US Army Corps of Engineers ®
Galveston District

Appendix B

Endangered Species Act Compliance

for

Coastal Texas Protection and Restoration Feasibility Study

August 2021

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real, Suite 211
Houston, Texas 77058
281/286-8282 / (FAX) 281/488-5882

In Reply Refer To:
FWS/R2/02ETT
X00-2021-I-0850

January 27, 2021

Colonel Timothy R. Vail
District Commander
Galveston District, U.S. Army Corps of Engineers
Attention: Mr. Jeff Pinsky
Post Office Box 1229
Galveston, Texas 77553-1229

Dear Colonel Vail: Consultation No. 02ETTX00-2021-I-0850

Thank you for submitting a request for concurrence along with a revised Biological Assessment (BA) dated January 2021 for the Coastal Texas Protection and Restoration Feasibility Study (Coastal Texas Study). The proposed project consists of actionable measures along the Texas coast which include restoration of 15.2 miles of bird rookery islands, 12.32 miles of oyster reef construction, 2,052 acres of marsh restoration, and 112,864 acres of hydrologic connections, as well as 114 miles of breakwater structures along the Gulf Intracoastal Waterway (GIWW). The U.S. Army Corps of Engineers (Corps) determined that the project may affect, but is not likely to adversely affect the piping plover (*Charadrius melodus*), rufa red knot (*Calidris canutus rufa*), whooping crane (*Grus Americana*), Eastern black rail (*Laterallus jamaicensis jamaicensis*), and West Indian manatee (*Trichechus manatus*).

The Corps has also determined that the actionable measures would have *no effect* on the northern Aplomado Falcon (*Falco femoralis septentrionalis)*, the Attwater's Greater Prairie-Chicken *(Tympanuchus cupido attwateri*), Texas Fawnsfoot *(Truncilla macrodon),* Gulf Coast Jaguarundi (*Herpailurus yagouaroundi cacomitli*), Ocelot (*Leopardus pardalis*), Texas Ayenia (*Ayenia limitaris*), South Texas Ambrosia (*Ambrosia cheiranthifolia*), Slender Rush-pea *(Hoffmannseggia tenella*), Texas prairie dawn-flower *(Hymenoxys texana)* and four nesting sea turtle species; green (*Chelonia midas*), hawksbill (*Eretmochelys imbricata*), Kemp's ridley (*Lepidochelys kempii*), and loggerhead (*Caretta Caretta*), due to lack of suitable habitat and/or use of the action area. In addition, the project will not adversely modify piping plover critical habitat.

Under section 7(a)(2) of the Endangered Species Act (Act), the federal action agency, or its designated representative, is responsible for determining the effects of their actions on listed species or critical habitat (50 CFR § 402.14 [a]) and is ultimately responsible for Section 7 obligations. If the action agency determines its proposed action will have no effect on federally

listed species or critical habitat, no contact with the U.S Fish and Wildlife Service (Service) is necessary. However, you should maintain a complete record of your evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles. The Service's Consultation Handbook (https://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf) is available online for further information on definitions and process.

As stated in the BA the Corps has agreed to the following avoidance and minimization measures:

Piping Plover and Red Knot

- No breakwaters or dredged material would be placed in any tidal flats exposed at low tide.
- A monitoring plan would be developed in coordination with the Service during pre-engineering design (PED) phase to avoid disturbance to individuals.

Eastern Black Rail (BLRA)

- No marsh construction activities will occur from March 1st through September 30 (breeding, nesting, chick rearing, and molting season). If this timing restriction cannot be achieved then the following will take place:
    - On site vegetative field surveys will be conducted before work begins to identify BLRA habitat types along the GIWW adjacent to the proposed breakwater structures.
    - No material for marsh restoration will be placed in high marsh dominated by gulf cordgrass (*Spartina spartinea*), saltmeadow cordgrass (*S. Patens*), sea-oxeye (*Borrichia frutescens*), and/or saltgrass (*Distichlis spicata*) or dense overhead cover that meets the target marsh elevation for BLRA habitat.
    - If temporary access routes, pipeline routes, or staging areas occur within identified BLRA habitat, the contractor must minimize traffic in these areas therefore minimizing the construction footprint, i.e., limited paths.
    - In addition to minimizing access routes, areas of high marsh habitat should be left intact to provide refugia for the BLRA to ensure escape access routes. The Corps should work with the Service to identify refugia areas once PED site specific planning begins.
    - Monitors will be needed to assist construction crews with avoidance and minimization to BLRA habitats once work begins.
- Tidal connections must not be restricted such that the flow and salinity regimes are modified.
- Use of construction lighting at night shall be minimized, directed toward the construction activity area, and shielded from view outside of the project area.

Whooping Crane

- Avoid construction activities during whooping crane wintering season November 1 through April 30. If this timing restriction cannot be achieved then the following will take place:
    - A biological monitor qualified in identifying whooping cranes, with stop work authority, will be on site while construction is in progress.
    - A 1,000 foot-radius of the work site will be delineated before work begins. If a whooping crane is observed within the 1,000-foot radius, the biological monitor shall halt construction activities, including shutting down any running equipment until the bird has vacated the radius.
    - If construction equipment is over 15 feet tall, the equipment must be laid down and dusk, overnight, and during inclement weather so as to avoid whooping crane strikes during times of low visibility
    - If equipment cannot be laid down at these times, then such equipment will be marked using surveyors flagging tape, red plastic balls or other suitable marking devices and lighted during inclement weather condition when low light and or fog is present.
- All whooping crane sightings will be immediately reported to the Texas Coastal Ecological Services Field Office at (361) 533-6765 or (361) 676-9953.

West Indian Manatee

- Qualified biologists will monitor for the presence of manatee during phases which involve open water areas capable of supporting manatees.
- Before activities occur in open water areas, a 50-foot radius of the work area should be delineated. If a manatee is observed within the 50-foot radius, the biological monitor shall halt construction activities, including shutting down any running equipment until the animal has moved beyond the radius, either through sighting or by waiting until enough time has elapsed (approximately 15 minutes) to assume that the animal has moved beyond the buffer.
- If a manatee is sighted within 100 yards of the active work zone, vessels will operate at no wake/idle speeds.
- If siltation barriers are used, they will be made of material in which manatees cannot become entangled, should be properly secured, and regularly monitored to avoid entrapment. Barrier should not impede manatee movement.
- Any manatee sightings will be immediately reported to the Texas Coastal Ecological Services Field Office at (361) 533-6765. .

Thank you for the opportunity to review and provide comments on the proposed project. The Service concurs with the Corps determination that the proposed project "may affect, but is not likely to adversely affect", the federally listed piping plover, rufa red knot, Whooping crane, Eastern black rail, and West Indian manatee. This concurrence is based on the information provided in the BA dated January 2021, review of Service files, our knowledge of the area and the species biology, coordination during conference calls, and is contingent upon implementation of the above avoidance and minimization measures.

In the event the project changes or additional information on listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered. Our response is provided in accordance with the provisions of the Act of 1973 (16 U.S.C. 1514 et seq.). If you have questions or need additional information, please contact staff biologist Moni Belton at 281-212-1512 or Moni_Belton@fws.gov.

Sincerely,

Charles Ardizzone
Project Leader

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

January 20, 2021

REPLY TO THE ATTENTION OF
CESWF-PEE-C

Mr. Chuck Ardizzone
United States Fish and Wildlife Service
Texas Coastal Ecological Services–Houston
17629 El Camino Real, Suite 211
Houston, Texas 77058

Dear Mr. Ardizzone:

In response to your letter dated January 18, 2021, the USACE is hereby resubmitting the Biological Assessment for the Coastal Texas Protection and Restoration Feasibility Study (Coastal Texas Study) with the recommended revisions including:

- Removing the beach and dune restoration actions as actionable measures,
- Incorporation of additional or different avoidance and minimization measures,
- Removal of any discussion regarding Tier 1 measures and the request for technical assistance, and
- General edits based on an edit/comment document provided by the Service.

In the revised BA, USACE has determined that the actionable measures *may affect, but is not likely to adversely affect* the Piping Plover, Rufa Red Knot, Whooping Crane, Eastern Black Rail, and West Indian Manatee because all effects to the species and their habitats would be insignificant and/or discountable when combined with the avoidance and minimization measures the USACE has committed to implementing. The USACE has also determined that the actionable measures would have *no effect* on the Northern Aplomado Falcon, the Attwater's Greater Prairie-Chicken, Texas Fawnsfoot, Gulf Coast Jaguarundi, Ocelot, Texas Ayenia, South Texas Ambrosia, Slender Rush-pea, Texas prairie dawnflower, and nesting sea turtles (including the loggerhead, green, hawksbill, and Kemp's ridley sea turtles) due to lack of suitable habitat and/or use of the action area. Additionally, the USACE has determined the actionable measures would have *no effect* on piping plover critical habitat because none of the restoration actions would directly or indirectly modify any primary constituent elements. We request your concurrence with these determinations.

If you have any questions or need additional information to conduct your review, please contact Mr. Jeff Pinsky, Environmental Branch, Regional Planning and Environmental Center, PO Box 1229, Galveston, TX 77553-1229, or you may e-mail comments or questions to Jeffrey.F.Pinsky@usace.army.mil.

Timothy R. Vail
Colonel, U.S. Army
Commanding

Enclosure

D EPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

January 20, 2021

REPLY TO THE ATTENTION OF
CESWF-PEE-C

Dr. Roy E. Crabtree
Regional Administrator
National Marine Fisheries Service
Southeast Regional Office
Protected Resources Division
263 13th Avenue South
St. Petersburg, Florida 33701-5505

Dear Dr. Crabtree:

The US Army Corps of Engineers Galveston District (Corps) is hereby notifying you of a change to the Coastal Texas Protection and Ecosystem Restoration Feasibility Study (Coastal Texas Study) and is submitting a revised Biological Assessment (BA) for your review.

The Coastal Texas Study employs a tiered approach for documenting compliance with the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality's (CEQ's) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR 1500—1508, specifically 1502.20). Under this structure, measures classified as "actionable measures" have satisfied all environmental compliance requirements including a complete NEPA analysis. Measures classified as Tier 1 measures will require future Tier 2 environmental analysis and/or additional environmental compliance coordination prior to construction. The BA was revised in response to a modification to the tiered NEPA status of two of the recommended measures. Specifically, Ecosystem Restoration measure W-3 and Coastal Storm Risk Management measure, South Padre Island Beach and Dune Restoration, have been reclassified as Tier 1 measures rather than actionable measures.

The Corps determined the actions would not significantly modify maintenance dredging operations or induce affects to listed species or critical habitat beyond those in which the *Gulf of Mexico Regional Biological Opinion on Hopper Dredge use for Maintenance Dredging of Channels and Sand Mining by the four USACE Gulf of Mexico Districts* (GRBO) addressed. Therefore, implementation of the actionable measures would not require the initiation of consultation.

This change has not altered any of our effect determinations for National Marine Fisheries Service (NMFS) trust resources. Specifically, we evaluated the six listed or candidate species (five whale and two fish species), within NMFS jurisdiction, and

determined that implementation of the actionable measures would still have *no effect* due to the lack of suitable habitat or the action area is outside the species known range.

The Corps is providing the revised BA for your records and recognize that your procedures state you will not provide any written concurrence for a federal action agency's no effect determination. If you have any questions please contact Mr. Jeff Pinsky, Environmental Branch, Regional Planning and Environmental Planning Center, at Jeffrey.F.Pinsky@usace.army.mil or by phone at 409-224-2013.

Timothy R. Vail
Colonel, U.S. Army
Commanding

Enclosure

Coastal Texas Protection and Restoration Feasibility Study

Biological Assessment for Federally-Listed Threatened and Endangered Species

January 2021

Prepared by:

United States Army Corps of Engineers
Regional Planning and Environmental Center

US Army Corps of Engineers ®
Galveston District

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1.0 INTRODUCTION

This Biological Assessment (BA) has been prepared in accordance with requirements outlined under Section 7 of the Endangered Species Act (ESA). Section (7)(a)(2) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that are proposed or listed as endangered or threatened, as well as their designated critical habitat (CH), if applicable.

This BA is the first of several anticipated ESA compliance documents for the Coastal Texas Protection and Restoration Feasibility Study. This BA documents USACE's conclusions and the rationale to support the conclusions regarding the effects of the actionable measures (measures that could be constructed within a standard design and construction timeframe) of the proposed action. It also demonstrates the proposed action is in compliance with Section 7, which assures that, through consultation with the US Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS), Federal actions do not jeopardize the continued existence of any threatened, endangered or proposed species, or result in the destruction or adverse modification of CH.

Implementation of the actionable measures of the recommended plan have the potential to impact the following ESA-listed species that could occur in one or more of the action areas: piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*), whooping crane (*Grus americana*), northern aplomado falcon (*Falco femoralis septentrionalis*), Eastern black rail (*Laterallus jamaicensis jamaicensis*) West Indian manatee (*Trichechus manatus*), loggerhead sea turtle (*Caretta caretta*), green sea turtle (*Chelonia mydas*), leatherback sea turtle (*Dermochelys coriacea*), Hawksbill sea turtle (*Eretmochelys imbricata*), and Kemp's Ridley sea turtle (*Lepidochelys kempii*). An additional 14 species were identified as potentially occurring in the action area including one avian species, one clam species, two fish species, six mammal species, and four plant species; however, these species' known range or preferred habitat is outside the action area. The only CH found in or near any of the action areas is for piping plover.

This BA briefly describes the complete recommend plan which includes actions referred to as Tier 1 measures (actions that have longer than usual design and construction timeframes); however, this document does not include effects determinations or potential impacts for the activities included in the Tier 1 measures. Since construction of most of these actions is not likely to begin for at least 10 years, a Tiered NEPA strategy has been employed for these measures, meaning that subsequent NEPA reviews and ESA consultation would be required for these measures in the future. Once more detail is developed and the project impacts fully understood, official Section 7 consultation will be requested for those measures. During the pre-engineering and design phase, the USACE will seek technical assistance from USFWS and NMFS on potential impacts to listed species, recommendations to avoid or minimize potential impacts, and to document what questions remain that need to be answered prior to initiating official Section 7 consultation on these actions.

1.1 Study Background

The U.S. Army Corps of Engineers, Galveston District (USACE), in partnership with the Texas General Land Office, have undertaken the Coastal Texas Protection and Restoration Feasibility Study (the Study), which is examining coastal storm risk management (CSRM) and ecosystem restoration (ER) opportunities within 18 counties of the Texas Gulf coast (Figure 1). This Study seeks to develop a comprehensive plan along the Texas coast to mitigate coastal erosion, relative sea level rise (RSLR), coastal storm surge, habitat loss, and water quality degradation. The proposed Federal action (also referred to as the recommended plan) consists of two Coastal Storm Risk Management (CSRM) measures (1. Coastal Barrier located along Galveston Bay, Galveston Island, and Bolivar Peninsula and 2. South Padre Island Beach Nourishment), and eight Ecosystem Restoration (ER) measures located along the Texas Gulf coast from Chambers to Cameron counties, Texas.

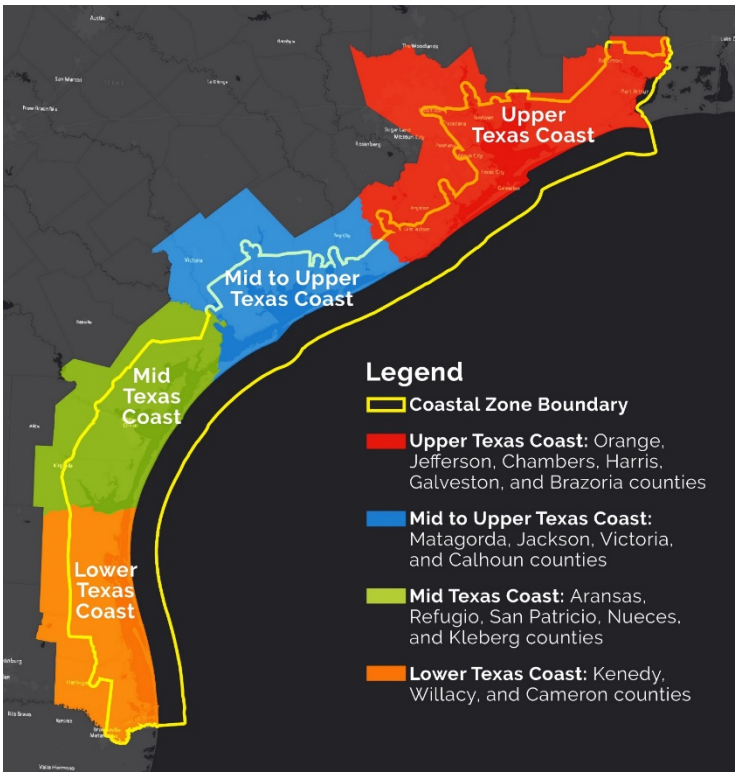

Figure 1. Coastal Texas Study Area

Currently, the Coastal Texas Study has completed the Agency Decision Milestone (ADM) meeting phase of the USACE Specific, Measurable, Attainable, Risk Informed, Timely (SMART) Civil Works planning process, where a plan has been recommended by the USACE vertical chain of command. At this stage of the planning, the major components of the plan have been identified and evaluated at a higher level of analysis. Consistent with USACE policy in Planning Bulletin PB 2017-01, there is a certain level of uncertainty expected in the size and make-up of the recommended plan, and other plans identified from the suite of alternatives analyzed in this initial phase, including the National Economic Development (NED) Plan, or a variant preferred by the non-Federal sponsor. As such, the final size of the measures (e.g. width, length, etc.), and location presented in this BA may change in the next planning phase. These changes can affect the habitat impacted. Because of the conservative nature of economic and engineering assumptions used during the initial planning of the recommended plan, it is anticipated that the design of proposed structures will result in equal or lesser environmental impacts.

On March 31, 2016, the U.S. Army Corps of Engineers (USACE), Galveston District published a Notice of Intent (NOI) in the Federal Register (Volume 81, Number 62, 18601) declaring its intent to prepare an EIS to determine the feasibility of implementing the Coastal Texas Study. Because of the uncertainty and complexity of a number of the potential solutions to the problems, the Study employs a tiered NEPA compliance approach, in accordance with the Council on Environmental Quality's (CEQ's) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR 1500—1508,

specifically 1502.20). Under this structure, rather than preparing a single definitive EIS as the basis for approving the entire project, the USACE will conduct two or more rounds – or "tiers" – of environmental review. For projects as large and complex as the Study, this approach has been found to better support disclosure of potential environmental impacts for the entire project at the initial phase. Subsequent NEPA documents are then able to present more thorough assessments of impacts and mitigation need as the proposed solutions are refined and more detailed information becomes available in future phases of the project. This tiered approach also provides for a timely response to issues that arise from specific, proposed actions and supports forward progress toward completion of the overall study.

A Tier One assessment analyzes the project on a broad scale, while taking into account the full range of potential effects to both the human and natural environments from potentially implementing proposed solutions. The purpose of the Tier One EIS is to present the information considered to selected a preferred alternative, describe the comprehensive list of measures, and identify data gaps and future plans to supplement the data needed to better understand the direct, indirect, and cumulative effects of the proposed solutions.

Once refinements and additional information is gathered, USACE will shift to a Tier Two assessment, which involves preparation of one or more additional NEPA documents (either an EIS or Environmental Assessment) that build off the original EIS to examine individual components of the Recommended Plan in greater detail. Whether an EIS or EA is developed will be dependent on the significance of impacts anticipated from the action. In either situation, Tier Two assessments will comply with CEQ Regulations, including providing for additional public review periods and resource agency coordination. The Tier Two document would disclose site specific impacts to the proposed solution and identify the avoidance, minimization, and compensatory mitigation efforts to lessen adverse effects.

This BA is consistent with the Tiered NEPA approach in the draft EIS in that some measures, known as actionable measures, are described in sufficient detail to allow complete assessments consistent with environmental compliance laws and regulations. The remaining measures, known as Tier 1 measures, will have a more broad-level review acknowledging supplemental or subsequent environmental statements or analysis, including additional coordination and consultation under ESA, will be required at a later stage when more site-specific design level details are available and the full range of impacts are understood.

1.2 Consultation History

Significant coordination with USFWS, NMFS, Texas Parks and Wildlife Department (TPWD), Natural Resource Conservation Service (NRCS), Bureau of Ocean Energy Management (BOEM), Texas Commission on Environmental Quality (TCEQ), Environmental Protection Agency (EPA), and Texas General Land Office (GLO) has occurred since the start of the study. Coordination has included: problem and opportunity development; contributing to identifying restoration measures and priority restoration locations; describing the existing, future without- and future with-project condition; and review of benefit and impact analyses. Each of the listed agencies were involved in developing assumptions and assigning values for the Habitat Evaluation Procedure (HEP) species models that were used to predict future conditions with and without the recommended plan. The following documents coordination with USFWS and NMFS regarding ESA and general resource agency coordination:

- November 19, 2003 – Gulf Region Biological Opinion (GRBO) issued for regular maintenance hopper dredging of navigation channels and offshore sand mining for beach restoration/nourishment activities in the US Gulf of Mexico by USACE's Jacksonville, Mobile, New Orleans, and Galveston Districts and its effects on 13 species and one CH within the NMFS jurisdiction. The BO covers maintenance dredging activities within the SNWW. (Consultation Number F/SER/2000/01287)
- October 25, 2018 – Official Correspondence from USACE to USFWS Requesting Formal Consultation signed by Col. L. Zetterstrom
- October 25, 2018 -- Official Correspondence from USACE to NMFS Requesting Formal Consultation signed by Col. L. Zetterstrom
- November 26, 2018 – Official Correspondence from USFWS Regarding USACE Request to Initiate Formal Consultation (FWS/R2/CESFO/02ETXX0-2019—0375). Letter from C. Ardizzone indicating the BA and initiation package are incomplete and identifies several deficiencies that need to be corrected prior to continuing with formal consultation and acceptance of the initiation package.
- September 4, 2019 – Resource agency meeting to present project updates and to discuss ESA and Marine Mammal Protection Act concerns. Discussions included impacts to and minimization measures for piping plover, red knot, all five sea turtle species, West Indian manatee, bottlenose dolphin, oceanic white tip shark, giant manta ray, and whale species.
- December 30, 2019 – January 03, 2020 – Updated Species Lists Requested for each individual measure of the recommended plan. (Consultation Numbers: 02ETTX00-2020-SLI-0607, 02ETTX00-2020-SLI-0608, 02ETTX00-2020-SLI-0609, 02ETTX00-2020-SLI-0610, 02ETTX00-2020-SLI-0611, 02ETTX00-2020-SLI-0613, 02ETTX00-2020-SLI-0614, 02ETTX00-2020-SLI-0615, 02ETTX00-2020-SLI-0658, 02ETTX00-2020-SLI-0662, 02ETTX00-2020-SLI-0655, 02ETTX00-2020-SLI-0664, 02ETTX00-2020-SLI-0666
- January 7, 2020 – In person meeting at the USFWS Clear Lake Office with NMFS attending by conference call. Continued discussions regarding species identified for ESA consultation and potential impacts to individuals and their habitat from project measures.
- June 4, 2020 – Meeting with USFWS to continue discussions on the Study and ESA compliance.
- September 23, 2020 – Meeting with USFWS to provide an overview of the recommended plan for new USFWS staff responsible for overseeing the consultation actions. As well, discussions about how information will be presented in the Draft BA and the tentative effects determinations of not likely to adversely affect determinations provided consensus on the path forward. Concerns were raised over potential changes to benthic communities from beach nourishment actions for piping plover and red knot. Committing to completing only 500 to 1,000- foot increments of active construction zone was an acceptable means of mitigating the concerns. There was debate over the existing quality of habitat at W-3.
- October 30, 2020 – Official Correspondence sent electronically from USACE to USFWS Requesting Informal Consultation signed by Col. T. Vail (Consultation number 02ETTX00-2021-I-0850)

- January 07, 2021 – Meeting with USFWS to discuss concerns with the not likely to adversely affect determination for piping plover, red knot, and sea turtles, specifically regarding beach nourishment actions. USFWS encouraged initiating formal consultation.

- January 13, 2021 – Meeting with USFWS to determine a path forward to maintain informal consultation. Decision was that USACE would remove W-3 and SPI as actionable measures and would consult on them through the Tiered NEPA process. Additional concerns were raised regarding the whooping crane and black rail determinations of not likely to adversely affect. M. Belton would provide additional conservation measures that should be incorporated and would support a not likely to adversely affect determination.

