US Army Corps of Engineers ®
Galveston District

BIOLOGICAL ASSESSMENT
for
Matagorda Ship Channel Deficiency Project, Matagorda County, Texas

Draft Design Deficiency Report and Environmental Assessment

January 2018

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1.0 INTRODUCTION

The Matagorda Ship Channel (MSC) is a deep-draft channel located on the central Texas coast (Figure 1) and connects the Gulf of Mexico and the Port of Port Lavaca-Point Comfort. The MSC is about 25 miles long and passes through Matagorda Bay, where it intersects the Gulf Intracoastal Waterway (GIWW). The MSC entrance cuts through the Matagorda Peninsula (Figure 2) for approximately 1 mile and is currently maintained to a depth of -38 feet Mean Low Tide (MLT) which equals -40 Mean Low Low Water (MLLW) . The distance between the jetties on the Gulf of Mexico side is 2,000 feet. In the land cut, the channel narrows to 950 feet (referred to as the bottleneck), greatly focusing the flow and increasing the current velocity in the channel.

Navigation safety is hampered by the effect of the tidal current velocities on the pilots' control of ships. The entrance channel has experienced strong currents that equal or exceed 3 knots more than 60 percent of the time and equal or exceed 5 knots 20 percent of the time. Engineer Manual (EM) 1110-2-1613, dated 2006, classifies a current of 3 knots as strong. The high currents in the channel make it difficult to overcome the cross current effect on the vessels navigating the channel. These currents have caused severe scouring and created difficulty for the users navigating the channel.

Sundown Island is a designated placement area (PA3) used for MSC and is managed by the National Audubon Society's Texas Coastal Sanctuaries program. Sundown Island is the largest bird sanctuary island along the Gulf Coast and hosts substantial numbers of nesting brown pelicans and other colonial nesting birds.

1.1 PURPOSE OF THE BIOLOGICAL ASSESSMENT

This Biological Assessment (BA) has been prepared to fulfill the U.S. Army Corps of Engineers (USACE), Galveston District requirements as outlined under Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended. This assessment is required by the USACE action to correct a deficiency in the MSC design. The MSC Design Deficiency Report and Environmental Assessment will address the navigation problems and discuss how the Proposed Action would make the existing channel safer to navigate. The purpose of the project is to improve navigation safety on the MSC and to reduce channel scouring.

This BA evaluates the potential impacts the proposed action may have on federally listed threatened and endangered species identified by the U.S. Fish and Wildlife Service (USFWS) for Matagorda County, Texas and the National Marine Fisheries Service (NMFS) for the State of Texas. Species included in this BA (Table 1) were identified from lists obtained from databases managed by the USFWS and NMFS (USFWS, 2017; NMFS, 2017).

The bald eagle has been delisted from the Federal list of threatened and endangered species in 2007. The bald eagle still remains federally protected under both the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act [16 U.S.C. 703-712]. The bald eagle is not included in this BA as they are no longer protected under the ESA.

The brown pelican was removed from the Federal list of endangered and threatened species on December 17, 2009 (74 *Federal Register* 59443), but still receives protection under the Migratory Bird Treaty Act and the Lacey Act (16 U.S.C. 3371-3378). The brown pelican is not included in this BA as they are no longer protected under the ESA.

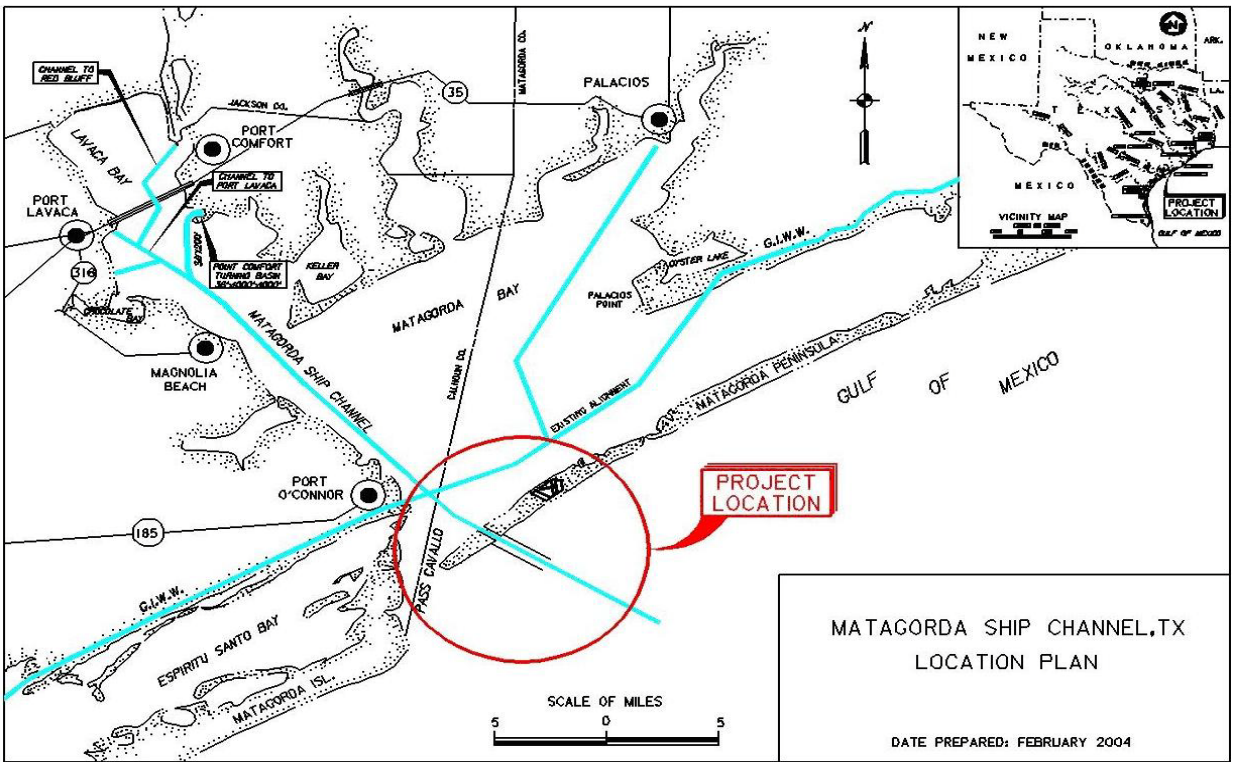

Figure 1. Location of the Matagorda Ship Channel Entrance Channel.

