MEMORANDUM FOR SWG-2007-1623

Subject: Jurisdictional Determination (JD) for SWG-2007-1623 on Interdunal Wetlands Adjacent to Traditional Navigable Waters (TNWs)

Summary

The U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) are asserting jurisdiction over six interdunal wetlands for JD SWG-2007-1623. This determination is based on our finding that these wetlands are adjacent (as defined at 33 CFR 328.3(c) and 33 CFR 328.3(a)(7)) to the Gulf of Mexico and Corpus Christi Bay, TNWs that are subject to the ebb and flow of the tide.[1] This JD is consistent with the CWA, the agencies' regulations, relevant case law and the legal memorandum *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States (Rapanos Guidance).*

I. Introduction

This memorandum establishes the basis for asserting jurisdiction over six interdunal wetlands for JD SWG-2007-1623. First, we provide a baseline assessment (in Section II) to demonstrate that all six wetlands are functioning as part of an interdunal system separated from the Gulf of Mexico and Corpus Christi Bay by beach dunes. After the baseline assessment, we provide the basis for determining that each interdunal wetland is adjacent to the TNWs. This determination is based upon an examination of a combination of factors including proximity, hydrologic connectivity, position in the landscape, and other physical factors that demonstrate the wetlands are adjacent to the TNWs.

II. Baseline Assessment for Interdunal Wetland System

Based on an examination of the site location and characteristics for the subject wetlands, these six wetlands are part of an integrated interdunal wetland system. This finding is based on a variety of factors, including: proximity of the wetlands to each other and the TNWs, physical characteristics (size, shape, and location in the floodplain), and the dominant wetland soils.

A. Location

[1] *See* 33 C.F.R. § 328.3(a)(1), 40 C.F.R. 230.3(s)(1).

The 260 acre project site for this JD is located at 27.79° north latitude and -97.09° west longitude on the east side of State Highway Park Road 53, on Mustang Island, Nueces County, Texas. Mustang Island is a slightly crescent shaped barrier island generally oriented in a north south direction surrounded by the Gulf of Mexico to the east, the outlet of Corpus Christi Bay to the north, and Corpus Christi Bay and the mouth of the Nueces River to the west. The project site consists of an interdunal environment that supports six interdunal wetlands totaling approximately 1.79 acres in size. The wetlands are in close proximity to each other and to the surrounding TNWs, the Gulf of Mexico to the east and Corpus Christi Bay to the west. (*See* Exhibit 1.)

B. Site Characteristics for Project Site

The project site is located on a barrier island, which is a narrow strip of sand located some distance offshore of the mainland. Barrier islands form along seacoasts throughout the world whenever there is an adequate supply of sand, a low sloping coastal plain, and a wave dominated energy regime with tidal ranges less than three meters.[2] The actions and energy of the ocean initiate the formation of barrier islands and its series of dune ridges, interdunal depressional areas, and freshwater interdunal wetlands. Barrier islands can be very transient features in that sea level, anthropogenic effects, and storm events can cause barrier islands to migrate landward, seaward, or laterally with adequate sand supplies and long shore currents. As these barrier islands mature and migrate, they typically form a series of dunes. The primary and secondary dunes generally occur near the shorefront and migrate in direct response to the seasonal stresses of wind and oceanic processes.[3] Behind these active dune fields, more stable fields generally develop. These areas typically support vegetation, including perennial shrubs, trees and vines. As a result of the more stable environment and increased vegetation, topographic relief in these areas is generally less pronounced than the dunes on the shorefront. In both cases, the environmental conditions may create depressional areas behind the dune ridges; it is in these areas that freshwater interdunal wetlands may occur. Generally, precipitation will easily permeate sand and accumulate within a freshwater zone or freshwater lens beneath the surface of the barrier island. Where this freshwater table intersects the surface of the barrier island, freshwater wetlands may be found in the interdunal depressional areas atop a higher density salt water lens. This interface can be sharp or may grade slowly with depth into salt water in a transition zone discernible by increasing salinity.[4]

Mustang Island has several parks and recreation areas that have mostly limited development on the island to Port Aransas on the northern tip of the island. Immediately surrounding the wetlands on the site are a state highway and a few houses but much of the surrounding land is undeveloped dunes and seeded areas for a golf course. In the project area Mustang Island ranges from 0.7 miles to one mile wide and is oriented Northeast by Southwest.