- January 18, 2021 -- Official Correspondence from USFWS Regarding USACE Request to Initiate Informal Consultation (02ETTX00-2021-I-0850). Letter from C. Ardizzone indicating the Service did not concur with not likely to adversely affect determinations for piping plover, red knot, sea turtles, whooping crane and black rail as the submitted BA was written. The letter indicated the reasons for not concurring with a not likely to adversely affect determination for piping plover, red knot, and sea turtles (USACE could not set timing restrictions to avoid turtle nesting season in W-3; ongoing debates regarding the quality of W-3 in regards to use by piping plovers and red knots; the Service's position that it must be consistent with these types of projects as there are formal consultations for existing and on-going beach nourishment projects, particularly of this size; recommendation to complete benthic studies/surveys along with beach nourishment project to ensure a healthy ecosystem returns within a relatively short period of time; and commitment by USACE to implement remedial actions if the sand composition, not consistent with beach quality sand within or adjacent to the nourishment area is placed in nourishment areas.). The letter requested a revised BA be resubmitted incorporating comments that were provided on the document, inclusion of the additional conservation measures for whooping crane and black rail that would then support a not likely to adversely affect call, and removal of W-3 and SPI as actionable measures

- BA and initiation package are incomplete and identifies several deficiencies that need to be corrected prior to continuing with formal consultation and acceptance of the initiation package.

1.3 Recommended Plan

The Recommended Plan includes a combination of ER and CSRM features that function as a system to reduce the risk of coastal storm damages to natural and built infrastructure and to restore degraded coastal ecosystems through a comprehensive approach employing multiple lines of defense. Focused on redundancy and robustness, the proposed system provides increased resiliency along the Bay and is adaptable to future conditions, including relative sea level change. The Recommended Plan can be broken into three groupings: a Coastwide ER plan, a lower Texas coast CSRM plan, and an upper Texas coast CSRM plan.

Coastwide ER Plan: A Coastwide ER plan was formulated to restore degraded ecosystems that buffer communities and industry on the Texas coast from erosion, subsidence, and storm losses. A variety of measures have been developed for the study area, including construction of breakwaters, marsh restoration, island restoration, oyster reef restoration and creation, dune and beach restoration, and

hydrologic reconnections. Figure 2 shows the location of the ER measures and the following describes what each measure includes:

- **G-28: Bolivar Peninsula and West Bay Gulf Intracoastal Waterway (GIWW) Shoreline and Island Protection**
    - Shoreline protection and restoration through the nourishment of 664 acres of eroding and degrading marshes and construction of 40.4 miles of breakwaters along unprotected segments of the GIWW on Bolivar Peninsula and along the north shore of West Bay,
    - Restoration of 326 acres (approximately 5 miles) of an island that protected the GIWW and mainland in West Bay, and
    - Addition of oyster cultch to encourage creation of 18.0 acres (26,280 linear feet) oyster reef on the bayside of the restored island in West Bay.
- **B-2: Follets Island Gulf Beach and Dune Restoration**
    - Restoration of 10.1 miles (1,113.8 acres) of beach and dune complex on Gulf shorelines of Follets Island in Brazoria County.
- **B-12: West Bay and Brazoria GIWW Shoreline Protection**
    - Shoreline protection and restoration through nourishment of 551 acres of eroding and degrading marshes and construction of about 40 miles breakwaters along unprotected segments of the GIWW in Brazoria County,
    - Construction of about 3.2 miles of rock breakwaters along western shorelines of West Bay and Cow Trap lakes, and
    - Addition of oyster cultch to encourage creation of 3,708 linear feet of oyster reef along the eastern shorelines of Oyster Lake
- **M-8: East Matagorda Bay Shoreline Protection**
    - Shoreline protection and restoration through the nourishment 236.5 acres of eroding and degrading marshes and construction of 12.4 miles of breakwaters along unprotected segments of the GIWW near Big Boggy National Wildlife Refuge (NWR) and eastward to the end of East Matagorda Bay,
    - Restoration of 96 acres (3.5 miles) of island that protects shorelines directly in front of Big Boggy NWR, and
    - Addition of oyster cultch to encourage creation of 3.7 miles of oyster reef along the bayside shorelines of the restored island.
- **CA-5: Keller Bay Restoration**

- Construction of 3.8 miles of rock breakwaters along the shorelines of Keller Bay in order to protect submerged aquatic vegetation (SAV), and
- Construction of 2.3 miles of oyster reef along the western shorelines of Sand Point in Lavaca Bay by installation of reef balls in nearshore waters.

- **CA-6: Powderhorn Shoreline Protection and Wetland Restoration**
  - Shoreline protection and restoration through the nourishment of 529 acres of eroding and degrading marshes and construction of 5.0 miles of breakwaters along shorelines fronting portions of Indianola, the Powderhorn Lake estuary, and Texas Parks and Wildlife Department (TPWD) Powderhorn Ranch.

- **SP-1: Redfish Bay Protection and Enhancement**
  - Construction of 7.4 miles of rock breakwaters along the unprotected segments of the GIWW along the backside of Redfish Bay and on the bayside of the restored islands
  - Restoration of 391.4 acres of islands including Dagger, Ransom, and Stedman islands in Redfish Bay, and
  - Addition of oyster cultch to encourage creation of 1.4 miles of oyster reef between the breakwaters and island complex to allow for additional protection of the Redfish Bay Complex and SAV.

- **W-3: Port Mansfield Channel, Island Rookery, and Hydrologic Restoration**
  - Restoration of the hydrologic connection between Brazos Santiago Pass and the Port Mansfield Channel by dredging 6.9 miles of the Port Mansfield Channel, providing 112,864.1 acres of hydrologic restoration in the Lower Laguna Madre,
  - 9.5 miles of beach nourishment along the Gulf shoreline north of the Port Mansfield Channel using beach quality sand from the dredging of Port Mansfield Channel, and
  - Protection and restoration of Mansfield Island with construction of a 0.7-mile rock breakwater and placement of sediment from the Port Mansfield Channel to create 27.8 acres of island surface at an elevation of 7.5 feet (NAVD 88).

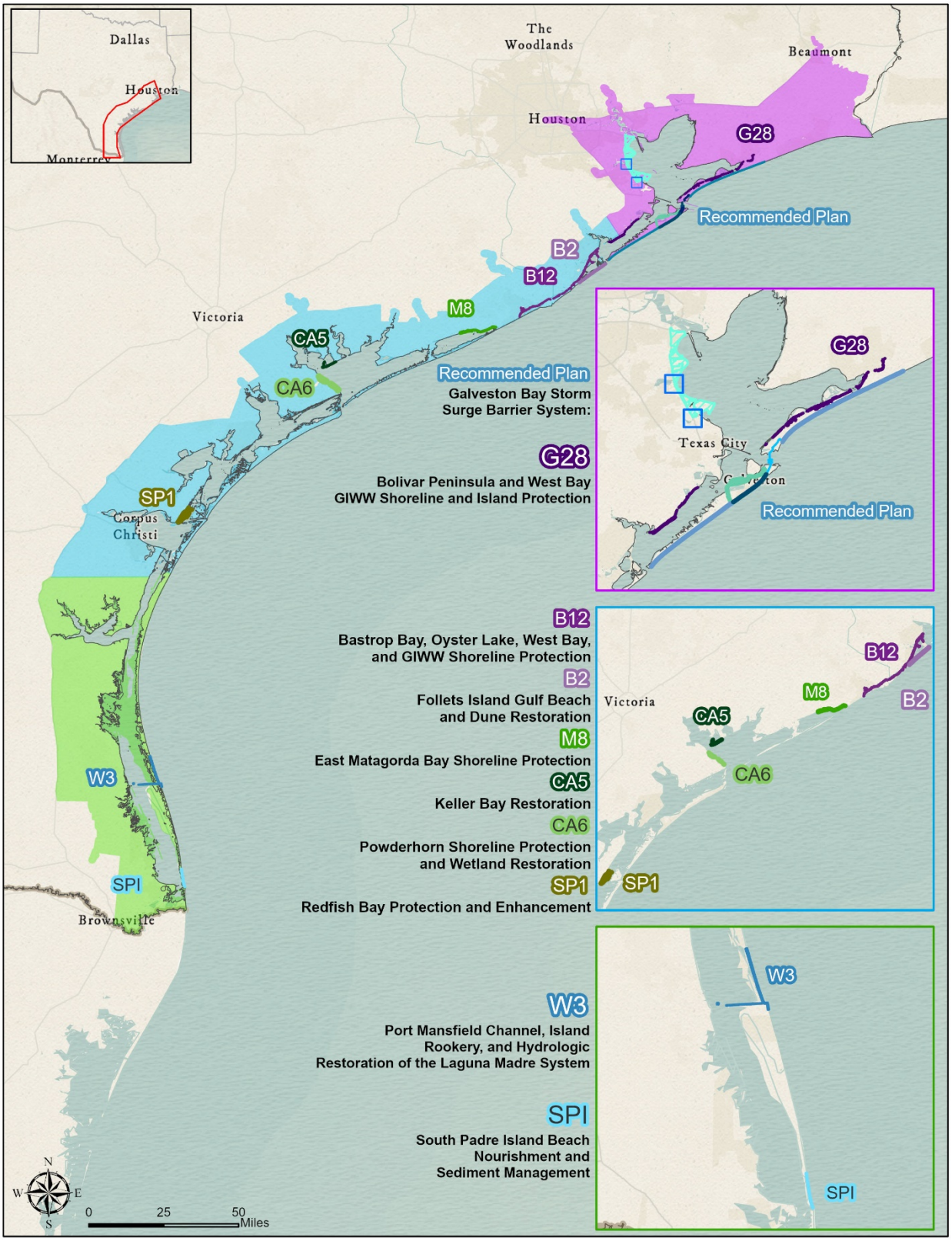

Figure 2. Coastwide ER Measures of the Recommended Plan

Lower Texas Coast Plan: The lower Texas coast component of the recommended plan includes 2.9 miles of beach nourishment at South Padre Island to be completed on a 10-year cycle for the authorized project life of 50 years (Figure 3).

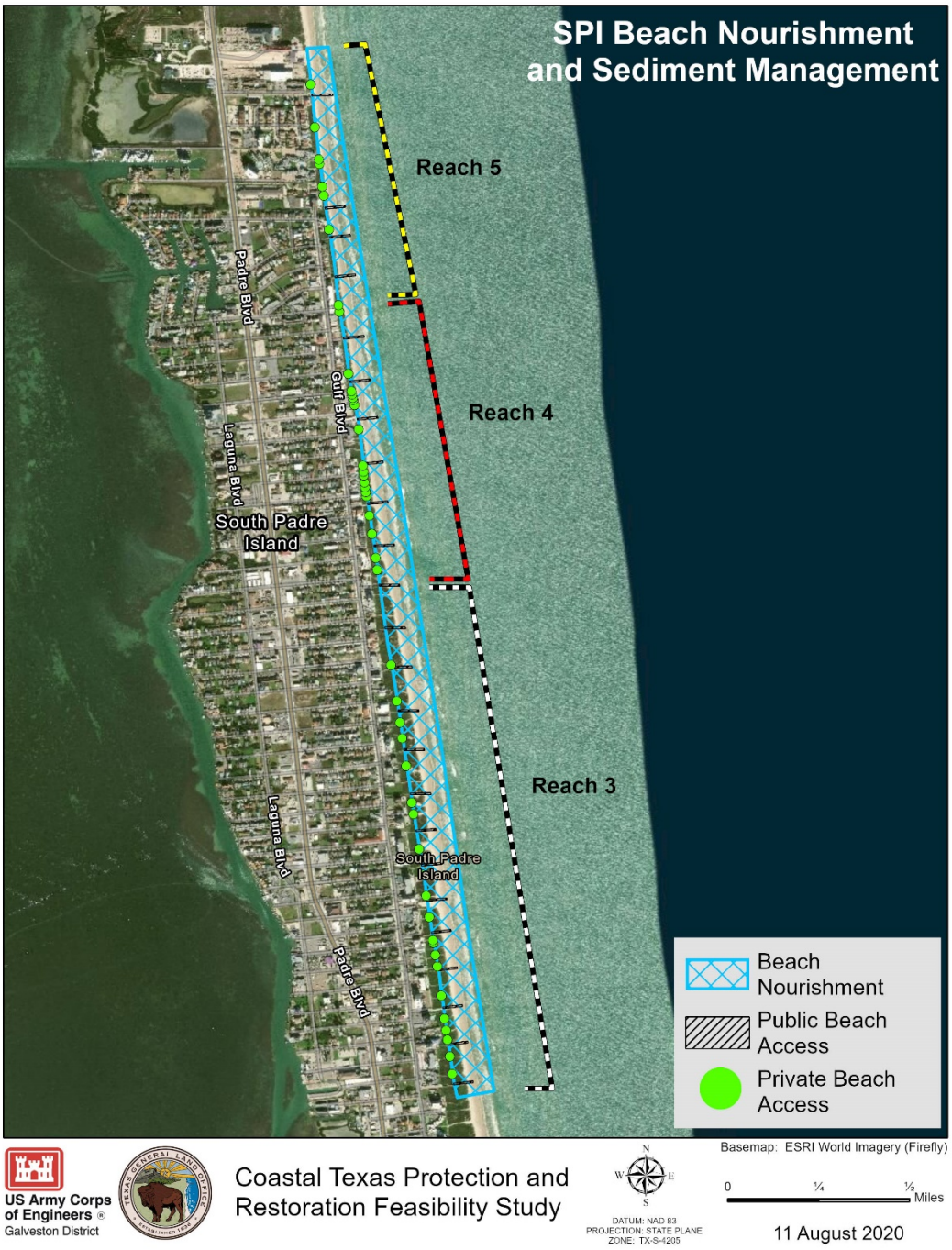

Figure 3. South Padre Island CSRM

Upper Texas Coast Plan: The upper Texas coast component of the recommended plan includes a multiple-lines-of-defense system known as the Galveston Bay Storm Surge System. The system is designed to provide a resilient, redundant, and robust solution to reduce risks to communities, industry, and natural ecosystems from coastal storm surge. The system includes a Gulf line of defense which separates the Galveston Bay system from the Gulf of Mexico to reduce storm surge volumes entering the Bay system. It also includes Bay defenses which enable the system to manage residual risk from waters already in Galveston Bay. Figure 4 shows the spatial relationship between the Gulf and Bay lines of defense. Measures which make up the system include:

- The Bolivar Roads Gate System, across the entrance to the Houston Ship Channel, between Bolivar Peninsula and Galveston Island (Figure 5);
- 43 miles of beach and dune improvements on Bolivar Peninsula and West Galveston Island that work with the Bolivar Roads Gate System to form a continuous line of defense against Gulf of Mexico surge, preventing or reducing storm surge volumes that would enter the Bay system (Figure 5);
- Improvements to the existing 10-mile Seawall on Galveston Island to complete the continuous line of defense against Gulf surge (Figure 5);
- An 18-mile Galveston Ring Barrier System (GRBS) that impedes Bay waters from flooding neighborhoods, businesses, and critical health facilities within the City of Galveston;
- 2 surge gates on the west perimeter of Galveston Bay (at Clear Lake and Dickinson Bay) that reduce surge volumes that push into neighborhoods around the critical industrial facilities that line Galveston Bay; and
- Complementary non-structural measures, such as home elevations or floodproofing, to further reduce Bay-surge risks along the western perimeter of Galveston Bay.

Within the recommended plan, it has been determined that several features, identified as “actionable” measures, have a sufficient level of site-specific detail to fully understand the context and intensity of the anticipated impacts of the feature. Therefore, the EIS has incorporated a site-specific Tier Two analysis for some features for which the measures would be fully compliant with NEPA and all environmental laws and regulations, including MSFCMA. Feature identified as “Tier One” measures will require separate independent NEPA analysis at which time additional EFH consultation would occur to ensure full compliance with MSFCMA once the impacts are fully understood. Table 1 shows which measures are actionable and which are not.

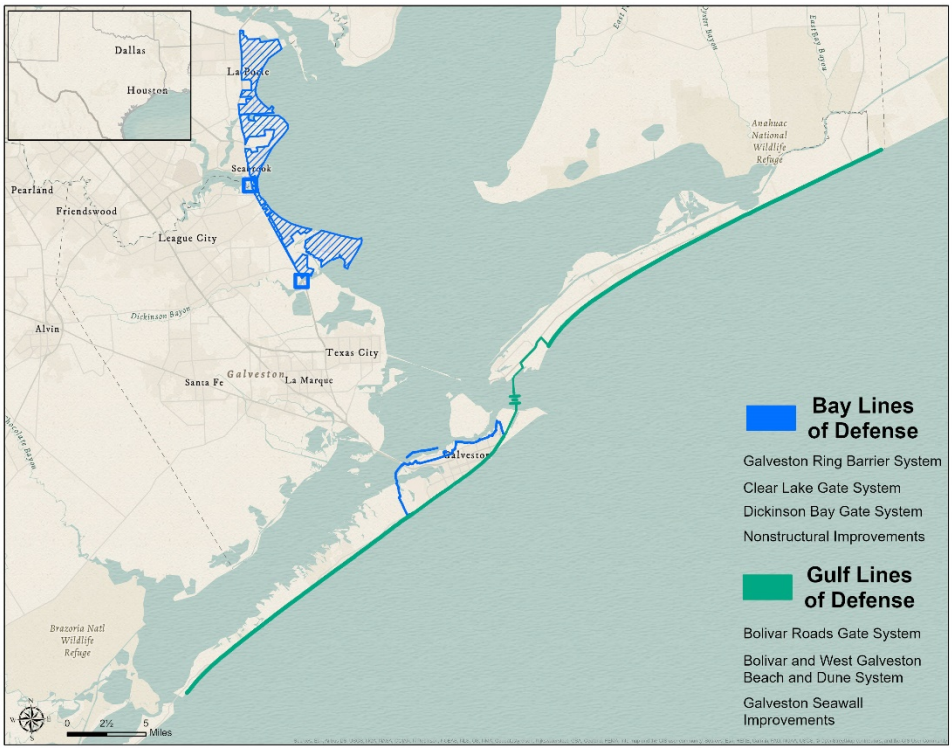

Figure 4. Galveston Bay Storm Surge System

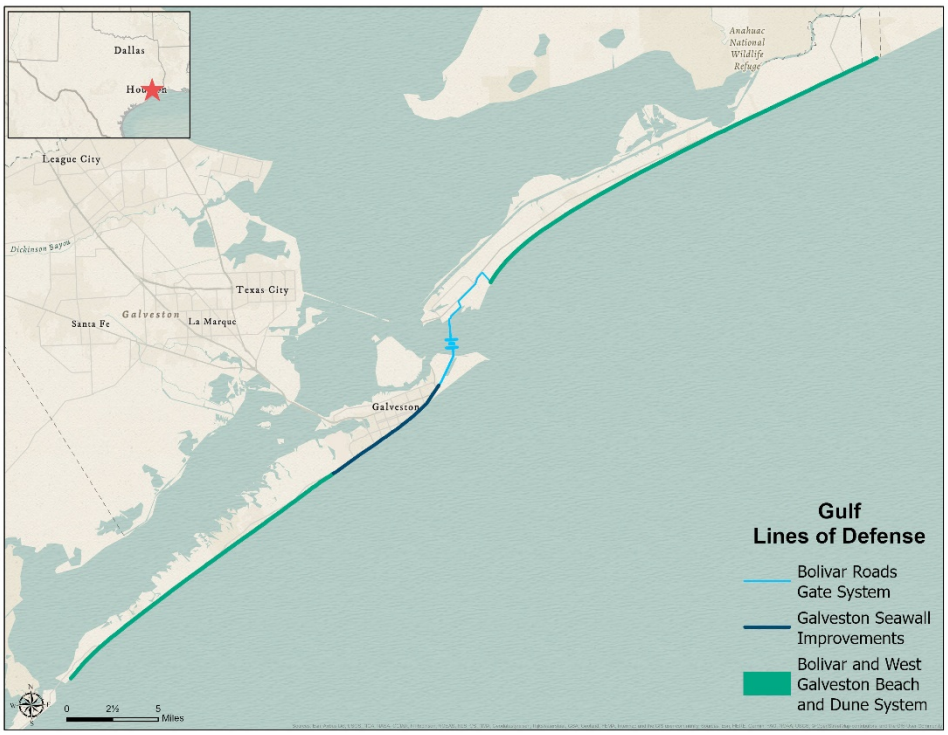

Figure 5. Gulf Lines of Defense of the Galveston Bay Storm Surge System

Table 1. Actionable and Tier One Measures of the Recommended Plan

Recommended Plan Component	Actionable[1]	Tier One[2]
G-28 – Bolivar Peninsula and West Bay GIWW Shoreline and Island Protection	X	
B-2 – Follets Island Gulf Beach and Dune Restoration		X
B-12 – West Bay and Brazoria GIWW Shoreline Protection	X	
CA-5 – Keller Bay Restoration	X	
CA-6 – Powderhorn Shoreline Protection and Wetland Restoration	X	
M-8 – East Matagorda Bay Shoreline Protection	X	
SP-1 – Redfish Bay Protection and Enhancement	X	
W-3 – Port Mansfield Channel, Island Rookery, and Hydrologic Restoration		X
South Padre Island Beach Nourishment		X
Bolivar Roads Gate System		X
Bolivar and West Galveston Beach and Dune System		X
Galveston Seawall Improvements		X
Galveston Ring Barrier System		X
Clear Lake Surge Gate		X
Dickinson Surge Gate		X
Non-structural Measures		X

[1] The Actionable Measures have sufficient detail to assess potential impacts to species under the protection of the ESA.

[2] The Tier One Measures will have future Tier Two environmental studies including ESA consultations. The Tier One Measures are mentioned in this BA to document the considerations and concerns identified to date so that the ESA consultations associated with the Tier Two environmental studies can pick up where this documentation ends.

2.0 DESCRIPTION OF THE PROPOSED ACTION

This section describes the proposed action including the benefits and impacts associated with implementing the action and a description of the action area. The information contained here is a summary of the overall project and impacts. Additional information, specifically in regard to benefits and impacts can be found in the Final Feasibility Report and Final EIS.

This BA does not describe the Tier 1 measures, since the USACE is not initiating consultation on these measures. The Tier 1 measures have been conceptually designed, but still require additional design refinement and investigation to determine the appropriate method to construct, the most feasible, cost-effective, and high performing dimensions of the features, and will require additional impact analysis to better understand the full range of potential impacts. When these future analyses are completed, the USACE will prepare subsequent BAs and initiate consultation at that time.

2.1 Design, Construction, and Long-Term Operation of the Actionable Measures

The Actionable Measures and the accompanying Monitoring and Adaptive Management Plan have been developed to a feasibility level of design (i.e. estimates, design level that is not detailed enough for construction) based on currently available data and information developed during plan formulation. There is significant institutional knowledge regarding the construction of the restoration measures; therefore, there is minimal uncertainty from a construction standpoint. Uncertainties relating to measure design and performance are mainly centered on site specific, design-level details (e.g. exact sediment quantities, invasive species removal needs, extent of erosion control needs, construction staging area locations, pipeline pathways, timing and duration of construction, engineering challenges, etc.), which would be addressed during the pre-engineering and design phase (PED).

This section further describes the design of each measure of the Actionable Measure components. The design would be applied to every restoration location where that measure is being employed unless indicated (i.e. everywhere marsh restoration is being done would have the same marsh design). Table 2 shows which measures (e.g. breakwater, marsh, oyster restoration, etc.) would be applied to which component (G-28, M-8, CA-5, etc.) of the recommended plan, along with the anticipated total construction duration needed to construct all measures of the component, and the anticipated total sediment needs.

Timing of initial construction of the actionable measures is dependent on a number of factors including timing of authorization, duration of pre-engineering and design (PED) phase, identification of a cost-share sponsor, and Federal- and non-federal funding cycles. As well, a number of measures depend on material dredged from existing channels during the normal operations and maintenance (O&M) cycle or as part of another project (e.g. dredged material from construction of the surge gates). For the purposes of this analysis and the “worst case scenario”, the construction duration assumes that only one restoration area is worked on at a time and that when one area is complete the next would commence without extended breaks between contracts. The reality is that contracts will most likely overlap, and concurrent work will be implemented (e.g. breakwaters may be constructed simultaneously to the marsh restoration). The seasonality of the timing of the actions and dependency on other actions is further discussed in the description of the action.

At this phase of the study potential pipeline routes and staging areas have not been identified. Identification of access routes, staging areas, pipeline routes, and placement of floatation docks would occur during PED. Each disturbance for access and staging would be placed outside of environmentally sensitive areas to the greatest extent practicable and utilize areas already disturbed when possible. As well, the disturbance would be limited to the smallest area necessary to safely operate during the project. All ground disturbance for access and staging areas would be temporary and fully restored to result in no permanent loss.

A Monitoring and Adaptive Management Plan (Appendix K of the EIS) has also been developed for the ER actionable measures which provides a coherent process for making decisions in the face of uncertainty and increases the likelihood of achieving desired project outcomes based on the identified monitoring program. The Monitoring and Adaptive Management Plan addresses uncertainties associated with ecosystem function and how the ecosystem components of interest will respond to the restoration efforts in light of changing conditions (e.g. sea-level change is different than anticipated) or new information (e.g. surveys indicate the design needs modification in order to function properly).

A number of maps and cross-section plates are included in Attachment A and will not be included in the following descriptions in order to keep the size of this document to a minimum.

