

**PERMITTEE RESPONSIBLE MITIGATION PLAN**

**FOR**

**THE CITY OF PORT ARANSAS OUTFALL PROJECT**

**IN**

**NUECES COUNTY, TEXAS**

**PREPARED FOR**

**THE CITY OF PORT ARANSAS, TEXAS**



**FEBRUARY 20, 2023**

**PREPARED BY**

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## 1.0 Introduction

The City of Port Aransas (COPA), Texas (Permittee) presents this Permittee Responsible Mitigation Plan (PRMP) to compensate for the proposed wetland impacts associated with the construction of COPA Storm Water Outfall in South Corpus Christi Bay Watershed (Hydrologic Unit Code [HUC] 12110202<sup>1</sup> (**Appendix A, Figure 1**). The Permittee Responsible Mitigation Area (PRMA) is within the North Corpus Christi Bay Watershed (HUC 12110201). The wetland impact and mitigation areas are in the United States Army Corps of Engineers (USACE), Galveston District (CESWG). This PRMP is prepared in accordance with the Compensatory Mitigation for Losses of Aquatic Resources (33 CFR § 332.1<sup>2</sup>).

Approximately 0.5 acre of estuary and marsh habitats (estuary [EM] and palustrine [PEM]) will be converted to a drainage-way and water control structure (box culvert). The impacts consist of 0.30 acre of wetland excavation and 0.27 acre of wetland loss. The PRMA will offset the wetland impacts at a ratio of 1.75:1.0 (1.0 mitigation acre to 0.57 impact acre with marsh restoration by planting smooth cordgrass (*Spartina alterniflora* [NRCS 2020<sup>b</sup>], **Appendix A, Figure 2**). The PRMA will be plug planted with smooth cordgrass for plant community rehabilitation. To protect the PRMA plant community from damage caused by off-road vehicle trespass (trespass), bollards will be installed at approximately 30-foot intervals along the boundary line. Site selection criteria are discussed below in **Section 5.0**, and credit determination is discussed in **Section 8.0**.

Delta Land Services LLC (DLS), acting as the mitigation services agent and provider (mitigation provider) for the Permittee, will be responsible for implementing, monitoring, and meeting the performance standards for construction and establishment of the PRMA through Year 5. Upon meeting the long-term performance goals in Year 5, the Long-term Steward will be the Coastal Bend Bays & Estuary Program (CBBEP; Program) as described in 33 CFR § 332.7 (d)(1)<sup>2</sup>. The PRMP will restore<sup>3</sup> (i.e., rehabilitation<sup>4</sup>) and protect 1.0 acre of EM from trespass.

### 1.1 Mitigation Property Location

The PRMA is located approximately 1.2 miles southwest of Portland, Texas and approximately 1.0 mile south-southwest of the intersection of SH 35/US 181 with Moore Road in Portland (**Appendix A, Figure 3**). The approximate center of the mitigation tract is latitude 27.865966° and longitude -97.341019° West (North American Datum of 1983 [NAD83]). The PRMA is within

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<sup>1</sup> U.S. Geological Survey [USGS] (2019) Science in Your Watershed; 12110202 – South Corpus Christi Bay <https://water.usgs.gov/wsc/>. Accessed January 30, 2023.

<sup>2</sup> Code of Federal Regulation. Title 33 § 332. <https://www.ecfr.gov/current/title-33/chapter-II/part-332?toc=1>

<sup>3</sup> Restoration is defined in 33 CFR § 332.2 as *the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.*

<sup>4</sup> Rehabilitated is defined in 33 CFR § 332.2 as *the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function but does not result in a gain in aquatic resource area.*

HUC 12110201), within the Western Gulf Coastal Plain Level III Ecoregion (Omernik 1995), and the confluence of the Nueces River, Nueces Bay, and Corpus Christi Bay.

## **1.2 Property Ownership**

The property on which the proposed prairie PRMA is owned by CBBEP. The PRMA will become part of the CBBEP's existing 5,800-acre Nueces Delta Preserve. The Cordgrass PRMA is a portion of shoreline along SH 35/US 181 that is owned / managed by the CBBEP.

## **1.3 Responsible Party Qualifications**

DLS is a qualified, wetland mitigation provider. DLS is a land management and restoration company whose technical staff includes Professional Wetland Scientists, Certified Ecological Restoration Practitioners, Certified Foresters, and Certified Wildlife Biologists. In addition, DLS has construction specialists experienced in wetland construction activities such as heavy equipment operation, vegetation establishment, herbicide application, and contractor management.

DLS currently operates 27 approved wetland mitigation banks and 6 approved amendments within four USACE Districts totaling 19,233.9 acres which include 46,123.9 linear feet of stream restoration. These Districts include Vicksburg (MVK), New Orleans (MVN), Fort Worth (SWF), and SWG. In addition to the banks referenced above, DLS serves as the responsible party for the establishment and maintenance of 3,615.6 acres of wetlands and 8,251.0 linear feet of stream on 38 approved Permittee-Responsible Mitigation areas within the MVN, MVK and SWG.

## **1.4 Mitigation Property Perimeter Coordinates**

Beginning at a point in the most northern corner and then clockwise, the PRMA perimeter is defined by the listed decimal degrees coordinates (**Table 1**).

**Table 1. PRMA Coordinates Beginning at the most Northern Corner.**

<b>Latitude</b>	<b>Longitude</b>
27.866370	-97.340943
27.865966	-97.340565
27.865562	-97.341104
27.865985	-97.341474

## **1.5 Recorded Liens, Encumbrances, Easements, Servitudes or Restrictions**

Currently, there is one AEP powerline easement on the property; the easement will be restored and protected. Any future maintenance on the easement would have to be conducted with low weight equipment and disturbances (if any) restored. The property is owned, managed, and protected by the CBBEP. Once the long-term performance standards are met, the CBBEP as the Owner and Long-term Steward will provide perpetual protection and maintenance for the PRMA as a part of its on-going activities associated with CBBEP's conservation goals.

## 2.0 Goal and Objectives

The PRMA will increase wetland function within the coastal bend region. At the ratio of 1.75 to 1.0, the goal is to restore 1.0 acre of smooth cordgrass (EM) mitigation for 0.57 acre of unavoidable PEM /EM conversion impacts. The PRMA will include the installation of bollards to prevent unauthorized vehicle access to restore and protect PEM habitat.

Within the North Corpus Christi Bay Watershed, the goals of the PRMA are as follows:

1. install bollards to protect the 1.0-acre PRMA;
2. rehabilitate 1.0 acre of smooth cordgrass habitat through marsh plantings and trespass protection; and
3. the long-term protection of 1.0 acre of estuarine tidal habitat in North Corpus Christi Bay.