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[2] Bascom, W. 1980. *Waves and beaches, the dynamics of the ocean surface*. Anchor Press, Garden City. 366 pp.
[3] For example, during the summer, the beaches and dunes will generally grow in width as the mild summer waves supply the onshore areas with sand and the gentle breezes blow that sand back into the dune fields. During the winter, the processes reverse.
[4] Collins, W.H. III, and D.H. Easley. 1999. Fresh-water Lens Formation in an Unconfined Barrier-Island Aquifer. *Journal of the American Water Resources Association* 35(1): 1-21.

C. Site Characteristics for Project Wetlands

The overall project site consists predominantly of an interdunal environment, supporting freshwater interdunal wetlands ranging from 0.01 acre to 0.9 acre and totaling approximately 1.79 acres. These wetlands are in close geographic proximity to one another, between approximately 110 and 930 feet away from each other. The wetlands are found generally along two lines that parallel the eastern shoreline of Mustang Island. These wetlands also vary in distance from approximately 1400 to 2100 feet from the Gulf of Mexico and from approximately 2400 to 3100 feet from Corpus Christi Bay. The wetlands are separated from the Gulf of Mexico and Corpus Christi Bay by the beach dunes. The wetlands are also found within Federal Emergency Management Agency flood zones for a one hundred year flood and are shown on Exhibit 1.

Interdunal wetlands are typically formed as a result of oceanic processes where the wetlands establish behind relic dune ridges. Mustang Island is a classic barrier island with a high first line of dunes along the Gulf Mexico and lower, more spread out bay side dunes. The dunes on Mustang Island in the project area are stabilized by vegetation but are still shaped and reworked by wind-deposited sand, wave action and periodic inundation. Table 1 lists the soils found on Mustang Island within and around the project area and shows that subsurface flow likely connects all of the wetlands through a free exchange of freshwater through the fine sands of the dunes.

Table 1: Soils of Mustang Island around SWG-2007-1623

Soil Type	Map Unit Symbol		Parent Material	Depth to water table	Texture	Depth to Restrictive Feature	Landform
Galveston and Mustang fine sands *	**Gm**	**Galveston**	**Deep sandy eolian sediments of the Holocene age**	**36-72 inches**	**Fine Sand**	**80 + inches**	**Dune fields, foredunes**
		Mustang	**Sandy eolian and storm washover sediments of Holocene age**	**0 – 6 inches**	**Fine Sand**	**80 + inches**	**Depressions on barrier flats**
Mustang fine sands	Mu		Sandy eolian and storm washover sediments of Holocene age	0 – 6 inches	Fine Sand	80 + inches	Depressions on barrier flats
Tidal flats	Ta		Loamy fluviomarine deposits	0 inches	0 – 5 inches: Fine Sand; 5 – 60 inches: Loamy fine sand	80 + inches	
Coastal dunes	Cs		Deep sandy eolian sediments of the Holocene age		Fine Sand		Dune Fields
Coastal beach	Co		Beach sand of Holocene age	0 -6 inches	Fine Sand		Beaches

***** Soil series for area including wetlands 1-6 estimated using NRCS Web Soil Survey 2.0

Based on an examination of the physical characteristics of this wetland system, these wetlands are functioning as an integrated interdunal wetland system.

III. Jurisdictional Determination

The six interdunal wetlands in JD SWG-2007-1623 are jurisdictional because they are adjacent (as defined at 33 CFR 328.3(c) and 33 CFR 328.3(a)(7)) to the Gulf of Mexico and Corpus Christi Bay, both of which are TNWs.