2.1.1 Breakwaters

GIWW armoring would involve constructing 114 miles (601,920 linear feet) of breakwater structures. The structures would be built in shallow water (<3 feet deep, -3 feet NAVD88) along unprotected portions of shoreline of the GIWW, at varying distances from the shoreline and where soils are conducive to supporting the weight of the stone without significant subsidence. The distance from the shoreline would be determined during PED, after site specific surveys have been completed, but sufficiently offset from the boundaries of the GIWW navigation channel to ensure continued safe navigation.

The design would be a trapezoidal, step-down structure built of rock up to a height of +7.0 MSL, which will yield approximately 5.75 feet of rock exposed above the mean high high water level. Other approximate features of the design include a two 3-foot wide crests at +7 feet and +1 feet NAVD88, a 2H:1V slope, and a base that is roughly 46 feet wide. The base of the structure would be on filter cloth ballasted to the water bottom to secure placement and prevent displacement of the outboard edges. The number of openings and width of each would be determined during PED and dependent on the location of major channel entrances or access points required for fishery access or circulation. It is anticipated that the breakwaters would need to be raised at least two times and throughout the 50-year period of analysis to keep up with relative sea level change and remain effective. For purposes of the study materials would need to be added in year 15 and year 25, but timing could vary depending on observed local conditions and identified need to continue functioning as designed.

For GIWW armoring, rock would be purchased from a commercial quarry and transported to the site by barge, where it would then be placed by crane or hopper barge. Various support equipment would also be used, such as crew and work boats, trucks, trailers, and construction trailers to facilitate loading and unloading of personnel and equipment.

Breakwater armoring could be constructed at any time of year and would not have any seasonal construction restrictions. The timing of construction is only dependent on availability of funding.

2.1.1.1 Beneficial Impacts

Breakwaters allow for the stabilization and protection of the existing shoreline and support the reestablishment of intertidal emergent vegetation along the shoreline through retention of sediments and reduced land loss. Under the existing condition, the rate of loss is approximately 4 feet per year, which translates to approximately 55.25 acres per year (about 2,763 acres over a 50-year period) of interior marsh that would be protected and improved with implementation of the breakwaters. Additionally, breakwaters are expected to improve overall water quality with reduced saltwater intrusion and turbidity and may decrease operations and maintenance costs of the GIWW by reducing the amount of dredging. Overall, emergent shoreline habitats and interior marshes are expected to improve thereby supporting a more diverse and productive habitat for aquatic and terrestrial species. The breakwater structure itself can provide additional aquatic habitat by facilitating formation of a reef to support a greater abundance and diversity of aquatic species. Rock substrate is expected to also provide benefits to some aquatic species by providing them a refuge from predation.

2.1.1.2 Adverse Impacts

Direct and indirect impacts associated with constructing breakwaters are temporary in nature and limited in scope. Construction activities would contribute the greatest impacts to the environment and could include: localized effects to water quality, including increased turbidity and total suspended sediments, organic enrichment, reduced dissolved oxygen, elevated carbon dioxide levels, and decreased light penetration, among others; habitat removal and/or fragmentation; temporary habitat avoidance because of increased noise, vibrations, and overall temporary lower quality habitat; losses of slow moving and less mobile species (aquatic invertebrates, benthic species, mussels, and smaller/younger fish); and temporary loss of recreation opportunities. The level and duration of the impacts is dependent on the final design the measure, type of equipment used, and duration of construction activities. However, it is anticipated that once construction is complete, temporary impacts related to construction activities would cease.

Long-term impacts from placement of the breakwaters would permanently convert inland open water habitat to a hardened structure thereby reducing available habitat for aquatic species. This loss, which equates to only the footprint of the structure, is generally considered minimal when compared to the extent of inland open water habitat available. As well, the structures would be designed in such a way as to not hinder movement of aquatic species. These impacts would have an overall minimal impact to fisheries and aquatic populations in the area and would in the long-term protect adjacent habitat that aquatic species depend on for survival that would be lost in the future if the measures were not implemented. The overall benefits of implementing the measure far outweigh any temporary or permanent loss realized during construction.

Table 2. Actionable Measures

Actionable Measures (Recommended Plan Component)	Construction Duration (months)	Breakwaters (miles)	Island Restoration (acres)	Wetland and Marsh Restoration (acres)	Oyster Reef (miles)	Dune/ Beach Restoration (miles)	O&M Dredging (cy)	New Work Dredging (cy)	New Work Dredging (miles)
Bolivar Peninsula and West Bay GIWW Shoreline and Island Protection (G-28)	120	36	362	664	5	--	6,537,964	--	--
West Bay and Brazoria GIWW Shoreline Protection (B-12)	120	43	--	551	0.7	--	399,863	--	--
Keller Bay Restoration (CA-5)	24	3.8	--	--	2.3	--		--	--
Powderhorn Shoreline Protection and Wetland Restoration (CA-6)	36	5	--	531		--	385,760	--	--
East Matagorda Bay Shoreline Protection (M-8)	84	12.4	96.0	236.5	3.7	--	1,443,077	--	--
Redfish Bay Protection and Enhancement (SP-1)	120	7.4	391	--	1.4	--	6,685,556	--	--

2.1.2 Marsh Restoration

Marsh restoration measures involve placement of borrow material dredged from the GIWW during routine maintenance dredging or from the surge barrier gate disturbance area into marsh restoration locations. Material placed into the marsh would have similar properties to the existing native material. Under the existing and projected future dredging cycles, there is enough quantities of suitable material available to meet all restoration needs without seeking other borrow sources (e.g. offshore, upland placement areas).

A total of 2,052 acres of marsh would be restored in four different locations throughout the study area including: along the GIWW at Bolivar Peninsula, West Bay, and Matagorda Bay, along the GIWW in Brazoria County; near Big Boggy NWR; and along the shorelines of Powderhorn Estuary near Indianola and Powderhorn Ranch. Within each of the marsh restoration units, material dredged from the GIWW or would be hydraulically pumped into open water and low-lying areas assuming that 65% of the restoration unit will have a post-construction settlement target elevation of +1.2 feet mean sea level (MSL). As necessary, earthen containment dikes would be employed to efficiently achieve the desired initial construction elevation. Dikes would be breached following construction to allow dewatering and settlement to the final target marsh elevation.

Following marsh restoration actions, non-native/undesirable species monitoring would be implemented. If species are found, measures would be taken to stop or slow the expansion of the species within the restoration units.

Sediment transport equipment would include hydraulic dredges (e.g. hopper dredges or cutterhead suction dredge), pipelines (submerged, floating, and land) and booster pumps. Heavy machinery would be used to move sediment and facilitate construction. Heavy equipment could include bulldozers, front-end loaders, track-hoes, marshbuggy, track-hoes, and backhoes. Various support equipment would also be used, such as crew and work boats, trucks, trailers, construction trailers, all-terrain vehicles, and floating docks and temporary access channels to facilitate loading and unloading of personnel and equipment.

Implementation of the marsh restoration measures is highly dependent on dredging cycles and the source of the dredged material. Currently, seasonal timing restrictions related to ESA compliance includes a seasonal dredging window for hopper dredge use between December 1 and March 31, unless work outside this window cannot be completed, in which NMFS would need to approve the deviation. This seasonal timing restriction would be applicable to marsh restoration sites that are dependent on material from the surge gate dredging actions where a hopper dredge may be used. Placement of material into marsh areas dependent on navigation channel maintenance dredging (GIWW, Houston Ship Channel, Brazos Island Harbor, etc.) could occur any time of year due to the use of a cutterhead suction dredge which has no seasonal restrictions.

2.1.2.1 Beneficial Impacts

The unconfined placement of dredged material in marsh restoration units and along the shoreline would have a net beneficial effect on the environment. A total of 2,052 acres of marsh habitat would be restored by reducing the extent of open water in the restoration unit to less than 35 percent of the unit. This value has been identified as providing optimal marsh habitat in areas throughout Texas. As well,

increasing available sediment in the marsh units is expected to increase the potential for accretion into the future by supporting an assemblage of desired vegetative species. Once vegetative species composition is restored, the value of the marsh habitat to avian, terrestrial, and aquatic wildlife and fish is expected to increase by providing higher quality nesting, foraging, roosting, and nursery habitat.

2.1.2.2 Adverse Impacts

Many of the same adverse temporary impacts associated with construction of the breakwaters can be expected for marsh restoration. Placement of dredged material into the restoration unit has the potential to: degrade water quality locally within the placement site; compact soils and mix soil horizons; smother, trample, and kill existing vegetation and slow moving or less mobile species (small mammals, aquatic invertebrates, benthic species, etc.); and create noise and vibrations that cause fish and wildlife to avoid the area. The level and duration of the impacts is dependent on the final design the measure, type of equipment used, and duration of construction activities, as well as the species ability to avoid the habitat during the construction period and until the habitat has recovered from the disturbance. It is anticipated that once construction is complete, temporary impacts related to construction activities would cease.

Although marsh restoration would result in the loss of approximately 65 percent of the open water in the restoration units, wildlife species currently utilizing this habitat would not be expected to be adversely affected over the long-term. Wildlife species currently utilizing the shallow open water and vegetated shoreline habitat in the restoration units are highly mobile allowing them to relocate into adjacent open water habitats outside the restoration units. The conversion of open water to marsh habitat is generally considered a benefit to aquatic species.

2.1.3 Island Restoration

The general conceptual design for island restoration includes placing material dredged from nearby navigation channels to remnant island locations to raise the elevation of the island and prevent overwash of ground nesting birds. A total of 15.2 miles of bird rookery island restoration would be completed at four restoration sites. Island construction would use clean sediments consisting of clay, silts, and sands, which would be sculpted to prescribed slopes (5H:1V) and elevations (+7.5 to +9 feet NAVD88, post-settlement). The island would be sloped into the tidal zones at all edges to provide water access for juvenile colonial waterbirds and all for natural gradient of fringe marsh to upland vegetative communities. The island crest and bottom widths vary depending on the island site, shape and target acreage.

Fill material would be mixed with some in-situ water as it is placed, requiring a settlement period and the controlled discharge of decant water from within the restoration site. Breakwaters or temporary structures would be constructed where necessary to contain fill material in place. The height of any temporary structure and construction method required to contain the fill would be determined by the type of material used and its estimated water content. Where permanent structures are required to protect the island from waves and currents, breakwaters would be constructed 75 to 550 feet from the island shoreline in the same manner as described in section 2.1.1. The locations of temporary and permanent structures would ensure containment and settlement of the fill materials, using BMPs.

Once the fill has dewatered and sediments have settled, the temporary berms would be breached and portions of the island would be planted with species found at similar island sites to promote desired vegetation establishment; although the extent, specific species, and method of planting would be determined during PED. Monitoring for and removal of invasive or undesirable species would occur during the monitoring and adaptive management period.

Additionally, oyster reef restoration (as described in section 2.1.4) would be completed near all island sites in order to facilitate treatment of degraded water quality caused from the increase in bird defecation to the surrounding waters.

Construction may require temporary channels to access the restoration and borrow sites. The need for temporary channels would be determined during PED based on site specific conditions and the borrow location for each island. All temporary channels would be backfilled upon completion of construction work.

In general, construction would require the use of barges, small watercraft, large track hoe excavators, earth moving equipment, hydraulic dredges, and a dockside staging area. Equipment and materials for the construction activities would be transported via roads and marine waterways. Large equipment and materials moved by barges would use established interconnected waterways.

As with other dredged material placement measures, the timing of the action would be dependent on the dredging cycle of the source of material. Most of the action areas do not currently support nesting habitat, so no seasonal timing restrictions would be placed on construction. For the remnant islands, surveys would be completed prior to construction to confirm no nesting is occurring. If nesting is found, construction would need to avoid the nesting season, which is usually February 1 through August 15. However, some field activities that pose minimal disturbance to nesting birds may be acceptable during this time. Any such activities would be coordinated with state and federal resource agencies.

Beyond the adaptive management and monitoring period, no long-term maintenance of the islands are proposed as part of the recommended plan. Although at some point in the future, the islands could serve as a suitable site for disposal of dredge materials rather than placing materials in an upland or offshore disposal site.

2.1.3.1 Beneficial Impacts

Restoration of islands would increase available nesting habitat by expanding the size of the islands and enhancing the quality of habitat for ground nesting birds such as skimmers, terns, reddish egret, and American oystercatcher, as well as shrub nesters like spoonbills and pelicans. The islands would likely serve as a source populations for recolonizing other sites and reduce issues associated with overcrowding on existing islands. They would be important in sustaining or increasing regional populations given the few nesting islands available along the coast.

The shoreline length of each of the islands would increase and provide for additional area for fringe marsh habitat to establish thereby increasing suitable habitat for a number of additional aquatic species. Additionally, the increase in nutrients to the water from bird defecation has been known to create conditions which promote seagrass meadow establishment. Where seagrasses already occur, the islands would provide additional protection to the sensitive habitat.

The islands would also be consistently susceptible to erosion but would in turn be providing protection to intertidal and freshwater marshes from currents and wave energies from barge, tides, and storms. Habitat longevity would be increased by raising the island elevation and constructing protective features, such as breakwaters and oyster reefs. As erosion occurs, the islands would be prime sites for beneficial use of future sediment disposal rather than placing material into upland or offshore disposal sites.

2.1.3.2 Adverse Impacts

Placement of material onto remnant islands or on the bay bottom would have nearly identical adverse impacts as described for marsh restoration. The main difference would be that it is unlikely any terrestrial species would be impacted by construction actions. All adverse impacts are anticipated to be temporary in nature and the benefits of the action would far outweigh any adverse impacts.

Long term impacts would result from the placement of material on the open bay bottom in a similar manner as described for the breakwaters. Any long-term loss of open bay bottom is expected to be outweighed by the benefits the island would provide as a rookery and protection to seagrass meadows and marshes. As well, use of the islands by colonial waterbirds is expected to cause localized water quality degradation due to the extent of defecation that would occur into adjacent waters. To mitigate degraded water quality, oyster reefs would be constructed to filter the water and improve or maintain existing water quality.

2.1.4 Oyster Restoration

The goal of the oyster restoration measures is to increase the amount of hard substrate bottom in the restoration area to provide additional surface for oyster recruitment. Restoration would be achieved in one of two ways. Approximately 12.32 miles (65,050 linear feet) of oyster reef would be restored at five different sites. The first and most likely method involves placing cultch material, either loose or contained, directly on the soft bottom substrate of the restoration area. The cultch veneer would be clean crushed, limestone or concrete, or other suitable substrate deemed acceptable by TPWD. These materials have been successfully used in Galveston Bay reef restoration including those by USACE, the NFS, and TPWD. The cultch would most likely be barged in and then placed evenly over the restoration site submerged bottom. A 6-inch thick cultch layer has been assumed for all restoration sites but during PED the thickness would be modified based on local reef restoration target relief for the recruitment layer. The size of the substrate would vary depending on the material and site characteristics. Material that is approximately six to 10 inches in diameter and weighing approximately 25-75 pounds would be targeted to ensure suitable interstitial spaces for reef habitat and proper weight to withstand velocities and currents at the site.

For CA-5, oyster reef construction would involve placing a series of molded precast concrete structures that are designed to mimic the attributes of a natural three-dimensional oyster reef. The reef ball design is proposed and involves a hollow concrete mound with several holes that provide attachment points for oyster recruitment. The size of the reef balls would be determined during PED and would be specific to the restoration site conditions. A layer of hardened substrate, such as concrete rubble, may need to be placed on the bottom before the reef ball is placed. Supplementary shell and/or rock mats may be used if needed. The need for additional support would be determined during PED.

Oyster reefs would be constructed in the intertidal zone of the various bays. Considering post-construction settling of material, reef habitats would be built to an elevation that would avoid sedimentation of the reefs over time. If settlement occurs post-construction, additional material may be placed on the reefs in an adaptive management measure to ensure the height of the reef is approximately one foot above the existing bottom. Specific locations, size, and shape of reef may be revised after site-specific surveys are completed and based on resource agency recommendations for site selection criteria. The size and shape of the constructed reef is expected to range from small circular patches to elongated irregularly shaped reefs that extend for miles.

The GLO and TPWD would share responsibility for managing the site and each site is retained in public ownership. Each oyster restoration site is within an area currently protected under state law from commercial harvest and are not be eligible for lease. The site may be subjected to light recreation harvest; however, the design is expected to be self-sustaining and capable of supporting light use. This protection is expected to continue for the life of the project.

Oyster cultch and reef balls would be placed primarily by tugboat and barge, but large workboats may also be used. With either barges or large workboats, cultch material would be washed overboard using high pressure water hoses or cannons, with the vessel moving continuously through the placement area to control the thickness and acreage of the placement. Larger materials, such as reef balls or blocks of alternative cultch material, may be placed using a crane/excavator or front-end loader.

Oyster reef restoration would be completed at any time of the year and would not be dependent on the timing of other actions, except for funding. No long-term maintenance is included in the recommended plan.

2.1.4.1 Beneficial Impacts

Most of the beneficial impacts described for breakwaters also apply to oyster reef restoration; however, oyster reef restoration would also restore the ecological function of oyster reefs in the action area. Oyster reefs provide a host of ecosystem services including: enhanced recruitment, growth and survival of oyster populations, water filtration and regulations of water column phytoplankton dynamics, enhanced nitrogen cycling between the benthic and pelagic system components, enhanced phosphorus burial in sediments, nursery and predation refuge habitat for a diverse community of invertebrates and small fish, and foraging habitat for transient piscivorous and bethivorous fish (Rodney and Paynter 2006; Newell et al. 2004).

Oysters can affect other organisms by changing the physical and chemical environment of the open water ecosystem. Oysters filter water while feeding, thereby removing sediment and other particles from the water and depositing it on the bottom in pellets called pseudo-feces. Filtration by large numbers of oyster can reduce the time that sediment remains suspended in the water column and increase the clarity of the filtered water. Oysters' pseudo-feces are rich in nutrient and, therefore, help support primary production among bottom-dwelling organisms in areas immediately surrounding oyster bars and reefs. Local nutrient enrichment also stimulates the exchange of various forms of nitrogen and nitrogen compounds from one part of the system to another. (Newell et al. 2002)

Oyster reefs are also known to support a complex and extremely productive marine community. Total macrofaunal abundance (free living and sessile organisms) is typically an order of magnitude higher on

restored reefs compared to unrestored areas, while free living macrofauna are twice as abundant on restored reefs and two orders of magnitude more abundant than on unrestored reefs. Epifaunal organism density is on average three times higher and demersal fish density was four time higher in restored reefs. As well, restored reefs support a higher level of secondary production. Many of the organisms that are significantly more abundant on restored reefs are also known to be important food items for several commercially and recreationally important finfish species.

2.1.4.2 Adverse Impacts

The adverse impacts from construction and long-term operation of the oyster reefs is nearly identical to those anticipated for the breakwaters, except that the long-term adverse impacts from conversion of the bay bottom to hard substrate is would be more productive as an oyster reef than as a breakwater.

2.2 General Description of the Action Areas

The Texas Gulf coast is highly complex and ecologically diverse, with obvious differences in geomorphology between the upper, mid, and lower coast. The action areas lie within the Gulf Prairie and Marsh ecological region, which extends along the Texas Gulf Coast from the Sabine River south to the Rio Grande (Gould et al. 1960). The prominent features of this coastal ecosystem include tidal, micro-tidal, and freshwater coastal marshes; bays and lagoons which support seagrass beds, tidal flats and reef complexes; barrier islands; tallgrass prairie with small depressional wetlands, and forest riparian corridors, oak mottes and coastal woodlots, and dense brush habitats. Wetland habitats provide important wintering and migration stopover habitat for migratory birds including Central Flyway waterfowl, shorebirds, wading birds, and waterbirds. A string of refuges and wildlife management areas (WMAs) along the coast serve as critical staging areas for waterfowl migrating to and from Mexico (TPWD 2013, USFWS 2013).

Natural forces, which shape the system include dominant south to southeast winds, tropical weather systems, and a substantial rainfall of over 60 inches per year. Flooding and freshwater inflows are key systemic processes, which buffer salinity and provide nutrients and sediments to extensive estuary in the Sabine region. While highly impacted by human activities, this ecosystem remains very productive for a wide variety of fish and wildlife.

There is a total of six action areas that are being consulted on in this assessment. The action area for purposes of this assessment is defined as all areas that may be affected directly or indirectly from implementation of the actionable measures. The action area for each component of the recommended plan includes the immediate disturbance areas affected by constructed as well as any geographic extent beyond the disturbance area where environmental change could be realized.

This section briefly describes the five distinct biotic communities that each occur within the recommended plan component action areas (Table 3). Other biotic communities are found in the study area including: beaches and dunes, upland scrub-shrub, coastal prairies, freshwater wetlands, bottomland hardwood forests, and open water marine environments; however, none of these communities are in the action area and would not be directly or indirectly affected by any of the proposed actions and are therefore, not discussed further.

Table 3. Habitats within the Action Areas of each Component of the Recommended Plan

Recommended Plan Component	Estuarine Wetlands (Marsh)	Bird Rookery Islands	Open Bay Bottoms	Submerged Aquatic Vegetation (Seagrasses)	Oyster Reefs
G-28	X	X	X		X
B-12	X		X		X
CA-5			X	X	X
CA-6	X		X		
M-8	X	X	X		X
SP-1		X	X	X	X

2.2.1 Estuarine Marshes (Wetlands)

Estuarine wetlands are found along the bay shorelines within an estuary and directly inland of beaches, dunes, and barrier islands. These estuarine ecosystems support unique plant and animal communities that have adapted to brackish water, requiring tidal and freshwater exchange. Vegetative communities within the estuarine wetland community are dependent on the daily tidal fluctuation, which influences salinity gradients. Vegetative communities found within or near some of the action areas are indicative of saline, brackish, and some intermediate marshes. None of the actions proposed would impact freshwater wetlands.

Salt marsh has the greatest daily tidal fluctuation of the estuarine wetland types and has a well-developed drainage system. This community is found in marsh areas closest to the Gulf and waterways. Water salinity averages 18 parts per thousand (ppt), which leads to a marsh type that supports the least diverse vegetation. Salt marshes are typically dominated by smooth cordgrass/oystergrass and are often accompanied by seashore saltgrass (*Distichlis spicata*), blackrush (*Juncus romerianus*), saline marsh aster (*Aster tenuifolius*), and marshhay cordgrass. The dominant species in high salt marsh areas, which are subjected to less-frequent tidal inundation, is glasswort (*Salicornia spp.*).

Brackish marshes (salinity range of 5.0 to 18.0 ppt with an average of about 8.0 ppt) grade inland from salt marsh and are found at the fringes of large water bodies and behind the beach barriers. This marsh type is also subjected to daily tidal action, but also receives some freshwater influence, and its water depths normally exceed that of salt marsh. Plant diversity is greater than that of salt marsh. The dominant species in low brackish marsh is saltmarsh bulrush (*Scirpus robustus*), while seashore saltgrass and marshhay cordgrass are co-dominant species in high brackish marsh.

Intermediate marshes are subjected to periodic pulses of salt water and maintain a year-round salinity in the range of 3 to 4 ppt. They grade inland from brackish marsh and dominate interior marshes. The diversity and density of plant species are relatively high with marshhay cordgrass the most dominant species in high marshes. Co-dominant species in low marsh are seashore paspalum (*Paspalum vaginatum*), Olney bulrush (*S. americanus*), California bulrush/giant bulrush (*S. californicus*), and

common reedgrass/Roseau cane (*Phragmites australis*); bulltongue (*Sagittari lancifolia*) and sand spikerush (*Eleocharis montevidensis*) are also frequent. Submerged aquatics such as pondweeds (*Potamogeton spp.*) and southern waternymph (*Najas guadalupensis*) are abundant in intermediate marsh.

Estuarine wetlands provide spawning grounds, nurseries, shelter and food for finfish, shellfish, birds, and other wildlife. The abundance and health of adult stocks of commercially harvested shrimp, blue crabs, oysters, and other species are directly related to the quality and quantity of estuarine wetlands. This is especially true in the Gulf, where 97 percent (by weight) of the fish and shellfish caught by fishermen are dependent on wetlands at some point in their life cycle. Migratory birds use estuarine wetlands as foraging and hunting areas and support major wintering areas for waterfowl of the central flyway. A frequent pressure to this ecosystem is reduced freshwater inflows, which can result in an increase in salinity, sometimes beyond what estuarine species can tolerate.

Ecological function of the marsh action areas has been significantly altered and degraded as a result of a long history of land development, particularly construction of navigation channels. The GIWW divided the once-contiguous marshes in the study area and severed the natural freshwater inflows of the marsh system to downstream marshes. Today, the effects of this disruption vary, but generally they have created artificial barriers between wetlands and wetland building and maintenance processes; introduced tidal energies into historically non-tidal or micro-tidal marshes, which has resulted in decreased plant productivity, plant mortality, peat collapse and erosive loss of organic marsh soils; facilitated salt water intrusion into historically low salinity environments causing loss or conversion of vegetation and exposed marsh sediment; and caused a rapid rate of land loss due to erosion associated with wave energies caused by barge traffic. All of these effects have led to the current degradation of the action area, which is being converted from productive vegetated emergent marsh to less productive open water.