1.2 DESCRIPTION OF THE PROPOSED PROJECT AND HABITATS

Proposed Project Description

The Proposed Action (Bottleneck Removal, Beach Restoration, and Sundown Island Expansion) includes removing the existing rock dike on both sides of the channel with excavators, placing on dump trucks, and reusing the stone to construct a new 2,800-foot dike on the west bank and a 3,800-foot dike on the east bank of the MSC (Figure 3). A barge canal would be mechanically dredged to a depth of -14 MLLW from the bay side and material would be placed in the permanent disposal area behind the new dikes and in the temporary disposal areas to be hydraulically dredged later. Bulldozers may be used to work the material placed in the permanent disposal footprint. A 3-foot blanket of stone would be placed for armoring the new channel slopes from elevation +4.0 to -17 feet MLLW. The full width of the restricted channel would be dredged from 950 feet to 2,000 feet. The Proposed Action would remove 82 acres of barrier island habitat. Dredging would be performed using a hydraulic cutterhead dredge to a depth of -40 feet MLLW. Approximately 2,454,000 cy would be dredged on the west channel side and placed in a 344-acre PA (Figure 4). The material would be discharged in the surf zone adjacent to the west jetty for beach restoration. Approximately 2,454,000 cy would be dredged on the eastern channel side; half would be placed in the in the surf zone adjacent to the west jetty. The other half would be placed adjacent to Sundown Island on the northwestern side creating a 51-acre island expansion with a 73-acre water bottom footprint. (Figure 5). Three areas of existing large jetty stone, 1,950 linear feet (1.4 acres) would be removed and reused for construction of the flare on the bay side. The flare extensions from the foreshore dikes are approximately 850 feet on the west side and 860 feet on the east side. The total project construction duration is expected to take 371 days. Construction of the Proposed Action is anticipated to reduce currents and allow for a safer channel to navigate.

Figure 2. View of Matagorda Ship Channel Entrance, Bottleneck, and Sundown Island.

The action area is generally the area of bottleneck removal, dredging, the dredge pipelines, and the PAs that would accept the material. The action area regarding indirect effects from turbidity from dredging is expected to be less than 1,000 meters.

The purpose of the Design Deficiency Report is to evaluate the Federal interest in alternative plans (including the No-Action Plan) for addressing navigation safety on the MSC and assess the effects of the alternatives on the natural system and human environment. The study is being conducted to address problems in the MSC entrance to ensure vessels can more efficiently and more safely navigate the channel and reduce channel scouring.

Table 1. Federally-Listed Threatened and Endangered Species in Matagorda County, Texas

Species	**Status**
Northern aplomado falcon (*Falco femoralis septentrionalis*)	Endangered
Whooping crane (*Grus Americana*)	Endangered
piping plover (*Charadrius melodus*)	Threatened
red knot (*Calidris canutus rufa*)	Threatened
green sea turtle (*Chelonia mydas*)	Threatened
Kemp's ridley sea turtle (*Lepidochelys kempii*)	Endangered
loggerhead sea turtle (*Caretta caretta*)	Threatened
Hawksbill sea turtle (*Eretmochelys imbricate*)	Endangered
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered
Fin whale (*Balaenoptera physalus*)	Endangered
Sei whale (*Balaenoptera borealis*)	Endangered
Sperm whale (*Physeter macrocephalus*)	Endangered
West Indian Manatee (*Trichechus manatus*)	Threatened
Lobed star coral (*Orbicella annularis*)	Threatened
Mountainous star coral (*Orbicella faveolata*)	Threatened
Boulder star coral (*Orbicella franksi*)	Threatened
Elkhorn coral (*Acropora palmate*)	Threatened

Existing Habitat

The existing environment within the proposed project footprint was previously disturbed when the channel was constructed but has since re-vegetated with dune and saline marsh plant species. The bottleneck soil borings indicated the sands to be fine to very fine beach sands, similar to those encountered and tested along the Texas coastline from Galveston to Port Mansfield (USACE, 2017). The barrier island dune complexes are of two types, primary and secondary, each of which supports a unique plant community. The primary dunes are taller and offer more protection from wind and hurricane storm surge. Typical plant species of the primary dunes fronting the Gulf include sea oats (*Uniola paniculata*), bitter panicum *(Panicum amarum),* Gulf croton *(Croton punctatus),* beach morning glory *(Ipomea pescaprae),* and fiddleleaf morning glory *(Ipomea stolonifera).* Secondary dune species include marshhay cordgrass *(Spartina patens),* seashore dropseed (*Sporobolus virginicus*), seacoast bluestem (*Schizachyrium littorale*), seashore saltgrass (*Distichlis spicata*), pennywort *(Hydrocotyle bonariensis),* and partridge pea *(Chamaecrista fasciculata).*

Barrier shorelines and associated back marsh areas are dynamic areas with considerable spatial and temporal variation in plant species distribution. Vegetation is one of the most important factors in trapping and retaining sediments in the barrier shoreline system. The zones or communities of barrier island vegetation and the extent of their diversity are related to elevation, degree of exposure to salt spray, and storm events that cause overwash. Plant colonies trap and retain suspended sediment (those essential for platform accretion and dune formation), and protect newly deposited material from erosion. Vegetation also contributes to soil structure, nutrients, and trophic level food supply through their decomposition, and subsequent accumulation of organic matter (detrital material). In addition to the structural and nourishment benefits, vegetation also provides habitat function and

serves as an indirect indicator of wildlife and fisheries species vigor and condition.

Some areas of saline marsh located on Matagorda Island. Salt marsh communities (those that are common and fundamental to barrier islands) are characterized by some degree of tidal inundation, waterlogged soils, and salt-tolerant vegetation. These communities develop in the lee of the barrier islands, providing lateral support to the beach, and essential nursery grounds for finfish and shellfish.

In the Matagorda Bay area, low salt marsh is typically dominated by smooth cordgrass (*Spartina alterniflora*) and common species such as saltgrass (*Distichlis spicata*), glasswort (*Salicornia spp*.), saltwort (*Batis maritima*), saltmarsh aster (*Symphyotrichum tenuifolium*), and mangrove (*Avicennia germinans*). High salt marshes may include more halophytic species such as shoregrass (*Monanthochloe littoralis*), annual seepweed (*Sueda linearis*), sea ox-eye daisy (*Borrichia frutescens*), and seapurslane (*Sesuvium portulacastrum*).

Sundown Island is north of the MSC and has similar vegetation as Matagorda Island with some common woody species in the scrub shrub wetland areas such as big-leaf sumpweed (*Iva frutescens*) and eastern false-willow (*Baccharis halimifolia*).

The existing MSC, is currently authorized to a depth of -40 feet MLLW. A site visit was conducted on April 13, 2017 to view the project area and document the existing conditions. Relevant natural resources data was reviewed to determine if natural resources may be located in or around the project area. Aerial imagery was reviewed to confirm the urbanized nature of impacts (camp development and roads) on the barrier island.