IV. Basis for Determination[5]

EPA and Corps regulations define "waters of the United States" to include wetlands adjacent to other covered waters.[6] According to these regulations, a wetland is "adjacent" when it is "bordering, contiguous or neighboring" to another water of the U.S.[7] The regulations further specify that "[w]etlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands'."[8] The *Rapanos Guidance* states that finding a continuous surface connection is not required to establish adjacency under this definition.[9]

The interdunal wetland system (that includes the six wetlands subject to this JD) is adjacent to the Gulf of Mexico and Corpus Christi Bay. This is based on an examination of a combination of factors, including proximity and hydrologic connections to the Gulf of Mexico and Corpus Christi Bay found in the natural interdunal system that makes up Mustang Island.

As discussed in more detail in Section II above, the project site on Mustang Island is a back dunal zone that is generally a stable environment characterized by vegetated dunal ridges. These ridges transition across the project site and have created interdunal depressional areas, allowing for the formation of the freshwater wetlands onsite. Topographically, the site has little relief with dunes oriented in a Northeast – Southwest direction. The wetlands also vary in distance from approximately 1400 to 2100 feet from the Gulf of Mexico and from approximately 2400 to 3100 feet from Corpus Christi Bay. The wetlands are separated from the Gulf of Mexico and Corpus Christi Bay by beach dunes and have a hydrologic connection to the Gulf of Mexico and Corpus Christi Bay via overland and subsurface flow during precipitation events. As stated above, the agencies' regulations specify that "[w]etlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands'"[10] even if there is not a continuous surface connection.[11]

V. Conclusion

The agencies have determined that the wetlands for JD SWG-2007-1623 are jurisdictional because they are adjacent (as defined by 33 CFR 328.3(c) and 33 CFR 328(a)(7)) to the Gulf of Mexico and Corpus Christi Bay, both of which are TNWs. This determination is based on our finding that all six wetlands subject to this JD are part of an interdunal system that is in close proximity to and has a hydrologic connection to the Gulf of Mexico and Corpus

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[5] The memorandum summarizes the evidence considered by the agencies in reaching this conclusion. Additional information regarding the determination is contained in the administrative record for this action.
[6] 33 C.F.R. § 328.3(a)(7).
[7] 33 C.F.R. § 328.3(c).
[8] 33 C.F.R. § 328.3(c).
[9] *See Rapanos Guid*ance, page 5.
[10] 33 C.F.R. § 328.3(c).
[11] *See* Rapanos Guidance, page 5.

