A PHASE I CULTURAL RESOURCES SURVEY OF THE CHARLIE'S PASTURE MARINA PROJECT, NUECES COUNTY, TEXAS

Prepared for

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ABSTRACT

Perennial Environmental Services, LLC (Perennial), on behalf of the City of Port Aransas (City), conducted an intensive Phase I cultural resources survey for the Charlie's Pasture Marina Project (Project) located on Mustang Island in Nueces County, Texas approximately 1.0-mile (mi) (1.6 kilometer [km]) west of Port Aransas. Within the Project, the City plans to construct an approximately 16-acre (6.5-hectare [ha]) marina, which would include the excavation of an approximate 170.0-foot- (ft-) (51.8-meter- [m-]) wide channel entrance that would extend approximately 650.0 ft (198.0 m) from the shore into the Corpus Christi Channel. Commercial development is also planned for the upland areas surrounding the marina. The entire Project is located within the jurisdictional boundary of the United States Army Corps of Engineers (USACE) Galveston District, and the cultural resources investigations were conducted under Texas Antiquities Permit No. 8611.

In a letter dated September 17, 2018, the USACE requested that archaeological surveys be conducted prior to modifying/extending existing permit SWG-2000-02968 to ensure compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (36 CFR 800). As the Project is located on publicly-owned land, and sponsored by the City, the Project also falls under the jurisdiction of the Antiquities Code of Texas (Code). In accordance with Section 106 of the NHPA and the Code, the proposed Project must make a reasonable and good faith effort to identify historic properties within the Area of Potential Effects (APE) and to take into account any potential effects, direct or indirect, the proposed undertaking could have on properties listed or considered eligible for listing in the National Register of Historic Places (NRHP) and evaluate their significance and eligibility for designation as a State Antiquities Landmark (SAL). While construction related activities will be limited to an approximate 56.39-acre (22.8 ha) area, the APE for the Project includes the entire property limits totaling approximately 69.0 acres (ac) (28.0 ha). Depths of impact for the channel entrance will average -11.0 ft (-3.35 m) mean lower low water (MLLW), while the marina will average approximately -10.0 ft (3.0 m) MLLW.

Jennifer Cochran served as the Principal Investigator (PI) for the Project, and field investigations were conducted by Perennial Staff Archaeologist, Sarah Boudreaux. Perennial conducted and completed the intensive Phase I cultural resources survey for the Project on October 31, 2018. Survey efforts included intensive pedestrian surveys augmented by strategic shovel testing in non-inundated, undisturbed, less than 30-degree slope, and low visibility areas. The survey efforts have been designed to meet standards in accordance with Section 106 of the NHPA, the Code, and the Texas Historical Commission (THC).

No cultural resources were encountered as a result of the survey efforts either on the surface or within the 15 shovel tests excavated across the APE. Based on results from the survey effort, no intact, significant cultural resources will be affected by any construction activities within the Project APE. In accordance with Section 106 of the NHPA (36 CFR 800) and the Code, and the guidelines set forth by the THC, it is Perennial's opinion that no further cultural resources investigations are warranted for the terrestrial portion of the proposed Project.

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INTRODUCTION

Perennial Environmental Services, LLC (Perennial), on behalf of the City of Port Aransas (City), conducted an intensive Phase I cultural resources survey for the Charlie's Pasture Marina Project (Project) located on Mustang Island in Nueces County, Texas approximately 1.0-mile (mi) (1.6 kilometer [km]) west of Port Aransas (**Figure 1**). Within the Project, the City plans to construct an approximately 16-acre (6.5 hectares [ha]) marina, which would include the excavation of an approximate 170.0-foot- (ft-) (51.8-meter- [m-]) wide channel entrance that would extend approximately 650.0 ft (198.0 m) from the shore into the Corpus Christi Channel. Commercial development is also planned for the upland areas surrounding the marina. The entire Project is located within the jurisdictional boundary of the United States Army Corps of Engineers (USACE) Galveston District, and the cultural resources investigations were conducted under Texas Antiquities Permit No. 8611.

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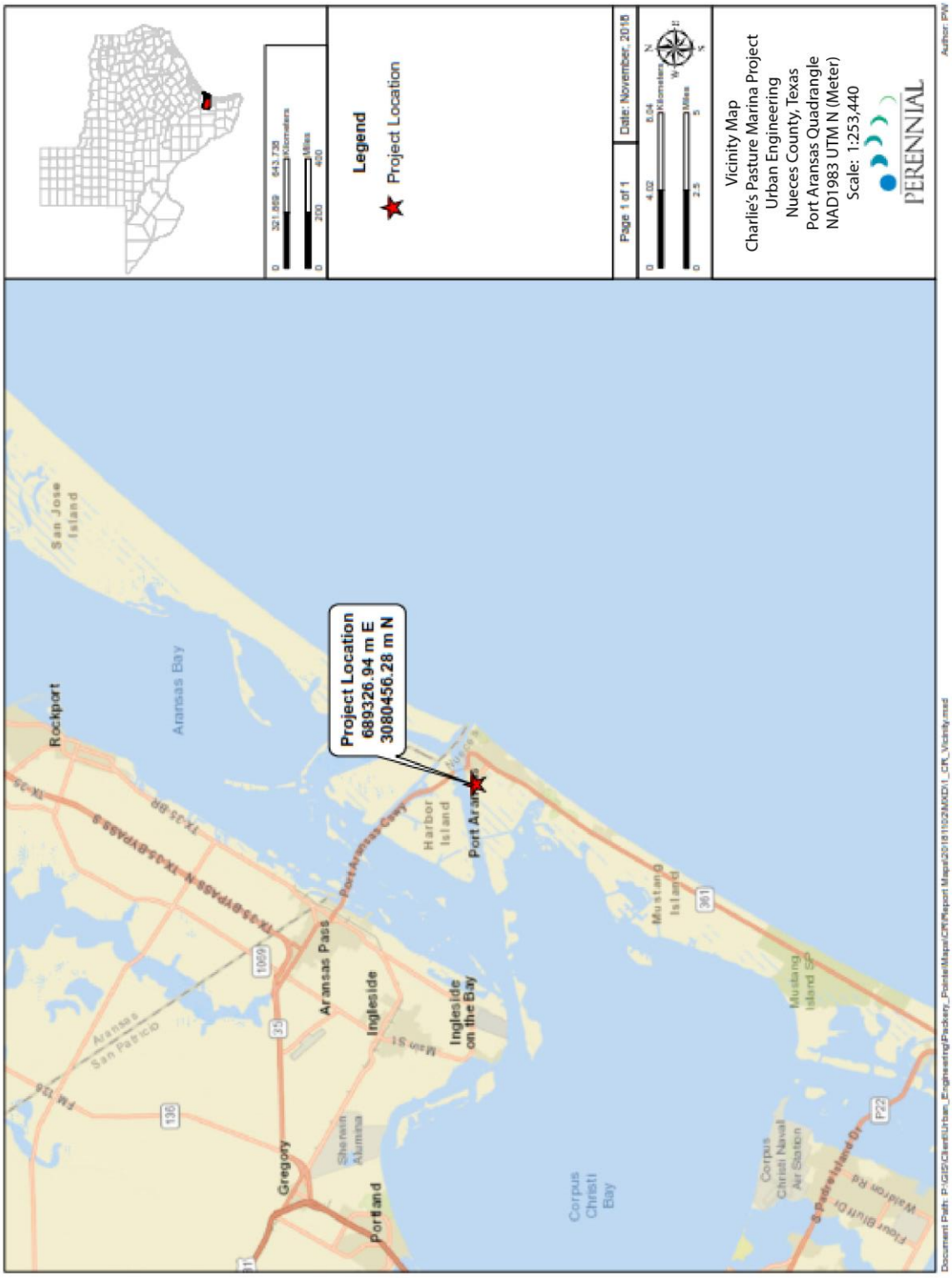