Of the species listed in Table 1, piping plover, red knot, Kemp's ridley, green, and loggerhead sea turtles are most likely to occur in and around the project area. The Proposed Action would directly impact 0.85-acre of designated piping plover critical wintering habitat in Texas Unit-22 (Figure 6.) Other species listed are not likely to occur in the vicinity of the project due to lack of suitable habitat or the area is beyond their known range.

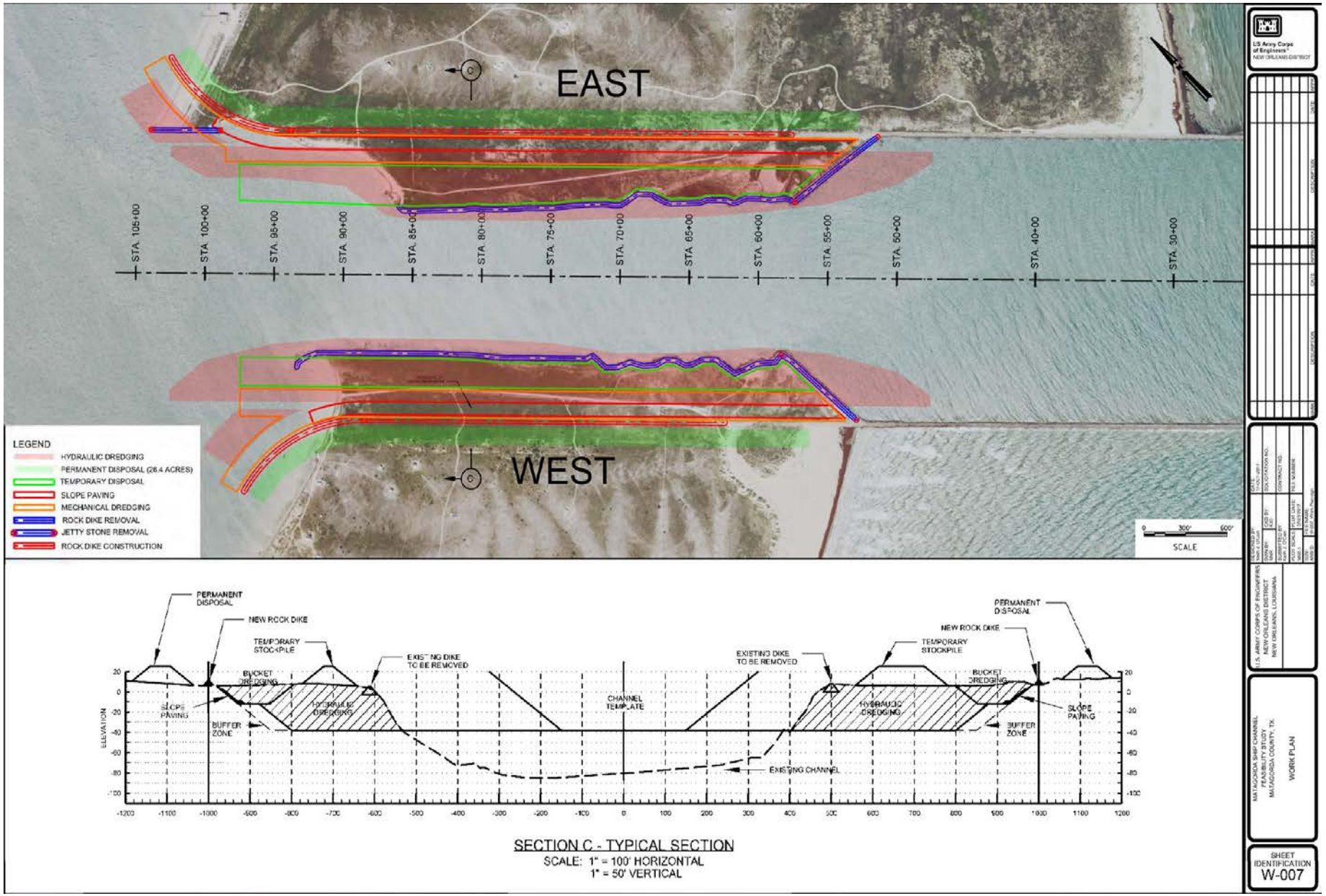

Figure 3 - Plan for Removal of Bottleneck.