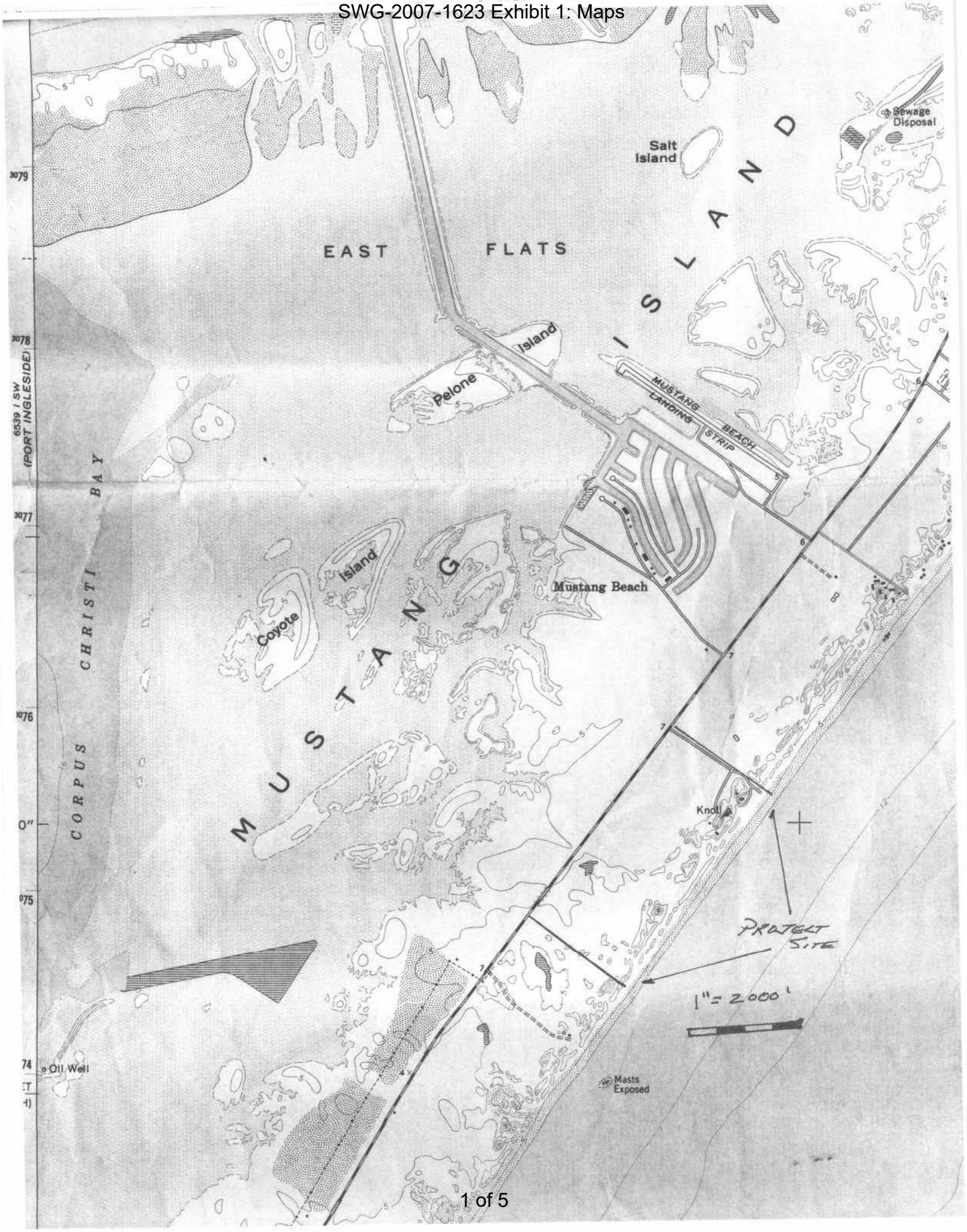
Christi Bay, are part of the natural interdunal landscape that makes up that part of Mustang Island, and are separated from the Gulf of Mexico and Corpus Christi Bay by beach dunes.