Continued altered hydrologic regimes, lack of sediment input, subsidence and saltwater intrusion will continue the trend of marsh conversion to less productive, saline habitats or open water. Under future RSLC conditions, rising sea levels will exacerbate the existing trend and lead to an increase in marsh loss.

2.2.2 Bird Rookery Islands

Rookery islands in the action areas are typically small – only a few acres or less in size – and while some naturally formed most were created through the placement of dredged material or fragmentation of land features during construction or maintenance of navigation channels, particularly the GIWW. These islands dot the back side of the barrier islands and adjacent bays and protect bay shorelines and navigation channels from erosion.

Rookery islands are isolated from the mainland and are too small to sustain predator populations, thereby providing optimal foraging, roosting, breeding, nesting, and rearing habitats for migratory birds and a wide variety of colonial waterbirds and coastal shorebirds, including herons, terns, pelicans, egrets and cormorants. Colonial waterbirds rely on open water, mud flats, estuarine wetlands and seagrass for foraging, which is abundant near the island action areas. Rookery islands provide areas for birdwatching, ecotourism, and recreational fishing. Nesting pairs on rookery islands can range from a few pairs to thousands depending on the island size.

In addition to providing quality bird habitat, the islands have been noted as providing suitable habitat for establishment and growth of seagrass meadows through modification of tides and currents and the increase in nutrients from bird defecation.

Rookery islands in the action area are currently severely degraded due to erosion, which averages 2.7 feet of loss per year, or non-existent. Deepening of adjacent water for navigation channels, increased ship traffic, loss of oyster reef structure due to commercial harvesting, and relative sea level rise have resulted in increased wave energy battering rookery island shorelines, resulting in a net loss of island area. Where remnant islands remain within the action area, only a small portion of the island remains dry and provides minimal suitable habitat to serve as a rookery. Existing islands are expected to be lost under future conditions of continued erosion and RSLC.

2.2.3 Open Bay Bottom/Inland Open Water

Open bay bottom is one of the most abundant and productive habitats found in estuaries. Being an open system, bay bottom interacts with other systems including seagrass meadows, tidal flats, marshes, etc. Open bay bottom is made up of soft sediments, home to many infauna (organisms that live in the sediments). These benthic invertebrates, mostly bivalves and polycheates, are vital to the system, converting energy from detritus and the sediments back into the water column, making it available for phytoplankton. Phytoplankton are the base of the food web and are important to having a productive system. Anywhere from 30 to 100 percent of nutrients used by these phytoplankton have been recycled, making this process essential for life in these areas.

A significant portion of the action areas where open bay bottom action exists is routinely disturbed in order to maintain the authorized navigational channel depth. The frequency of dredging disturbance is dependent on the shoaling rates in a particular area and can occur as frequently as every year to every ten or more years. After the disturbance occurs, there is a temporary loss of benthic invertebrates; however, they typically recolonize shortly after the dredging has been completed.

2.2.4 Submerged Aquatic Vegetation (Seagrass Meadows)

Submerged aquatic vegetation (SAV) includes aquatic grasses (seagrasses) and attached macro-algae. SAV is highly valuable habitat since it provides numerous important ecological functions that are difficult to replace; yet it is especially vulnerable to coastal development and water quality degradation. Animals are drawn to SAV for shelter and food and to reproduce. Animal abundance is grass meadows is 10 to 100 times more than in open bay bottom areas. Almost 40,000 fish and one thousand times as many small invertebrates are supported by a single acre of seagrass (TPWD 1999).

The most common species of seagrass in Texas coastal waters are shoal grass (*Halodule beaudettei*), manatee grass (*Cymodocea filiformis*), widgeon grass (*Ruppia maritime*), clover grass (*Halophila engelmanni*), and turtle grass (*Thalassia testudinum*). Shoal grass is the most common of the five species of seagrass, followed by widgeon grass and manatee grass. Shoal grass and widgeon grass are pioneer specie that can grow quickly in areas of little productivity. Clover grass can also colonize in areas of bare or algae-covered substrate or as an understory within the other four species of grass beds. As the substrate becomes more stable, turtle grass begins to appear last, initiating the climax of succession. It is important to note this because the ecological niche of each species determines the order of succession. As these climax species begin to increase in abundance, the structure of the seagrass community becomes more complex, involving the increase of leaf surface area. This allows for epiphytic growth on

the blades which provides food to grazing organisms that control the growth of the epiphytes. (TPWD 1999).

Open bay bottom and seagrass meadows have an inverse relationship, meaning that if one of these habitats is decreased, then the other increases. If enough light and nutrients are available and environmental factors are right, seagrass can take root in open bay bottom. This was seen after the GIWW was dredged in the late 1940s, as the exchange with the Gulf of Mexico increased causing salinities to decrease, making it possible for more seagrasses to become established. More recently, the opposite has been observed, as decreased freshwater input, brown tide and prop scarring have all caused decreases in seagrass meadows. Once the Seagrasses die and area gone, the areas will return to open bay bottom. (TPWD 1999)

Seagrass meadows provide many benefits to the ecosystem. One important aspect is that seagrass helps to reduce wave action with their above ground leaf structure and erosion with their below ground root and rhizome structure, thus keeping the substrate firm and maintaining water clarity. (TPWD 1999)

Seagrass also help to increase bottom surface areas, allowing for larger and more diverse communities of organisms to exist. Seagrasses provide substrate on which many other organisms can grow especially smaller attached algae and filter-feeing animals including sponges, bryozoans, and tunicates. Filter-feeders clear the water of particles and algae that compete for light and in turn serve as food for baitfish and juvenile fish. For larger organisms, seagrass meadows serve as nurseries and provide shelter. Commercially and recreationally important, federally-managed fisheries and many other species are dependent on seagrasses for all or part of their life history including: spotted sea trout (*Cynoscion nebulosus*), red drum (*Sciaenops ocellatus*), black drum (*Pogonias cromis*), blue crabs, and shrimp. (TPWD 1999)

Seagrasses in the action area are currently productive, healthy environments. However, under future conditions, the quality of seagrass meadows is expected to degrade due to increased sedimentation, higher salinities, and deeper waters. The low quality would eventually be expected to result in loss of the community in the action area and convert to open bay bottom.

2.2.5 Oyster Reefs

Eastern oyster reefs are present throughout the Texas coast although at a substantially reduced amount than historically. Most oyster reefs are subtidal or intertidal and found near passes and cuts, and along the edges of marshes. Oyster reefs are formed where a hard substrate and adequate currents are plentiful. Currents carry nutrients to the oysters and take away sediment and waste filtered by oyster.

Oyster reefs provide ecologically important functions including maintaining or improving water quality and providing productive habitats. Oysters can filter water 1,500 times the volume of their body per hour which, in turn, influences water clarity and phytoplankton abundance. Due to their lack of mobility and their tendency to bioaccumulate pollutants, oysters are an important indicator species for determining contamination in the bay.

Many organisms, including mollusks, plychaetes, barnacles, crabs, gastropods, amphipods, and isopods, can be found living on the oyster reef, forming a very dense community. Oyster reefs are dependent upon food resources from the open bay and marshes. Many organisms feed on oysters including fish,

such as black drum, crabs (*Callinectes spp.*), and gastropods such as the oyster drill (*Thais haemastoma*). When oyster reefs are exposed during low tides, shore birds use the reef areas as resting places.

Within the action areas, oyster reefs are not present. The lack of oyster reef establishment in the action areas is primarily related to the presence of soft bottom sediments rather than the hard bottom substrate required for establishment. Historically, most of the action areas supported some amount of oyster reef; however, the oyster population declined from degradation of water quality and quantity, increases in shoaling and sedimentation rates, oil and chemical spills, storms, disease, overharvesting, and destructive fish practices. Implementation of the ER measures would increase the long-term availability of oyster reef in each of the applicable action areas.

3.0 LISTED SPECIES AND CRITICAL HABITAT IN THE ACTION AREA

Twenty-four ESA-listed, candidate or proposed for listing species have been identified in the 2017 Planning Aid Report (PAL), in the USFWS Official Species List dated December 30, 2019, and/or on the NMFS Texas' Threatened and Endangered Species List (Table 4). One additional species (least tern [*Sterna antillarum*]) was also listed as an endangered species potentially occurring in the action areas; however, consideration of this species is only necessary when wind energy projects are being proposed. Since this project is not a wind energy project, the species is not considered. One additional species (Eastern black rail) was not identified on any of the lists; however, USFWS strongly encouraged assessing the species due to its uncertainty in the region and recent listing status. CH has been designated for seven species; however, not all of the CH is found in or near the action areas.

Table 4. ESA-listed Species Identified by USFWS or NMFS as Potentially Occurring in the Action Area

Species	Scientific Name	Jurisdiction	Status	CH*
Birds				
Piping Plover	*Charadrius melodus*	USFWS	Threatened	Yes
Rufa Red Knot	*Calidris canutus rufa*	USFWS	Threatened	No
Whooping Crane	*Grus americana*	USFWS	Endangered	Yes
Northern Aplomado Falcon	*Falco femoralis septentrionalis*	USFWS	Endangered	No
Eastern black rail	*Laterallus jamaicensis jamaicensis*	USFWS	Threatened	No
Attwater's Greater Prairie-Chicken	*Tympanuchus cupido attwateri*	USFWS	Endangered	No
Clams				
Texas Fawnsfoot	*Truncilla macrodon*	USFWS	Candidate	No
Fish				
Oceanic Whitetip Shark	*Carcharhinus longimanus*	NMFS	Threatened	No
Giant manta ray	*Manta birostris*	NMFS	Threatened	No
Mammals				
Sei whale	*Balaenoptera borealis*	NMFS	Endangered	No
Bryde's Whale	*B. edeni*	NMFS	Endangered	No
Fin whale	*B. physalus*	NMFS	Endangered	No
Gulf Coast Jaguarundi	*Herpailurus (=Felis) yagouaroundi cacomitli*	USFWS	Endangered	No
Ocelot	*Leopardus (=Felis) pardalis*	USFWS	Endangered	No
Sperm whale	*Physeter macrocephalus*	NMFS	Endangered	No
West Indian Manatee	*Trichechus manatus*	UFWS/ NMFS	Threatened	Yes

Species	Scientific Name	Jurisdiction	Status	CH*
Plants				
Texas Ayenia	*Ayenia limitaris*	USFWS	Endangered	No
South Texas Ambrosia	*Ambrosia cheiranthifolia*	USFWS	Endangered	No
Slender Rush-pea	*Hoffmannseggia tenella*	USFWS	Endangered	No
Texas prairie dawn-flower	*Hymenoxys texana*	USFWS	Endangered	No
Reptiles				
Loggerhead sea turtle	*Caretta caretta*	USFWS/ NMFS	Threatened	Yes
Green sea turtle	*Chelonia mydas*	USFWS/ NMFS	Threatened	Yes
Leatherback sea turtle	*Dermochelys coriacea*	USFWS/ NMFS	Endangered	Yes
Hawksbill sea turtle	*Eretmochelys imbricata*	USFWS/ NMFS	Endangered	Yes
Kemp's Ridley sea turtle	*Lepidochelys kempii*	USFWS/ NMFS	Endangered	Proposed

* CH designated for the species; however a 'Yes' does not indicate presence in the action area. See Chapter 4.0 for presence/absence.

To assess the status of species in the action area and potential impacts of the action on ESA-listed species, several sources were consulted including: literature review of scientific data; interview of recognized experts on listed species including local and regional authorities and Federal (USFWS and NMFS) and State (TPWD) wildlife personnel; on-site inspections; and compiled lists of ESA-listed species. Significant literature sources consulted include the USFWS and NMFS species specific webpages, Federal status reports and recovery plans, TPWD species occurrence and monitoring reports, peer-reviewed journals, and other standard references.

During the review, it was found that 15 species have no potential to occur in any of the action areas because no suitable habitat exists (Table 5). Most of the USFWS managed species are upland species which would have no potential for surviving in or migrating/recruiting to emergent marsh, tidally influenced shorelines or open water areas found within the action areas. Many of the NMFS managed species are only found in deeper, clearer ocean waters of the Gulf of Mexico and the action areas are too shallow or turbid to support the species. As well, none of the 15 species have ever been documented in the action areas. Because each have these species have no potential to occur in the action areas, only a brief description of the species range and habitat has been provided to document consideration and show lack of suitable habitat. Applicable recovery plans and 5-year review reports were relied upon for range and habitat descriptions.

Table 5. Listed Species with No Potential to Occur in Any of the Action Areas

Species	Range and Habitat
Northern Aplomado Falcon (USFWS 2014)	Historically, the species' range extended from Trans-Pecos Texas, southern New Mexico and southeastern Arizona, to Chiapas and the northern Yucatan along the Gulf of Mexico and along the Pacific slope of Central America north of Nicaragua. By mid-century, the falcon was absent from most of its range in the US with very few sightings reported. Since their listing, there have been reintroduction efforts in west Texas, at the King Ranch in Kleberg County, Matagorda Island and Laguna Atascosa NWR. There are established nesting populations in Brownsville and on Matagorda Island in Texas. Matagorda Island was not historically associated with falcons and the population was established to improve survival success since the island was devoid of great-horned owls. The closest measure to Matagorda Island (CA-6) is >15 miles, which is more than likely outside their foraging range, especially given the lack of suitable habitat within the measure action areas. In the US, they are found along yucca-covered sand ridges in coastal prairies, riparian woodlands in open grasslands, and in desert grasslands with scattered mesquite and yucca from sea level to about 4,500 feet. Nest platforms of sticks or twigs are often placed in mesquite or tall yuccas, 10-14 feet above ground. Falcons have successfully nested on larger expanses of seasonally inundated salt prairie and vegetated by gulf cordgrass (*Spartina spartinae*), marshhay cordgrass (*S. patens*), gulf dune paspalum (*Paspalum monostachyum*), gulf bluestem (*Schizachyrium maritimum*), sea ox-eye daisy (Borrichia frutescens), and glasswart (*Salicornia sp.*). Woody vegetation on salt prairie is sparse, except where honey mesquite (*Prosopis glandulosa*) and huisache (*Acacia farnesiana*) occur more frequently at slightly higher elevations, and occasional small hills (lomas) unless controlled by periodic fire.
Attwater's Greater Prairie Chicken (USFWS 2010)	Historical accounts suggested a population of more than 1 million individuals on approximately 6 million acres of antive coastal prairie from south Texas to Louisiana. Historically they were found in all counties along the Texas-Louisiana Gulf coast, but has been extirpated from Louisiana since 1919. The population has steadily decreased from 8,000 individuals in 1937 to about 90 in 2009. A small population was introduced to the Texas City Prairie Preserve in 2008, but subsequent reintroduction efforts were discontinued. There are only two populations of the species in Texas: the Attwater's Prairie Chicken NWR in Colorado County and at release sites in Goliad, Refugio, and Victoria counties, all of which are substantially further inland than any of the action areas. The species is found only in the coastal prairie of Texas. Grass and open space are required. A mixture of native grasses of varying heights is optimum habitat. Short grass cover (less than 10 inches in height) is used for courtship, feeding, and to avoid moisture during heavy dew or after rains. Midgrass areas (10-16 inches in height) are used for roosting and feeding. Tall grass (16-24 inches in height) are used for nesting, loafing, and escape cover. Prime habitat consists of tall grass dominated by bunchgrasses, such as little bluestem (*Schizachyrium scoparium*), Indiangrass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), and big bluestem (*Andropogon geradii*) along with flowering plants such as wild petunias (*Ruellia* spp.), yellow falsegarlic (*Nothoscordum bivalve*), and ragweed (*Ambrosia* spp.). They prefer open prairies without any wood cover and avoid areas with more than 25% shrub cover. Knolls and ridges with minor variations in topography and soils resulting in a variety of vegetation types are characteristic of preferred habitat.

Species	Range and Habitat
Texas Fawnsfoot	The species is endemic only to the Colorado and Brazos river basins; however, few have been documented. In the Colorado River basin, individuals were found in the lower Colorado River and in the San Saba River. In the Brazos system, the species persists in the mainstem of the Brazos River, Clear Fork Brazos River, Navasota River, Deer Creek, and the Little River. The species prefer large to moderate freshwater riverine environments with soft, sandy sediment and moderate water flow. The species seems to be intolerant of impoundments, as no individuals have been found in lakes, ponds, or reservoirs within its range. Adults appear to occur most often in bank habitat and occasionally in backwater, riffle, and point bar habitats with low to moderate water velocities and fine or coarse sediments.
Oceanic Whitetip Shark (Young et al. 2017)	The species is found in tropical and subtropical seas worldwide. The species is pelagic, generally remaining offshore in the open ocean, on the outer continental shelf, or around oceanic islands in water depths greater than 184 m (~604 feet). They have a strong preference for the surface mixed layer in warm waters above 20°C (68°F).
Giant Manta Ray (Miller and Klimovich 2017)	Within waters under US jurisdiction, the ray can be found along the east coast as far north as Long Island, NY; within the Gulf of Mexico, and off the coast of the US Virgin Islands, Puerto Rico, Hawaii, and Jarvis Island. Unconfirmed sightings have also been reported off the coast of the Northern Mariana Islands, Guam, and American Samoa. The species inhabits tropical, subtropical, and temperate bodies of water worldwide, and are commonly found offshore, in oceanic waters and near productive coastlines. The ray can be found in cool water, as low as 19°C (°F), although the temperature preference appears to vary by region. The species has also been observed in estuarine waters near oceanic inlets, with the use of these waters as potential nursery grounds. The closest known nursery to the Texas coast is over 100 miles offshore at NOAA's Flower Garden Sanctuary. As well, it is believed that much of the project area is too turbid for the species.
Sei Whale Bryde's Whale Fin Whale Sperm Whale	Each of these whales can be found in the warmer waters of the Gulf of Mexico on the continental shelf edge and slope. They are usually observed in deeper waters of oceanic areas far from the coastline.

Species	Range and Habitat
Gulf Coast Jaguarundi (USFWS 2013)	The US contains a small portion of the historical range, which ranged from the Lower Rio Grande Valley in southern Texas into the eastern portion of Mexico from Coahuila to Veracruz. The last confirmed sighting in Texas was from a road kill specimen in April 1986 found two miles east of Brownsville, TX. Several unconfirmed sightings have been reported, but none confirmed. The closest known population is approximately 95 miles southwest in Nuevo Leon, Mexico. Jaguarundi typically uses dense, thorny shrublands or woodlands and bunchgrass pastures adjacent to dense brush or woody cover. Typical habitat consists of vegetation such as brasil (*Condalia hookeri*), desert yaupon (*Schaefferia cunefolia*), Carolina wolfberry (*Lycium carolinianum*), lantana (*Lantana achyranthifolia*), and honey mesquite (*Prosopis glandulosa*). They are also known to use riparian corridor habitats along rivers and creeks.
Ocelot (USFWS 2016a)	Historically, the Texas-Tamaulipas ocelot inhabited southern and eastern Texas, north as far as Hedley, TX and west to Marfa, TX and may have ranged into western Louisiana, but verified records are lacking. Currently, the ocelot ranges from extreme southern Texas and southern Arizona through the coastal lowlands of Mexico to Central America, Ecuador, and northern Argentina. Since the 1960s, the ocelot was documented in TX by photographs or specimens from Cameron, Hidalgo, Jim Wells, Willacy, and Kenedy counties. Two populations occur in southern TX: one in Willacy and Kenedy counties primarily on private ranches and the other in eastern Cameron County, primarily on Laguna Atascosa National Wildlife Refuge. Individuals have occurred out of these two population, but there is no recent evidence that a breeding population occurs in other areas of Texas. The ocelot uses a wide range of habitats throughout its range; however, in south Texas the species occurs predominantly in dense thronscrub communities. Ocelot spatial patterns are strongly linked to dense cover or vegetation.
Texas Ayenia (USFWS 2016b)	Historically, the species was found in Hidalgo and Cameron counties, TX to Muzquiz, Coahuila, and Durango, Mexico. Currently there are extant populations in Cameron, Hidalgo, and Willacey counties at the Esterno Llano Grande State Park, Lower Rio Grande Valley NWR, C.B. Wood Municipal Park, and on private properties near Rio Hondo. Ten extant populations occur in Tamaulipas, Mexico. Occupied habitats are isolated fragments of Texas ebony – anacua/brasil woodlands and Texas ebony – snake-eyes shrublands in the deltas of rivers draining into the Gulf of Mexico. Individual plants occur in association with other shrub species and native grasses and forbs in a wide range of alluvial soil types, from fine sandy loan to heavy clay, and appear to require at least some direct sunlight for successful reproduction.
South Texas Ambrosia (USFWS 2017)	Historically, the species occurred in Cameron, Jim Wells, Kleberg, and Nueces counties in South Texas and in Tamaulipas, Mexico. Currently, there are six verifiable sites that still contain the species found in scattered, fragmented areas of remaining habitat within Nueces and Kleberg counties. The plant grows at low elevations, typically on well-drained, heavy soils associated with subtropical woodland communities in openings of coastal prairies, savannas and grasslands scattered with mesquite. Most of the sites where the species is found contain only remnants of shortgrass prairie and are typically unplowed but mowed. In its native habitat, associated prairie species are often associated with ambrosia, but it is not the dominant species. Several native woody plants found within and adjacent to ambrosia include honey mesquite (*Prosopis glandulosa*), huisache (*Acacia*), huisachillo (*Acacia schaffneri*), brasil (*Condalia hookeri*), granjeno (*Celtis* spp.), and lotebush (*Ziziphus obtusifolia*). This species is commonly found with Slender Rush-Pea.

Species	Range and Habitat
Slender Rush-Pea (USFWS 2017)	The species are found in Nueces and Kleberg counties, TX in coastal prairie habitat. The largest population can be found at the St. James cemetery in Bishop, TX. There have been no other populations reported outside the two counties. All documented sites occur in barren openings or patches of native remnants of shortgrass prairie and are associated with both short- and mid-grass species such as: buffalograss (*Buchloe dactyloides*), Texas wintergrass (*Stipa leucotrica*), and Texas grama (*Bouteloua rigidiseta*). Other species associations include curly-mesquite (*Hilaria belangeri*), Texas wintergrass (*Nassella leucotricha*), sugar hackberry (*Celtis laevigata*), honey mesquite, and prickly pear (*Opuntia engelmannii*). Primary soils of rush-pea habitat are of the Victoria Association. Known extant and historic sites all occur near streams, where erosion may have exposed narrow bands of subsoil or different soil types that, due to their small size, are not indicated on soil maps. This species is commonly found with South Texas Ambrosia.
Texas Prairie Dawn-Flower (USFWS 2015)	There are 63 known occurrences of the species in 5 counties (Fort Bend, Gregg, Harris, Trinity, and Waller). Many historic sites were lost due to highway, residential and commercial development. Commonly found in fine sandy loam soils at the base of pimple mound. They are often associated with shortspike windmill grass (*Chloris subdolichostachys*), sicklegrass (*Parapholis incurve*), Gulf cordgrass (*Spartina spartinae*), bitterweed (*Helenium amarum*), and beared flatsedge (*Cyperus artistatus*).

3.1 Piping Plover

Piping plover is in the family Charadriidae, which is the second-largest family of shorebirds. Piping plovers are small, stocky shorebirds, typically about seven and a quarter inches long, with a wing span of 14 to 15.5 inches.

Wintering piping plover feed on a variety of invertebrates such as polychaete marine worms, various crustaceans, amphipods, terrestrial and benthic insects, and occasionally bivalve mollusks (Elphick at al 2001, Zonick and Ryan 1996), but diet varies by ecosystem and habitat. Polychaete worms and surface-dwelling arthropods such as amphipods and insects are particularly important food sources. (USFWS 2008) Feeding activities occur during all hours of the day and night (Zonick 1997) and at all stages in the tidal cycle (USFWS 2009). Plovers forage on moist substrate features such as intertidal portions of ocean beaches, washover areas, mudflats, sand flats, algal flats, shoals, wrack lines, sparse vegetation, and shorelines of coastal ponds, lagoons, ephemeral pools adjacent to salt marshes (USFWS 2009, Zonick 1997).

Status

USFWS listed the piping plover (*Charadrius melodus*) on 11 December 1985 (50 FR 50726) as endangered in its breeding range and threatened throughout the remaining range. In the action area, piping plovers are listed as threatened.

Major threats to wintering piping plover that were identified at the time of listing included destruction or modification of beach and littoral habitat and human disturbance. Human-caused disturbance factors that may affect the survival of piping plover or utilization of wintering habitat include recreational activities, inlet and shoreline stabilization projects, dredging of inlets that can affect spit formation, beach maintenance and renourishment, and pollution. In some areas, natural erosion of barrier islands may also result in habitat loss. The construction of houses and commercial buildings on and adjacent to barrier beaches results in increased human disturbance and habitat loss.

Range and Habitat

Piping plovers breed in three areas in North America: the Great Plains, the Great Lakes, and the Atlantic Coast. They typically inhabit shorelines of oceans, rivers, and inland lakes. Nest sites include sandy beaches, especially where scattered tufts of grass are present; sandbars; causeways; bare areas on dredge-created and natural alluvial islands in rivers; gravel pits along rivers; silty flats; and salt-encrusted bare areas of sand, gravel, or pebbly mud on interior alkali lakes and ponds (Haig and Elliot-Smith 2004).