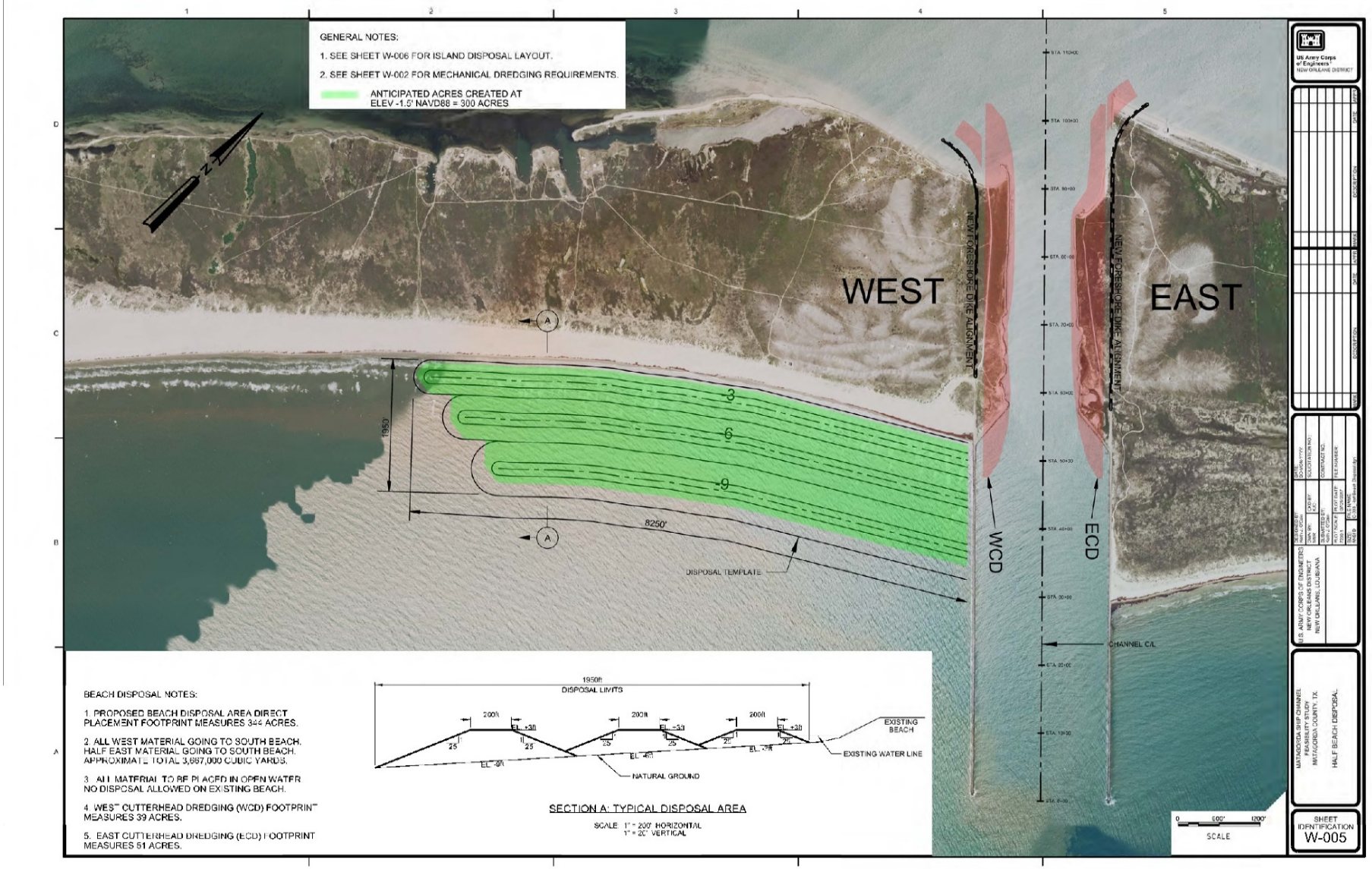

Figure 4. Beach Restoration Placement Area

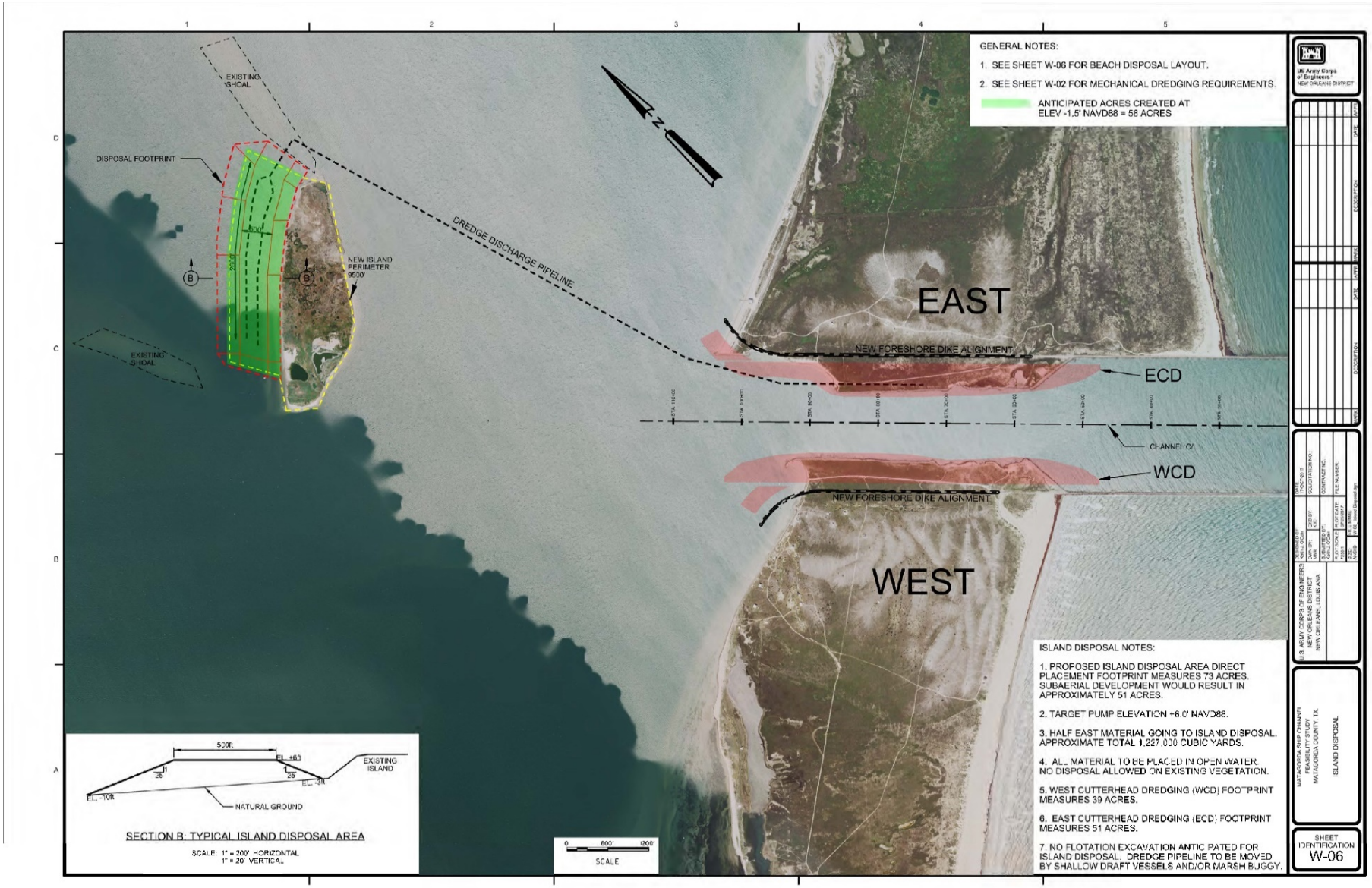

Figure 5. Sundown Island 73-acre Placement Area

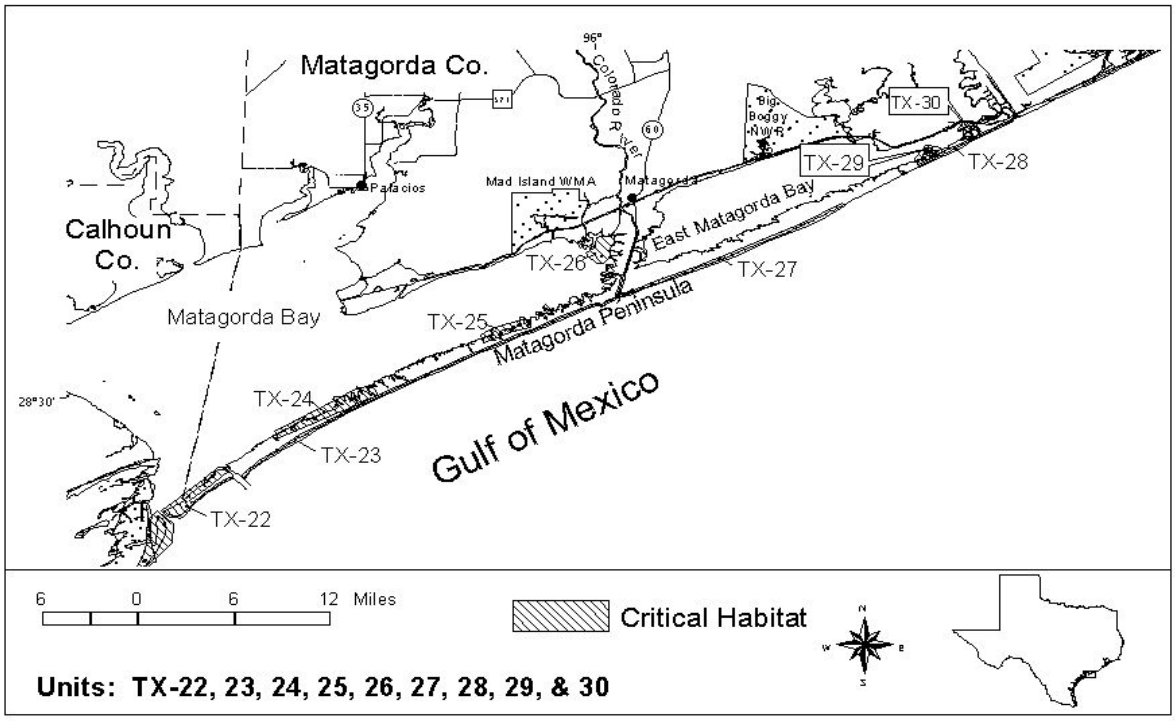

Figure 6. Designated piping plover critical wintering habitat in Texas Unit-22

2.0 EFFECTS ANALYSIS

2.1 EFFECTS OF THE PROPOSED ACTION ON LISTED SPECIES

The following sections provide the findings of Galveston District and species-specific avoidance, minimization, and conservation measures that support the effect determinations presented. Effect determinations are presented using the language of the ESA:

• ***No effect*** - the proposed action will not affect a federally-listed species or critical habitat;

• ***May affect, but not likely to adversely affect*** - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial; or

• ***Likely to adversely affect*** - adverse effects to listed species and/or critical habitat may occur as a direct result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or

completely beneficial. Under this determination, an additional determination is made whether the action is likely to jeopardize the continued survival and eventual recovery of the species.

2.2 PIPING PLOVER and its Designated Critical Habitat (Texas Unit-22)

The piping plover was federally listed as a threatened species in December 1985, and its critical habitat was designated in July 2001. Individuals, as well as their designated critical habitat, occur along the Texas coast. Critical Habitat Unit TX-22 occurs on the west Matagorda Island, within the proposed bottleneck removal land-cut and permanent placement area on the Gulf of Mexico beach and Matagorda Bay shoreline (Figures 3).

Piping plovers winter in Texas, and may be present for 8 to 10 months annually. They normally arrive from their breeding grounds as early as late July and remain until late March or April. Piping plovers feed extensively on invertebrates in intertidal beaches, mudflats, sand flats, algal flats, and wash-over passes with no or very sparse emergent vegetation; they also require un-vegetated or sparsely vegetated areas for roosting. Roosting areas may have debris, detritus, or micro-topographic relief offering