Figure 1. Project APE vicinity map.

PROJECT DESCRIPTION

ENVIRONMENTAL SETTING

The Project APE is located directly west of the City and consists of a fallow, undeveloped tract of land along the southern edge of the Corpus Christi Channel. The Project consists of a combination of eroded dredging spoils and tidal flats, bordered to the north and east by residential and recreational development. Ecologically, it is situated in the West Gulf Coast Plain, specifically within the Mid-Coast Barrier Islands and Coastal Marshes (Griffith et al. 2004). This ecoregion is a humid subtropical zone, susceptible to tidal flooding (Texas Coastal Wetlands 2018).

Geologically, the Project is underlain by Holocene-age fill and spoil deposits used to raise the land surface above barrier island deposits (USGS 2018). Soils mapped within the Project APE consist of Twinpalms series, Yarborough series, Tidal Flats, Galveston fine sand, and Mustang fine sands (**Table 1**) (National Resources Conservation Service [NRCS] 2018). The Twinpalms and Yarborough complexes comprise approximately 61 percent (or 42.5 ac [17.2 ha]) of the Project area. These soil series are characterized as very deep, rather poorly drained, moderately permeable sloping soils formed in sandy and loamy sediments, dredged from submerged areas to historic spoil pile areas (NRCS 2018). The Galveston and Mustang fine sand series make up 19.0 percent (13.71 ac [5.5 ha]) of the Project APE and are defined as excessively drained, fine sand (NRCS 2018). Tidal Flats are defined as intertidal habitats that occur within low energy marine environments, comprising 20 percent of the Project APE (SMS 2018).

Table 1. Soil Mapping Units Located within the Project APE

Mapping Unit	Texture and Drainage	General Location	NRCS Hydric Rating
Twinpalms series, occasionally flooded (Sb)	The Twinpalms series consists of very deep, somewhat poorly drained, moderately permeable soils. Slope ranges from 1 to 3 percent.	Mounds	Not Hydric
Yarborough series, frequently flooded (Sb)	The Yarborough series consists of very deep, poorly drained soils. These nearly level soils are on flats within and along the margins of spoil pile areas. Slope ranges from 0 to 1 percent.	Flats	Hydric
Tidal Flats (Ta)	Tidal flats are mainly barren, nearly level areas that are above salt water at low tide but are flooded at normal high tide. Slopes range from 0 to 1 percent.	Island Edges	Not Hydric
Galveston fine sands, occasionally flooded (Gm)	The Galveston series consists of very deep, somewhat excessively drained, very rapidly permeable soils. Slope ranges from 0 to 12 percent.	Foredunes	Not Hydric
Mustang fine sands, occasionally flooded (Gm)	The Mustang series consists of very deep, poorly drained, very slowly permeable soils. Slope ranges from 0 to 1 percent.	Barrier Islands	Hydric

METHODS

BACKGROUND REVIEW

Prior to initiating fieldwork, Perennial conducted a records and literature review of the THC's Texas Archeological Sites Atlas (Atlas) online database and the NRHP database to identify previously recorded cultural resource sites, historic structures, properties listed on the NRHP, designated historic districts, or designation as a SAL which could potentially be affected by the proposed Project. Any previously recorded cultural resource site forms, reports of archaeological investigations, general historical documents, and secondary sources concerning the background of the area were reviewed. The records search included a review of all previously recorded site forms and surveys on file within a 1.6-km (1.0-mi) review radius of the Project APE.

In addition to a records and literature search, archeologists gathered information from secondary sources concerning the prehistoric and historic background of the area. Documents associated with the history of the area were used to model prehistoric and historic settlement patterns in relation to the landscape and terrain characteristics as well as cultural patterns and regional trends. NRCS soil data, the United States Geological Survey Port Aransas, Texas 7.5-minute topographic quadrangle (USGS 1968), aerial photographs, and contemporary geologic and physiographic features were also examined.

FIELD METHODS

The cultural resources survey for the terrestrial portion of the Project APE was performed by a Perennial Staff Archaeologist on October 31, 2018. Based on the environmental and mapping data provided, the majority of the Project APE (40 ac [16.2 ha]) consisted of eroded dredge spoil formations that were deposited by historic dredging of the Corpus Christi Channel. An additional 6.0 ac (2.4 ha) was inundated at the time of survey and defined as wetland area. As such, the survey concentrated on the remaining 21.0 ac (8.5 ha) of the Project APE where soil and map data show native formations devoid of dredge spoil deposits and inundation.

For area surveys measuring 11 to 100 acres in size, the Texas State Minimum Archeological Survey Standards (TSMASS) require that a minimum of 1 shovel test excavated for every 2.0 acres. In areas where the surface visibility exceeded 50 percent, shovel testing was conducted intermittently along areas with increased probability to contain buried cultural deposits, such as areas adjacent to drainages or within sand dunes. Additional shovel tests were placed within the northern portion of the Project APE to procure necessary stratigraphic profile data to confirm the presence/absence of dredge spoil deposits consistent with the NRCS soil classifications. Shovel testing or pedestrian surveys were not conducted beyond the Project boundaries to ensure no trespassing onto private property occurred.

In general, shovel tests measured approximately 12 inches (in.) (30.0 centimeters [cm]) in diameter and excavated by 3.93 to 7.87 inches (in.) (10.0 to 20.0 centimeters [cm]) levels. Per the Council of Texas Archeologists (CTA) and THC survey standards, shovel tests were excavated to a depth consistent with the Project impacts or to the base of Holocene deposits likely to contain cultural resources unless dense, impenetrable clay soils, inundation, or disturbances prevent the continuation of excavations. All soil matrices were screened through 0.25 in. (6.3 millimeter [mm]) mesh hardware cloth. For each of the shovel tests, the following information was recorded on shovel test logs: location, maximum depth, and the number of soil strata. For each soil stratum, thickness, texture, color, and the presence or absence and nature of cultural materials were noted.