## 3.0 Aquatic Resource Type and Potential Functions

The PRMA will offset impacts to aquatic resources associated with the proposed Project impacts described in **Section 1.0**. The following are functions associated with a wetland located in the geomorphic position of the PRMA:

- Physical - Temporary Storage and Detention of Surface Water (TSDS): the PRMA will provide temporary water storage during rainfall and flooding events, plant community structure for intertidal / benthic organisms, and stabilize the coastline from wave action and storm surge.
- Biological - Maintenance of Plant and Animal Communities (MPAC): the PRMA will provide autotrophic and plant biomass production (detritus) will support a diverse array of animal assemblages (e.g., migratory birds, benthic organisms, and estuarine detritivores (see **Section 4**).
- Chemical - Removal and Sequestration of Elements and Compounds (RSEC): the PRMA will assist with the sequestration of nutrients and other pollutants washed into Bay ecosystem during rainfall events and tropical storm flooding. The rehabilitated smooth cordgrass community will increase the nutrient exchange capacity as the community matures and provides additional nutrient uptake by plant and animal communities.

## 4.0 Watershed and Ecological Contributions

The Nueces Delta and Corpus Christi Bay estuary have experienced changes in water use (i.e., residential / industrial drainage and upstream water storage [Lake Corpus Christi and Choke Canyon Reservoirs]). Agricultural use, industrial development, and residential growth adjacent to the Corpus Christi Bay Complex have negatively affected the productivity of coastal marshes and estuaries (Montagna et al. 2011). Within five years of initial rehabilitation, the PRMA will be a functional portion of the Corpus Christi Bay ecosystem within the Nueces Estuary Ecosystem

Management Initiative and under long-term stewardship of the CBBEP (CBBEP 2014; Montagna et al. 2011). PRMA wetland functions have been limited by the historic use of off-road vehicles and the destruction of the perennial ecosystem.

The PRMA is adjacent to SH 35/US 181 and has been subject to trespass accessing the site from the frontage road. This vehicle disturbance has created bare soil and prohibited vegetation from establishing on-site. Installing bollards to prevent vehicle access and then establishing a vegetative community will allow the site to recover and stabilize soil onsite which will reduce erosion and add stability to the shoreline adjacent to the highway.

## 5.0 Site Selection

The PRMA is within property owned by the CBBEP along the north boundary of SH 35/US 181 (highway). The PRMA experiences diurnal and storm tidal exchange from Corpus Christi Bay and primarily consists of exposed soil, which is attributed to the high-level of disturbance from off-road vehicles accessing the site from the adjacent frontage road and highway. Installing bollards will restrict vehicle access and allow smooth cordgrass plant community rehabilitation. Installing the bollards and re-establishing vegetation would stabilize the soils and aid in the prevention of soil erosion. The area has become more inundated with tidal waters over the last 25 years and is transitioning from a tidal flat to a marsh, making vegetation plantings appropriate for this portion along US 181. While this PRMA is not located in the same watershed as the project impacts, this site is suitable provided the lack of mitigation land in HUC 12110202, and the North Corpus Christi Bay Watershed regularly has tidal interchange with the Aransas Bay Watershed. In addition, PRMA location will impede off-road vehicular traffic along the northwest shoreline (shoreline) of the highway.

## 6.0 Site Protection

As a part of the Nueces Delta Preserve and PRMA long-term stewardship provided by the CBBEP, the PRMA will be managed and protected through the filing a deed restriction insuring perpetual, conservation protection. CBBEP will file the deed restriction with the San Patricio County Clerk of Court (**Appendix B**).

## 7.0 Baseline Information

The PRMA is mapped as less than or equal to 2.0-feet NAVD (**Appendix A, Figure 4**) and as Estuarine Intertidal Unconsolidated Shore (E2USP [USFWS 2023]; **Appendix A, Figure 5**). The PRMA is influenced by the tidal ebb and flood of the Nueces Bay tidal regime (**Appendix A, Figure 6**). The site exhibits wetland hydrology, hydric soils, and sparse hydrophytic vegetation. Hydrophytic cover is limited by off-road vehicle impacts (**Appendix A, Figure 7**).

## **7.1 Land Use**

### **7.1.1 Historical Land Use**

Historically, the PRMA and adjacent EM habitat was tidal marsh, which was impacted / disturbed during the construction of SH 35/US 181. Since highway construction, trespass has severely impacted the EM habitat, which negatively affects habitat and wetland functions.

### **7.1.2 Current Land Use**

Since construction of SH 35/US 181, the PRMA continues to be severely impacted by trespass. The ecological functions of the PRMA have been diminished and restricted vegetation growth.

## **7.2 Soils**

The PRMA is mapped with Dianola (Ds) soils, which are typical soils of tidal flat areas [NRCS 2020<sup>a</sup>, [Appendix A, Figure 8]]. Dianola has a 100% hydric rating, a 0-1% slope, and is frequently ponded.

## **7.3 Hydrology**

The primary influences of hydrology are geomorphic location, rainfall, diurnal tides, and tropical storm surges. Current rainfall data from the WETS Table website indicates an average annual rainfall of 35.5 inches (NRCS 2020<sup>c</sup>). Due to the geomorphic position and tidal influence, site hydrology will sustain wetland restoration. The elevation relative to sea level provides for a near constant water table within 12 inches of the soil surface. The most common primary indicators were Surface Water (A1), Saturation (A3), and High-Water Table (A2).

## **7.4 Vegetation**

### **7.4.1 Historical Plant Community**

Prior to the construction of SH 35/US 181, the PRMA and adjacent habitats likely consisted of tidal marsh habitat. Since highway construction and persistent trespass, the area transitioned into sparsely vegetated mud and sand flat habitats.

### **7.4.2 Existing Plant Community**

The majority of the PRMA is denuded or sparsely vegetated due to constant trespass disturbance. Observed plant species consisted of scattered communities of smooth cordgrass (*Spartina alterniflora*), saltwort (*Batis maritima*), and woody glasswort (*Salicornia bigelovii*).

## **8.0 Determination of Compensatory Mitigation Requirement**

Mitigation for the PEM and EM impacts was determined using a ratio of 1.75 to 1.0. At this ratio, 1.0 acre of mitigation will be required for 0.57 impact acre.



The determination of compensation was based on a variety of factors described below.

- The method of restoration is the rehabilitation of a degraded tidal water emergent habitat (EM).
- The functions lost at the impact site consist of EM and PEM conversion to drainage structures (i.e., ditching and water control structure). The majority of the functions lost consist of a man-made feature (low quality).
- Restoration will begin as soon as practicable after permit issuance and prior to work within jurisdictional wetlands. The restoration will conclude within 15 months of permit issuance. Temporal loss will be negligible.
- The restoration will be routine in nature and has been successful on tidal areas throughout the region.
- The distance between the impact site and restoration site is relatively close (15 miles) and both the impact and restoration are located within Corpus Christi Bay.