refuge to plovers from high winds and cold weather. In most areas, wintering piping plovers are dependent on a mosaic of sites distributed throughout the landscape, because the suitability of a particular site for foraging or roosting is dependent on local weather and tidal conditions. Plovers move among sites as environmental conditions change, and studies have indicated that they generally remain within a 2-mile area.

Major threats to this species include the loss and degradation of habitat due to development, disturbance by humans and pets, and predation. Hunting in the early 1900s resulted in a drastic reduction of piping plover populations. A further detrimental impact to the population is attributed to the reduction of wintering habitat along the Gulf Coast, largely due to recreational and commercial development and dune stabilization. Recreational activities in areas along the Gulf Coast have been shown to decrease piping plover presence in those areas.

Impacts due to project – "May affect-but not likely to adversely affect"
Construction dredging of the bottleneck and permanent dredged material placement would directly impact 0.85-acre of piping plover critical wintering habitat in TX-22. The proposed project initially impacted 1.2 acres of plover critical habitat, but the drawings were revised to avoid .35-acre of critical habitat from the permanent disposal footprint on the Gulf beach side. Without the project there would be continued erosion due to relative sea-level rise, subsidence, and erosion associated with tropical storms and vessel traffic. Piping plover critical wintering habitat would be lost along the west Matagorda Island beach. The change in shoreline position on the beach adjacent to the south jetty was small and indicated advance of about 3-4 feet/year near the south jetty and recession of about 6-7 feet/year about 2 miles south of the jetty (Rosati et al, 2011). Figure 7 shows the 2011 beach shoreline in red and the 50-year modeled shoreline in blue. The recent affects from Hurricane Harvey may have increased these erosion rates.

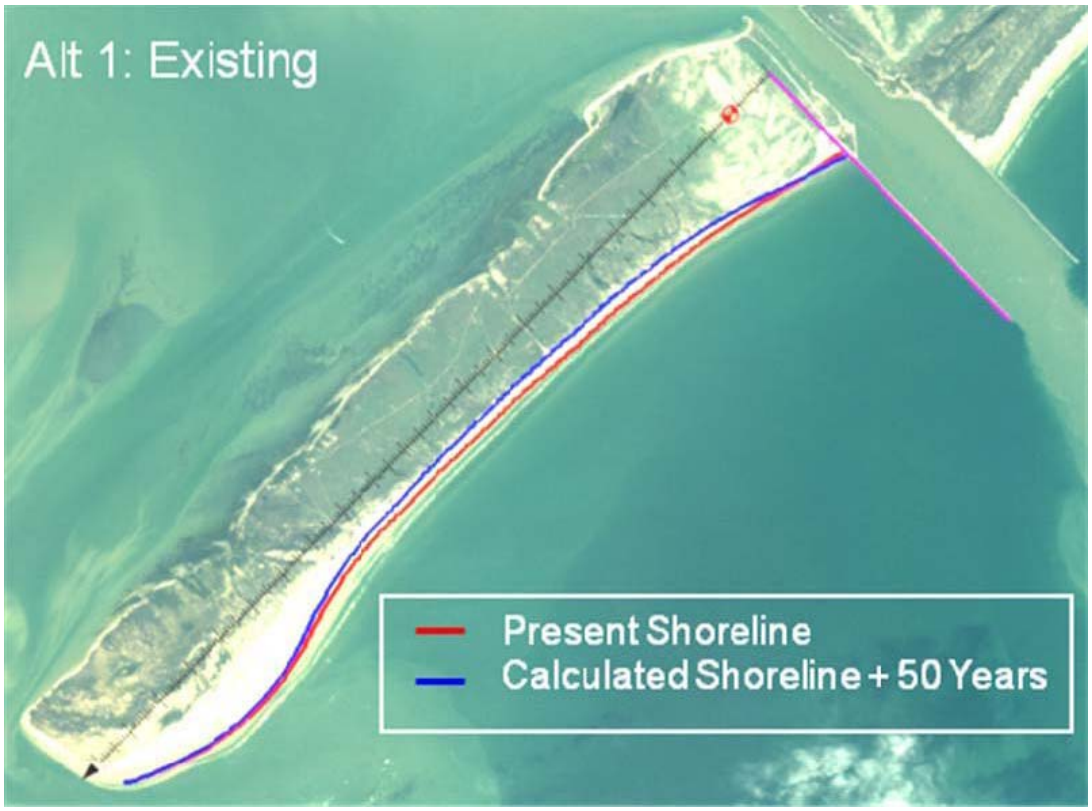

Figure 7. Calculated shoreline change from year 2011-2061. The beach is designated as TX-22 critical habitat.