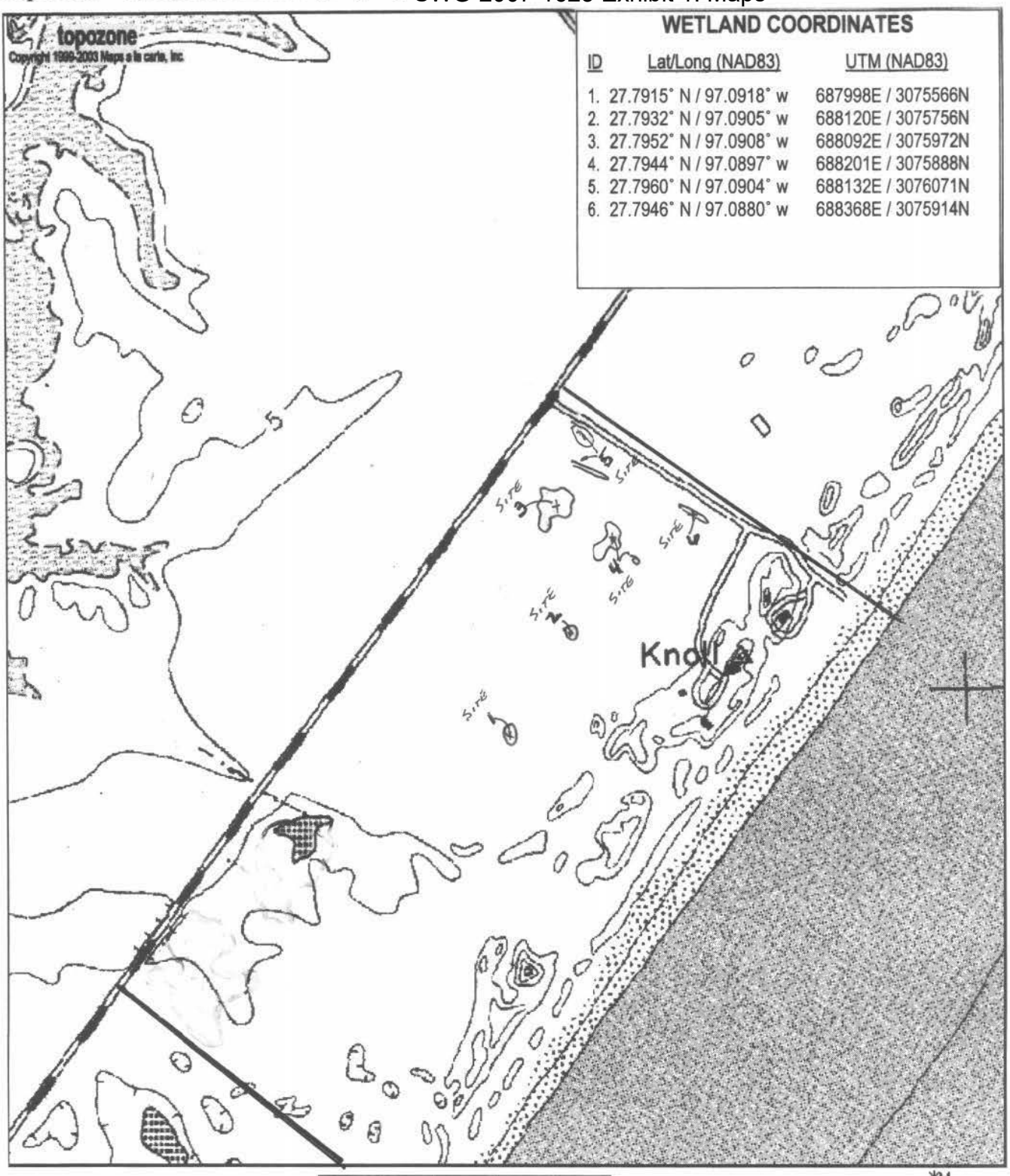
Brian Frazer, Chief
Wetlands & Aquatic Resources Regulatory Branch
U.S. Environmental Protection Agency

Date: April 15, 2008

David Olson, Regulatory Program Manager
Regulatory Community of Practice
U.S. Army Corps of Engineers

Date: 15 April 2008


Sewage Disposal
Salt Island
EAST FLATS
MUSTANG ISLAND
Pelone Island
MUSTANG BEACH LANDING STRIP
Mustang Beach
Coyote Island
CORPUS CHRISTI BAY
6539 I SW (PORT INGLESIDE)
Knoll
PROJECT SITE
1" = 2000'
Oil Well
Masts Exposed



WETLAND COORDINATES

ID	Lat/Long (NAD83)	UTM (NAD83)
1.	27.7915° N / 97.0918° w	687998E / 3075566N
2.	27.7932° N / 97.0905° w	688120E / 3075756N
3.	27.7952° N / 97.0908° w	688092E / 3075972N
4.	27.7944° N / 97.0897° w	688201E / 3075888N
5.	27.7960° N / 97.0904° w	688132E / 3076071N
6.	27.7946° N / 97.0880° w	688368E / 3075914N

0 0.1 0.2 0.3 0.4 0.5 km

0 0.09 0.18 0.27 0.36 0.45 mi

UTM 14 688059E 3075597N (NAD27)

USGS Port Aransas (TX) Quadrangle

Projection is UTM Zone 14 NAD83 Datum

*M

M=5.118
G=0.89

SWG-2007-1623
Tx Gulf + Harbor Ltd.
Nueces Co., Tx

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HDR SHINER MOSELEY AND ASSOCIATES, INC. 555 N. Carancahua, Suite 1650 Corpus Christi, Texas 78478 SMA JOB NO.: 200.50255	G & H BEACH DEVELOPMENT, LTD	WETLAND DELINEATION
	NEWPORT BEACH AND GOLF SOUTH	EXHIBIT 2