## 9.0 Mitigation Work Plan

The timeline for the PRMA construction will be determined by the approval of this mitigation plan, bollard construction will occur during a dry period to reduce soil and plant community disturbance. Planting will occur in the cooler months to increase survival rates. Construction timing will be primarily based on what is best for the resource.

### *Reference Wetland*

The reference site provides a target EM and salt flat community to restore the PRMA during the short, interim, and long-term phases. The reference site is near the PRMA, which has similar environmental conditions and plant community (**Appendix A, Figure 2**). The plant community was dominated by smooth cordgrass, saltwort, and woody glasswort. Wetland hydrology is sustained by rainfall, diurnal tides, and storm surges. The soils are 100% hydric (Dianola [Ds]).

### 9.1 Hydrology Restoration

Under the annual and seasonal environmental conditions (e.g., seasonal rainfall, diurnal tidal ebb and flood, and storm surge inundation), wetland hydrology will be self-sustaining for rehabilitating the EM community and juxtaposed disturbed estuarine habitat. Installation of wooden bollards will restrict trespass for improving the soil hydrology, restoring the sand flat surface, and rehabilitating the overall plant community health.

### 9.2 Restoration of Plant Community

The plant community will be rehabilitated by planting smooth cordgrass plugs at approximately 5-foot x 5-foot intervals during the early growing season (1,742 plants per acre). The plants will be obtained from Corpus Christi Bay system on CBBEP property. In addition to planting, the

cessation of trespassing will begin the process of natural community restoration through native plant germination and rhizome / stolon tillering.

### **9.3 Restoration/Construction Sequencing/Timing**

Construction (transplanting and bollard installation) will begin following issuance of the Department of the Army Permit. Plant community restoration (sprig harvesting and transplanting) will occur during the cool months (November – March). The bollards will be installed during the warmer, drier season to reduce habitat and soil disturbance. All restoration will be completed within 15 months of permit issuance.

## **10.0 Maintenance Plan**

### **10.1 General**

Once construction is completed, general maintenance will consist of periodic and annual monitoring to document plant community success and trespass control. Monitoring of performance standards will be completed for the As-built report, and Years 1, 3, and 5 monitoring reports. In the event there is a transplant failure (< 50% survival), smooth cordgrass will be replanted in those low survival areas. Additional maintenance will consist of invasive species control and bollard maintenance.

Through a contractual agreement with the Permittee, DLS will annually monitor and report the PRMA conditions from the as-built through Year 5 performance monitoring. Upon meeting the long-term performance standards (Year 5), the PRMA will be managed and maintained by the guidelines of the long-term management plan by the Long-term Steward (CBBEP).

### **10.3 Wetland Maintenance**

To gather rainfall information, DLS will utilize seasonal and annual rainfall amounts collected by the National Weather Center at the Corpus Christi International Airport<sup>5</sup>. This information will be reported in the annual and performance monitoring reports. Estuarine hydrology is a natural function of the low-lying deltaic location (geomorphic location), rainfall, diurnal tides, and storm surges. Upon the attainment of 50% cordgrass, including other native, facultative species, long-term management will consist of maintenance of the bollards to ensure that vehicular access is restricted.

## **11.0 Performance Standards**

### **11.1 Initial Success Criteria (Year 1)**

#### **11.1.1 Hydrology**

To verify the presence and persistence of a wetland hydrology, hydrology observations will be

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<sup>5</sup> National Weather Service Corpus Christi International Airport, Texas. <http://climod2.nrcc.cornell.edu/>

recorded on routine wetland determination data forms (USACE 2010) and submitted to the SWG in the monitoring report.

### **11.1.2 Vegetation**

By the end of Year 1, one full growing season after planting, there will be an average of 20% aerial cover of FAC (facultative) or wetter species. Plant species included in the total cover will not include invasive/exotic vegetation species listed by the Texas Department of Agriculture Noxious and Invasive Plant List (Title 4, Part 1, Chapter 19, Subchapter T, §19.300 of the Texas Administrative Code [TDA 2007]). Observations of vegetation will be recorded on routine wetland determination data forms and submitted to the SWG in the monitoring reports.

### **11.1.3 Soils**

The Dianola (Ds) soils are 100% hydric, estuarine, and influenced by rainfall, tidal ebb and flood, storm surges. The soils will be monitored for disturbance only.

## **11.2 Interim Success Criteria (Year 3)**

### **11.2.1 Hydrology**

To verify the presence of a wetland hydrology, hydrology observations will be recorded on routine wetland determination data forms and submitted in the monitoring report to the SWG. The PRMA will be delineated, in accordance with the 1987 Manual (USACE 1987) and the Regional Supplement for the Atlantic and Gulf Coastal Plain (USACE 2010).

### **11.2.2 Vegetation**

By the end of Year 3, two full growing seasons after planting, there will be an average of 40% aerial cover of FAC or wetter species within the PRMA. Plant species included in the total cover will not include invasive/exotic vegetation species listed by the TDA (2007). Observations of vegetation will be recorded on routine wetland determination data forms (USACE 2010) and submitted to the SWG in the monitoring reports.

### **11.2.3 Soils**

The Dianola (Ds) soils are 100% hydric, estuarine, and influenced by rainfall, tidal ebb and flood, storm surges. The soils will be monitored for disturbance only.

## **11.3 Long-term Success Criteria (Year 5)**

By the end of Year 5, or five years following planting, the PRMA will be monitored to determine the aerial cover of FAC or wetter species. Vegetative monitoring data must indicate that FAC or wetter species cover is  $\geq 50\%$  within the monitoring plot. At Year 5, a wetland delineation will be conducted to verify the restored wetland area is equivalent to the proposed 1.0 acres of EM habitat.

## 12.0 Monitoring and Reporting Protocols

### 12.1 Monitoring

The Permittee agrees to perform annual and performance standard monitoring to demonstrate compliance following the guidance in **Section 11.0**. For performance standard monitoring, the Permittee will monitor the PRMA for the Year 1 (initial report), Year 3 (interim report), and Year 5 (long-term report), or until achievement of the long-term performance standards. The PRMA will be monitored using the wetland criteria for vegetation, soils, and hydrology as described in the 1987 Wetlands Manual and the Regional Supplement for the Atlantic and Gulf Coastal Plain. Prior to construction, the monitoring plot will be sampled to establish baseline data for the as-built report and then for the initial, interim, and long-term reports. However, if annual or performance standard monitoring for any given year determines that the PRMA is not progressing as expected, monitoring will continue annually until the PRMA successfully meets or exceeds the established performance standards.

