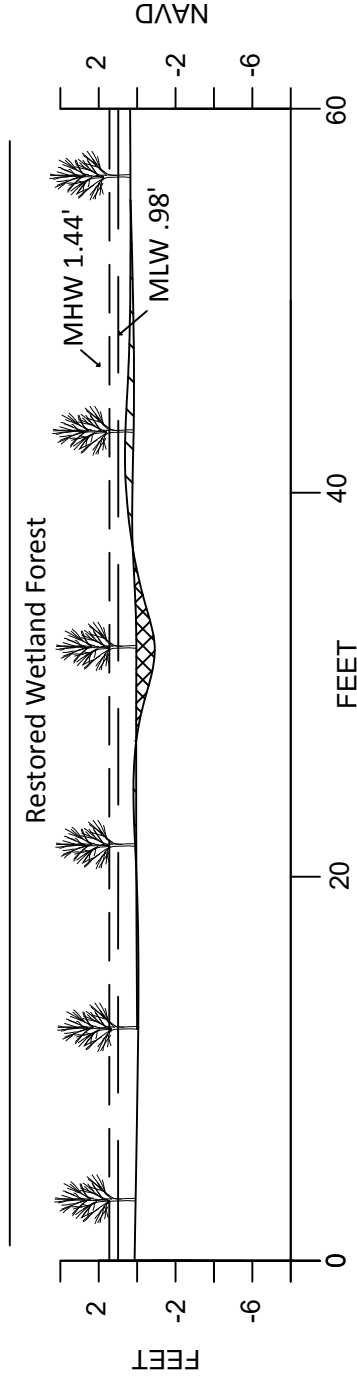
Existing Cross-Section H



H

H'

Proposed Cross-Section H



-  PROPOSED EXCAVATION
-  PROPOSED FILL

Notes:

1. The Mean High Water (MHW) and Mean Low Water (MLW) levels are based on daily recordings from the Coastwide Reference Monitoring System (CRMS) station 2991 from January 2014 to July 2018.
2. The MHW level is the average of all recordings above the mean water level and the MLW is the average of all recordings below the mean water level.

Sucre Brut Coastal Mitigation Bank

Cross Section H-H'