Migration to winter areas begins in late summer and continues through the fall. Piping plovers begin arriving on their wintering ground in late July, although most wintering birds arrive at the Texas coast in August and September. They begin leaving the wintering grounds in late February and by mid-May, almost all wintering birds have left the Texas coastal area for their nesting grounds. Because birds may cross over from the Gulf or Atlantic coasts, birds on Texas wintering grounds may be from any of the three breeding areas. (USFWS 2008)

Wintering habitat along the Texas coast can be broadly characterized as emergent tidal or washover areas that are unvegetated to sparsely vegetated with wet to saturated soils in close proximity to water (Zonick 2000). Wintering plover use coastal areas on the mainland and habitats on barrier islands, both

on the bay side (i.e. bayshore habitats) and on the ocean side (i.e. ocean beaches). Bayshore tidal sand and algal flats are primary areas used by plovers, but oceanside beaches, washover passes, and mainland tidal mud flats provide essential secondary habitat when bayshore tidal flats are submerged. Important components of the beach/dune ecosystem include surf-cast algae for feeding of prey; sparsely vegetated backbeach (beach area above mean high tide seaward of the dune line, or in cases where no dune exists, seaward of a delineating feature such as a vegetation line, structure, or road) for roosting and refuge during storms; and spits (a small point of land, especially sand running into water), salterns (bare sand flats in the center of mangrove ecosystems that are found above mean high water and are only irregularly flushed with sea water), and washover areas for feeding and roosting (USFWS 2003).

On the lower Texas coast, individual plovers are known to use areas about 3,000 acres in size, moving two miles or more between forgaging sites as tidal movements shift the availability of productive tidal flats (TPWD 2000). Recent studies show significantly more stringent site fidelity with individual birds returning to more precise locations (+/-400 feet in lateral distance on the beach) each year (USACE 2009)

Occurrence in the Action Area

Approximately 35 percent of the known global population of piping plovers winter along the Texas Gulf Coast, where they spend 60 to 70 percent of the year from about mid-July through April. Galveston Island and Bolivar Flats Shorebird Sanctuary (G-28), Bryan Beach (near but south of B-12), and Mustang Island (near SP-1) all support wintering plover populations.

Within or near other actionable measure action areas, piping plover may be observed in small numbers during the winter feeding on invertebrates along exposed mud, sand, or algal flats or on wide Gulf beaches. In general, most actionable measure locations do not currently support high quality habitat due to highly erosive and narrow shorelines and presence of emergent vegetation or open water. Section 3.11 below indicates which measures are likely to have suitable habitat present.

Critical Habitat

CH for wintering piping plover was designated on July 10, 2001 (66 FR 36038) along several locations of the Texas coast. Designated wintering piping plover CH originally included 142 areas encompassing approximately 1,793 miles of mapped shoreline and 165,211 acres of mapped areas along the coasts of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas.

The primary constituent elements (PCEs) for piping plover wintering habitat essential for the conservation of the species are those habitat components that support foraging, roosting, and sheltering, and the physical features necessary for maintaining the natural processes that support these habitat components. The essential physical and biological elements of the habitat include:

1) Intertidal sand beaches including sand flats or mudflats between annual low tide and annual high tide with no or very sparse emergent vegetation for feeding
2) Unvegetated or sparsely vegetated sand, mud, or algal flats above annual high tide for roosting. Such sites may have debris or detritus and micro-topographic relief offering refuge from high winds and cold weather.
3) Surf-case algae for feeding.

4) Sparsely vegetated back beach which is the beach area above mean high tide seaward of the dune line, or in cases where no dunes exist, seaward of a delineating feature such as a vegetation line, structure, or road. Back beach is used by plovers for roosting and refuge during storms.
5) Spits, especially sand, running into water for foraging and roosting.
6) Unvegetated washover areas with little or no topographic relief for feeding and roosting. Washover areas are formed and maintained by the action of hurricanes, storm surges, or the extreme wave actions.
7) Natural conditions of sparse vegetation and little or no topographic relief mimicked in artificial habitat types (e.g. dredge spoil sites)

The units designated as CH are those areas that have consistent use by piping plovers and that best meet the biological needs of the species. The amount of wintering habitat included in the designation appears sufficient to support future recovered populations, and the existence of this habitat is essential to the conservation of the species.

G-28 is the only actionable measure in which actions would be completed within 1.0 mile of piping plover CH (TX-37). No breakwater or marsh restoration measures would be completed in wind-driven tidal flats that are exposed during low tide. *Note:* Figure 6 indicates measure would be completed within CH; however, the USACE is committed to completing on the ground surveys during PED to confirm the location of tidal flats exposed during low tide and would modify the project accordingly to avoid directly or indirectly modifying areas with PCEs.

All other measures, including other action areas associated with G-28, are greater than 1.0 mile from designated CH and would not be expected to be impacted either directly or indirectly by any action. Designated CH habitat in these areas include the land from the seaward boundary of mean low low water (MLLW) to where densely vegetated habitat begins and where the constituent elements no longer occur.

3.2 Red Knot

The rufa red knot (red knot) is a medium-size shorebird about 9 to 11 inches in length. The red knot is a specialized molluscivore, eating hard-shelled mollusks, sometimes supplemented with easily accessed and/or shallow-buried softer invertebrate prey, such as shrimp- and crab-like organisms, marine worms, and horseshoe crab (*Limulus polyphemus*) eggs (Piersma and van Gils 2011). Mollusk prey are swallowed whole and crushed in the gizzard (Piersma and van Gils 2011). Foraging activity is largely dictated by tidal conditions, as the red knot rarely wades more than 0.8 to 1.2 inches and cannot effectively dig deeper than 0.8 to 1.2 inches. It has been reported that Coquina clams (*Donax variabilis*) serve as a frequent and often important food resource for red knots along Gulf beaches.

Status

There are six recognized subspecies of red knots (*Calidris canutus*), and on December 11, 2014, the USFWS published a final rule in the Federal Register listing the rufa subspecies of red knot (*Calidris canutus rufa*) as a threated species under ESA (79 FR 73705—73748). Each subspecies is believed to occupy separate breeding areas, in addition to having distinctive morphological traits (i.e. body size and

plumage characteristics), migration routes, and annual cycles. No CH has been proposed or designated for the red knot.

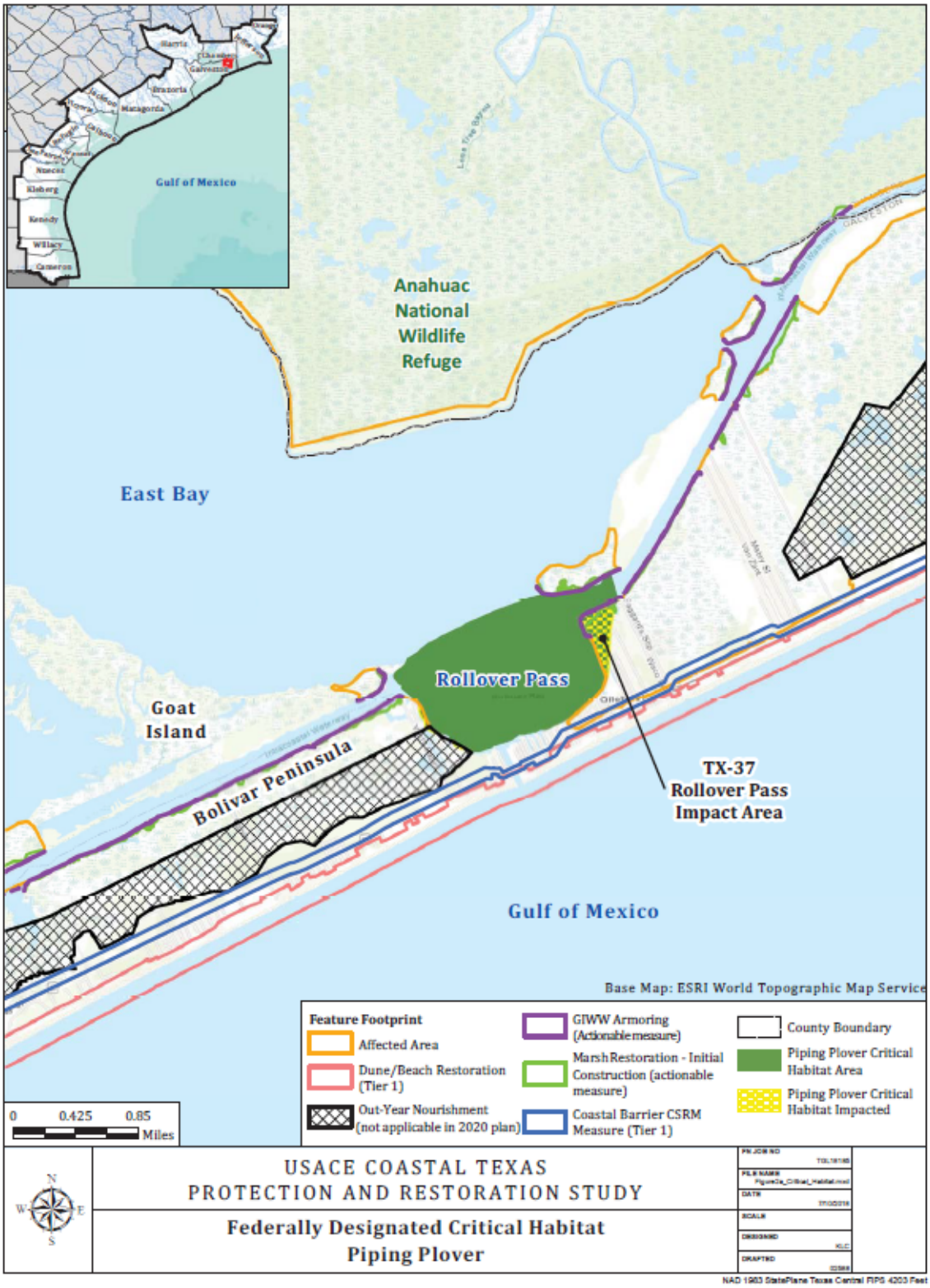

Figure 6. Piping Plover CH in Close Proximity to the G-28 Action Area

The rufa red knot subspecies is threatened due to loss of both breeding and nonbreeding habitat; potential for disruption of natural predator cycles on breeding grounds; reduced prey availability throughout the nonbreeding range; and increasing frequency and severity of asynchronies in the timing of the birds' annual migratory cycle relative to favorable food and weather conditions. Main threats to the rufa red knot in the United States include: reduced forage base at the Delaware Bay migration stopover; decreased habitat availability from beach erosion, sea level rise, and shoreline stabilization in Delaware Bay; reduction in or elimination of forage due to shoreline stabilization, hardening, dredging, beach replenishment, and beach nourishment in Massachusetts, North Carolina, and Florida; and beach raking which diminishes red knot habitat suitability. (USFWS 2014)

Range and Habitat

The red knot breeds in the central Canadian Arctic, primarily in Nunavut Territory, Canada, but with some potential breeding habitat extending into the Northwest Territories. Breeding territories are located inland, but near arctic coasts, and foraging areas are located near nest sites in freshwater wetlands (Niles et al. 2008). Breeding occurs in June when favorable conditions exist, and snow-free habitat is available. Nests are found on dry, slightly elevated tundra sites, often on windswept slopes with little vegetation.

The red knot migrates annually between its breeding grounds in the Canadian Arctic and several wintering regions, including the Southeast United States, the Northeast Gulf of Mexico, northern Brazil, and Tierra del Fuego at the southern tip of South America. Departure from the breeding grounds begins in mid-July and continues through August. Red knots tend to migrate in single-species flocks usually with more than 50 birds per flock.

Red knots make one of the longest distance migrations known in the animal kingdom, traveling up to 19,000 miles annually, and may undertake long flights that span thousands of miles without stopping. Because stopovers are time-constrained, red knots require stopovers rich in easily digested food to achieve adequate weight gain (Niles et al. 2008) that fuels the next leg of migratory flight and, upon arrival in the Arctic, fuels a body transformation to breeding condition (Morrison 2006).

During both the northbound (spring) and southbound (fall) migrations, red knots use key staging and stopover areas to rest and feed. Major spring stopover areas along the Atlantic coast include Río Gallegos, Península Valdés, and San Antonio Oeste (Patagonia, Argentina); Lagoa do Peixe (eastern Brazil, State of Rio Grande do Sul); Maranhão (northern Brazil); the Virginia barrier islands (United States); and Delaware Bay (Delaware and New Jersey, United States) (Cohen et al. 2009; Niles et al. 2008). Important fall stopover sites include southwest Hudson Bay (including the Nelson River delta), James Bay, the north shore of the St. Lawrence River, the Mingan Archipelago, and the Bay of Fundy in Canada; the coasts of Massachusetts and New Jersey and the mouth of the Altamaha River in Georgia, United States; the Caribbean (especially Puerto Rico and the Lesser Antilles); and the northern coast of South America from Brazil to Guyana (Schneider and Winn 2010, Niles et al. 2008). However, large and small groups of red knots, sometimes numbering in the thousands, may occur in suitable habitats all along the Atlantic and Gulf coasts from Argentina to Canada during migration (Niles et al. 2008). Red knots occur primarily along the coasts during migration; however, small numbers of red knots are reported annually across the interior United States (i.e. greater than 25 miles from the Gulf of Mexico or Atlantic Coast) during spring and fall migration.

Red knots are restricted to the ocean coasts during winter from December to February but may be present in some wintering areas as early as September or as late as May. Wintering areas for the red knot include the Atlantic coasts of Argentina and Chile (particularly the island of Tierra del Fuego that spans both countries), the north coast of Brazil (particularly in the State of Maranhão), the Northwest Gulf of Mexico from the Mexican State of Tamaulipas through Texas (particularly at Laguna Madre) to Louisiana, and the Southeast United States from Florida (particularly the central Gulf coast) to North Carolina (Niles et al. 2008). Smaller numbers of knots winter in the Caribbean, and along the central Gulf coast (Alabama, Mississippi), the mid-Atlantic, and the northeast United States.

Habitats used by red knots in migration and wintering areas are generally coastal marine and estuarine habitats with large areas of exposed intertidal sediments. In many wintering and stopover areas, quality high-tide roosting habitat (i.e. close to feeding areas, protected from predators, with sufficient space during the highest tides, free from excessive human disturbance) is limited. The supra-tidal (above high tide) sandy habitats of inlets provide important areas for roosting, especially at higher tides when intertidal habitats are inundated (Harrington 2008). In some localized areas, red knots will use artificial habitats that mimic natural conditions, such as nourished beaches, dredged spoil sites, elevated road causeways, or impoundments; however, there is limited information regarding the frequency, regularity, timing, or significance of red knot's use of such artificial habitats. Along the Texas coast, red knots forage on beaches, oyster reefs and exposed bay bottoms and roost on high sand flats, reefs, and other sites protected from high tides.

Except for localized areas, there have been no long-term systematic surveys of red knots in Texas or Louisiana. From survey work in the 1970s, Morrison and Harrington (1992) reported peak winter counts of 1,440 red knots in Texas, although numbers between December and February were typically in the range of 100 to 300 birds. Records compiled by Skagen et al. (1999) give peak counts of 2,838 red knots along the coast of Texas between January and June from 1980 to 1996, but these figures could include spring migrants. During the Christmas Bird Count of 2017, the nearest recorded observance was on Pelican Island at Galveston Bay where only one individual was reported. Other locations where the species was observed include: Powderhorn (53 individuals), Port Aransas (71 individuals), Mad Island Marsh—Matagorda County (4 individuals), Kennedy County Wind Turbines (18 individuals), and Flour Bluff in Corpus Christi (4 individuals).

Occurrence in the Action Area

Specifically within the action area, there have been no confirmed records of red knots in the action area. However, suitable habitat exists, albeit not high quality, in and near the action areas, so there is potential for the species to occur. Any occurrence would be expected to be in very small numbers.

3.3 Whooping Crane

The whooping crane (*Grus americana*) is the tallest North American bird with males approaching 1.5 meters in height, is snowy white with black primary feathers on the wings, and a bare red face and crown. Whooping cranes form monogamous pairs for life and all whooping cranes return to the same breeding territory in Wood Buffalo National Park, in Canada to nest in late April or May. Whooping cranes return to wintering grounds of Aransas NWR by late October to mid-November where they migrate singly, in pairs, in family groups or in small flocks and remain until March or April.

Whooping cranes are omnivorous and forage by probing and gleaning foods from soil, water, and vegetation. Summer goods include dragonflies, damselflies, other aquatic insects, crayfish, clams, snails, grasshoppers, cricket, frogs, mice, voles, small birds, minnows, reptiles, and berries. During the winter in Texas, they eat a wide variety of plan and animal foods, with blue crabs, clams, and berries of Carolina wolfberry (*Lycium carolinianum*) being predominant in the diet. Foods taken at upland sites include acorns, snails, crayfish, and insects. Waste grains, such as barley and wheat, form an important part of the diet during the spring and fall migrations (Lewis 1995, Campbell 2003, Canadian Wildlife Service [CWS] and USFWS 2007).

Status

The whooping crane was federally listed as endangered on March 11, 1967 (32 FR 4001). CH has been designated in Aransas, Calhoun, and Refugio counties in Texas, and includes the Aransas National Wildlife Refuge. There is no CH in or near the vicinity of the project area.

The main factors for the decline of the whooping crane were loss of habitat to agriculture (hay, pastureland, and grain production), human disturbance of nesting areas, uncontrolled hunting, specimen and egg collection, collisions with power lines, fences, and other structures, loss and degradation of migration stopover habitat, disease such as avian cholera, predation, lead poisoning, and loss of genetic diversity. Biological factors, such as delayed sexual maturity and small clutch size, prevent rapid population recovery. Drought during the breeding season presents serious hazards to the species. Exposure to disease is a special problem when large numbers of birds are concentrated in limited areas, as often happens during times of drought (Lewis 1995, Campbell 2003, CWS and USFWS 2007).

Range and Habitat

Whooping cranes were originally found throughout most of North America. In the nineteenth century, the main breeding area was from the Northwest Territories to the prairie provinces in Canada, and the northern prairie states to Illinois. Only four populations of whooping cranes exist in the wild, the largest of which is the Aransas-Wood Buffalo population, which breeds in isolated marshy areas of Wood Buffalo National Park in Canada's Northwest Territories. Each fall, the entire population of whooping cranes from this national park migrates some 2,600 miles (4,183 kilometers) primarily to the Aransas NWR and adjacent areas of the central Texas coast in Aransas, Calhoun, and Refugio counties, where it overwinters in oak savannahs, salt marshes, and bays (USFWS 1995). During migration they use various stopover areas in western Canada and the American Midwest. The three other wild populations have been introduced: an eastern population that migrates between Wisconsin and Florida and two non-migratory populations, one in central Florida, the other in Louisiana.

The natural wild population of whooping cranes spends its winters at Aransas NWR, Matagorda Island, Isla San Jose, portions of Lamar Peninsula, and Welder Point on the east side of San Antonio Bay (CWS and USFWS 2007). The main stopover points in Texas for migrating birds are in the central and eastern Panhandle (USFWS 1995).

USFWS reintroduced a non-essential experimental population (NEP) to Vermillion Parish in southwestern Louisiana in 2011. The reintroduced population was designated as NEP under section 10(j) of the Endangered Species Act of 1973 (ESA), as amended. A NEP population is a reintroduced population believed not be essential for the survival of the species, but important for its fully recovery

and eventual removal from the endangered and threatened list. Since 2011, 10-16 hatched juveniles have been released annually at White Lake Wetlands Conservation Area, and in 2016 a new release area was added 19 miles to the south at Rockefeller Wildlife Refuge. The NEP is approximately 175 miles from the action area.

Nesting habitat in northern Canada is in poorly drained region of freshwater marshes and wet prairies interspersed with numerous potholes and narrow-wooded ridges. Whooping cranes use a variety of habitats during migration, including freshwater marshes, wet prairies, inland lakes, small farm ponds, upland grain fields, and riverine systems. Shallow flooded palustrine wetlands are used for roosting, while croplands and emergent wetlands are used for feeding. Riverine habitats, such as submerged sandbars, are often used for roosting. The principal winter habitat in Texas is brackish bays, marshes, and salt flats, although whooping cranes sometimes feed in upland sites characterized by oak mottes, grassland swales, and ponds on gently rolling sandy soils (Lewis 1995, Campbell 2003, CWS and USFWS 2007).

Occurrence in the Action Area

All marsh areas have the potential to support foraging or resting birds. CA-5 and CA-6 are near CH, but only CA-6 has work that would be completed within the preferred habitat.

3.4 Eastern Black Rail

The eastern black rail is the most secretive of the secretive marsh birds and one of the least understood species in North America. The sparrow-sized bird with slate gray plumage and red eyes lives in remote wetlands of the Midwest and along the coasts of the Atlantic and Pacific oceans and the Gulf of Mexico. Because it only comes out at night, prefers to walk hidden in tall grasses instead of fly and rarely makes a call, very little is known about its behavior and habitat needs.

Not much is known about the subspecies diet, but they are probably opportunistic foragers. Their bill shape suggests generalized feeding methods such as gleaning or pecking at individual items, thus a reliance on sight for finding food. Examination of specimens collected indicates a diet of small aquatic and terrestrial invertebrates, as well as small seeds. Foraging most likely occurs on or near the edges of stand of emerging vegetation -- both above and below the high-water line.

Status

The eastern black rail was listed as threatened on October 8, 2020 with a Section 4(d) Rule (FR 63764). No CH has been designated for the species. The Section 4(d) Rule allows the Service to establish prohibitions or exceptions to prohibitions for threatened species while providing for the conservation of a threatened species by allowing flexibility under ESA. Prohibitions under the species-specific 4(d) rule include:

- purposeful “take” of eastern black rail, to include capture, handling, or other activities;
- incidental take from prescribed burns (unless utilizing BMPs), mowing, haying, and other mechanical treatment activities in the bird’s habitat during the nesting or brooding periods; grazing on public lands that occur in the bird’s habitat and do not support the maintenance of dense overhead cover in at least 50% of habitat in any given calendar year within a

management boundary; and long-term or permanent damage, fragmentation, or conversion of habitat and the contiguous wetland-upland transition zone to other habitat types (such as open water) that do not support the bird;

- possession and other acts with unlawfully taken eastern black rails;
- import or export of eastern black rails;
- possession of unlawfully taken specimens of eastern black rails or conducting any other acts with unlawfully taken specimens of eastern black rails;
- engaging in interstate or foreign commerce of eastern black rails in the course of commercial activity; or
- selling eastern black rails or offering eastern black rails for sale.

The 4(d) rule also exempts some activities from take including:

- activities expressly permitted by 50 CFR §17.32 such as permits issued for scientific purposes, enhancement of propagation or survival, economic hardship, zoological exhibition, educational purposes, incidental taking, or special purposes;
- "Take" of an eastern black rail during the course of official duties by any employee or agent of the Service, NMFS, or a state conservation agency, operating a conservation program for the bird;
- Incidental take resulting from haying, mowing or other mechanical treatment activities in persistent emergent wetlands during the nesting and brooding periods that is a maintenance requirement to ensure safety and operational needs including: maintaining existing infrastructure such as fire-breaks, roads, rights-of-way, levees, dikes, fence lines, airfields, and surface water irrigation infrastructure;
- Incidental take resulting from haying, mowing or other mechanical treatment activities in persistent emergent wetlands during the nesting and brooding periods and occur from the control of woody encroachment and other invasive plant species in order to restore degraded eastern black rail habitat;
- Incidental take resulting from actions taken to control wildfires;
- Incidental take resulting from the establishment of new fire-breaks and new fence lines; or
- Incidental take resulting from prescribed burns, grazing, and mowing or other mechanical treatment activities in existing moist soil management units or prior converted croplands (e.g. impoundments for rice or other cereal grain production).

The primary threats to eastern black rail are: (1) Habitat fragmentation and conversion, resulting in the loss of wetland habitats across the range; (2) sea level rise and tidal flooding; (3) land management practices (*i.e.,* incompatible fire management practices, grazing, and haying/mowing/other mechanical treatment activities); and (4) stochastic events (*e.g.,* extreme flooding, hurricanes). Human disturbance, such as birders using excessive playback calls of black rail vocalizations, is also a concern for the species.

Additional stressors to the species (including oil and chemical spills and environmental contaminants; disease, specifically West Nile virus; and predation and altered food webs resulting from invasive species (fire ants, feral pigs, nutria, mongoose, and exotic reptiles) introductions.

Range and Habitat

All of the information found in this section were summarized from Watts (2016), unless otherwise indicated.

The eastern black rail is a widely distributed, secretive marsh bird with little known about its population structure and dynamics. The subspecies is broadly distributed, living in salt and freshwater marshes in portions of the United States, Central America, and South America. The species is partially migratory wintering in the southern part of its breeding range.