One (1) random 1/20<sup>th</sup>-acre, permanent monitoring plot (plot) will be established within the PRMA. Monitoring plot center will be identified and marked with GPS coordinates using Trimble® differential global positioning systems (DGPS). A map depicting the location of the plot and its coordinates will be provided to the SWG in the As-built report.

### 12.2 Reporting Protocols

#### 12.2.1 As-built Report

The as-built report will be submitted to the SWG within 90 days following completion of all the required PRMA construction work. The as-built report will describe in detail the work performed and post construction conditions. No major deviation from the mitigation work plan described in **Section 9.0** may occur without prior approval from the SWG. The as-built report will include a discussion of coordination with the SWG and a description of and reasons for any approved deviation.

#### 12.2.2 Monitoring Reports

The Permittee will submit the annual and performance standard reports to the SWG by December 31<sup>st</sup> of each year monitoring occurs. The monitoring reports will include data sufficient for comparison to the performance standards found in **Section 11.0**. The Year 1, Year 3, and Year 5 monitoring reports will include pertinent information for **Sections 9.0** (Mitigation Work Plan), **10.0** (Maintenance Plan), and **11.0** (Performance Standards). The Permittee will also include a discussion of all activities which took place at the PRMA. At a minimum, monitoring reports will include the following:

- 1) digital images taken from ground level in the monitoring station to document overall conditions;
- 2) a description of the general condition of ground cover;

- 3) a description of vegetative communities developing in the monitoring station;
- 4) a description of the generalized degree and distribution of exotic/invasive species observed within the PRMA;
- 5) the conditions and effectiveness of the bollards;
- 6) health and condition of the planted smooth cordgrass;
- 7) identify measures to eradicate invasive species and document results of these efforts;
- 8) a general discussion of hydrologic conditions within the monitoring station; and
- 9) a description of wildlife usage in the monitoring station, including any herbivory problems if applicable.

### 13.0 Long-term Management Plan

To ensure the long-term sustainability of the PRMA, the Owner will be the CBBEP. In accordance with 33 CFR § 332.7(d)(1), once the long-term performance standards are attained as per **Section 9.0** of this PRMP, the CBBEP will be designated as the Long-term Steward charged with long-term management and maintenance responsibility. The appointment shall be approved by the SWG. Once the long-term performance standards are met, the success of both PRMAs will be self-sustaining and management activities will consist of inspections, invasive woody species control, boundary maintenance, bollard maintenance, and prescribed burning (activities are site dependent). Prescribed burning in the Prairie PRMA is the primary best management practice (BMP) to control woody invasive species and introduced invasive species. In the event, invasive/exotic species become problematic, all prudent efforts (i.e., physical, chemical, or mechanical) will be made to eliminate existing invasive/exotic vegetation species listed by the TDA.

Once the long-term performance standards are achieved, the estimated long-term, average annual maintenance cost (starting at Year 6) for the PRMA is \$1,765.67 (**Appendix C**). To ensure sufficient long-term funding for perpetual maintenance and protection of the PRMAs, the mitigation provider will establish the “Long-term Land Management and Maintenance” (LTMM) endowment in the amount of \$55,533.33; this endowment will be transferred to CBBEP once long-term success is achieved. The LTMM endowment will be funded within 90 days of permit issuance and prior to work within jurisdictional areas.

### 14.0 Adaptive Management Plan

An adaptive management plan for a compensatory mitigation project is generally described as a management strategy to address unforeseen changes in site conditions or other mitigation components of the mitigation project. Adaptive management plans facilitate the decision-making

process for revising mitigation plans and instituting measures to address both foreseeable and unforeseeable circumstances that adversely affect mitigation success. An adaptive management plan, contingencies, and remedial responsibilities will be implemented if the compensatory mitigation project cannot be implemented in accordance with the approved mitigation plan or if monitoring or other information indicates that the compensatory mitigation project is not progressing towards meeting its performance standards as anticipated. If such circumstances arise, the Permittee must notify the CESWG as soon as possible. The notice will include an explanation for the changes or potential deficiency and will outline proposed specific practices and measures that will guide decisions for revising the PRMP if needed.

An adaptive management plan will consist of activities that are not normally performed as general maintenance. As the PRMA matures, the Permittee/DLS will monitor as required to ensure the project is meeting the performance standards. However, as the body of ecological restoration knowledge advances, novel methods may be incorporated to improve the overall project quality. Prior to implementation of a new technique or method, it will first be approved by the CESWG.

If monitoring reveals that initial, interim, or long-term success criteria have not been met or do not continue to be met after initially being satisfied, an adaptive management plan with contingencies and remedial responsibilities will be developed and implemented.

If success criteria for a given monitoring period are not met, the Permittee will evaluate and implement adaptive management actions such as those outlined below. The listed potential management activities are not fully inclusive of suitable corrective measures to address any identified deficiencies at the site and do not consist of general maintenance activities such as routine, invasive species control. The potential deficiencies described below are those most likely to occur on projects of this type and scale. Identification of these potential deficiencies and the timely application of adaptive management strategies is the Permittee's effort to remain in compliance with terms set in the PRMP and work plan. If the activities below are required, the Permittee or its agent may conduct such activities without prior notification to the CESWG; however, the next monitoring report will describe the adaptive management activities that occurred.

- Smooth Cordgrass survival – If during routine monitoring or general observations, plant survival performance standards are not being met, the Permittee will plant additional sprigs/plugs during the next planting season (winter).
- Invasive species - If during routine monitoring or general observations, an invasive species exceeds performance standard thresholds, the Permittee will implement an adaptive management strategy to remove and control the invasive species.

If the CESWG determines that the PRMA is at risk of not achieving the terms and intent of this PRMP, the CESWG will provide written notice to the Permittee that includes a detailed description of the non-compliance determination. The Permittee shall submit a written adaptive management plan to the CESWG for review and approval within forty-five (45) days of receiving written notice of non-compliance. The adaptive management plan shall identify the cause of the non-compliance, the necessary remedial measures, and a timeline for implementing said measures to bring the PRMA

into compliance. Implementation of adaptive management could extend the monitoring beyond 5 years. Monitoring will occur until long-term performance standards have been met and can be maintained. To the extent practicable, the CESWG shall approve or disapprove the adaptive management plan within forty-five (45) days of receipt, provided sufficient information and acceptable measures are contained in the plan.

## **15.0 Construction and Establishment Financial Assurances**

The Permittee will deposit \$49,213.80 in the PRMA escrow account to cover costs associated with Construction and Establishment (C&E; **Appendix C**). With a 5% contingency adjustment to the C & E portions of the account, the deposit for the account is \$22,062.60 and \$27,151.20 for construction and establishment, respectively. The escrow account will be funded prior to or at the time construction begins on the impact site. As milestones are reached, the C & E funds will be released back to the Permittee in accordance with the following release schedule:

Upon submittal of the as-built report construction work has been completed, the C&E Fund may be reduced by the construction portion \$22,062.60 and released to the Permittee's responsible party.