Piping plovers could occur along shorelines and in the intertidal and shallow waters of the beaches during winter months; however, plovers are not permanent residents of the area. Should plovers occur in adjacent areas during construction, they may be temporarily displaced to nearby areas for foraging and loafing due to nuisance noises from dredging/placement operations.

The beneficial use of 390 acres of beach restoration/nourishment would reduce erosion rates along this section of beach. As the material is discharged, it would be reworked by wave action, and the deposited sand would migrate along the shoreline with the littoral drift. The proposed project would provide the benefit of reducing the recessional trend of the shoreline, thus reducing erosion rates of the beach and piping plover critical habitat. Although the Proposed Action would remove 0.85-acre of TX-22 critical habitat the overall benefits of beach restoration would offset the impacts. Based on review of scientific, technical, and commercial data, and for the reasons provided, impacts of the proposed action on piping plover are determined to be discountable. Currently, no piping plover surveys have been conducted to verify if plovers utilize this area for wintering habitat. Piping plover surveys would be performed when the USACE Galveston District gets confirmation that the proposed project is going to be funded for construction. If needed, the USACE Galveston District will reinitiate consultation with the USFWS to review the potential effects of the work on the piping plover and its critical habitat at that time.

2.3 RED KNOT

The rufa subspecies of red knot is a medium-sized migratory shorebird which breeds in the Canadian Arctic and winters in parts of the United States, the Caribbean, and South America. It primarily uses well-known spring and fall stopover areas on the Atlantic coast of the United States, although some birds follow a mid-continental migratory route. The red knot was listed as a threatened species effective January of 2015. No critical habitat for this subspecies has been designated. The species was listed due to loss of both breeding and non-breeding habitat, likely effects related to disruption of natural predator cycles on the breeding grounds, reduced prey availability throughout its non-breeding range, and increasing frequency and severity of mismatches in the timing of the birds' annual migratory cycle relative to favorable food and weather conditions (possibly related to climate change).

During the non-breeding season, red knots generally utilize coastal marine and estuarine habitats with large areas of exposed intertidal sediments. They are commonly found along sandy, gravel, or cobble beaches, tidal mudflats, salt marshes, shallow coastal impoundments and lagoons, and peat banks. In many wintering areas, quality high-tide roosting habitat that is close to feeding areas, protected from predators, with sufficient space during the highest tides, and free from excessive human disturbance. The supra-tidal (above the high tide) sandy habitats of inlets provide important areas for roosting, especially at higher tides when intertidal habitats are inundated. The primary prey of the red knot in non-breeding habitats include blue mussel (*Mytilus edulis*) spat (juveniles); *Donax* and *Darina* clams; snails (*Littorina spp*.), and other mollusks.

Impacts due to Project – "May affect-but not likely to adversely affect"
The barrier islands within the project area are typical of the high salinity waters around typical red knot wintering habitats in Texas, which are sandy/silty coastal shorelines, barrier islands and associated over-wash fans. The beach construction activities involving beneficial use would target open water environments for material placement, and would not place material on existing islands or wetlands. Construction noises may cause any bird occurring in nearby areas to be temporarily displaced to comparable habitat in the general vicinity. The Proposed Action would have similar beneficial effects as discussed in the piping plover section. Based on review of scientific, technical, and commercial data, impacts of the Proposed Action on the red knot are determined to be discountable. Currently, no red knot surveys have been conducted to verify if red knots utilize this area for wintering habitat. Red knot surveys would be performed when the USACE Galveston District gets confirmation that the proposed project is going to be funded for construction. The USACE Galveston District will reinitiate consultation with the USFWS to review the potential effects of the work on the red knot at that time.

2.4 NORTHERN APLOMADO FALCON

The Northern aplomado falcon adults are characterized by rufous (rust) underparts, a gray back, a long and banded tail, and a distinctive black and white facial pattern. Aplomado falcons are smaller species than the Peregrine falcons but are larger than kestrels. Habitat for the Northern aplomado falcon is variable throughout the species range which includes palm and oak savannahs, various desert grassland associations, and open pine woodlands. No preferred habitat for the Northern aplomado falcon exists in the vicinity of the Proposed Action. Therefore, no effect to the Northern aplomado falcon is anticipated as a result of construction

and operation of the proposed project. The USACE Galveston District will reinitiate consultation with the USFWS to review the potential effects of the work on the Northern aplomado falcon when the proposed project is funded for construction.

Impacts due to Project – "No effect"

The habitat is not conducive for the Northern aplomado falcon. It is improbable that this species would be found in the project area.

2.5 WHOOPING CRANE

The whooping crane is a large wading bird occurring only in North America. The whooping crane currently exists in the wild at three locations and consist of a total population of approximately 388 individuals. The largest population breeds at Wood Buffalo National Park in Alberta, Canada, and winters at Aransas National Wildlife Refuge in Aransas Pass, Texas. Whooping cranes frequent a diverse habitat, including coastal marshes and estuaries, inland marshes, lakes, ponds, wet meadows, rivers, and agricultural fields. Sixty to 80 percent of whooping crane losses occur during the approximate 9 weeks of migration. Causes for mortality include avian tuberculosis, shooting (illegal or by hunter mistake), non-shooting trauma following fall migration, avian predation, and collision with power lines (Canadian Wildlife Service [CWS] and USFWS, 2007). Coordination with the USFWS whooping crane coordinator (Wade Harrell) on January 8, 2018, indicated that no whooping cranes are in the project's vicinity. The USACE Galveston District will reinitiate consultation with the USFWS to review the potential effects of the work on the whooping crane when the proposed project is funded for construction.

Impacts due to Project – "No effect"

The habitat is not conducive to the whooping crane. It is improbable that this species would be found in the project area.