The eastern black rail has a broad but poorly known breeding range that includes the Atlantic and Gulf Coasts of North America, parts of Colorado, Oklahoma and the mid-west, the West Indies including Cuba, Jamaica and historically Puerto Rico and parts of Central America from Mexico through Panama (Eddleman et al. 1994). A total of 1,937 occurrence records were found within this area between 1836 and 2016. Credible evidence of occurrence was found for 21 of the 23 states including 174 counties, parishes and independent cities and 308 named properties. Based on breeding evidence and seasonality of occurrence 34 (19%) counties were classified as confirmed, 97 (56%) as probable breeding and 43 (25%) as possible breeding. Many of the named properties are well-known conservation lands including 46 (15%) national wildlife refuges, 44 (14%) state wildlife management areas, 26 (8%) state and municipal parks and many named lands managed by non-governmental conservation organizations.

Since 2010, 247 black rail occurrences have been recorded within 11 of the 23 states in the study area. Records were found for 53 counties, parishes and independent cities (Figure 7). Based on breeding evidence and seasonality of occurrence 2 (4%) counties were classified as confirmed, 35 (66%) as probable breeding and 16 (30%) as possible breeding. Records were found for 92 named properties including 2 (3%) properties classified as confirmed, 73 (79%) as probable breeding and 17 (18%) properties classified as possible breeding.

The eastern black rail is a wetland dependent bird requiring dense overhead cover and soils that are moist to saturated (occasionally dry) and interspersed with or adjacent to very shallow water (typically ≤3 cm) to support its resource needs. Eastern black rails occur across an elevational gradient that lies between lower and wetter portions of the marsh and their contiguous uplands. Their location across this gradient may vary depending on the hydrologic conditions. These habitat gradients have gentle slopes so that wetlands are capable of having large areas of shallow inundation (sheet water). These wetlands are able to shrink and expand based on hydrologic conditions and thus provide dependable foraging habitat across the wetted areas and wetland-upland transition zone for the subspecies. Eastern black rails also require adjacent higher elevation areas (i.e., the wetland-upland transition zone) with dense cover to survive high water events due to the propensity of juvenile and adult black rails to walk and run rather than fly and chicks' inability to fly. (USFWS 2019)

The subspecies requires dense vegetation that allows movement underneath the canopy, and because are found in a variety of salt, brackish, and freshwater wetland habitats that can be tidally or non-tidally influenced, plant structure is considered more important than plant species composition in predicting

habitat suitability. In terms of nest success, nests must be well hidden in a dense clump of vegetation over moist soil or shallow water to provide shelter from the elements and protection from predators. Flooding is a frequent cause of nest failure; therefore, water levels must be lower than nests during egg-laying and incubation in order for nets to be successful. In addition, shallow pools that are 1-3 cm deep may be the most optimal for foraging and for chick-rearing. (USFWS 2019)

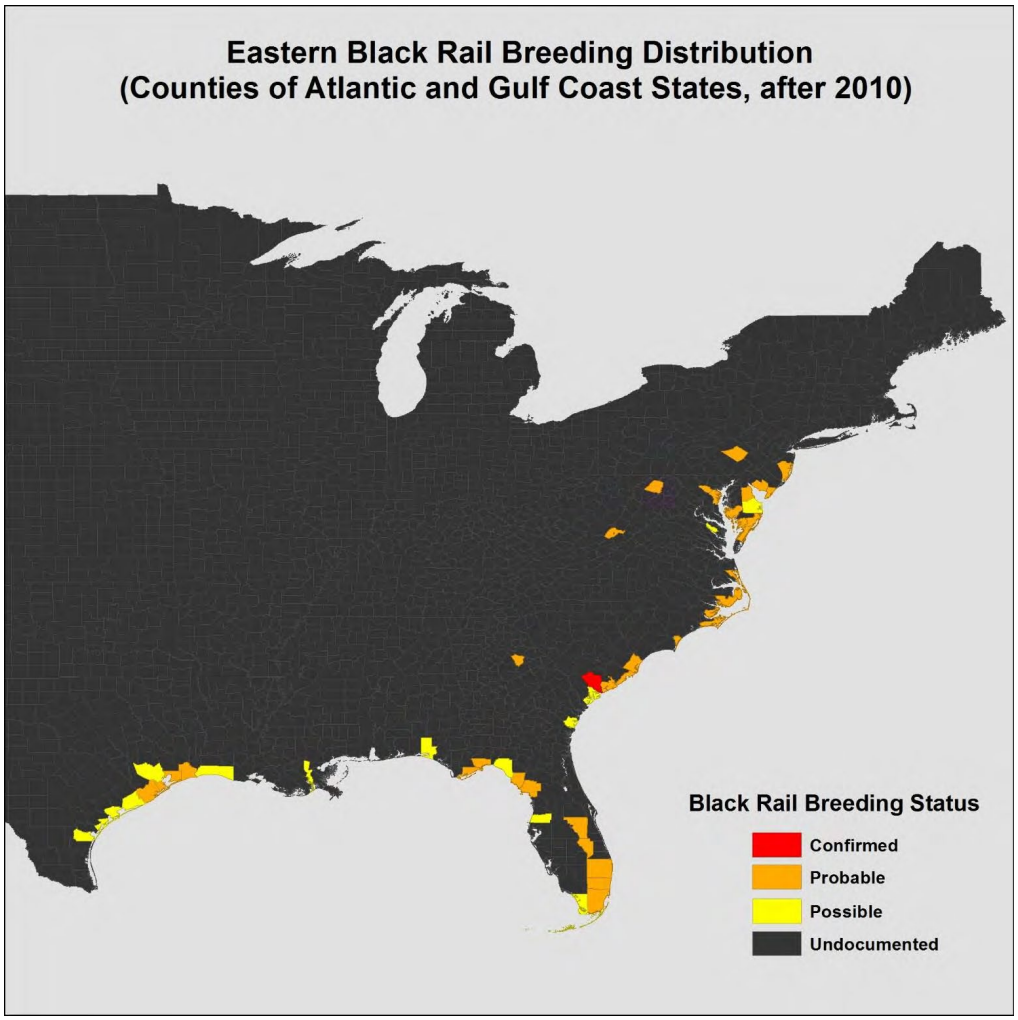

Figure 7. Map of Counties with Recent (2011-2016) credible records of eastern black rails during the breeding period (01 April to 31 August) (Watts 2016)

Occurrence in the Action Area

All information in this section was summarized from Watt (2016).

Texas is a black rail crossroad making it difficult to differentiate breeders from winter residents from migrants. Black rail in Texas use tidal salt marshes along the barrier islands and the mainland fringe, as well as, drier coastal prairie.

The upper Texas coast (Jefferson, Chambers, Galveston, Harris, and Brazoria counties) has a long history of black rail records that are concentrated within national wildlife refuges and state wildlife

management areas. Much of the black rail activity along the upper Texas coast has been concentrated on the Bolivar Peninsula and Brazoria, Anahuac and San Bernard National Wildlife Refuges.

The central Texas coast (Matagorda, Calhoun, Aransas, San Patricio, Nueces, and Kleberg counties) does not appear to receive the same level of visitation from the bird-watching community as the upper coast. Exploration of black rails in this region seems to begin in the early 1990s with surveys by Ortego. Properties with significant black rail histories include Matagorda Island Wildlife Management Area, Mad Island Wildlife Management Area, Aransas National Wildlife Refuge and the Magnolia Beach Wetlands where birds have been detected during breeding bird surveys for many years.

The south Texas coast (Kenedy and Cameron counties) has had few reports of black rails. Whether this is due to a lack of effort to find them or their absence is not clear. Black rails have been detected by McKinney on 19 May, 1995 and again on 3 July, 2005 around South Padre Island Nature and Birding Center in Cameron County (Lockwood et al. 2005). Freeman had a single black rail calling on 28 April, 2001 on Kenedy Ranch in Kenedy County.

Black rails have been reported from 13 counties and 35 identified properties. Breeding has been confirmed in Brazoria and Galveston counties and eight of the remaining 11 counties were classified as probable including: Aransas, Calhoun, Cameron, Chambers, Jefferson, Matagorda, Nueces, and San Patricio counties. Harris, Kenedy, and Kleberg counties are classified as possible breeding sites.

Texas, along with Florida, appear to be strongholds for the entire range based on occurrences within surveyed locations and the large coverage of potential habitat that remains to be fully assessed A loose population estimate for the state is set to 100 to 500 pairs with high uncertainty. Additional survey effort focused on population estimated is needed to improve the population estimates.

Specifically within the action areas, G-28, B-12, CA-6, and M-8 would have work that would be completed within marsh habitat that is considered degraded and not marginal at best due to presence of deep open water habitats intermixed within the marsh and daily tidal influences. Some areas are densely vegetated but are far from the upland transition the birds require to escape tidal influences. While other action areas are near marsh, the occurrence of birds immediately near the action areas (e.g. at the edge of marsh habitats) are highly unlikely due to the presence of deeper water and waters that are highly tidally influenced to an extent greater than the species is likely to tolerate.

3.5 West Indian Manatee

Manatees are large, elongated marine mammals with paired flippers and a large, spoon-shaped tail. They can reach lengths of over 14 feet and weights of over 3,000 pounds. Manatees are herbivores that feed opportunistically on a wide variety of submerged, floating, and emergent vegetation.

Status

USFWS listed the West Indian manatee as endangered on March 11, 1967 (32 FR 4001) and later received protection under ESA in 1973. On May 5, 2017, the species was reclassified from endangered to threatened because the endangered designation no longer reflected the status of the species at the time of reclassification (82 FR 16668). CH for the Florida manatee subspecies (*Trichechus manatus latirostris*) was designated in 1976 (41 FR 41914).

The major threats faced by manatees today are many fold. Collisions with watercraft account for an average of 24-30 percent of the known manatee deaths in Florida annually. Deaths attributed to water control structures and navigational locks represent four percent of known deaths.

There are also threats to their habitat as a result of intensive coastal development throughout much of the manatee's range. As well, the availability of warm-water refuges for manatee is uncertain if minimum flows and levels are not established for the natural springs on which many manatees depend and as deregulation of the power industry in Florida occurs. There are also threats from natural events such as red tide and cold events. (USFWS 2001b)

Range and Habitat

The West Indian manatee was historically found in shallow coastal waters, bays, lagoons, estuaries, rivers, and inland lakes throughout much of the tropical and sub-tropical regions of the New World Atlantic, including many of the Caribbean islands. However, at the present time, manatees are now rare or extinct in most parts of their former range. Today, manatees occur primarily in Florida and southeastern Georgia, but individuals can range as far north as Rhode Island on the Atlantic coast (Reid 1996) and as far west as Texas on the Gulf coast.

Manatees live in marine, brackish, and freshwater systems in coastal and riverine areas throughout their range. Preferred habitats include areas near the shore featuring underwater vegetation like seagrass and eelgrass. They feed along grass bed margins with access to deep water channels, where they flee when threatened. Manatees often use secluded canals, creeks, embayments, and lagoons, particularly near the mouths of coastal rivers and sloughs, for feeding, resting, cavorting, mating, and calving (Marine Mammal Commission 1986). In estuarine and brackish areas, natural and artificial fresh water sources are sought by manatees.

When ambient water temperatures drop below 68 degrees Fahrenheit in autumn and winter, manatees aggregate within the confines of natural and artificial warm-water refuges or move to the southern tip of Florida (Snow 1991). Most artificial refuges are created by warm-water outfalls from power plants or paper mills. The largest winter aggregations are at refuges in Central and Southern Florida. The northernmost natural warm-water refuge used regularly on the west coast is at Crystal River and at Blue Springs in the St. Johns River on the east coast. Most manatees return to the same warm water refuges each year; however, some use different refuges in different years and others use two or more refuges in the same winter (Reid and Rathbun 1986, Reid et al. 1995). Many lesser known, minor aggregation sites are used as temporary thermal refuges. Most of these refuges are canals or boat basins where warmer water temperatures persist as temperatures in adjacent bays and rivers decline.

As water temperatures rise manatees disperse from winter aggregation areas. While some remain near their winter refuges, others undertake extensive travels along the coast and far up rivers and canals. On the east coast, summer sightings drop off rapidly north of Georgia (Lefebvre et al. 2001) and are rare north of Cape Hatteras (Schwartz 1995); the northernmost sighting is from Rhode Island (Reid 1996). On the west coast, sightings drop off sharply west of the Suwannee River in Florida (Marine Mammal Commission 1986). Rare sightings also have been made in the Dry Tortugas (Reynolds and Ferguson 1984) and the Bahamas (Lefebvre et al. 2001).

During the summer, manatees may be commonly found almost anywhere in Florida where water depths and access channels are greater than one to two meters (3-6 feet) (O'Shea 1988). Manatees can be found in very shallow water. In warm seasons, they usually occur alone or in pairs, although interacting groups of five to ten animals are not unusual.

Occurrence in the Action Area

The West Indian manatee historically inhabited the Laguna Madre, the Gulf, and tidally influenced portions of rivers. It is currently, however, extremely rare in Texas waters and the most recent sightings are likely individuals migrating or wandering from Mexican waters. Historical records from Texas waters include Cow Bayou (outside any of the action areas), Sabine Lake (outside any of the action areas), Copano Bay, the Bolivar Peninsula (G-28), and the mouth of the Rio Grande (Schmidly 2004, Würsig 2017). Despite a couple of sightings off the coast of Galveston Island in the Gulf of Mexico, as recently as 2019, and intermittent sightings occurring as far back as 1995 of a manatee occurring in Buffalo Bayou a tributary to Galveston Bay, the Galveston Bay and upper coast in general is lacking preferred habitat and food sources as compared to the lower coast. When the sightings have occurred, the bay and other areas had a higher incidence of water hyacinth from rain and flooding and was thought to be the reason the individuals were attracted to the area. None of the individuals stayed in the area for any substantial length of time and none are expected to regularly frequent the upper coast.

In 2005, 2007, and 2019, an individual manatee was spotted along the lower coast near the Laguna Madre. In 2019, it is believed the same manatee observed near the Laguna Madre was also observed off the coast of South Padre Island. The lower coast generally supports more preferred habitat than any of the action areas due to the abundance of seagrass meadows in the Laguna Madre.

Due to the species' extreme rarity in the action area, its presence is highly unlikely; however, with historic and recent records from some of the action areas, it cannot be ruled out with certainty that the species could not occur in the action areas. If a manatee were to occur in any of the action areas, it is anticipated it would be a lone individual when water temperatures are warmer (late spring to early fall).

3.6 Loggerhead Sea Turtle

The loggerhead sea turtle is a medium to large turtle. Adults are reddish-brown in color and generally 31 to 45 inches in shell length with the record set at more than 48 inches. Loggerheads weigh between 170 and 350 pounds with records set at greater than 500 pounds. Loggerhead turtles are essentially carnivores, feeding primarily on sea urchins, sponges, squid, basket stars, crabs, horseshoe crabs, shrimp, and a variety of mollusks. Adults are primarily bottom feeders, although they will also eat jellyfish and mangrove leaves obtained while swimming and resting near the sea surface. Presence of fish species, such as croaker in stomachs of stranded individuals may indicate feeding on the by-catch of shrimp trawling (Landry 1986). Young feed on prey concentrated at the surface, such as gastropods, fragments of crustaceans, and sargassum.

Status

USFWS listed the loggerhead sea turtle as threatened throughout its range on July 28, 1978 (43 FR 32808). Although the loggerhead is the most abundant sea turtle species in US coastal waters (NMFS 2006), the decline of the species, like that of most sea turtles is the result of overexploitation by man, inadvertent mortality associated with fishing and trawling activities, and natural predation. The most

significant threats to its population are coastal development, commercial fisheries and pollution (NMFS 2006)

Range and Habitat

Loggerhead sea turtles occur throughout the temperate and tropical regions of the Atlantic from Nova Scotia to Argentina, Gulf of Mexico, Pacific and Indian oceans (although it is rare in eastern and central Pacific), and the Mediterranean (Iverson 1986). This species may be found hundreds of miles out to sea, as well as in inshore areas such as bays, lagoons, salt marshes, creeks, and the mouths of large rivers. Loggerhead sea turtles are considered turtles of shallow water. Juvenile loggerheads are thought to utilize bays and estuaries for feeding, while adults prefer water less than 165 feet deep (Nelson 1986).

Adults occupy various habitats from turbid bays to clear waters of reefs. Sub-adults occur mainly in nearshore and estuarine waters, while hatchlings move directly to the sea after hatching, and often float in masses of sargassum. They remain associated with sargassum for as long as 3 to 5 years (NFMS and USFWS 1991a).

In the continental US, loggerheads nest along the Atlantic coast from Florida to as far north as New Jersey (Musick 1979) and sporadically along the Gulf Coast. In recent years, a few have nested on barrier islands along the Texas coast. Nesting usually occurs on open sandy beaches above the high-tide mark and seaward of well-developed dunes. They nest primarily on high-energy beaches on barrier islands adjacent to continental land masses in warm-temperate and subtropical regions. Steeply sloped beaches with gradually sloped offshore approaches are favored. In Florida, nesting on urban beaches was strongly correlated with the presence of tall objects (trees or buildings), which apparently shield the beach from city lights (Solmon et al. 1995).

Occurrence in the Action Area

The loggerhead is the most abundant turtle in Texas marine waters, preferring shallow inner continental shelf waters, and occurring only very infrequently in the bays. It often occurs near offshore oil rig platforms, reefs, and jetties. Loggerheads are probably present year-round but are most noticeable in the spring when a favored food item, the Portuguese man-of-war (*Physalia physalis*), is abundant. Loggerheads constitute a major portion of the dead or moribund turtles washed ashore (stranded) on the Texas coast each year.

Nesting within or near the other action areas is not possible given the lack of suitable nesting habitat; however, there is potential for the species to occur in any of action areas in open water areas with a higher likelihood of occurrences along the lower Texas coast.

3.7 Green Sea Turtle

Green turtles are the largest of all the hard-shelled sea turtles but have a comparatively small head. Adult turtles are unique among sea turtles in that they only eat plants; they are herbivorous, feeding primarily on seagrasses and algae. While juveniles consume some invertebrates including seagrasses, macroalgae and other marine plants, mollusks, sponges, crustaceans, and jellyfish (Mortimer 1982).

Status

The green sea turtle was listed on July 28, 1978, as threatened except for in Florida and the Pacific Coast of Mexico (including the Gulf of California) where it was listed as endangered (43 FR 32808). In 1998, NMFS designated CH to include the coastal waters around Culebra Island, Puerto Rico (63 FR 46693). On May 6, 2016, NMFS and USFWS revised the listing to identify 11 green sea turtle distinct population segments (DPS) worldwide. The proposed DPS would list the North Atlantic DPS as threatened.

The principal cause of the historical, worldwide decline of the green turtle is long-term harvest of eggs and adults on nesting beaches and juveniles and adults on feeding grounds. These harvests continue in some areas of the world and compromise efforts to recover the species. Other threats include incidental capture in fishing gear, primarily gillnets, but also in trawls, traps and pots, longlines, and dredges, as well as nesting habitat loss and disturbance from recreational use of beaches, development, erosion, and vegetation changes. Green turtles are also threatened, in some areas of the world especially in Hawaii and Florida, by a disease known as fibropapillomatosis, or "tumor" infections.

Range and Habitat

The green sea turtle is a circumglobal species in tropical and subtropical waters. In the US, it occurs in Atlantic waters around the US Virgin Islands, Puerto Rico, and continental US from Massachusetts to Texas. Major nesting activity occurs on Ascension Island, Aves Island (Venezuela), Costa Rica, and in Suriname. Relatively small numbers nest in Florida, with even smaller numbers in Georgia, North Carolina, and Texas (NFMS and USFWS 1991b, Hirth 1997).

The green turtle primarily utilized shallow habitats such as lagoons, bays, inlets, shoals, estuaries, and other areas with an abundance of marine algae and seagrasses. Hatchlings often float in masses of sea plants (e.g. rafts of sargassum) in convergence zones. Coral reefs and rocky outcrops near feeding pastures often are used as resting areas.

Terrestrial habitat is typically limited to nesting activities (Balazs 1980) that occur during the summer from June to September. They prefer high energy beaches with deep sand, which may be coarse to fine, with little organic content. Most green sea turtles nest in Florida and in Mexico and nests in Texas are rare (Shaver and Amos 1988). More recently, green turtle nests were documented in Texas, of which all but one were from Padre Island National Seashore. In 2012, six green turtle nests were reported from Padres Island National Seashore and two from South Padre Island.

Occurrence in the Action Area

The green sea turtle is the most common sea turtle in Texas, although more commonly found in waters further south towards South Padre Island and the Laguna Madre. No suitable nesting habitat is in or near any of the action areas, since all action areas do not support beach habitats. Additionally, many of these action areas support little to no seagrass meadows which would further support populations of green sea turtles. However, it remains possible, although unlikely, that the species could occur as a transient species using waters in or near the dredging sites or breakwater placement areas.

3.8 Leatherback Sea Turtle

Leatherback sea turtles are named for their appearance. They do not have shells as other sea turtles do. Instead, their backs are covered by a slate black to bluish-black leathery skin with irregular white or pink patches. They are the largest turtles in the world, reaching over 6 feet in length and weigh 650-1,200 pounds (NPS 2013). Despite their large size, the diet of leatherbacks consists largely of jellyfish and sea squirts. They also consume sea urchins, squid crustaceans, fish, blue-green algae, and floating seaweed (NFWL 1980).

Status

The leatherback sea turtle was listed as endangered throughout its range on June 2, 1970 (35 FR 8495), with CH designated at Sandy Point, St. Croix in the US Virgin Islands on March 23, 1979 (44 FR 17710). NMFS established a leatherback conservation zone extending from Cape Canaveral to the Virginia-North Carolina border and includes all inshore and offshore waters.

Leatherback sea turtles face threats on both nesting beaches and in the marine environment. The greatest causes of decline and the continuing primary threats to leatherbacks worldwide are long-term harvest and incidental capture in fishing gear. Harvest of eggs and adults occurs on nesting beaches while juveniles and adults are harvested on feeding grounds. Incidental capture primarily occurs in gillnets, but also in trawls, traps and pots, longlines, and dredges. Additionally, leatherbacks are threatened by the existence of marine debris such as plastic bags and balloons, which they often consume after mistaking them for their preferred prey, jellyfish.

Range and Habitat

The leatherback sea turtle is mainly pelagic, inhabiting the open ocean, and seldom approaches land except for nesting (Eckert 1992). It is most often found in coastal waters only when nesting or when following concentrations of jellyfish (TPWD 2006), when it can be found in inshore waters, bays, and estuaries. The leatherback typically nests on beaches with a deepwater approach (Pritchard 1971). It dives almost continuously, often to great depths.

The leatherback is probably the most wide-ranging of all sea turtle species. It occurs in the Atlantic, Pacific and Indian Oceans, as far north as British Columbia, Newfoundland, Great Britain, and Norway; as far south as Australia, Cape of Good Hope, and Argentine; and in other water bodies such as the Mediterranean Sea (NFWL 1980). Leatherbacks nest primarily in tropical regions with major nesting beaches in Malaysia, Mexico, French Guiana, Suriname, Costa Rica, and Trinidad (Ross 1982). Leatherbacks nest only sporadically in some of the Atlantic and Gulf states of the continental US, with one nesting reported as far north as North Carolina (Schwartz 1976). In the Atlantic and Caribbean, the largest nesting assemblages occur in the US Virgin Islands, Puerto Rico, and Florida (NMFS 2006).

The leatherback migrates farther and ventures into colder water than any other marine reptile. Adults appear to engage in routine migrations between boreal, temperate, and tropical waters, presumably to optimize both foraging and nesting opportunities. During the summer, leatherbacks tend to occur along the East Coast of the US from the Gulf of Main south to the middle of Florida.

Apart from occasional feeding aggregations reported off Port Aransas in December 1956 (Leary 1957), or possible concentrations in the Brownsville Eddy in winter (Hildebrand 1983), leatherbacks are rare along

the Texas coast, tending to keep deeper offshore waters where their primary food source, jellyfish, occurs. In the Gulf, the leatherback is often associated with two species of jellyfish including the cabbagehead (*Stomolophus sp.*) and the moon jellyfish (*Aurelia sp.*) (NMFS and USFWS 1992).

According to USFWS (1981), leatherbacks have never been common in Texas waters. No nests of this species have been recorded in Texas for at least 70 years (NPS 2006). The last two, one from the late 1920s and one from the mid-1930s, were both from Padre Island (Hildebrand 1982, Hildebrand 1986).

Occurrence in the Action Area

The species' preferred nesting habitat is not found in or near any of the action areas. Due to the species preference for deep marine waters and the lack of suitable nesting habitat, it is highly unlikely that the species would occur in any of the action areas. If an encounter occurred, it would most likely be a transient individual in open water areas during dredging actions.