Upon submittal of the Year 1 monitoring report that documents initial success criteria have been attained, the C&E Fund may be reduced by \$4,404.00 and released to the Permittee's responsible party.

Upon submittal of the Year 3 monitoring report that documents interim success criteria have been attained, the C&E Fund may be reduced by \$5,599.00 and released to the Permittee's responsible party.

Upon the Corps written verification that the long-term success criteria have been attained, the remaining funds of the C&E Fund may be released to the Permittee's responsible party.\



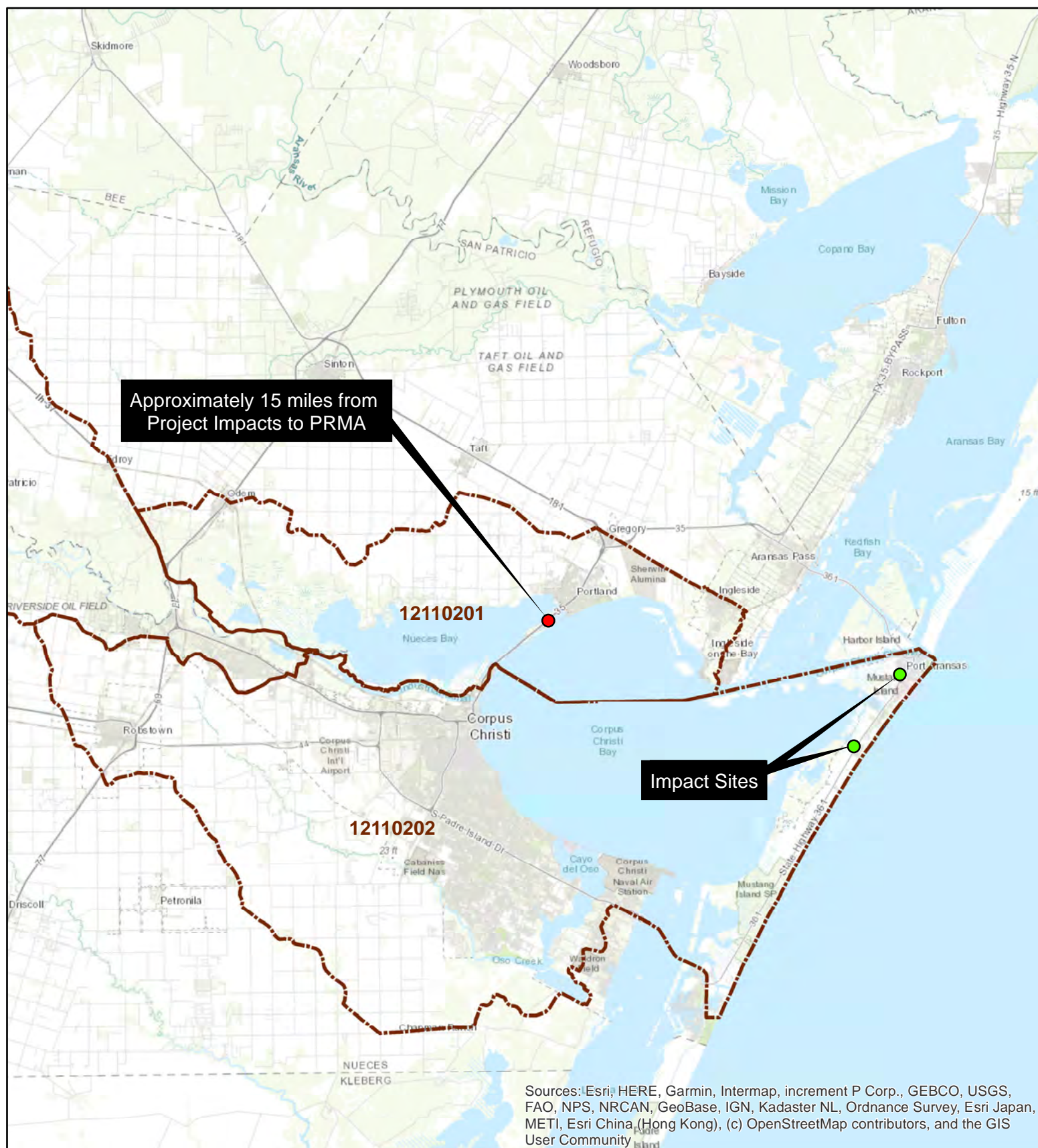
## 16.0 References

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- United States Army Corps of Engineers [USACE] (1987) *Corps of Engineers Wetland Delineation Manual*. USACE Waterways Experiment Station Technical Report Y-87-1.
- United States Army Corps of Engineers [USACE] (2010) *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)*. United States Corps of Engineers Research and Development Center, Vicksburg, MS. ERDC/EL TR-10-20.
- United States Fish and Wildlife Service [USFWS] (2023) *National Wetlands Inventory*. Accessed 01/30/2023. <https://www.fws.gov/wetlands/data/mapper.html>



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## **Appendix A. Figures**



USGS HUCs (12110201, 12110202)