The archaeologist recorded all shovel test locations, isolated finds, archaeological sites and associated features using a handheld GPS device. Also, the archaeologist was equipped with a compass, shovel test and photographic logs, daily journal forms, and appropriate THC site forms. The individual was also equipped with topographic maps and aerial photographs of the survey corridor, a digital camera, and a cellular telephone in order to maintain contact with the home office (terrain permitting).

Perennial will prepare all collected material and paperwork recovered during the study and arrange for the transfer of records to a suitable curatorial facility pursuant to the standards and guidelines set forth by the THC and CTA. An additional ten copies are distributed to various designated repositories across the state in accordance with the Texas Antiquities Permit obligations.

RESULTS

BACKGROUND REVIEW

Based upon the archival review, no previously recorded archeological sites or cemeteries are mapped within or directly adjacent to the Project APE (Atlas 2018). Additionally, the Project APE has not been subjected to archeological investigations of any kind. Numerous previously conducted surveys have been conducted on Mustang Island, as well as within the various shipping channels on behalf of USACE resulting in the documentation of historic sites, prehistoric camps, and shipwrecks (**Figures 2 and 3**). However, none of these sites are located within a 1.0-mi (1.6-km) radius of the Project APE. A marine survey was conducted within the Corpus Christi Channel in 2003 on behalf of a USACE-sponsored navigation project, however this survey investigation does not overlap the proposed channel entrance footprint (Enright et al. 2003). The survey investigations did result in the identification and/or reassessment of multiple historic shipwrecks (41NU291, 41NU264, 41NU252), however these resources are located beyond the 1.0-mi (1.6-km) review radius.