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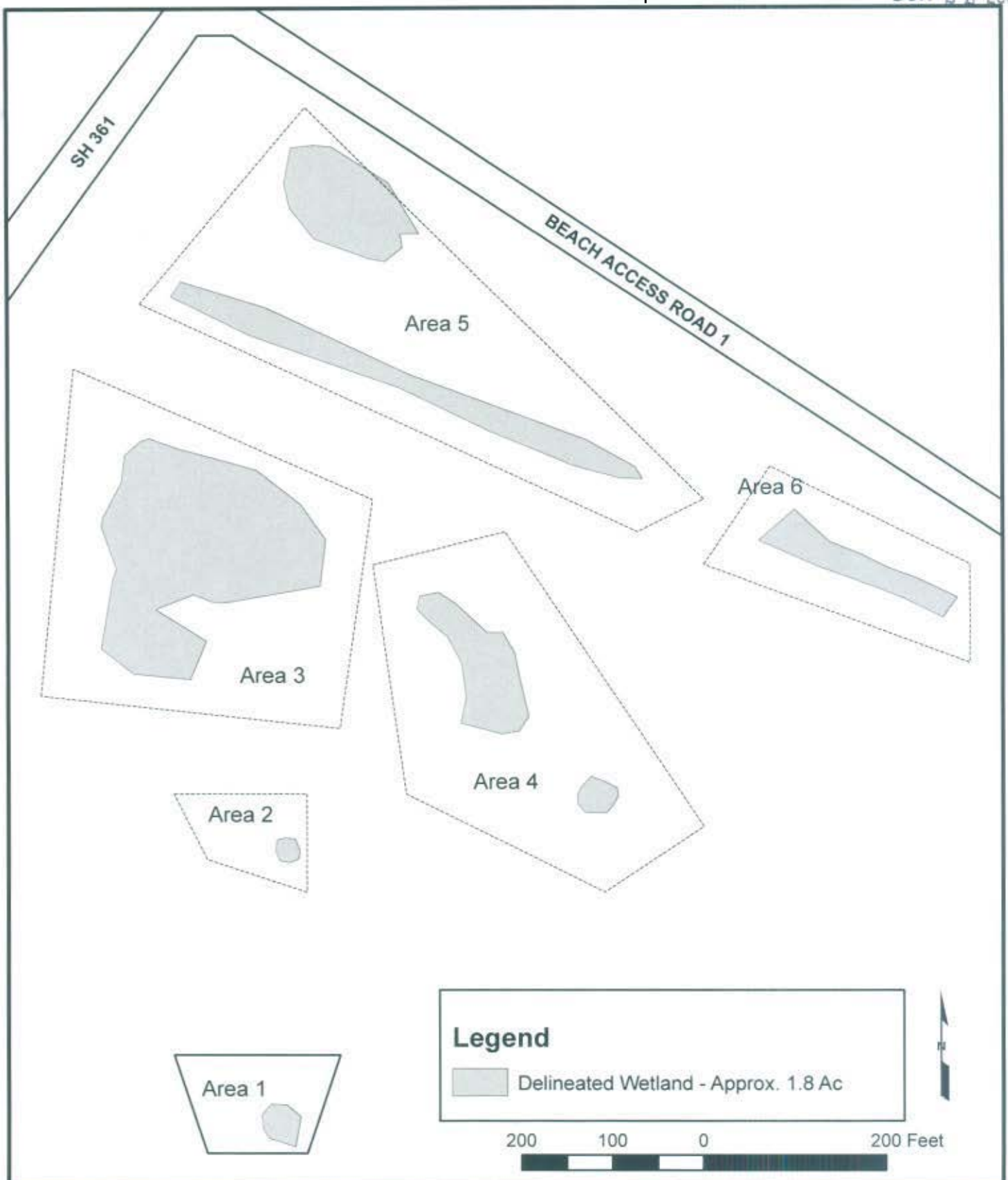

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EXHIBIT 3