6 3 0 6  
Miles

City of Port Aransas

## VICINITY AND WATERSHED MAP

San Patricio County, TX

Created : TSC/ArcView10.7

Approved : BWD

Date : 2/20/2023





Map # : F01\_Vicinity.mxd



FIGURE 1



**Legend**

-  PRMA (1.0 ac)
-  Reference Site
-  Marsh Rehabilitation (1.0 ac)
-  Bollards



100 50 0 100  
Feet

City of Port Aransas

**WETLAND RESTORATION MAP**

San Patricio County, TX

Created : TSC/ArcView10.7

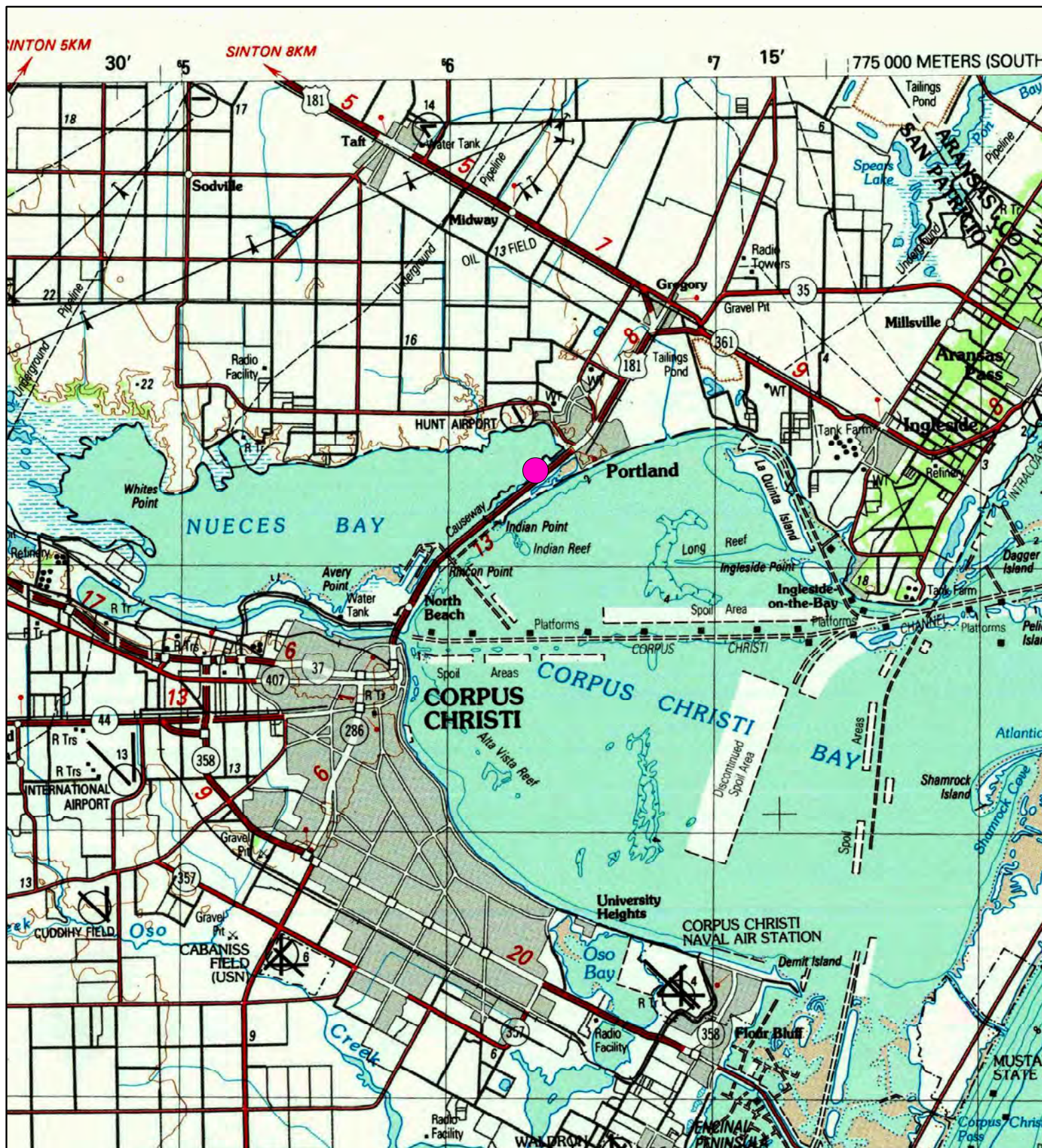
Approved : BWD

Date : 2/13/2023

Map # : F02\_Restoration.mxd

**FIGURE 2**





## Legend

PRMA (1.0 ac)