LAFOURCHE PARISH, LA

Created: TSC/AutoCAD

Approved: JMJ

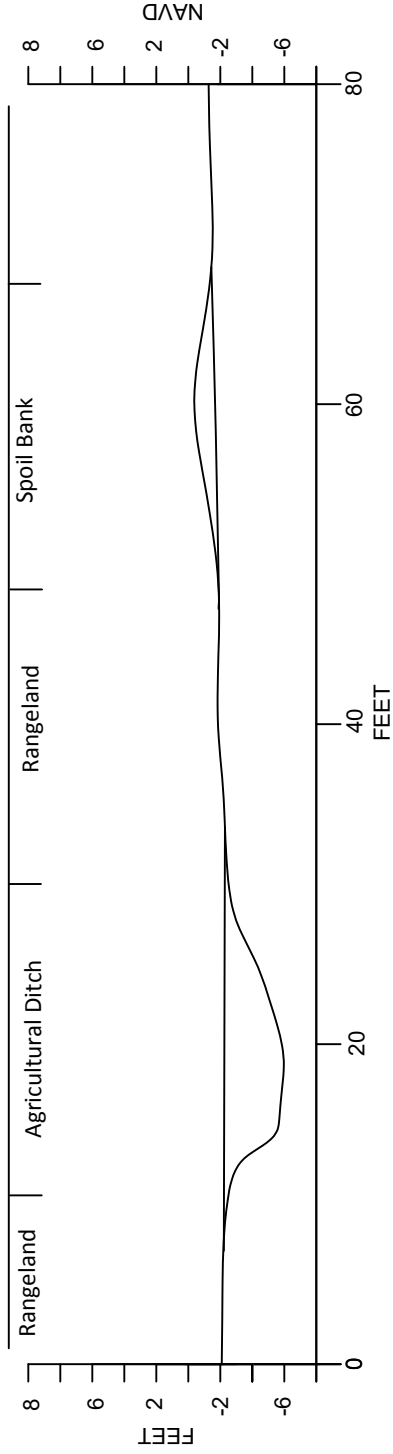
Date: 12/17/2018

Dwg. No.: Xsection.dwg

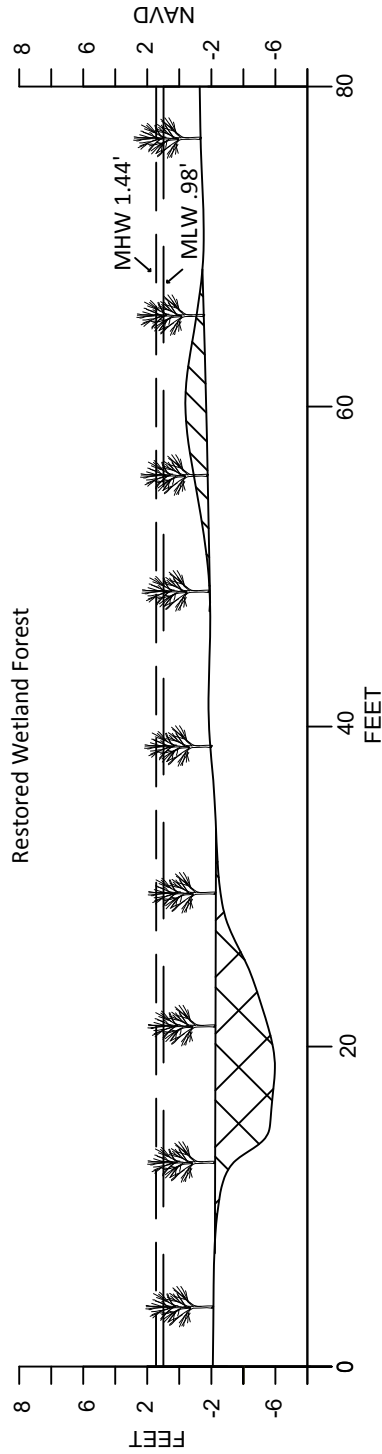




FIGURE B9

Existing Cross-Section I



Proposed Cross-Section I



-  PROPOSED EXCAVATION
-  PROPOSED FILL

Notes:

1. The Mean High Water (MHW) and Mean Low Water (MLW) levels are based on daily recordings from the Coastwide Reference Monitoring System (CRMS) station 2991 from January 2014 to July 2018.
2. The MHW level is the average of all recordings above the mean water level and the MLW is the average of all recordings below the mean water level.

Sucre Brut Coastal Mitigation Bank

Cross Section I-I'

LAFOURCHE PARISH, LA

Created:	TSC/AutoCAD
Approved:	JMJ
Date:	12/17/2018
Dwg. No.:	Xsection.dwg

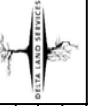


FIGURE B10

Attachment C: Preliminary Jurisdictional Determination



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
7400 LEAKE AVE
NEW ORLEANS LA 70118-3651

December 7, 2018

Operations Division
Surveillance and Enforcement Section

Mr. Jace Jarreau
Delta Land Services
1090 Cinclare Drive
Port Allen, Louisiana 70767

Dear Mr. Jarreau:

Reference is made to your request for a U.S. Army Corps of Engineers' (Corps) jurisdictional determination on project site located in multiple sections, townships, and ranges, Lafourche Parish, Louisiana (enclosed map). Specifically, this project site is identified as the proposed 1074.2 acre Sucre Brut South Tract Mitigation Bank.

Based on review of recent maps, aerial photography, soils data, and the information provided with your request, we have determined that part of the property contains wetlands and non-wetland waters that may be subject to Corps jurisdiction. The approximate limits of the wetlands and non-wetland waters are designated in red and blue, respectively, on the map. A Department of the Army (DA) permit under Section 404 of the Clean Water Act will be required prior to the deposition or redistribution of dredged or fill material into waters of the U.S., including wetlands. Additionally, portions of the wetlands and non-wetland waters may be subject to Section 10 of the Rivers and Harbors Act (RHA). A DA permit will be required prior to any work in waters subject to Section 10 of the RHA.

This jurisdictional determination has been conducted to identify the limits of the Corps' Clean Water Act jurisdiction for the particular site identified in your request. This jurisdictional determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If the property owner or tenant is a USDA farm participant, or anticipates participation in USDA programs, contact the local office of the Natural Resources Conservation Service prior to starting work.

Please be advised that this property is in the Louisiana Coastal Zone and a Coastal Use Permit may be required prior to initiation of any activities on this site. For additional information, contact Ms. Christine Charrier, Office of Coastal Management, Louisiana Department of Natural Resources at (225) 342-7953.