3.9 Hawksbill Sea Turtle

The hawksbill sea turtle is a small to medium-sized marine turtle with an elongated oval shell with overlapping scutes on the carapace, a relatively small head with a distinctive hawk-like beak, and flippers with two claws. An adult may reach up to 3 feet in length and weigh up to 300 pounds, although adults more commonly average about 2.5 feet in length and typically weigh around 176 pounds. While the species is omnivorous, it prefers invertebrates, especially encrusting organisms, such as sponges, tunicates, bryozoans, mollusks, corals, barnacles, and sea urchins. Pelagic species consumed jellyfish and fish, and plant material such as algae, sea grasses, and mangroves, have been reported as food items for this turtle (Mortimer 1982). The young are reported to be somewhat more herbivorous than adults (Ernst and Barbour 1972).

Status

The hawksbill sea turtle was federally listed as endangered on June 2, 1970 (35 FR 8495) with CH designated in Puerto Rico on May 24, 1978 (43 FR 22224). In 1998, NMFS designated additional CH near Isla Mona and Isla Monito, Puerto Rico, seaward to 3.9 miles (63 FR 46693—46701).

The greatest threat to this species is harvest to supply the market for tortoiseshell and stuffed turtle curios (Meylan and Donnelly 1999). Hawksbill shell (bekko) commands high prices. Japanese imports of raw bekko between 1970 and 1989 represented the loss of more than 670,000 turtles. The hawksbill is also used to manufacture leather oil, oil, perfume, and cosmetics (NMFS 2006).

Other threats include destruction of breeding locations by beach development, incidental take in lobster and Caribbean reef fish fisheries, pollution by petroleum products (especially oil tanker discharges), entanglement in persistent marine debris (Meylan 1992), and predation on eggs and hatchlings.

Range and Habitat

Hawksbill generally inhabit coastal reefs, bays, rocky areas, passes, estuaries, and lagoons, where they occur at depths of less than 70 feet. Like some other sea turtle species, hatchlings are sometimes found floating in masses of marine plants (e.g. sargassum rafts) in the open ocean (NFWL 1980). Hawskbills reenter coastal waters when they reach a carapace length of approximately 7.9 to 9.8 inches. Coral reefs are widely recognized as the resident foraging habitat of juveniles, subadults, and adults. This habitat

association is undoubtedly related to their diet of sponges, which need solid substrate for attachment. Hawksbills also occur around rocky outcrops and high-energy shoals, which are optimum sites for sponge growth. In Texas, juvenile hawksbills are often associated with stone jetties (NMFS 2006).

Terrestrial habitat is typically limited to nesting activities. The hawksbill, which is typically a solitary nester, nests on undisturbed, deep-sand beaches, from high-energy ocean beaches to tiny pocket beaches about 10 feet wide bound by crevice of cliff walls. Typically, the sand beaches are low energy, with woody vegetation, such as sea grape (*Coccoloba uvifera*), near the waterline (NRC 1990).

The hawksbill is circumtropical, occurring in tropical and subtropical seas of the Atlantic, Pacific, and Indian oceans (Witzell 1983). This species is the most tropical of all marine turtles, although it does occur in many temperate regions. The hawksbill sea turtle is widely distributed in the Caribbean Sea and western Atlantic Ocean, with representatives of at least some life history stages regularly occurring in southern Florida and the northern Gulf (especially Texas), south to Brazil (NMFS 2006).

In the continental US, the hawksbill largely nests in Florida where it is sporadic at best (NFWL 1980). A major nesting beach exists on Mona Island, Puerto Rico and elsewhere in the western Atlantic, hawksbills nest in small numbers along the Gulf Coast of Mexico, the West Indies, and along the Caribbean coasts of Central and Southern America (Musick 1979).

Texas is the only state outside of Florida where hawkbills are sighted with any regularity. Most of these sightings involve posthatchlings and juveniles, and are primarily associated with stone jetties. These small turtles are believed to originate from nesting beaches in Mexico (NMFS 2006). On June 13, 1998, the first hawksbill nest was recorded on the Texas coast near Padre Island National Seashore. This nest remains the only documented hawksbill nest on the Texas coast (Shaver 2006, NPS 2020).

Occurrence in the Action Area

Stranding data from 2004 through 2007 show that 59 hawksbill were found along Texas waters or shorelines. Of the hawksbill strandings reported during that period, 17 were from zone 21, which extends from the mouth of the Rio Grande to the vicinity of Yarborough Pass near Baffin Bay and includes the action areas of.

Hawksbill sea turtles are more common along the lower coast and become rarer moving up the coast with no record of the species from the upper coast region. No hawksbills have been killed or captured during relocation trawls or dredging operations since record-keeping began in 1995 at any of the dredging locations (USACE 2019). Despite the lack of occurrence in any of the action areas, the species could occur anywhere and would most likely be an incidental transient.

3.10 Kemp's Ridley Sea Turtle

The Kemp's ridley sea turtle is the smallest of the sea turtles, with adults reaching about 2 feet in length and weighing up to 100 pounds. The species has a triangular-shaped head and a slightly hooked beak with large crushing surfaces. The turtle's diet consists mainly of swimming crabs, but may also include fish, jellyfish, sea stars, snails, bivalves, shrimp, sea urchins, an array of mollusks, and occasional marine plants (NMFS et al. 2011).

Status

Kemp's ridley sea turtle was listed as endangered throughout its range on December 2, 1970 (35 FR 18320). Populations of the species have declined since 1947, when an estimated 42,000 females nested in one day (Hildebrand 1963), to a total nesting population of approximately 1,000 in the mid-1980s. The decline of the species was primarily due to human activities including collection of eggs, fishing for juveniles and adults, killing adults for meat and other products, and direct take for indigenous use.

Threats affecting Kemp's ridley are often specific to life stages and the habitats where they occur. On the shoreline (nesting beach) threats to the species include: illegal harvest; beach cleaning; human presence during recreation or construction; recreational beach use; beach vehicular driving; construction activities such as beach nourishment, shoreline stabilization, and development; energy exploration, development and removal; ecosystem alterations such as beach erosion, vegetation composition changes, and invasive species; pollution from oil spills, exposure to toxins and chemicals from illegal dumping and garbage, and light; predation; and disease (NMFS et al. 2011).

In open water, sea turtles caught in commercial and recreational fisheries are often injured or killed. Of all commercial and recreational fisheries in the US, shrimp trawling has had the greatest effect on the status of sea turtle populations, followed by dredges, longlines, nets, and traps/pots. Entanglement in fishing gear can lead to abrasions, restrictions, tissue necrosis, and drowning. Turtles are also susceptible to illegal harvest and boat strikes while in the water (NMFS et al. 2011).

Range and Habitat

Kemp's ridleys inhabit shallow coastal and estuarine waters, usually over sand or mud bottoms. Models indicate that the most suitable habitats are less than 32 feet (10 m) in bottom depth with sea surface temperatures between 71.6° and 89.6°F (22° and 32°C) (Coyne et al. 2000). Kemp's ridleys utilize seagrass beds, mud bottom, and live bottom substrates as important developmental habitats (Schmid and Barichivich 2006). Post-nesting Kemp's ridleys travel along coastal corridors that are generally shallower than 164 feet (50 m) in bottom depth (Schmid and Barichivich 2006). Females lay their eggs on coastal beaches where they incubate eggs in sandy nests. After embryonic development, the hatchlings emerge and swim offshore into deeper, ocean water where they feed and grow until returning at a larger size to nearshore coastal habitats. This life history is characterized by three basic ecosystem zones: (1) terrestrial zone (supralittoral) – the nesting beach where both oviposition and embryonic development occur; (2) neritic zone – the nearshore (including bays and sounds) marine environment (from the surface to the sea floor) where water depths do not exceed 200 meters, including the continental shelf; and (3) oceanic zone – the vast open ocean environment (from the surface to the sea floor) where water depths are greater than 650 feet (200 meters) (NMFS et al. 2011).

Kemp's ridleys nest on beaches from April to July. Nesting is essentially limited to the beaches of the western Gulf of Mexico, primarily in Tamaulipas, Mexico. Nesting also occurs in Veracruz and a few historical records exist for Campeche, Mexico (Marquez 1994). Nesting also regularly occurs in Texas and infrequently in a few other US states. However, historic nesting records in the US are limited to south Texas (Hildebrand 1963). Several scatted isolated nesting attempts have occurred from North Carolina to Colombia.

Kemp's ridley occurs in Texas in small numbers and in many cases may well be in transit between crustacean-rich feeding areas in the northern Gulf and breeding grounds in Mexico. It has nested sporadically in Texas over the last 50 years. The number of nestings have increased over the last couple of decades (NPS 2012 and 2013), although some of these nests were from headstarted ridleys. The majority of Kemp's ridley nests recorded in Texas were at the Padre Island National Seashore (PINS) (Shaver 2006). Such nestings, together with the proximity of the Rancho Nuevo rookery, probably account for the occurrence of hatchlings and subadults in Texas.

Occurrence in the Action Area

The upper Texas coasts are important foraging and inter-nesting habitats for the species. Satellite-tracking studies conducted by Texas A&M University at Galveston on the Kemp's ridleys nesting on Bolivar, Galveston, and Surfside beaches indicate that nesters remain in near-shore waters of the upper Texas coast during their 3.5 month-long nesting season (April through mid-July) (Seney and Landry 2008). Between 1990 and 2010 ten Kemp's ridley nests were documented on Bolivar Peninsula and 37 Kemp's ridley nests were documented on Galveston Island (USACE 2010). Between 2017 and 2019, six nests were found on Bolivar and 13 nests were found on Galveston Island (Turtle Island Restoration 2020).

Of all the sea turtles potentially present within the action areas, Kemp's ridley has the highest potential for occurrence based on habitat requirements, nesting records, and research. Kemp's ridley turtles are likely to forage, rest, or move in and near the action areas, but are unlikely to nest due to the lack of suitable nesting habitat.

3.11 Summary of Species Found in the Action Area

Table 6 provides a summary of which species are listed for each measure and their potential for occurring in the action area of the applicable measure. A total of 10 species have the potential to occur in at least one of the action area locations, while 15 were identified as not likely to occur in the action area due to lack of suitable habitat.

CH for piping plover borders one measure (G-28), while designated CH for the remaining six species does not overlap and is not in close proximity to any of the action areas.

Table 6. Summary of Suitable Habitat Found in the Action Areas

Species	Actionable					
	G-28	B-12	CA-5	CA-6	M-8	SP-1
Birds						
Piping plover	✓	M	NSH	M	M	M
Red knot	✓	M	NSH	M	M	M
Whooping crane	✓	✓	✓	✓	✓	✓
Northern aplomado falcon	--	NSH	NSH	NSH	NSH	NSH
Eastern black rail[+]	M	M	NSH	M	M	NSH

Species	Actionable					
	G-28	B-12	CA-5	CA-6	M-8	SP-1
Attwater's greater prairie-chicken	NSH	--	--	--	--	--
Texas fawnsfoot	--	NSH	--	--	--	--
Fish						
Oceanic whitetip shark	NSH	NSH	NSH	NSH	NSH	NSH
Giant manta ray	NSH	NSH	NSH	NSH	NSH	NSH
Mammals						
Sei whale	NSH	NSH	NSH	NSH	NSH	NSH
Bryde's Whale	NSH	NSH	NSH	NSH	NSH	NSH
Fin whale	NSH	NSH	NSH	NSH	NSH	NSH
Gulf Coast jaguarundi	--	--	NSH	NSH	--	NSH
Ocelot	--	--	--	--	--	NSH
Sperm whale	NSH	NSH	NSH	NSH	NSH	NSH
West Indian manatee	✓	✓	✓	✓	✓	✓
Plants						
Texas ayenia	--	--	--	--	--	--
South Texas ambrosia	--	--	--	--	--	NSH
Slender rush-pea	--	--	--	--	--	NSH
Texas prairie dawn-flower	--	--	--	--	--	--
Reptiles						
Loggerhead sea turtle	✓	✓	✓	✓	✓	✓
Green sea turtle	✓	✓	✓	✓	✓	✓
Leatherback sea turtle	M	M	M	M	M	M
Hawksbill sea turtle	✓	✓	✓	✓	✓	✓
Kemp's Ridley sea turtle	✓	✓	✓	✓	✓	✓

-- : Not Listed ✓: Quality Habitat, High Potential to Occur in the Action Area
M: Marginal Habitat, Low Potential to Occur in the Action Area

NSH: No Suitable Habitat, no potential to occur in the action area

[+]: Species is not listed on the IPaC reports as occurring in the project areas; however, the Service strongly encouraged USACE to consider the species

4.0 EFFECTS OF THE ACTIONABLE MEASURES

Fifteen species that were identified on at least one of the three sources sought during species identification were determined to not be present in the study area because their known range does not overlap the action area or suitable habitat does not exist in the action area (Table 5). Therefore, the proposed action would have ***no effect*** on the northern aplomado falcon, Attwater's prairie chicken, Texas fawnsfoot, oceanic whitetip shark, giant manta ray, sei whale, Bryde's whale, fin whale, Gulf Coast jaguarundi, ocelot, sperm whale, Texas ayenia, South Texas ambrosia, slender rush pea, and Texas prairie dawn flower. These species will not be discussed in further detail.

This BA will only address activities that would occur after the material has been dredged (e.g. transportation and placement of dredged material, construction activities, plantings, invasive species removal, etc.). Because all of the fill material would come from maintenance dredging of existing navigation channels and follow the maintenance plan as described in the Gulf Regional Biologic Opinion (GRBO), the analyses completed for the maintenance dredging Biological Assessment (BA) and GRBO are sufficient for the dredging portions of this project. For all actionable measures that would utilize dredged material from the surge gate location, the impacts associated with that dredging operation would be assessed in a separate BA and BO during Tier 2 analysis. The actionable measures dependent on the surge gate material would not be implementable until Section 7 consultation is complete for that action.

For the GRBO BO, NMFS determined that the proposed action of each of the projects were *likely to adversely affect but were not likely to jeopardize* the continued existence of loggerhead, Kemp's ridley and green sea turtle and would have *no effect* on leatherback sea turtles or West Indian manatee due to lack of suitable habitat or regular occurrence within the action areas. Conservation measures and an incidental take statement were issued for the three turtle species. Any dredging operations that would occur for this project would be subject to conservation measures and terms and conditions identified in the GRBO or future Tier 2 Section 7 consultation documents.

4.1 Piping Plover and Rufa Red Knot

Because both of the species share very similar foraging and roosting behaviors and share similar coastal habitats within the action area, the effects of the action on the two species is expected to be very similar and will, therefore, be discussed together.

Implementation of the actionable measures ***may affect but is not likely to adversely affect*** wintering piping plovers and rufa red knots. The primary effects to piping plover and red knot are temporary and would come from construction actions that occur in or near foraging and roosting habitat. Temporary adverse impacts are anticipated to be insignificant and discountable, especially since conservation measures (section 5.2) have been incorporated into the plan, low quality or no preferred habitat is present in the project footprint, and the likelihood of the species occurring in the action areas is extremely low.

All Measures

All actionable measures, except CA-5, support or are in close proximity (<0.5 miles) to landscape features that may be attractive to piping plover and rufa red knot, albeit marginal in most action areas

due to the degraded existing quality. Since both species could be present within or immediately near the action area from mid-July to April, construction is likely to occur while the species are utilizing the beaches and associated habitats in or near the action areas. Heavy machinery and equipment (e.g., trucks and bulldozers operating in the action area) may adversely affect the two species through disturbance and disruption of normal activities such as roosting and foraging and possibly force birds to expend valuable energy reserves to seek available habitat elsewhere. Due to the birds' mobility, loss of individuals is highly unlikely, especially with the conservation measures that would be put in place during construction to further minimize potential impacts (section 5.2).

Because of the low quality of potential suitable habitat in the action areas, as indicated by lack of CH designation and the need for restoration, direct effects to the species would be expected to be limited to a few incidental individuals stopping through the area during migration or to forage or rest while enroute to higher quality areas. Temporary loss of habitat, if present in the project footprint, during construction would be negligible and not cause a loss of any high-quality foraging or roosting habitat.

GIWW Armoring/Oyster Reef Restoration

None of the landscape features attractive to plovers or red knot are present within the action area of any of these restoration actions and would therefore have no direct or indirect effect on either species beyond the potential habitat avoidance described as common to all measures.

Marsh Restoration

At best marginal habitat may be present along the shorelines of the marsh restoration units. It is unlikely that any construction activities would affect piping plover or red knot from a noise disturbance or habitat avoidance standpoint, since no individuals have been documented foraging in marsh or permanently inundated open water areas. Additionally, no dredged disposal placement areas, which are sometimes used by both species, would be affected by restoration measures. Implementation of marsh restoration measures would not be expected to have measurable effects on piping plover or rufa red knot and the impacts would be primarily limited to the habitat avoidance impacts described as common to all measures.

Rookery Island Restoration

Piping plovers and red knots may be present on islands where exposed land remains. However, their presence is very unlikely since their preferred habitat is not present within any of the disturbance areas. Specific conservation measures would be incorporated to cover all activities associated with the actions to avoid individual birds and ensure no adverse impacts would occur. If individuals are present and disturbed by the noise, they would have access to nearby habitat that is within their normal flying distances for daily foraging movement.

4.2 Piping Plover Critical Habitat

For G-28 measures that appear to overlap CH, on the ground surveys would be completed to confirm the location of the CH in relation to the project footprint. Once confirmed the project footprint would be modified to avoid piping plover CH; therefore, no direct impacts to CH would occur. Indirect impacts are not anticipated since placement of sand for marsh restoration would be limited to currently degraded marshes comprised of predominately open water areas (which is not a PCE). Additionally, all hardened

structures would not affect long-shore sediment transport or any tidal flat building processes as these structures would be constructed along the GIWW outside of tidal flat areas. Therefore, there would be no change to any PCE of the CH.

Implementation of any of the actionable measures would have ***no effect*** to piping plover CH.

4.3 Whooping Crane

The USACE has determined implementation of any of the actionable measures ***may affect but is not likely to adversely affect*** the whooping crane because the temporary adverse impacts are anticipated to be insignificant and discountable, especially since conservation measures have been incorporated into the plan, and the overall beneficial impacts would far outweigh any negative impacts.

Common to All Measures

Attempts would be made to avoid construction from October 1 through April 15 when birds are most likely to be present. If construction must be completed during this time in order to take advantage of the dredging windows, potential impacts to whooping cranes include noise disturbance during foraging activities or habitat avoidance while construction equipment is operating. Impacts to the species would cease after construction is complete. It is highly unlikely that mortality of any individuals were to occur during construction due to their ability to avoid the construction area. However, additional voluntary conservation measures have been incorporated into the plan and are described in section 5.3.

GIWW Armoring/Oyster Reef Restoration

None of the landscape features attractive to whooping crane are present within the action area of any of these restoration actions and would therefore have no direct or indirect effect on either species beyond the potential habitat avoidance described as common to all measures.

Marsh Restoration

Beneficial Effects: Implementation of this plan will indirectly contribute to recovery of the species through marsh restoration and protection from future development. The International Recovery Plan lists several recovery actions including protecting wintering habitat to accommodate expanding crane populations (CWS and US Fish and Wildlife Service 2007. By restoring marsh habitat at least two identified recovery actions have been addressed (1.5.3.6—Better manage deposition of dredge material, 1.5.5—Create wetland habitat). In general, marsh restoration actions would be beneficial to the whooping crane through an increase in quality foraging habitat and at some point in the future could serve as a wintering site.

Direct Effects: Direct effects to the species would be limited to the impacts described as common to all measures.

4.4 Eastern Black Rail

The USACE has determined implementation of any of the actionable measures ***may affect but is not likely to adversely affect*** the Eastern black rail because the temporary adverse impacts are anticipated to be insignificant and discountable, especially since conservation measures have been incorporated

into the plan, the overall beneficial impacts would far outweigh any negative impacts, and the likelihood of the species occurring in the action areas is extremely low.

GIWW Armoring/Oyster Reef Restoration

None of the landscape features attractive to Eastern black rail are present within the action area of any of these restoration actions and would therefore have no direct or indirect effect on the species. The likelihood of the species being near the active construction zone and affected by noise from construction activities is extremely remote and is considered negligible and discountable because all of these actions are completed in or near deep water that is tidally influenced. Marsh habitat immediately adjacent to these sites (at least several hundred feet away from the active construction site) is severely eroded and in general maintains a deeper water level than is preferred by the eastern black rail. The nearest suitable habitat would be well outside the range of potential disturbance for noise; therefore, the listed actions in this section are expected to have no effect on the species.

Marsh Restoration

Beneficial Effects: Implementation of this ER measure will indirectly contribute to recovery of the species through marsh restoration and protection from future development. Marsh restoration would restore the balance between open water and vegetation and reestablish elevations that would be less tidally influenced and more conducive to foraging and breeding without concern for frequent flooding.

Direct Impacts: None of the prohibitions of the Section 4(d) rule are triggered through implementation of the ER measures.

Attempts would be made to avoid construction during the breeding season (March 01 through August 31). If construction must be completed during this time in order to take advantage of the dredging windows, potential impacts to Eastern black rail include noise disturbance during foraging activities or habitat avoidance while construction equipment is operating. Impacts to the species would cease after construction is complete.

In general, the habitat where marsh restoration would be completed is considered degraded and marginal at best and is not in or near any of the locations where confirmed or probable nesting has occurred. The restoration units lack connectivity to upland areas and open water deeper than a few centimeters is extremely common making nesting very unlikely. If birds are present in the action area, they are expected to be incidental birds stopping over during migration. It is highly unlikely that mortality of any individuals were to occur during construction due to lack of suitable habitat; however, voluntary conservation measures, such as biological monitors and nest avoidance measures, have been incorporated into the plan to further minimize any potential for impacts (section 5.4)

4.5 West Indian Manatee

Due to the rarity of the manatee in the action areas and the conservation measures that would be implemented, implementation of any of the actionable measures ***may affect but is not likely to adversely affect*** the West Indian manatee.

Beneficial Effects: Ecosystem restoration measures such as island restoration and breakwater construction would protect existing seagrass meadows and improve habitat conditions to promote

reestablishment of seagrass meadows resulting in an increase in available suitable habitat for foraging if a manatee were to occur in the action area.

Direct Effects: In the rare instance that a manatee is found in or near any of the action areas, in-water work during placement of pipelines, operation of watercraft to move material or equipment, etc. could impact manatees. Impacts could include temporary habitat avoidance, exposure to underwater sound, and visual disturbances, which would all cease after construction is complete. The most extreme impact could include entrapment and/or collision with pipes, silt barriers, pumps, placement equipment, support watercraft or other in-water construction equipment. Although this is unlikely due to the extremely rare occurrence of West Indian manatee in any of the action areas, conservation measures are being incorporated into the plan to avoid harassment and take of manatee, see Section 5.5.

Indirect Effects: Implementation of any of the actionable measures would not alter marine habitats or food sources, such as seagrass or other aquatic food plants, in the action area.

4.6 Sea Turtles

Green, Kemp's ridley, loggerhead and hawksbill sea turtle are abundant in many of the action areas throughout the year. Of the five species of sea turtle known to potentially occur in Texas waters, the leatherback is the least likely to occur due to its pelagic nature.

Under the proposed action, no Gulf of Mexico shoreline work is proposed; therefore, there would be ***no effect*** to nesting loggerhead, green, leatherback, hawksbill, and Kemp's ridley sea turtles or their habitat while on land.

Common to All Measures

Construction activities from setting pipelines, placing material and movement of personnel and equipment during dredging activities or placement of materials could create activity, noise and vibrations that the species find undesirable. Sea turtles are highly mobile and will likely avoid the area due to any project activity and noise. Likewise, there is sufficient nearshore habitat that temporary avoidance of the area would not be expected to affect foraging ability. Normal behavior patterns of sea turtles are not likely to be significantly disrupted because of the short-term localized nature of the action and the ability of sea turtles to avoid the immediate area.

No nesting or foraging habitat would be modified through implementation of any of the actionable measures. Indirect effects are not anticipated as none of the measures would modify long-shore sediment transport to the Gulf of Mexico shoreline.

GIWW Armoring/Oyster Reef Restoration

Beneficial Effects: Rock and hard substrate material that is placed as part of the GIWW armoring and oyster reef restoration would encourage restoration of previously lost productive reef habitat. The complex reef habitat associated with both structures, although more so with oyster reefs, would support many of the food sources sea turtles forage on such as sponges, tunicates, bryozoans, mollusks, corals, barnacles, and sea urchins. Additionally, some of the proposed armoring and reef restoration areas are intended to preserve seagrass meadows which green sea turtles rely on.

Marsh Restoration/Island Restoration

Beneficial Effects: Marsh restoration is not expected to provide any measurable benefit to sea turtles. Island restoration may increase the extent of seagrass meadows as a result of the increase in nutrients from colonial waterbirds defecating in the water.

Direct Effects:

The potential impacts of setting pipes and movement of vessels in open water areas were addressed in the GRBO. Despite some minor changes in placement of dredged material location (i.e. marsh restoration units instead of upland PAs or offshore locations), which affects location of placement pipes and the movement of personnel and equipment, the impacts described here versus in GRBO are not greater than described and consulted on. Therefore, the GRBO would cover these impacts.