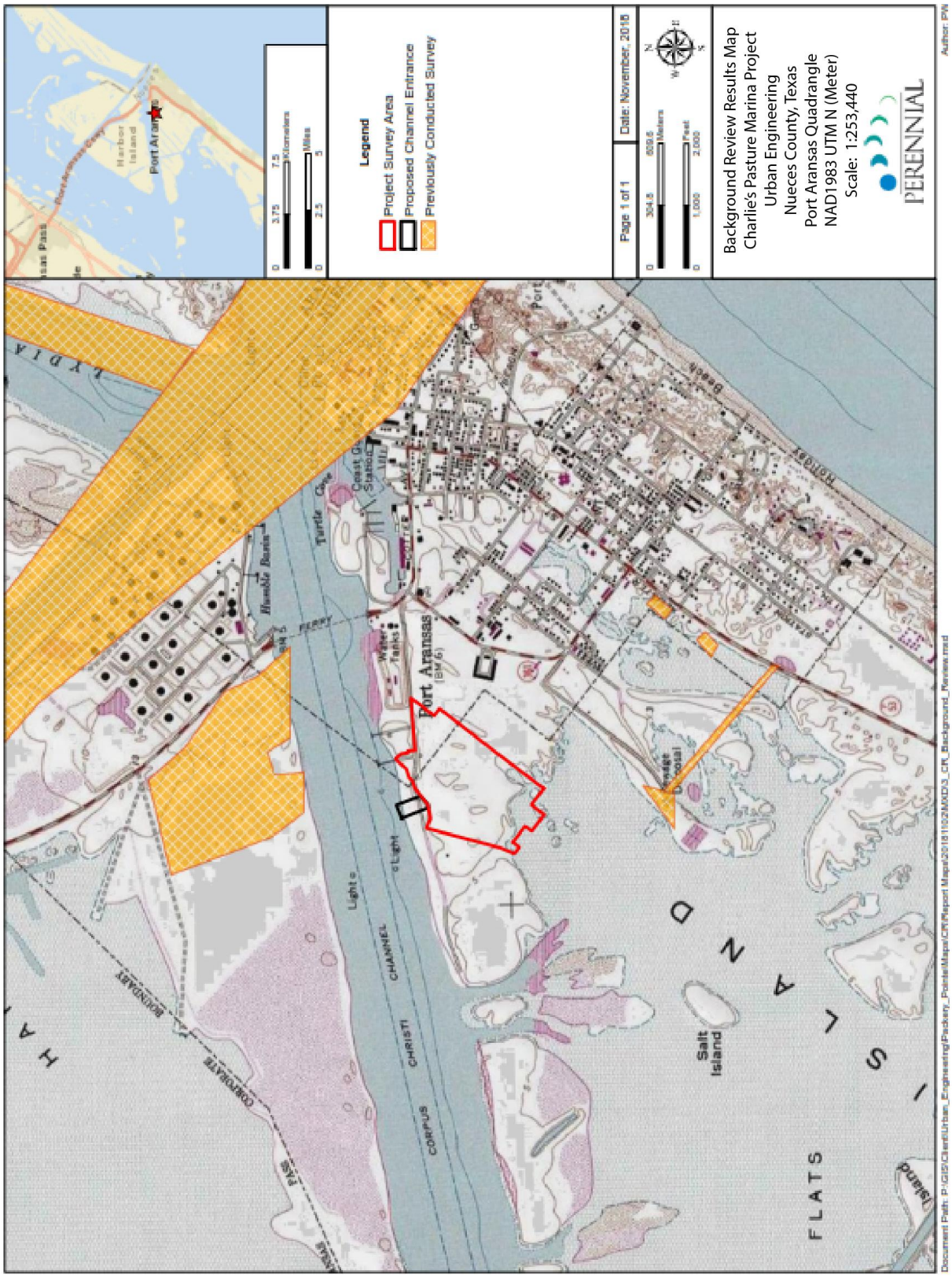

Figure 2. Background Review Results Map

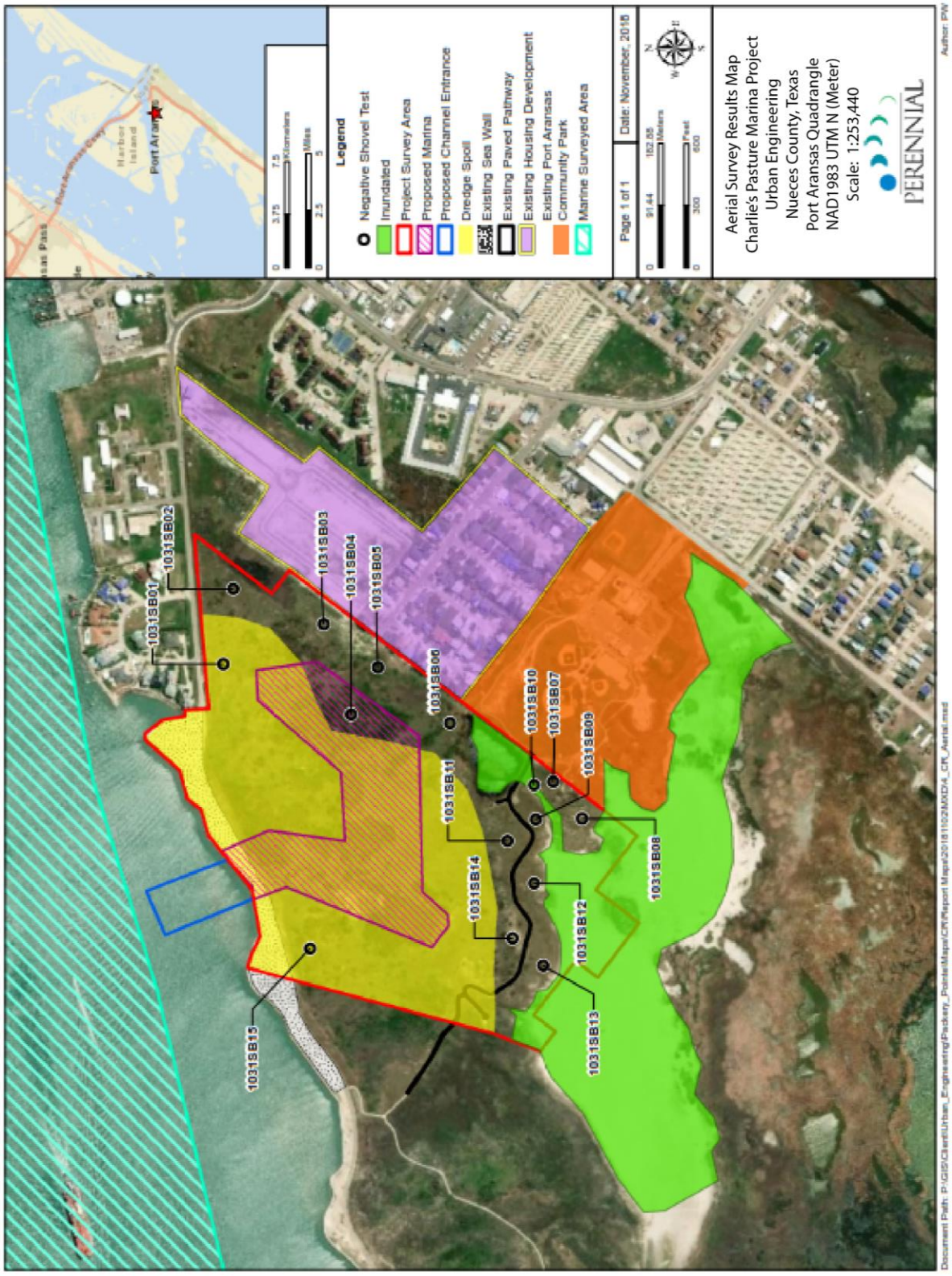

Figure 3. Aerial Survey Results Map

A review of historic aerial imagery dating to 1956, as well as topographic maps from 1925 and 1954 show evidence of historic dredging associated with the Corpus Christi Channel. Specifically, in 1925 the Project APE is depicted as a wetland area, and by the 1950s, topographic maps and aerial imagery depict a series of artificial dredge spoil formations along the southern margins of the channel. Overtime, these formations gradually eroded creating broader upland formations that gradually replaced portions of the historic inland estuary.

FIELD SURVEY

The cultural resources survey for the terrestrial portion of the Project was performed by a Perennial Staff Archaeologist on October 31, 2018. Vegetation across the Project APE consisted of typical Barrier Island and Coastal Marsh vegetation including saltgrass, gulf cordgrass, catchfly prairie gentian, flat-stemmed spikerush, and bushy seaside tansy (**Figures 4 and 5**). Overall, ground surface visibility was poor, ranging from 0 to 10 percent. Based on the soil and mapping data provided, 40 ac (16.0 ha) of dredged matrix was not surveyed for cultural materials. An additional 6.0 ac (2.4 ha) of the Project APE was not surveyed due to inundation. As such, the survey concentrated on the remaining 21.0 ac (8.5 ha) of the Project APE. The TSMASS requires a minimum of 1 shovel test be excavated per every 2.0 acres, requiring a minimum of 10 shovel tests within the non-dredge and non-inundated portions of the Project APE. Thirteen shovel tests were excavated, exceeding the TSMASS requirements. In addition, two shovel tests were placed within the northern portion of the Project APE to obtain necessary stratigraphic profile data, confirming the presence of spoil deposits consistent with the NRCS soil classifications. All shovel tests were negative for cultural materials. Shovel test results can be found in **Appendix B.**

Figure 4. Typical Barrier Island and Coastal Marsh vegetation: central portion of the Project APE, facing north.

Figure 5. Typical Barrier Island and Coastal Marsh vegetation: Northside of the Project APE, facing south.

CONCLUSIONS AND RECOMMENDATIONS

Perennial conducted an intensive Phase I surface and subsurface cultural resources survey of the Project APE on October 31, 2018. The cultural resources survey was designed to inventory and assess cultural remains across the entirety of the Project APE which were conducted in accordance with the CTA and THC survey standards.

No cultural resources were encountered as a result of the survey efforts either on the surface or within the 15 shovel tests excavated across the Project APE. Based on results from the survey effort, no intact, significant cultural resources will be affected by any construction activities within the Project APE. In accordance with Section 106 of the NHPA (36 CFR 800) and the Code, and the guidelines set forth by the THC, it is Perennial's opinion that no further cultural resources investigations are warranted for the terrestrial portion of the proposed Project.

Should historic properties and/or human remains be encountered during construction, work in the immediate area will cease and a qualified archaeologist will be called to evaluate the finding(s) and provide recommendations for how to manage the resource under the State Historic Preservation Plan. All findings will be reported to, and activities coordinated with the appropriate interested parties. In the event that human remains are encountered, all activity that might disturb the remains shall cease, and may not resume until authorized by appropriate law enforcement, and/or the THC.

References

(Atlas) Texas Archaeological Sites Atlas
2018 Texas Archaeological Site Atlas restricted database, Texas Historical Commission. http://nueces.thc. state.tx.us/. Accessed November 6, 2018.

Enright, J.M., J. Watts, and R. L. Gearhart
2003 *Marine Remote-Sensing Survey and Diving Assessment for Historic Properties Investigations, Corpus Christi Ship Channel Improvements and La Quinta Ship Channel Extension, Corpus Christi Bay, Texas.* PBS&J, Austin.

Griffith, G.E., Bryce, S.A., Omernik, J.M., Comstock, J.A., Rogers, A.C., Harrison, B., Hatch, S.L., and Bezanson, D.
2004 *Ecoregions of Texas.* U.S. Geological Survey, Reston VA (map scale 1:2,500,000)

Natural Resources Conservation Service
2018 Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. http://websoilsurvey.nrcs.usda.gov/. Accessed November 6, 2018.