You and your client are advised that this preliminary jurisdictional determination is valid for a period of 5 years from the date of this letter unless new information warrants revision prior to the expiration date. Additionally, this determination is valid for the identified proposed project only and is not to be used in decision-making for any other project.

Should there be any questions concerning these matters, please contact Mr. Brad Guarisco at (504) 862-2274 and reference our Account No. MVN-2018-01508-SB. If you have specific questions regarding the permit process or permit applications, please contact our Central Evaluation Section at (504) 862-2261.

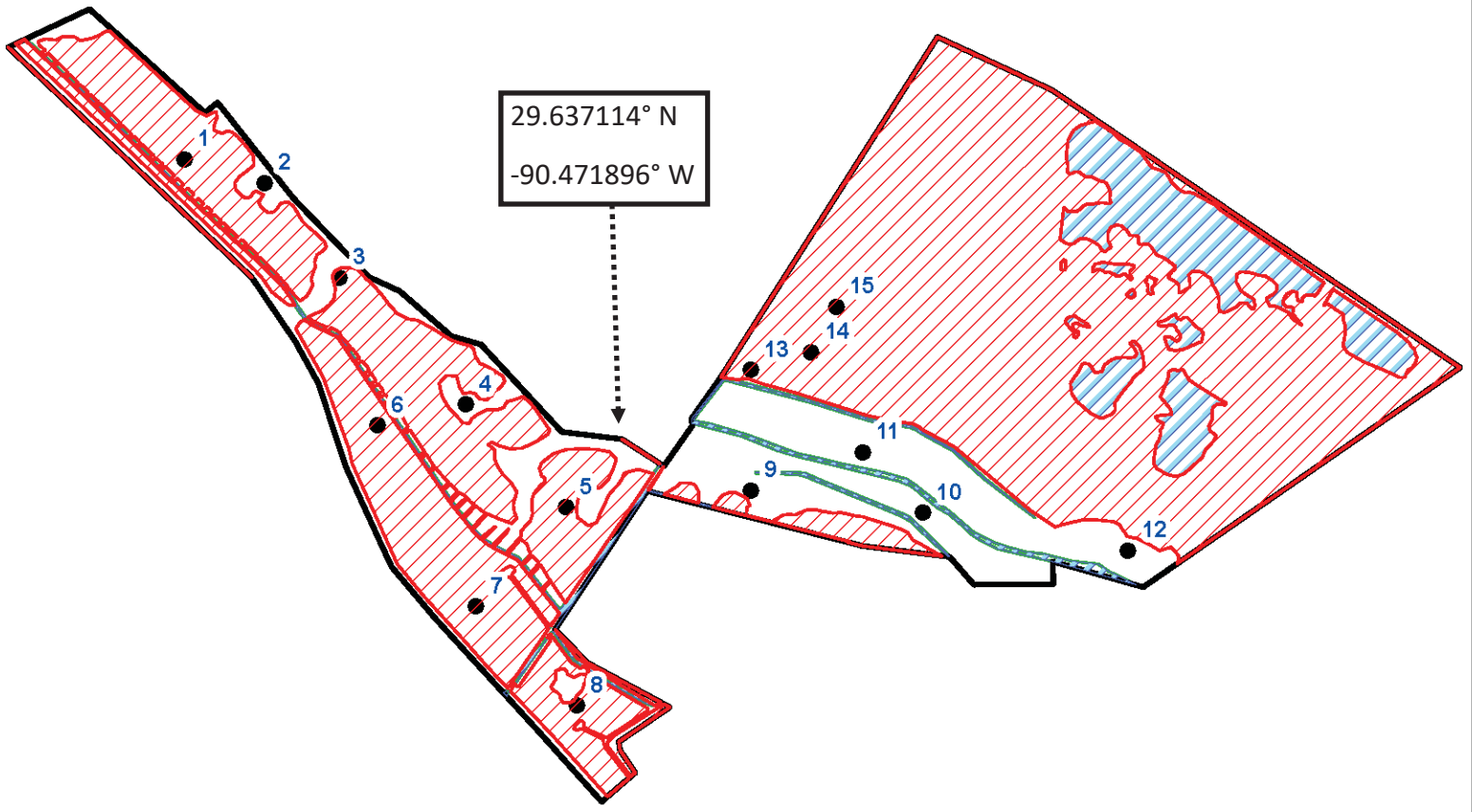
Sincerely,

GUARISCO.BRAD.AN
THONY.1376421941

Digitally signed by
GUARISCO.BRAD.ANTHONY.1376421941
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI,
ou=USA,
cn=GUARISCO.BRAD.ANTHONY.1376421941
Date: 2018.12.07 15:25:12 -06'00'