2.6 SEA TURTLES

Sea turtles may occur in the Gulf of Mexico and bay waters within and in the vicinity of the project area. Of the five turtle species listed by the NMFS and the USFWS, only the Kemp's ridley, green, and loggerhead sea turtles are likely to occur in the project area. The hawksbill and leatherback sea turtles are not likely to be found within the project area due to a lack of suitable habitats. Hawksbill sea turtles prefer clear offshore waters of mainland and island shelves and therefore are unlikely to occur in the project area. They are most common where coral reef formations are present (TPWD, 2017d). Leatherback sea turtles primarily inhabit the upper reaches of the ocean where deep water comes to the surface (upwelling areas) and therefore are unlikely to occur in the project area. They also frequently descend into deep waters from 650 feet to 1650 feet in depth in search of their prey such as jellyfish, tunicates, squid, fish, crustaceans, algae, and floating seaweed (TPWD, 2017e).

The largest threat to populations of sea turtles is the alteration of the existing environment, especially their nesting grounds and direct contact with humans. Historically, turtles declined

worldwide due to the harvest of both sea turtles and their eggs from nesting grounds. It is illegal to harvest sea turtles or their eggs in the United States and in many other parts of the world, although these practices do continue in some parts of the world. Sea turtles are also threatened by entanglement in commercial fishing gear, ingestion of or entanglement in marine debris, environmental contamination from industrial areas, and degradation of nesting habitat due to beach re-nourishment or beach armoring activities. The green sea turtle was designated as threatened in July 1970 and currently remains threatened in Texas. The Kemp's ridley sea turtle was designated as endangered in December 1970 and currently remains endangered in Texas. The loggerhead sea turtle was designated as threatened in July 1978 and currently remains threatened in Texas.

Green sea turtles are found in three distinct marine habitat types: high-energy oceanic beaches, convergence zones in pelagic habitat and benthic feeding grounds in relatively shallow, protected waters (USFWS/NMFS, 1991). The females deposit eggs on the high-energy beaches above the high water line. The hatchlings take refuge and feed in the convergence zones in the open ocean. The sub-adults feed on sea-grasses, coral, and rocky bottoms.

Kemp's ridley adults are generally found in the Gulf of Mexico waters and open ocean. Juveniles are most commonly reported in the northern Gulf of Mexico between Texas and Florida. Nesting mostly occurs on sandy beaches of Mexico. The USFWS contacted the Padre Island National Seashore (PAIS), which compiles the nesting data for the Texas coast. The PAIS responded that no nests were documented during 2016 and 2017 within one mile north and south of the MSC. However, very few nesting patrols, possibly none, occurred along the beaches of Matagorda Peninsula from the MSC up to the Colorado River approximately 12 miles northeast of the project. The same was found to be the situation for the small section of Matagorda Peninsula southwest of the MSC and Matagorda Island. The PAIS biologists noted that it appears that these areas can only be accessed by boat. Furthermore, PAIS records show that nests were documented just outside of those unpatrolled areas, so it is possible that nesting also occurs on this unpatrolled area. During 2016 and 2017, a combined total of 12 nests (10 Kemp's and 2 loggerhead) were found on the 17 mile section of Matagorda Peninsula north of the Colorado River.

The USFWS recommends that the USACE begin to conduct surveys for nesting sea turtles during the April 1, 2018 to September 15, 2018 season. Since turtle nesting varies from year to year, and as this area is outside of currently surveyed areas, developing a baseline of use in the proposed Beach Restoration Placement Area will be key in the development of Best Management Practices for dredge material discharge in the nearshore areas. A teleconference meeting was held on January 26, 2018, with the USFWS, USACE Galveston District, and USACE New Orleans District to discuss the details of surveys for nesting sea turtles. The USFWS recommended avoiding beach disposal during April 1, 2018 to September 15, 2018, and USACE Galveston District (Harmon Brown) agreed to the recommendation, so nesting sea turtle surveys would not have to be done.

The post-pelagic stages are commonly found feeding over bottoms and juveniles are frequently found feeding in bays, coastal lagoons, and river mouths (TPWD, 2017b).

Loggerhead sea turtles are found in a variety of environments such as brackish waters of coastal lagoons, river mouths, and tropical and temperate waters above 50 degrees Fahrenheit. Below 50 degrees Fahrenheit, the loggerhead sea turtles may lose their ability to swim and dive (NMFS/USFWS, 2008). Loggerhead sea turtles are also found in three distinct marine habitats: oceanic beaches, pelagic convergence zones, and benthic feeding grounds of shallow waters and bays (TPWD, 2017c).

Green sea turtles are found worldwide in tropical and sub-tropical waters. In the United States Atlantic waters, green turtles are found around the U.S. Virgin Islands, Puerto Rico, and the continental U.S. from Texas to Massachusetts. Important feeding areas for green turtles are located in and around Florida. Major Green turtle nesting beaches in the United States are found on the Atlantic beaches along the southeast coast of Florida and in smaller numbers along the beaches of Puerto Rico and the US Virgin Islands (TPWD, 2017a).

Kemp's ridley sea turtles have one of the most restricted distributions of any species of sea turtle, occurring mainly in coastal areas of the Gulf of Mexico and the northwestern Atlantic Ocean. The major nesting beach for the Kemp's ridley is on the northeastern coast of Mexico near Rancho Nuevo in southern Tamaulipas (TPWD, 2017b).

Loggerhead sea turtles are found worldwide throughout temperate and tropical seas. Their major nesting beaches in the United States are located primarily in the southeast along the Atlantic coasts of North Carolina, South Carolina, Georgia, and Florida (TPWD 2017c).

In Texas, green sea turtles are primarily found in the Gulf of Mexico, and sub-adults are occasionally found feeding in shallow bays and estuaries where marine sea grasses, the turtle's principle food source, grow. The green sea turtle population in Texas once flourished but declined due to commercialized overfishing in the mid to late nineteenth century. Green sea turtles can still be found in Texas bays and estuaries but in much-reduced numbers (TPWD, 2017a). If construction occurs during October - March, best management practices for addressing cold stunned and stranded sea turtles, would be incorporated into the project's Plans & Specifications (P&S). Any stunned or stranded sea turtles would be reported immediately to 1-866-887-8535. The following information would be provided: location, number of turtles, and the condition of the turtles found. The Kemp's ridley migrates along the Texas coast and generally remains in near shore waters less than 165 feet deep to feed on shrimp, crab, and other invertebrates (TPWD, 2017b). The smallest juveniles are found in shallow waters of bays or lagoons, often foraging in less than 3 feet of water, whereas larger juveniles and adults are found in deeper water. Almost the entire population of Kemp's ridley turtles nest near Rancho Nuevo, Tamaulipas, Mexico, although an increasing number of nests have been found along the Texas coast.

Loggerhead sea turtles are transient species along the Texas coast and in Texas bays and estuaries. Only minor and solitary nesting has been recorded along the coasts of the Gulf of

Mexico.