(SMS) Smithsonian Marine Station at Fort Pierce
2018 Tidal Flat Habitats. http://www.sms.si.edu/IRLSPEC/Tidal_Flats.htm. Accessed November 8, 2018.

Texas Coastal Wetlands
2018 Estuarine or Tidal Fringe Wetlands. https://texaswetlands.org/wetland-types/estuarine-or-tidal-fringe-wetlands/. Accessed November 6, 2018.

(USGS) United States Geological Survey
2018 Mineral Resources Online Spatial Data, United States Department of the Interior. *Geologic Maps of US States.* https://mrdata.usgs.gov/geology/state/state.php?state=TX. Accessed November 6, 2018.

1968 Port Aransas, Texas 7.5 minute series topographic quadrangle. United States Department of the Interior, Washington, D.C.

APPENDIX A: TEXAS ANTIQUITIES PERMIT SCOPE OF WORK

SCOPE OF WORK

A PHASE I CULTURAL RESOURCES SURVEY OF THE CHARLIE'S PASTURE MARINA PROJECT, NUECES COUNTY, TEXAS

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Introduction

The City of Port Aransas (City) is proposing to develop a new marina within an approximately 67-acre tract referred to as Charlie's Pasture Marina Project (Project) located on Mustang Island in Nueces County, Texas approximately 1.0 mile (mi) (1.6 kilometer [km]) to the west of Port Aransas.

In a letter dated September 17, 2018, the US Army Corps of Engineers (USACE) requested that archaeological surveys be conducted prior to the approval of the submitted permit (SWG-2000-02968) in accordance with 33 CFR Part 325. As the Project is located on publically-owned land, and sponsored by the City, the Project also falls under the jurisdiction of the Antiquities Code of Texas (Code). The City has contracted with Perennial Environmental Services, LLC (Perennial) to coordinate with the USACE and the Texas Historical Commission (THC) on their behalf to ensure compliance with federal and state guidelines.

The area of potential effect (APE) associated with the Project measures approximately 69.3 acres (ac) (28.0 hectares [ha]). Within this tract the City plans to construct an approximately 16-ac (6.47-ha) marina, which would include the excavation of a 220.0-foot (ft-) (67.0-meter [m-]wide channel entrance that would extend approximately 455.0 ft (135.7 m) from the shore into the Corpus Christi Channel. The proposed depth of the channel entrance would be -11.0-ft (-3.35 m-) mean lower low water (MLLW), while the depth of impact for the marina would be approximately -10-ft (-3.05-m) MLLW. Commercial development is also planned for the upland areas surrounding the marina.

The following scope of work outlines the terrestrial field survey methods, artifact collection and site recordation strategies, and reporting protocols that will be utilized by Perennial for the Project area. Should a marine survey be required for the proposed channel entrance, then Perennial would coordinate appropriately with the THC's Marine Division.

Environmental Setting

The Project is located immediately west of the City of Port Aransas and consists of a fallow, undeveloped tract of land along the southern edge of the Corpus Christi Channel. The Project is comprised of a combination of eroded dredge spoil formations and tidal flats bordered to the north and east by residential and recreational development. Geologically, the Project is underlain by Holocene-age fill and spoil deposits used to raise the land surface above barrier island deposits (USGS 2018). Soils mapped within the Project area consist of Twinpalms occasionally flooded-Yarborough frequently flooded complex (0 to 3 percent slopes), Galveston and Mustang fine sands, occasionally flooded, and tidal flats, occasionally ponded (NRCS 2018). The Twinpalms/Yarborough complex comprises approximately 61.0 percent (42.5 ac [17.2 ha]) of the Project area. These soils are derived from sandy and loamy dredge spoils (NRCS 2018).

Cultural Resources Background Review Results

Perennial conducted a thorough cultural resources and environmental literature search of the Project area. A Perennial archaeologist reviewed the Port Aransas, Texas USGS 7.5-minute topographic quadrangle maps and searched the THC's Texas Archeological Sites Atlas (Atlas) online database and the National Register of Historic Places (NRHP) database to identify previously recorded cultural resource sites, historic structures, properties listed in the NRHP, designated historic districts State Antiquities Landmark (SAL)s which could potentially be affected by the proposed undertaking. Any previously recorded cultural resource site forms, reports of archaeological investigations, general historical documents, and secondary sources concerning the background of the area were also reviewed. The records search included a review of all previously recorded site forms, cemetery data, and surveys on file within a 1.0-mi (1.6-km) review radius of the Project area.

Based upon the archival review, no previously recorded archeological sites or cemeteries are mapped within or directly adjacent to the Project area (Atlas 2018). Additionally, the Project area has not been subjected to archeological investigations of any kind. Numerous surveys have been conducted on Mustang Island, as well as within the various shipping channels on behalf of USACE resulting in the documentation of historic sites, prehistoric camps, and shipwrecks. However, none of these sites are located within a mile radius of the Project area. A marine survey was conducted within the Corpus Christi Channel in 2003 on behalf of a USACE-sponsored navigation project, however this survey investigation does not overlap the proposed channel entrance footprint (Enright et al. 2003). The survey investigations did result in the identification and/or reassessment of multiple historic shipwrecks (41NU291, 41NU264, 41NU252), however these resources are located beyond the 1-mi review area radius.

A review of historic aerial imagery dating to 1956, as well as topographic maps from 1925 and 1954 show evidence of historic dredging associated with the Corpus Christi Channel. Specifically, in 1925 the Project area is depicted as a wetland area, and by the 1950s topographic maps and aerial imagery depict a series of artificial dredge spoil formations along the southern margins of the channel. Overtime, these formations gradually eroded creating broader upland formations that gradually replaced portions of the historic inland estuary.

Field Methods

The cultural resources survey for the terrestrial portion of the Project will be performed by a team of one to two archaeologists. Based on the data provided herein, the majority of the Project (61 percent) consists of eroded dredge spoil formations that were deposited by historic dredging of the Corpus Christi Channel. As such, the survey plan detailed herein proposes to concentrate efforts within the remaining 39.0 percent (27.0 ac [10.9 ha]) of the Project area where soil and map data shows native formations devoid of dredge spoil deposits.

In general, the Texas State Minimum Archeological Survey Standards (TSMASS) require that a minimum of 1 shovel test be excavated per 2 acres, requiring 12 shovel tests within the non-

dredge portion of the Project area. A more intensive shovel testing regime may be implanted across native upland landforms that would have a higher probability for containing buried cultural materials. An intensive pedestrian survey will also be conducted at survey intervals no greater than 91.5 ft (30.0 m) apart. In areas where the surface visibility exceeds 50.0 percent, shovel testing will be conducted intermittently along areas with increased probability to contain buried cultural deposits, such as areas adjacent to drainages or within sand dunes. Discretionary shovel testing will also be conducted across the northern portion of the Project area to procure necessary stratigraphic profile data to confirm the presence/absence of dredge spoil deposits consistent with the NRCS soil classifications. Any deviations from TSMASS will be thoroughly documented, and disturbances will be photographed.