for Martin S. Mayer
Chief, Regulatory Branch

Enclosures

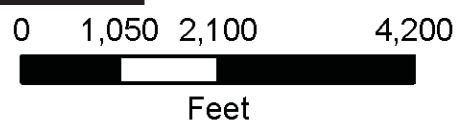


29.637114° N
-90.471896° W

U.S. ARMY CORPS OF ENGINEERS
PRELIMINARY
JURISDICTIONAL DETERMINATION

USACE IH 12/7/2018
By: BRAD GUARISCO
For: JARREAU
(MVN-2018-01508-SB)

- = WETLAND (10 and/or 404 only)
- = WATERS OF THE U.S. (10 and/or 404 only)



● Data Collection Site

Sucre Brut South Tract	
DELINEATION MAP	
Lafourche Parish, LA	
Created : TSC/ARCVIEW	
Approved : JMJ	
Date : 06/04/2018	
Map No. : F07_DelineationRev1	
FIGURE 7	

Attachment D: Mitigation Site Photographs



Recently mowed rangeland proposed for wetland rehabilitation (May 23, 2018)



Agricultural fields proposed for wetland re-establishment (May 23, 2018)



Bottomland hardwood habitat in the proposed wetland preservation area (May 23, 2018)



Swamp habitat in the proposed wetland preservation area (May 23, 2018)



Typical drainage features currently used for water management (May 23, 2018)



Typical drainage features currently used for water management (May 23, 2018)

Attachment E: Preliminary LRAM

LOUISIANA WETLAND RAPID ASSESSMENT METHOD (LRAM) 2.0

CEMVN Acct # **MVN-2018-01508**
 Acres Mitigation **170.4**
 Watershed Basin **Barataria**

Bank Name
Sucre Brut Coastal Mitigation Bank-BLH

		Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8
Mitigation Factors	Mitigation Type	Re-Est	Preser	Preser	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		6.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0
	Management	None	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Negative Influences	High	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Size	>500	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Buffer / Upland	Restored	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Sum:	5.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0
	Area:	119.0	2.6	48.8					
	Sum x Area Affected:	595.0	1.0	19.5	0.0	0.0	0.0	0.0	0.0

Σ Mitigation: 615.6
 Mitigation Potential: 3.6

COMMENTS

Mitigation Type	Area 1: BLH Re-establishment in 407.8-acre south area; Area 2: BLH Preservation in south area; Area 3: BLH Preservation in north area (Total project preservation [160.4 ac] is 49.2% of total project restoration/enhancement [326 ac])
Management	
Negative Influences	Pipelines and future Morganza to Gulf Lockport to Larose Reach
Size	31.9 acres for federally authorized Morganza to Gulf Larose to Lockport Levee Reach (345-foot corridor); 407.8 acres south of levee system; 157.8 acres (preservation) north of future levee system.
Buffer/Upland	11.8 acres of forested upland restoration

LOUISIANA WETLAND RAPID ASSESSMENT METHOD (LRAM) 2.0

CEMVN Acct # **MVN-2018-01508**
 Acres Mitigation **316.0**
 Watershed Basin **Barataria**

Bank Name
Sucre Brut Coastal Mitigation Bank-SWAMP

		Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8
Mitigation Factors	Mitigation Type	Rehab	Preser	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		5.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
	Management	None	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Negative Influences	High	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Size	>500	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Buffer / Upland	Restored	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here	Pick Here
		0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Sum:	4.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
	Area:	207.0	109.0						
	Sum x Area Affected:	828.0	43.6	0.0	0.0	0.0	0.0	0.0	0.0

Σ Mitigation: 871.6
 Mitigation Potential: 2.8

COMMENTS

Mitigation Type	Area 1: Swamp Rehab in 407.8-acre south area; Area 2: Swamp Preservation in north area (Total project preservation [160.4 ac] is 49.2% of total project restoration/enhancement [326 ac])
Management	
Negative Influences	
Size	31.9 acres for federally authorized Morganza to Gulf Larose to Lockport Levee Reach (345-foot corridor); 407.8 acres south of levee system; 157.8 acres (preservation) north of future levee system.
Buffer/Upland	11.8 acres of forested upland restoration