It is possible that green sea turtles, Kemp's ridley sea turtles, and loggerhead sea turtles may be found in or near the project area within Matagorda Bay as a transient species, since it contains and is surrounded by a warm estuarine bay. It is unlikely that leatherback or hawksbill sea turtles would be found in or near the project area, as it does not contain suitable habitat.

The sea turtles that may occur in the Gulf of Mexico and bay waters in or near the project area are green, Kemp's ridley, and loggerhead sea turtles. Dredging for the proposed project would primarily be conducted using hydraulic cutterhead dredges, which move at sufficiently slow speeds that turtles would be able to avoid the cutterhead. Additionally, a Regional Biological Opinion (RBO), dated November 19, 2003, by the NMFS for the Galveston, New Orleans, Mobile, and Jacksonville Districts of the USACE concluded that non-hopper dredges are not known to take sea turtles. A hydraulic cutterhead dredge is a non- hopper type of dredge. There is suitable nesting habitat for the Kemp's ridley sea turtle along the Matagorda Island beach west of the MSC jetties. Sea turtles are likely to avoid using the areas near dredging and placement activities due to noise associated with dredging operations. Similar impacts occur during periodic maintenance dredging of the MSC north of this reach. This may effect but not likely adversely affect sea turtle species using the Bay for transient foraging habitat as plenty of directly adjacent habitat would be available during the temporary construction dredging. Given the transient use and the temporary nature of the construction, occurrence of the effect would be unlikely but possible.

Impacts due to Project – The Proposed Action would have "no effect" on the hawksbill and leatherback sea turtles; "May affect, but not likely to adversely affect" non-nesting Kemp's ridley, green, or loggerhead sea turtles; "no effect" on nesting green or loggerhead sea turtles; and "May affect, but not likely to adversely affect" nesting Kemp's ridley sea turtles.

2.7 WEST INDIAN MANATEE

The West Indian manatee is listed under the Endangered Species Act as a threatened species, and it is also protected under the Marine Mammal Protection Act of 1972. The manatee has declined in numbers due to collisions with boats and barges, entrapment in flood control structures, poaching, habitat loss, and pollution. Today, collision with boats and loss of fresh water habitat represent the biggest threats. Boat collisions are especially dangerous to manatees because they often rest just below the surface of the water with only their snouts breaking the surface. Manatees live in moderate temperature waters, no colder than 20° C. They can travel long distances and migrate along the coast with seasonal changes, but are never found far from shore. Manatees will occasionally feed in brackish or salt water but require fresh water for drinking. They also prefer waters near shore, large rivers, river mouths, and shallow coastal areas, such as coves and bays; areas that are abundant with sea grasses for grazing (LDWF, 2012).

In Texas, strandings and sightings of the West Indian manatee have been documented from Galveston County to Cameron County.

The following USFWS recommendations will be included in the P&S: project construction and operations employees will (a) be advised that manatees may approach the proposed project area (b) be provided materials, such as a poster, to assist in identifying the mammal, (c) be instructed not to feed or water the animal, and (d) contact the U.S. Fish and Wildlife Service (USFWS) and the Texas Marine Mammal Stranding Network (TMMSN) if a manatee is sighted. For the upper Texas coast, contact the USFWS at 713-542-1861. The TMMSN hotline number is 800-962-6625.

Impacts due to Project – "No effect"

The West Indian manatee is extremely rare in Texas and would not tolerate the high salinity conditions in the project area. The project area waters are too cold during winter months and do not contain submerged or emergent aquatic vegetation required by the West Indian manatee, limiting it to rare stray, transient occurrence in the MSC. The USACE Galveston District will reinitiate consultation with the USFWS to review the potential effects of the work on the West Indian manatee when the proposed project is funded for construction.

2.8 WHALES

The Proposed Action footprint does not involve habitat required for oceanic species (e.g. fin, sei, or sperm whales). Fin whales are found in deep, offshore waters and feed on krill, small schooling fish (e.g., herring, capelin, and sand lance), and squid. Fin whales can be found in social groups of 2-7 whales, (NOAA, 2017a). Fin whales have been documented to occur within the Gulf of Mexico, but are generally anti-tropical distribution centered in the temperate zones NOAA 2010a.

Sei whales prefer subtropical to sub polar waters on continental shelf edge and slope worldwide and observed in deeper waters of oceanic areas far from the coastline NOAA 2017b. Sei whales look similar in appearance to Bryde's whales and they also tend not to enter semi-enclosed water bodies, such as the Gulf of Mexico NOAA 2011. Sei whales feed primarily on calanoid copepods with secondary preference for krill.

Sperm whales tend to inhabit areas with a water depth of 600 m (1968 feet) or more and are uncommon in waters less than 300 m (984 feet). Their diet consists of many larger organisms that also occupy deep waters of the ocean such as large squid, large demersal and mesopelagic sharks, skates, and fishes. Sperm whales are the most common large cetacean in the northern Gulf of Mexico, where is occurs in greatest density along and seaward of the 1,000 m (3,280 foot) depth contour and prefer steep rather than shallow depth gradients (NOAA, 2010b).

Impacts due to Project – "No effect"

The fin, sei, or sperm whales prefer deep water habitat. The water depth of the beach placement area varies from approximately 1.0 feet to 9.0 feet. The noise from the frequent ships entering the MSC would be another deterrent for these whales. It is improbable that these whales would be found in the project area.

2.9 CORALS

Four invertebrate coral species have been listed by NMFS: lobed star, mountainous star, boulder star, and elkhorn coral. None of the coral species are expected within the project area therefore the Proposed Action would have "no effect" on these species.

Impacts due to Project – "No effect"

3.0 CONCLUSION

The Proposed Action "may affect-but not likely to adversely affect" the piping plover. Although the Proposed Action would remove 0.85-acre of TX-22 critical wintering habitat the overall benefits of beach restoration would offset the impacts. The proposed project would provide the benefit of reducing the recessional trend of the shoreline, thus reducing erosion rates of the beach and piping plover critical habitat. The Proposed Action "may affect-but not likely to adversely affect" the red knot. The Proposed Action would have similar beneficial effects as discussed for the piping plover. The Proposed Action would have "no effect" on the Northern aplomado falcon, whooping crane, West indian manatee, whales, corals, hawksbill and leatherback sea turtles; "may affect, but not likely to adversely affect" non-nesting Kemp's ridley, green, or loggerhead sea turtles; "no effect" on nesting green or loggerhead sea turtles; and "may affect, but not likely to adversely affect" nesting Kemp's ridley sea turtles.

We respectfully request your concurrence with our determination. If you have any questions about the project or need additional information please contact Mr. Michael Brown at (504) 862-1570 or via email at michael.t.brown@usace.army.mil.

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