In general, shovel tests will measure approximately 12.0 in (30.0 cm) in diameter and will be excavated by 3.93 to 7.87 inches (in) (10.0 to 20.0 centimeters [cm]) levels. Per the Council of Texas Archeologists (CTA)/THC survey standards, shovel tests will be excavated to a depth consistent with the project impacts or to the base of Holocene deposits likely to contain cultural resources unless dense, impenetrable clay soils or inundation prevent the continuation of excavations. All soil matrices will be screened through 6.3-millimeter (0.25-inch) mesh hardware cloth unless dominated by clay. Clayey matrix will be trowel-sorted and visually inspected.

For each of the shovel tests, the following information will be recorded on shovel test logs: location, maximum depth, and the number of soil strata. For each soil stratum, thickness, texture, color, and the presence or absence and nature of cultural materials will be recorded. Perennial will maintain a 100 percent artifact collection policy, and the collected materials will be temporally housed at Perennial's laboratory in Austin, Texas for analysis and processing. Perennial will prepare all collected material and paperwork recovered during the study and arrange for the transfer of artifacts and records to a suitable curatorial facility pursuant to the standards and guidelines set forth by the THC/CTA. An additional ten copies will be distributed to various designated repositories across the state in accordance with the Texas Antiquities Committee (TAC) permit obligations.

The field crew will record all shovel test locations, isolated finds, archaeological sites and associated features using a handheld GPS device. Also, each archaeologist will be equipped with a compass, shovel test and photographic logs, daily journal forms, and appropriate THC site forms. The crew will be equipped with topographic maps and aerial photographs of the survey corridor, a digital camera, and a cellular telephone to maintain contact with the home office (terrain permitting).

If an archaeological site is identified, the appropriate delineation techniques will be systematically applied to identify the horizontal and vertical limits of each site's boundary. Site boundaries may be determined based on both surface artifact density and the presence or lack of

subsurface components. For subsurface sites, a series of shovel tests will be excavated radiating in the four cardinal directions or, if more appropriate, along perceived major and minor topographic and site axis. In practice, shovel tests within potential sites will be placed along transects at 33.0-ft (10.0-m) intervals to determine the depth and potential integrity of cultural deposits, and to carefully examine for the presence of intact archaeological features and/or discrete episodes of occupation. In the absence of subsurface deposits, controlled pedestrian surface inspections will be conducted and site boundaries defined based on a marked reduction in surface artifact density. Shovel testing or pedestrian surveys will not be conducted beyond the Permit area property boundaries to ensure no trespassing onto private property occurs.

Historic Structure Documentation

All historic-age structures (i.e., older than 50 years) located within the Project area will be thoroughly documented during the survey efforts. Historic Standing Structure forms will be completed for each resource. The historic structures will be adequately photo-documented, sketch maps will be drawn, and each resource will be plotted with a GPS device. Shovel tests may be excavated in the vicinity of the structures to determine if an associated subsurface archaeological component is present. All data will be reviewed by a qualified architectural historian to determine construction date, style, integrity, and overall significance and SAL designation.

Reporting

Following the completion of the field surveys, Perennial will incorporate findings into the overall report for the Project. Data on any newly recorded sites will be submitted to the Texas Archeological Research Laboratory (TARL) in order to receive trinomial data for reporting. The format of the report will adhere to review guidelines suitable to the State Historic Preservation Officer (SHPO) in accordance with the THC's Rules of Practice and Procedure, Chapter 26, Section 27, and the CTA *Guidelines for Cultural Resources Management Reports*. The report will document previous investigations in the area, background cultural setting, the methodology used during the investigations, the general nature and extent of cultural resources encountered during the cultural resource survey, and management recommendations for any documented cultural resources per all applicable state and federal laws.

Human Remains

In the event that human remains are encountered during any part of the Phase I survey effort, work will stop immediately and the appropriate local law enforcement personnel and medical examiner's office will be notified of the discovery. Should the medical examiner determine that the human remains are older than 50 years, personnel will notify the THC and file a notice of existence of a cemetery with the county clerk. Consultation with any concerned parties including landowners, appropriate Tribes, and living descendants will be conducted to ensure compliance with existing state laws. No remains will be removed from the site until jurisdiction has been established and the appropriate permits have been obtained. All activities will adhere to the Texas Health and Safety Code (8 THSC § 711.010) and the Texas Antiquities Code (13 TAC §§

22.1-22.6). If the human remains are determined to be Native American, they will be handled in accordance with guidelines set forth under the Native American Graves Protection and Repatriation Act (NAGPRA). Burial goods will be curated following any necessary NAGPRA consultation as outlined by the curatorial facility.

References

(Atlas) Texas Archaeological Sites Atlas
2018 Texas Archaeological Site Atlas restricted database, Texas Historical Commission. http://nueces.thc. state.tx.us/. Accessed October 11, 2018.