3 1.5 0 3  
Miles

City of Port Aransas

### USGS 7.5-MINUTE QUADRANGLE

Nueces County, TX

Created : TSC/ArcView10.7

Approved : BWD

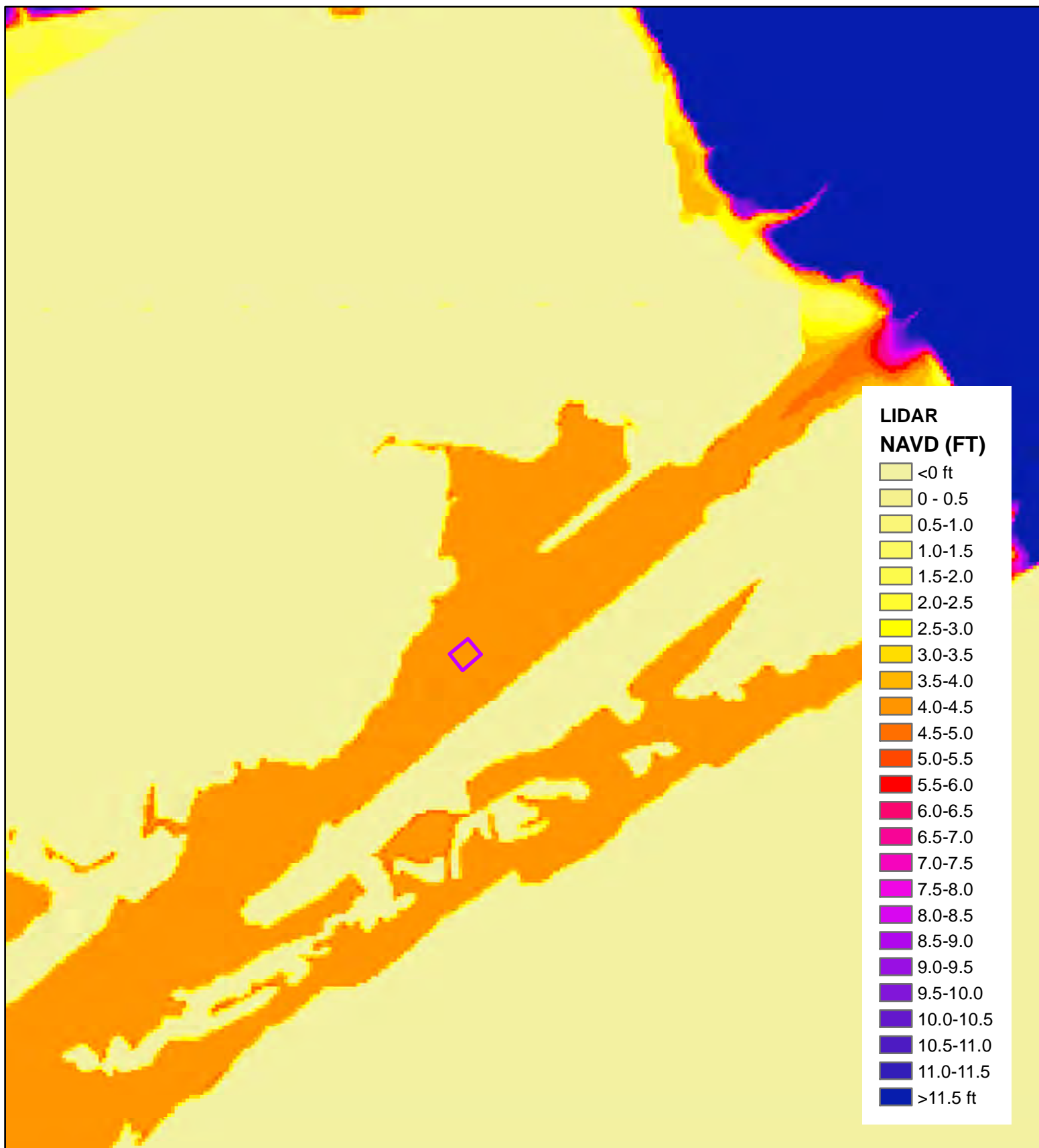
Date : 2/20/2023

Map # : F03\_Quad.mxd

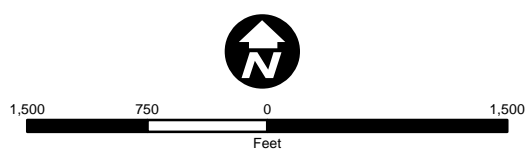


FIGURE 3





**Legend**  
 PRMA (1.0 ac)



City of Port Aransas

**LIDAR MAP**

San Patricio County, TX

Created : TSC/ArcView10.7

Approved : BWD

Date : 2/20/2023

Map # : F03\_Lidar.mxd



**FIGURE 4**



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

# Legend

- National Wetland Inventory
- PRMA (1.0 ac)
- Marsh Rehabilitation (1.0 ac)



City of Port Aransas

## NATIONAL WETLAND INVENTORY MAP

San Patricio County, TX

Created : TSC/ArcView10.7

Approved : BWD

Date : 2/20/2023

Map # : F05\_NW1.mxd



FIGURE 5

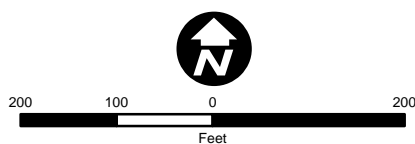




Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**Legend**

- PRMA (1.0 ac)
- Marsh Rehabilitation (1.0 ac)
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland



City of Port Aransas

**AQUATIC RESOURCE MAP**

San Patricio County, TX

Created : TSC/ArcView10.7

Approved : BWD

Date : 2/20/2023

Map # : F06\_AquaticResource.m





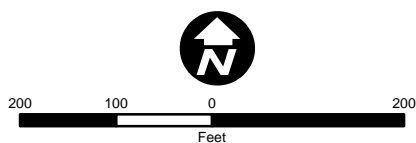
**FIGURE 6**





**Legend**

-  PRMA (1.6 ac)
-  Marsh Rehabilitation (1.0 ac)



City of Port Aransas

**2009 AERIAL PHOTOGRAPH**

San Patricio County, TX

Created : TSC/ArcView10.7

Approved : BWD

Date : 2/20/2023

Map # : F07\_2009Aerial.mxd



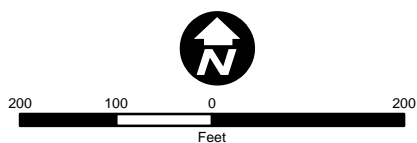
**FIGURE 7**





**Legend**

- PRMA (1.0 ac)
- Marsh Rehabilitation (1.0 ac)
- BT: Barrada-Tatton association
- Ds: Dianola soils
- W: Water



City of Port Aransas

**SSURGO MAP**

San Patricio County, TX

Created : TSC/ArcView10.7

Approved : BWD

Date : 2/20/2023

Map # : F08\_SSURGO.mxd



**FIGURE 8**

Permittee Responsible Mitigation Plan  
SWG-2023-0000  
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## **Appendix B. Draft Deed Restriction**

## **DEED RESTRICTION**

COASTAL BEND BAYS & ESTUARIES PROGRAM, INC. ("Owner") is the owner of the real property more particularly described and shown in Exhibit "A" (hereinafter the "Property") attached hereto and made a part hereof. CITY OF PORT ARANSAS (hereinafter the "Permittee") will utilize the Property to fulfill obligations related to Permittee's Outfall Project stated in Department of the Army Section 404/Section 10 Permit Number **SWG-2023.xxxx**, dated XXX X, 2023, or a revision thereof (hereinafter the "DA Permit Number **SWG-2023-xxxx**"). The approximately 12.0-acre Property is referenced in Permittee's City of Port Aransas Outfall Project Compensatory Mitigation Plan (hereinafter the "Mitigation Plan") - Geographic Boundary Map attached as Attachment A. One of the conditions of DA Permit Number **SWG-2023-xxxx** requires restrictions be placed on the deed for the Property for the purpose of providing compensation for adverse impacts to waters of the United States that occurred due to the Outfall Project. The intent of this Deed Restriction is to assure that the Property will be retained and maintained in perpetuity predominantly in the natural vegetative and hydrologic condition as described in the success criteria of the Mitigation Plan. Activities, which may, in the future, be conducted within the Property that will affect the vegetative and or hydrologic conditions that differ from those outlined in the success criteria of the Mitigation Plan, must be coordinated with and approved by the United States Army Corps of Engineers (USACE), Galveston District, Regulatory Branch, prior to initiation of such activities.

The parties to this agreement include the Owner(s) who by their signature accept the third-party rights of enforcement herein and the parties agree that the Property will be subject to the following conditions:

### **1) Property Description**

**(Permittee)** will provide as Exhibits A-C

- a) A copy of the deed with an accurate legal description or a current survey by a Texas Registered Professional Land Surveyor (RPLS) of the Property.
- b) On-site photographs taken at appropriate locations on the Property including all major natural features; and
- c) A copy of a verified wetland survey map, which delineates all waters of the United States, including wetlands within the Property.

### **2) Term**

These restrictions shall run with the land in perpetuity and be binding on all future owners, heirs, successors, administrators, assigns, lessees, or other occupiers and users. The Owner must file this Deed Restriction of record with the County Clerk of San Patricio County, Texas within 10 days of the date this document is signed and provide a copy of the recorded Deed Restriction to the USACE, Galveston District within 30 days of filing.

### **3) General**

Except for such specific activities as authorized pursuant to DA Permit Number **SWG-2023-xxxxx**, the following activities are prohibited on the Property subject to this Deed Restriction:

(a) There shall be no filling, excavation, mining or alteration of the Property that will affect the success criteria outlined in the Mitigation Plan unless approved in writing in advance by the USACE, Galveston District.

**4) Rights of Access and Entry**

The USACE shall have the right to enter and go upon the Property for purposes of inspection, and to take actions including but not limited to scientific or educational observations and studies, and collection of samples.