Enright, J.M., J. Watts, and R. L. Gearhart
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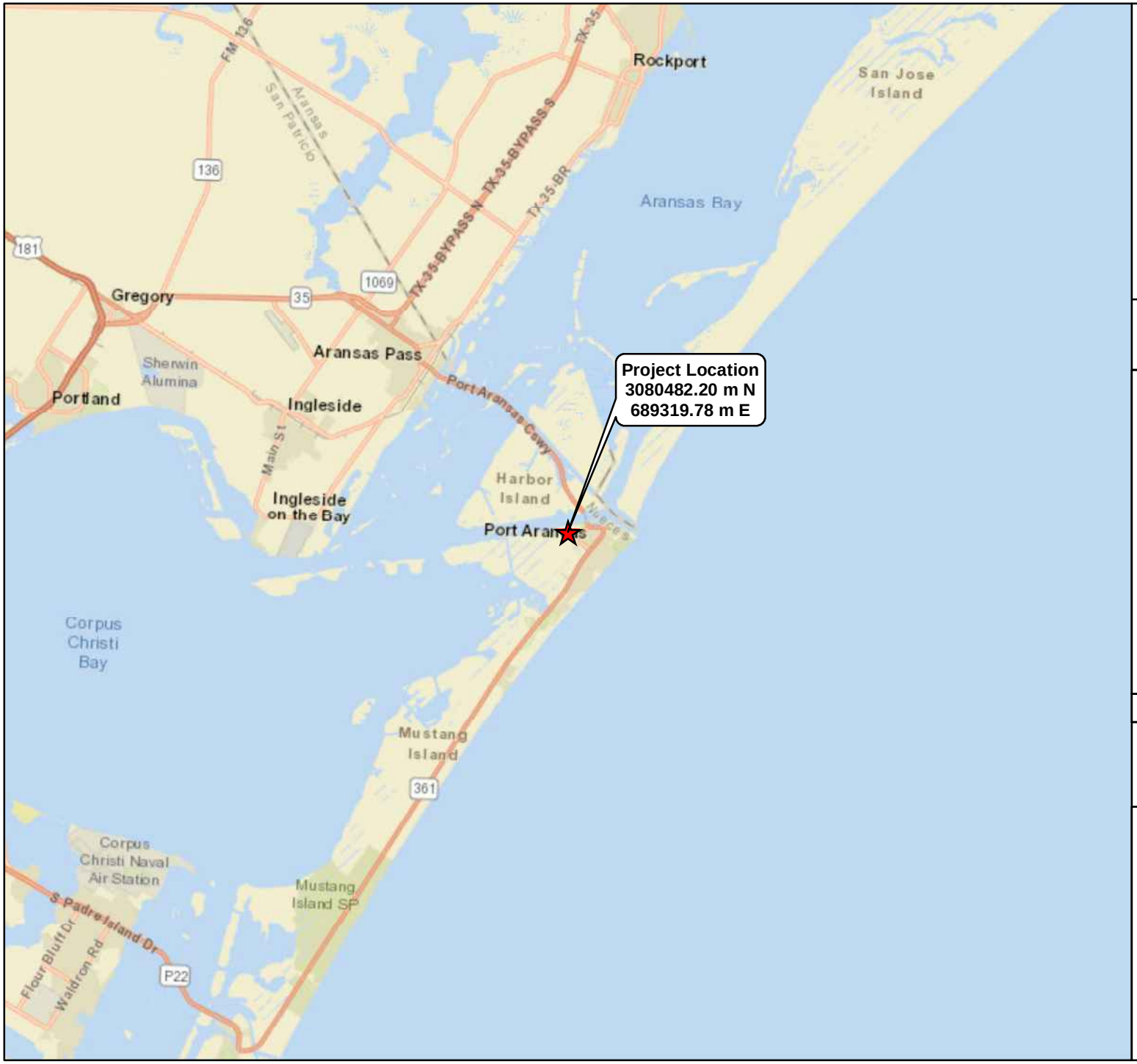
(NRCS) Natural Resources Conservation Service
2018 Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. http://websoilsurvey.nrcs.usda.gov. Accessed October 11, 2018.

(USGS) United States Geological Survey
2018 U.S. Geological Survey, United States Department of the Interior. Information and graphics available at http://mrdata.usgs.gov/sgmc/tx.html. Accessed October 11, 2018.

Attachment 1 – Project Maps



0 390 780 Kilometers

0 245 490 Miles

★ Project Location

Page 1 of 1	Date: October, 2018

0 3.215 6.43 Kilometers

0 2 4 Miles

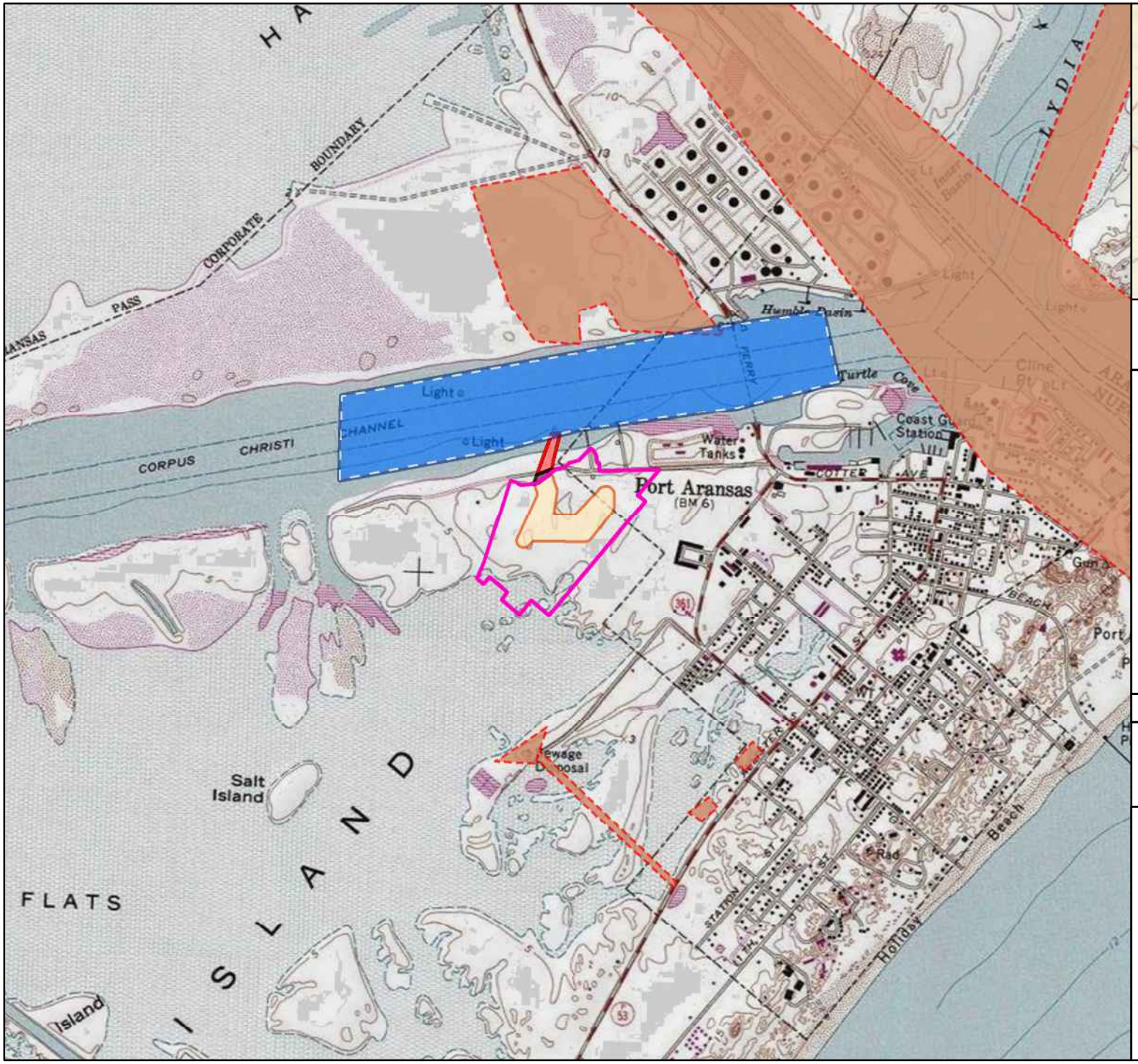
N W E S

Vicinity Map
Charlie's Pasture Marina Project
City of Port Aransas
Nueces County, Texas
Quadrangle: Port Aransas
NAD83 UTM 14N Meter
Scale: 1:253,440

PERENNIAL
Perennial Environmental Services, LLC

Document Path: P:\GIS\Client\Urban_Engineering\ParkBounds\Maps\CR\Report Maps\20181009\MXD\1_Vicinity.mxd

Author: PW



Legend

- Project Area Boundary
- Marine Survey
- Previous Survey and Site Data
- Shallow Water Habitat to be Dredged
- Deepwater Habitat to be Dredged
- Proposed Excavated Area for Marina

Page 1 of 1 | Date: October, 2018

0 304.8 609.6 Meters
0 1,000 2,000 Feet

N W E S

Topographic Map
Charlie's Pasture Marina Project
City of Port Aransas
Nueces County, Texas
Quadrangle: Port Aransas
NAD83 UTM 14N Meter
Scale: 1:24,000

PERENNIAL
Perennial Environmental Services, LLC

Document Path: P:\GIS\Client\Urban_Engineering\ParkBounds\Maps\CR\Report Maps\20181009\MXD\3_Topo.mxd

Author: PW

0 25 50 Kilometers

0 15 30 Miles

Legend

- Project Area Boundary
- Marine Survey
- Dredge Spoil
- Shallow Water Habitat to be Dredged
- Deepwater Habitat to be Dredged
- Proposed Excavated Area for Marina

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0 76.2 152.4 Meters

0 250 500 Feet

N W E S

Aerial Map
Charlie's Pasture Marina Project
City of Port Aransas
Nueces County, Texas
Quadrangle: Port Aransas
NAD83 UTM 14N Meter
Scale: 1:6,000

PERENNIAL
Perennial Environmental Services, LLC

Document Path: P:\GIS\Client\Urban_Engineering\ParkBounds\Maps\CR\Report Maps\20181009\MXD\2_Aerial.mxd

Author: PW

APPENDIX B: SHOVEL TEST DATA

Date	Level (Strat)	Strat Depth (cmbs)	Level (10cm)	GSV %	Positive or Negative	Munsell Color	Soil Texture Description	Description (Area; Vegetation)	Reason for Termination
1031SB01	-	0-80	0-10	10%	N	2.5 YR 5/2	Fine sand	In flats; grasses and sand; Dredge Matrix, no structure in stratigraphy	Depth
			10-20						
			20-30						
			30-40						
			40-50						
			50-60						
			60-70						
			70-80						
1031SB02	-	0-75	0-10	10%	N	2.5 YR 5/2	Fine sand	In flats; grasses and sand; Dredge Matrix, no structure in stratigraphy	Depth
			10-20						
			20-30						
			30-40						
			40-50						
			50-60						
			60-70						
			70-75						
1031SB03	I	0-30	0-10	0	N	10YR 4/2	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			10-20						
			20-30						
	II	30-50	30-40	0	N	10YR 6/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			40-50						
	III	50-75	50-60	0	N	10YR 7/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Subsoil
			60-70						
			70-75						

Date	Level (Strat)	Strat Depth (cmbs)	Level (10cm)	GSV %	Positive or Negative	Munsell Color	Soil Texture Description	Description (Area; Vegetation)	Reason for Termination
1031SB04	I	0-30	0-10	0	N	10YR 4/2	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			10-20						
			20-30						
	II	30-50	30-40	0	N	10YR 6/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			40-50						
	III	50-75	50-60	0	N	10YR 7/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Subsoil
			60-70						
			70-75						
1031SB05	I	0-30	0-10	0	N	10YR 4/2	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			10-20						
			20-30						
	II	30-50	30-40	0	N	10YR 6/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			40-50						
	III	50-75	50-60	0	N	10YR 7/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Subsoil
			60-70						
			70-75						
1031SB06	I	0-30	0-10	0	N	10YR 4/2	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			10-20						
			20-30						
	II	30-50	30-40	0	N	10YR 6/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			40-50						
	III	50-75	50-60	0	N	10YR 7/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Subsoil
			60-70						
			70-75						

Date	Level (Strat)	Strat Depth (cmbs)	Level (10cm)	GSV %	Positive or Negative	Munsell Color	Soil Texture Description	Description (Area; Vegetation)	Reason for Termination
1031SB07	I	0-30	0-10	0	N	10YR 4/2	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			10-20						
			20-30						
	II	30-50	30-40	0	N	10YR 6/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			40-50						
	III	50-70	50-60	0	N	10YR 7/3	Fine sand	Water level reached at 50 cmbs and filled up the hole	Inundation
			60-70						
1031SB08	I	0-30	0-10	0	N	10YR 4/2	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			10-20						
			20-30						
	II	30-50	30-40	0	N	10YR 6/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			40-50						
	III	50-70	50-60	0	N	10YR 7/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Subsoil
			60-70						
1031SB09	I	0-30	0-10	0	N	10YR 4/2	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			10-20						
			20-30						
	II	30-50	30-40	0	N	10YR 6/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			40-50						
	III	50-70	50-60	0	N	10YR 7/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Subsoil
			60-70						

Date	Level (Strat)	Strat Depth (cmbs)	Level (10cm)	GSV %	Positive or Negative	Munsell Color	Soil Texture Description	Description (Area; Vegetation)	Reason for Termination
1031SB10	Complete Inundation								
1031SB11	I	0-30	0-10	0	N	10YR 4/2	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			10-20						
			20-30						
	II	30-50	30-40	0	N	10YR 6/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			40-50						
	III	50-70	50-60	0	N	10YR 7/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Subsoil
			60-70						
1031SB12	I	0-30	0-10	0	N	10YR 4/2	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			10-20						
			20-30						
	II	30-50	30-40	0	N	10YR 6/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			40-50						
	III	50-70	50-60	0	N	10YR 7/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Subsoil
			60-70						
1031SB13	I	0-30	0-10	0	N	10YR 4/2	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			10-20						
			20-30						
	II	30-50	30-40	0	N	10YR 6/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			40-50						
	III	50-70	50-60	0	N	10YR 7/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			60-70						

Date	Level (Strat)	Strat Depth (cmbs)	Level (10cm)	GSV %	Positive or Negative	Munsell Color	Soil Texture Description	Description (Area; Vegetation)	Reason for Termination
1031SB14	I	0-30	0-10	0	N	10YR 4/2	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			10-20						
			20-30						
	II	30-50	30-40	0	N	10YR 6/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Soil change
			40-50						
	III	50-70	50-60	0	N	10YR 7/3	Fine sand	Distinctive stratigraphic layers- fine sand, fine/course sand, fine sand; There is evidence FeO2 banding	Subsoil
			60-70						
1031SB15	-	0-80	0-10	10%	N	2.5 YR 5/2	Fine sand	In flats; grasses and sand; Dredge Matrix, no structure in stratigraphy	Depth
			10-20						
			20-30						
			30-40						
			40-50						
			50-60						
			60-70						
			70-80						