**5) Enforcement**

In the event of a breach of the restrictions by the Permittee or Owner, or a third party working with the permission of or under the direction of either, the USACE must be notified immediately. If the USACE becomes aware of a breach of this Deed Restriction, the USACE will notify the Permittee and Owner of the breach. The Permittee and Owner shall have thirty (30) days after receipt of such notice to undertake Adaptive Management activities that are determined by the USACE to correct the conditions constituting the breach. If the Permittee and/or Owner corrects the conditions constituting the breach in a timely and reasonable manner, as determined by the USACE, the issue will be considered resolved. If the Permittee or Owner fails to initiate such corrective action within thirty (30) days or fails to complete the necessary corrective action, the USACE may undertake such actions, including legal proceedings, as are necessary to effect such corrective action. Any forbearance on the part of the USACE to exercise its rights in the event of a breach of the restrictions shall not be deemed or construed to be a waiver of their rights hereunder in the event of any subsequent failure of the Owner to comply. Notwithstanding anything in this document to the contrary, the Government retains any and all enforcement remedies at law pursuant to the Clean Water Act. (Requires maintenance in perpetuity, responsibility for compliance remains perpetual).

**6) Post Monitoring and Maintenance Period**

As provided in DA Permit Number **SWG-20232-xxxxx**, at the conclusion of the mitigation and the 5-year monitoring and maintenance period, the USACE will provide a written verification of success to Permittee, if mitigation is completed to the satisfaction of the USACE. Following the date of receipt of the verification, Permittee will have met its obligations and is therefore released from the requirements of this Deed Restriction and Owner becomes solely responsible for retaining and maintaining the Property in perpetuity predominantly in the natural vegetative and hydrologic condition as described in the success criteria of the Mitigation Plan. Any changes to the Property that differ from those set out in the Mitigation Plan will be brought to the attention of the USACE and coordinated and approved prior to initiation of any changes.

Approved By Property Owner  
Coastal Bend Bays & Estuaries Program, INC.

By: \_\_\_\_\_  
Signature

Date \_\_\_\_\_

\_\_\_\_\_  
President

Approved By Permittee  
City of Port Aransas

By: \_\_\_\_\_  
Signature

Date \_\_\_\_\_

\_\_\_\_\_  
Title

STATE OF TEXAS

COUNTY OF SAN PATRICIO

This instrument was acknowledged before me on \_\_\_\_\_,  
2022, by ROBERT B. WALLACE, JR., the President of COASTAL BEND BAYS &  
ESTUARIES PROGRAM, INC., a Texas non-profit corporation, on behalf of such corporation.

\_\_\_\_\_  
Notary Public, State of Texas

STATE OF TEXAS

COUNTY OF NUECES

This instrument was acknowledged before me on \_\_\_\_\_,  
2022, by \_\_\_\_\_, the \_\_\_\_\_ of City of Port Aransas, a  
\_\_\_\_\_, on behalf of such \_\_\_\_\_.

\_\_\_\_\_  
Notary Public, State of Texas

EXIBIT A--C

Exhibit A) Survey and Property Description

Exhibit B) Site Photographs

Exhibit C) Copy of a wetland map

Permittee Responsible Mitigation Plan  
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## **Appendix C. Construction, Establishment, and Long-term Funding**



**Costs Analysis**  
**SWG-2023-XXXXX**

Item	Units	Unit Values	Price Per Unit	Total Cost
Inspections (rate and per diem)	Day	1.5	\$ 1,000.00	\$ 1,500.00
Bollard Installation	Feet	1,056	\$ 2.50	\$ 2,640.00
Smooth cordgrass plugs (5'x5')	plugs	1743.0	\$ 4.00	\$ 6,972.00
Smooth cordgrass acreage	Acres	1.0	NA	NA
Total smooth cordgrass transplanting cost	plugs	-	NA	\$ 6,972.00
Mitigation Acreage	Acre	1.0		

**Construction Cost  
SWG 2023-XXXX**

<b>Item</b>	<b>Units</b>	<b>Unit Values</b>	<b>Price Per Unit</b>	<b>Percent</b>	<b>Cost</b>
Smooth cordgrass planting 1.0 acres	Total	1743.0	\$ 4.00	100%	\$ 6,972.00
Bollard Installation	Units	156.0	\$ 90.00	100%	\$ 14,040.00
<b>Subtotal</b>					<b>\$ 21,012.00</b>
<b>Construction Cost with 5% Contingency</b>					<b>\$ 22,062.60</b>

**Establishment Cost  
SWG 2023-XXXX**

<b>Year</b>	<b>Event</b>	<b>Event Cost</b>	<b>Occurence Per Year</b>	<b>Percent</b>	<b>Cost</b>	<b>Percent of Cost</b>	<b>Release Milestone</b>
1	Monitoring/ Inspection	\$ 1,500.00	1	100.0%	\$ 1,500.00		
1	Smooth Cordgrass replanting	\$ 6,972.00	1	10.0%	\$ 697.20		
1	Bollard Maintenance	\$ 14,040.00	1	15.0%	\$ 2,106.00		
<b>1</b>	<b>Subtotal</b>	<b>\$ 22,512.00</b>			<b>\$ 4,303.20</b>	<b>15.8%</b>	<b>\$ 22,848.00</b>
2	Monitoring/ Inspection	\$ 1,500.00	1	100.0%	\$ 1,500.00		
<b>2</b>	<b>Subtotal</b>	<b>\$ 1,500.00</b>			<b>\$ 1,500.00</b>	<b>5.5%</b>	
3	Monitoring/ Inspection	\$ 1,500.00	1	100.0%	\$ 1,500.00		
3	Bollard Maintenance	\$ 14,040.00	1	10.0%	\$ 1,404.00		
<b>3</b>	<b>Subtotal</b>	<b>\$ 15,540.00</b>			<b>\$ 2,904.00</b>	<b>10.7%</b>	<b>\$ 18,444.00</b>
4	Monitoring/ Inspection	\$ 1,500.00	1	100.0%	\$ 1,500.00		
<b>4</b>	<b>Subtotal</b>	<b>\$ 1,500.00</b>			<b>\$ 2,904.00</b>	<b>10.7%</b>	
5	Monitoring/ Inspection	\$ 1,500.00	1	100.0%	\$ 1,500.00		
5	Bollard Maintenance	\$ 14,040.00	1	100.0%	\$ 14,040.00		<b>Long-term Success Minimum Account Balance of</b>
<b>5</b>	<b>Subtotal</b>	<b>\$ 15,540.00</b>			<b>\$ 15,540.00</b>	<b>57.2%</b>	<b>\$ 18,444.00</b>
					<b>\$ 27,151.20</b>	<b>100.0%</b>	<b>\$ 27,151.20</b>
	<b>Total escrow amount for construction and establishment</b>	<b>\$49,213.80</b>					
	<b>Total escrow funds remaining after the construction funds are released</b>	<b>\$27,151.20</b>					

## Long-Term Annualized Cost Summary

### SWG-2023-XXXX

[illegible]