4.7 Cumulative Effects of the Actionable Measures

Actionable measures would be implemented on federal and non-federal lands. Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action areas. Future Federal actions that are unrelated to the actionable measures are not considered in this section, because they require separate consultation pursuant to Section 7 of the Act. It is reasonable to expect continued shoreline stabilization, maintenance dredging, sand or dredged material placement projects, construction and long-term operation of storm risk reduction and resiliency features, and navigational and urban development along the Texas shoreline in the future. However, all of these future actions that are reasonably certain to occur would require a Clean Water Act (CWA) Section 404 permit issued by USACE. As part of the process to secure a permit, separate Section 7 consultation would be required.

5.0 AVOIDANCE AND MINIMIZATION MEASURES AND MONITORING

The following section describes the actions the USACE has committed to implementing to avoid and minimize the potential impacts to listed species.

5.1 General Conservation Measures

The following conservation measures would be incorporated into operations for the protection of all listed species:

- All personnel (contractors, workers, etc.) will attend training sessions prior to the initiation of, or their participation in, project work activities. Training will include: 1) recognition of piping plovers, rufa red knot, whooping cranes, Eastern black rail, West Indian manatee, and sea turtles, each of the species' habitat, and signs of presence; 2) impact avoidance measures; 3) reporting criteria; 4) contact information for rescue agencies in the area; and 5) penalties of violating the ESA.
- Project equipment and vehicles transiting between the staging area and restoration site will be minimized to the extent practicable, including but not limited to using designated routes and confining vehicle access to the immediate needs of the project.
- The contractor will coordinate and sequence work to minimize the frequency and density of vehicular traffic within and near the restoration unit(s) and limit driving to the greatest extent practicable.
- Use of construction lighting at night shall be minimized, directed toward the construction activity area, and shielded from view outside of the project area to the maximum extent practicable.
- A designated monitor(s) will be identified who will act as the single point of contact responsible for communicating and reporting endangered species issues throughout the construction period.

5.2 Piping Plover and Red Knot

The following conservation measures would be implemented to minimize the potential for adverse effect to piping plover and red knot:

- No breakwaters or dredged material would be placed in any tidal flats exposed at low tide.
- A monitoring plan would be developed in coordination with USFWS during pre-engineering design (PED) phase to avoid disturbance to individuals.

5.3 Whooping Crane

The following conservation measures would be implemented to minimize the potential for adverse effect to whooping crane:

- Seasonal timing restriction between November 1 and April 30 in which construction should be avoided to the greatest extent practicable. If the seasonal timing restriction cannot be achieved then the following will take place:
    - A biological monitor qualified in identifying whooping cranes, with stop work authority, will be on site while construction is in progress.
    - A 1,000 foot-radius of the work site will be delineated before work begins. If a whooping crane is observed within the 1,000-foot radius, the biological monitor shall halt construction activities, including shutting down any running equipment until the bird has vacated the radius.
    - If construction equipment is over 15 feet tall, the equipment must be laid down at dusk, overnight, and during inclement weather so as to avoid whooping crane strikes during times of low visibility.
    - If equipment cannot be laid down at these times, then such equipment will be marked using surveyor flagging tape, red plastic balls, or other suitable marking devices and lighted during inclement weather conditions when low light and or fog is present.
- All whooping crane sightings will be immediately reported to the Texas Coastal Services Field Office at (361) 533-6765.

5.4 Eastern Black Rail

The following conservation measures would be implemented to minimize the potential for adverse effects to Eastern black rail:

- No marsh construction activities will occur from March 1st through September 30 (breeding, nesting, chick rearing, and molting season). If this timing restriction cannot be achieved then the following will take place:
    - On site vegetative field surveys will be conducted before work begins to identify black rail habitat types along the GIWW adjacent to the proposed breakwater structures.
    - No material for marsh restoration will be placed in high marsh dominated by gulf cordgrass (*Spartina spartinea*), saltmeadow cordgrass (*S. patens*), sea-oxeye (*Borrichia frutescens*), and/or saltgrass (*Distichlis spicata*) or dense overhead cover that meets the target marsh elevation for black rail habitat.
    - If temporary access routes, pipeline routes, or staging areas occur within identified black rail habitat the contractor must minimize traffic in these areas therefore minimizing the construction footprint (i.e. limited paths).

- In addition to minimizing access routes, areas of high marsh habitat should be left intact to provide refugia for the black rail to ensure escape access routes. The USACE will work with the Service to identify refugia areas once site specific planning begins.
- Biological monitors are required to assist construction crews with avoidance and minimization of black rail habitats once work begins.

- Tidal connections must not be restricted such that the flow and salinity regimes are modified.
- Use of construction lighting at night shall be minimized, directed toward the construction activity area, and shielded from view outside of the project area.

5.5 West Indian Manatee

The following conservation measures would be implemented to minimize the potential for adverse effects to manatees:

- Qualified biologists will monitor for the presence of manatee during phases which involve open water areas capable of supporting manatees.
- Before activities occur in open water areas, a 50-foot radius of the work area should be delineated. If a manatee is observed within the 50-foot radius, the biological monitor shall halt construction activities, including shutting down any running equipment until the animal has moved beyond the radius, either through sighting or by waiting until enough time has elapsed (approximately 15 minutes) to assume that the animal has moved beyond the buffer.
- If a manatee is sighted within 100 yards of the active work zone, vessels will operate at no wake/idle speeds.
- If siltation barriers are used, they will be made of material in which manatees cannot become entangled, should be properly secured, and regularly monitored to avoid entrapment. Barrier should not impede manatee movement.
- Any manatee sightings will be immediately reported to the U.S. Fish and Wildlife Service Houston Ecological Services Office.

No additional monitoring would be required pre- or post-construction, due to the extremely low potential for the species to occur in the action area.

5.6 Sea Turtles

Open Water Activities

Under GRBO, the following reasonably and prudent measures/terms and conditions were incorporated into the final BO: use of temporal dredging windows, when possible; intake and overflow screening; use of sea turtle deflector dragheads; observer reporting requirements; and sea turtle relocation/abundance trawling. These measures would be incorporated during any dredging activities that would occur in the SNWW and for which dredged material could be beneficially used for this project. Each of these have largely been incorporated in USACE regulatory and civil works projects throughout the Gulf for more than a decade.

6.0 CONCULSION

Based upon the findings of this BA, USACE has made the following effect determination for species that were identified as occurring or potentially occurring in the action area:

Species	Scientific Name	Jurisdiction	Conclusion
Birds			
Piping Plover	*Charadrius melodus*	USFWS	NLAA
Rufa Red Knot	*Calidris canutus rufa*	USFWS	NLAA
Whooping Crane	*Grus americana*	USFWS	NLAA
Northern Aplomado Falcon	*Falco femoralis septentrionalis*	USFWS	No effect
Eastern black rail	*Laterallus jamaicensis jamaicensis*	USFWS	NLAA
Attwater's Greater Prairie-Chicken	*Tympanuchus cupido attwateri*	USFWS	No effect
Clams			
Texas Fawnsfoot	*Truncilla macrodon*	USFWS	No effect
Fish			
Oceanic Whitetip Shark	*Carcharhinus longimanus*	NMFS	No effect
Giant manta ray	*Manta birostris*	NMFS	No effect
Mammals			
Sei whale	*Balaenoptera borealis*	NMFS	No effect
Bryde's Whale	*B. edeni*	NMFS	No effect
Fin whale	*B. physalus*	NMFS	No effect
Gulf Coast Jaguarundi	*Herpailurus (=Felis) yagouaroundi cacomitli*	USFWS	No effect
Ocelot	*Leopardus (=Felis) pardalis*	USFWS	No effect
Sperm whale	*Physeter macrocephalus*	NMFS	No effect
West Indian Manatee	*Trichechus manatus*	USFWS/ NMFS	NLAA
Plants			
Texas Ayenia	*Ayenia limitaris*	USFWS	No effect
South Texas Ambrosia	*Ambrosia cheiranthifolia*	USFWS	No effect
Slender Rush-pea	*Hoffmannseggia tenella*	USFWS	No effect
Texas prairie dawn-flower	*Hymenoxys texana*	USFWS	No effect

Species	Scientific Name	Jurisdiction	Conclusion
Reptiles			
Loggerhead sea turtle	*Caretta caretta*	USFWS/ NMFS	**On land:** No effect **In water:** LAA*
Green sea turtle	*Chelonia mydas*	USFWS/ NMFS	**On land:** No effect **In water:** LAA*
Leatherback sea turtle	*Dermochelys coriacea*	USFWS/ NMFS	**On land:** No effect **In water:** No effect
Hawksbill sea turtle	*Eretmochelys imbricata*	USFWS/ NMFS	**On land:** No effect **In water:** LAA*
Kemp's Ridley sea turtle	*Lepidochelys kempii*	USFWS/ NMFS	**On land:** No effect **In water:** LAA*

NLAA= Not likely to adversely affect **LAA***= Likely to adversely affect, covered by GRBO

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Appendix A: Maps and Conceptual Designs of the Proposed Actions

Attachment A

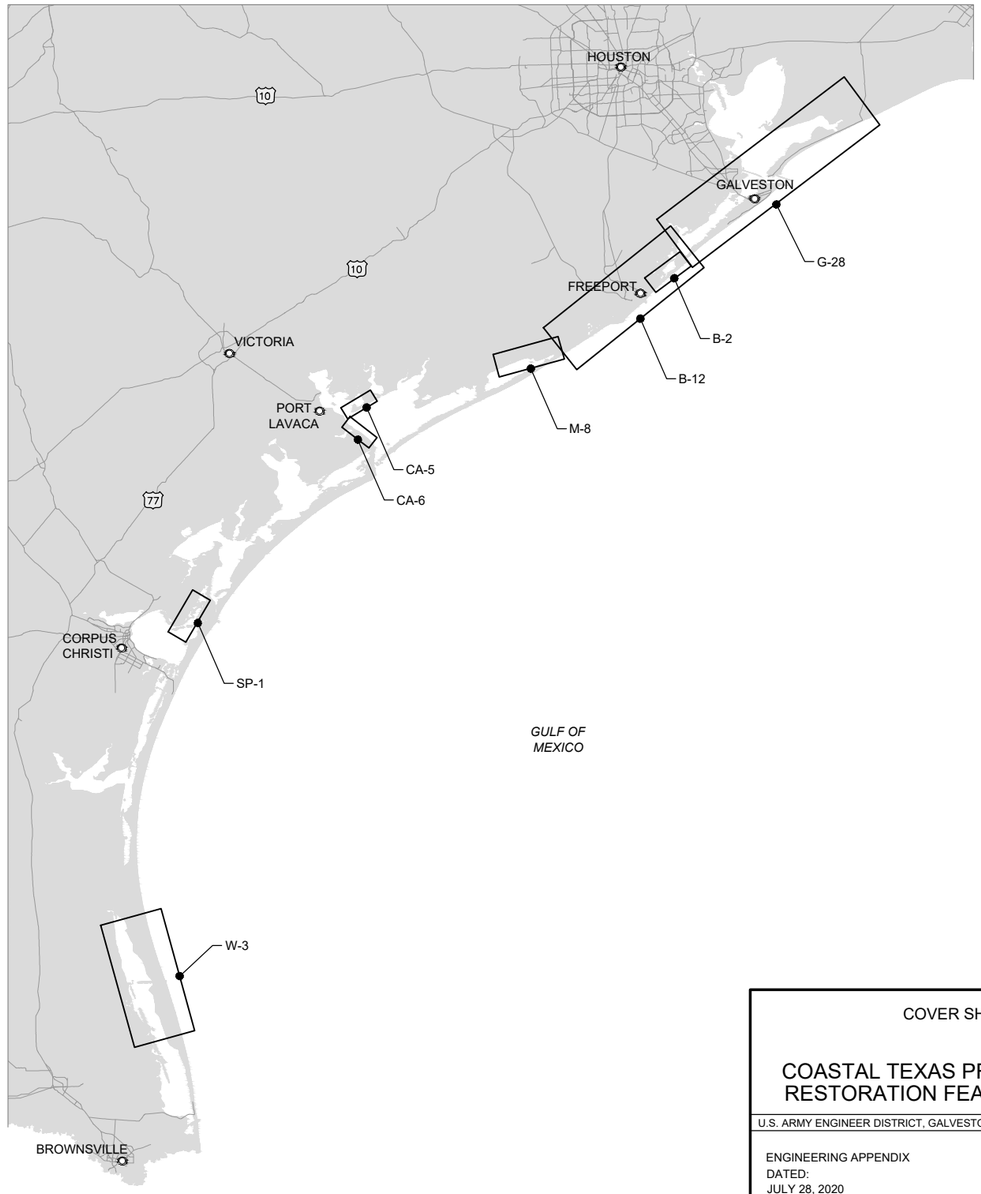
Conceptual Designs and Map Book of Measures

COASTAL TEXAS
PROTECTION AND RESTORATION FEASIBILITY STUDY

ECOSYSTEM RESTORATION CONCEPTUAL DRAWINGS

VICINITY MAP

(NOT TO SCALE)



SHEET INDEX

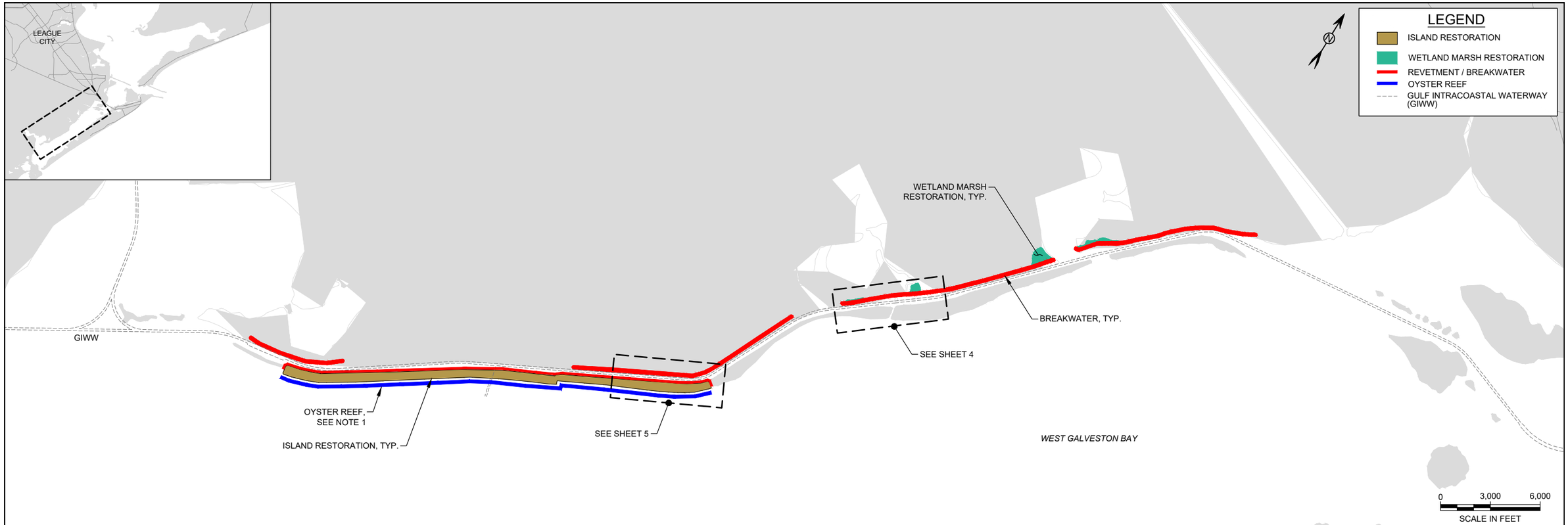
COVER SHEET

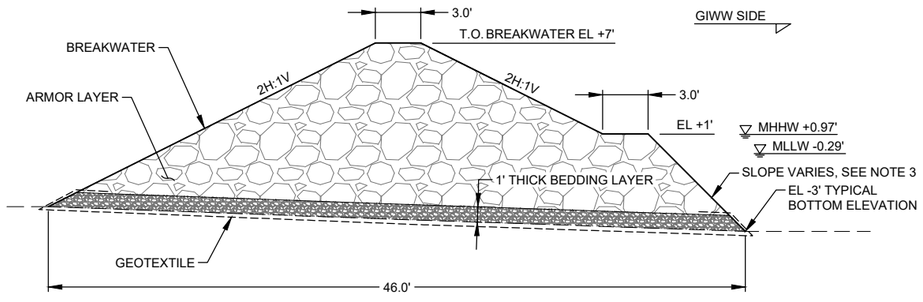
COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

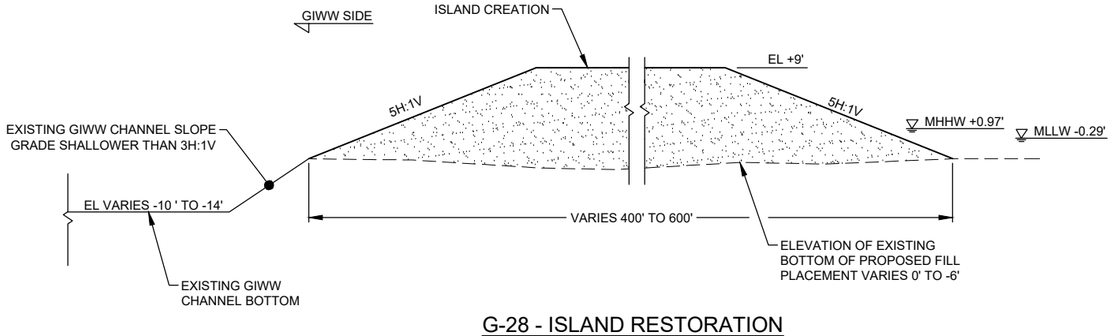
ENGINEERING APPENDIX
DATED:
JULY 28, 2020

MOTT MACDONALD

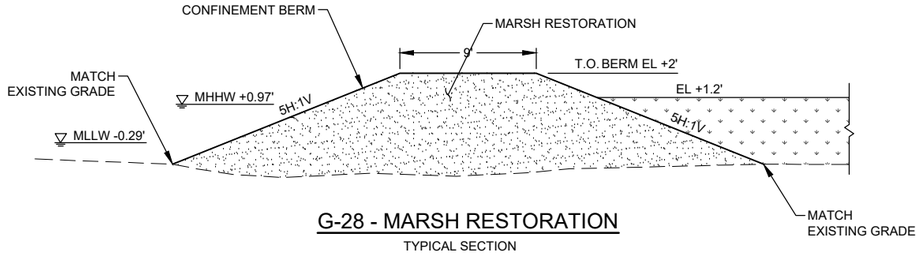




G-28 - BREAKWATER
TYPICAL SECTION



G-28 - ISLAND RESTORATION
TYPICAL SECTION



G-28 - MARSH RESTORATION
TYPICAL SECTION

NOTES:

1. OYSTER CULCH TO BE PLACED WITHIN OYSTER REEF TEMPLATE. FINAL ELEVATION AND SLOPES OF OYSTER CULCH PLACEMENT TO BE DETERMINED DURING FINAL DESIGN.
2. ALL ELEVATIONS IN FEET NAVD88.
3. DATUMS FROM NOAA GAGE 8771486 GALVESTON RAILROAD BRIDGE, TX

G-28: BOLIVAR PENINSULA & WEST BAY GIWW SHORELINE & ISLAND PROTECTION (WEST)

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

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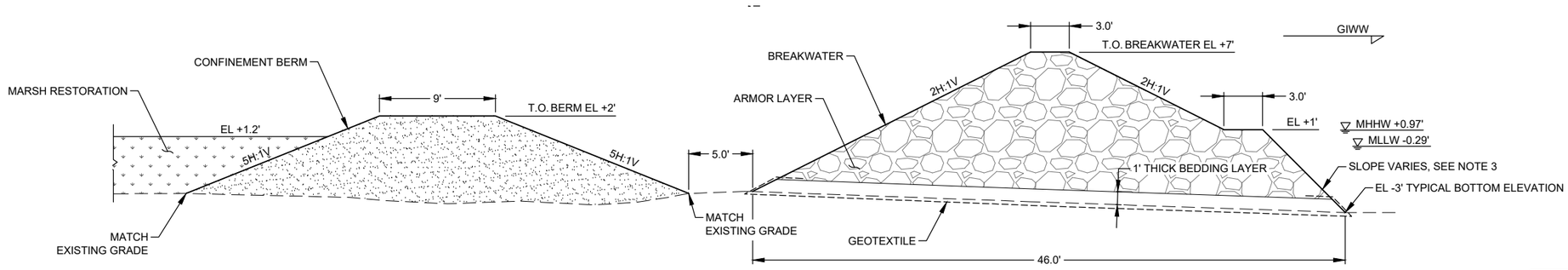

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G-28: COMBINED BREAKWATER & MARSH RESTORATION SECTION

TYPICAL SECTION

NOTES:

1. ALL ELEVATIONS IN FEET NAVD88.
2. DATUMS FROM NOAA GAGE 8771486 GALVESTON RAILROAD BRIDGE, TX.

G-28: BOLIVAR PENINSULA & WEST BAY GIWW SHORELINE & ISLAND PROTECTION (WEST)

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

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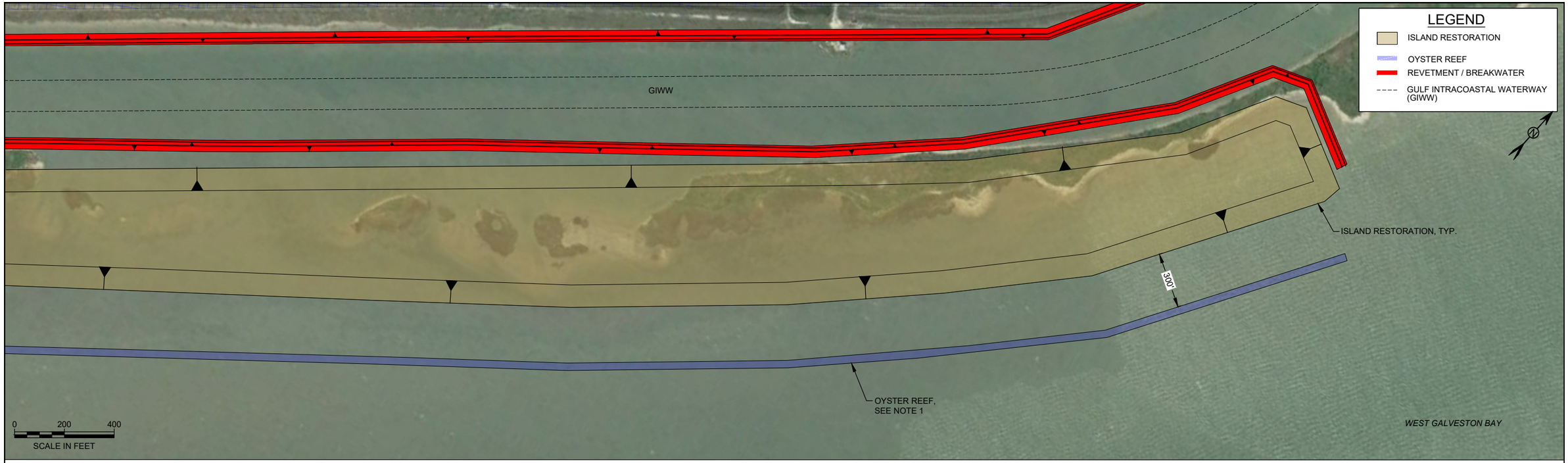

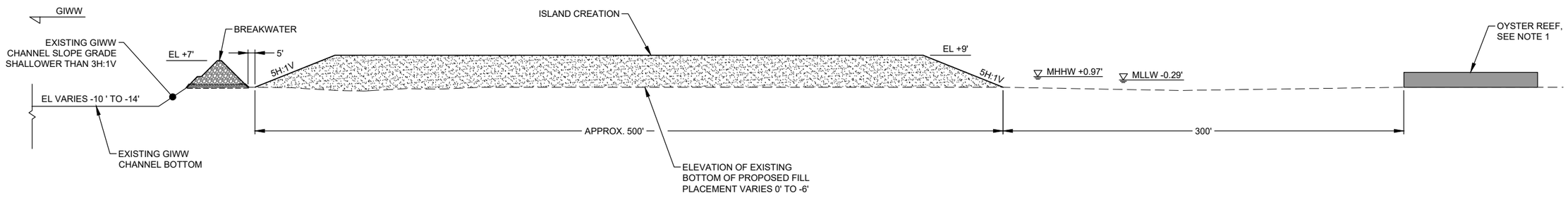

B
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G-28: COMBINED ISLAND RESTORATION AND OYSTER CULTCH SECTION

TYPICAL SECTION

NOTES:

1. OYSTER CULCH TO BE PLACED WITHIN OYSTER REEF TEMPLATE. FINAL ELEVATION AND SLOPES OF OYSTER CULCH PLACEMENT TO BE DETERMINED DURING FINAL DESIGN.
2. ALL ELEVATIONS IN FEET NAVD88.

G-28: BOLIVAR PENINSULA & WEST BAY GIWW SHORELINE & ISLAND PROTECTION (WEST)

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

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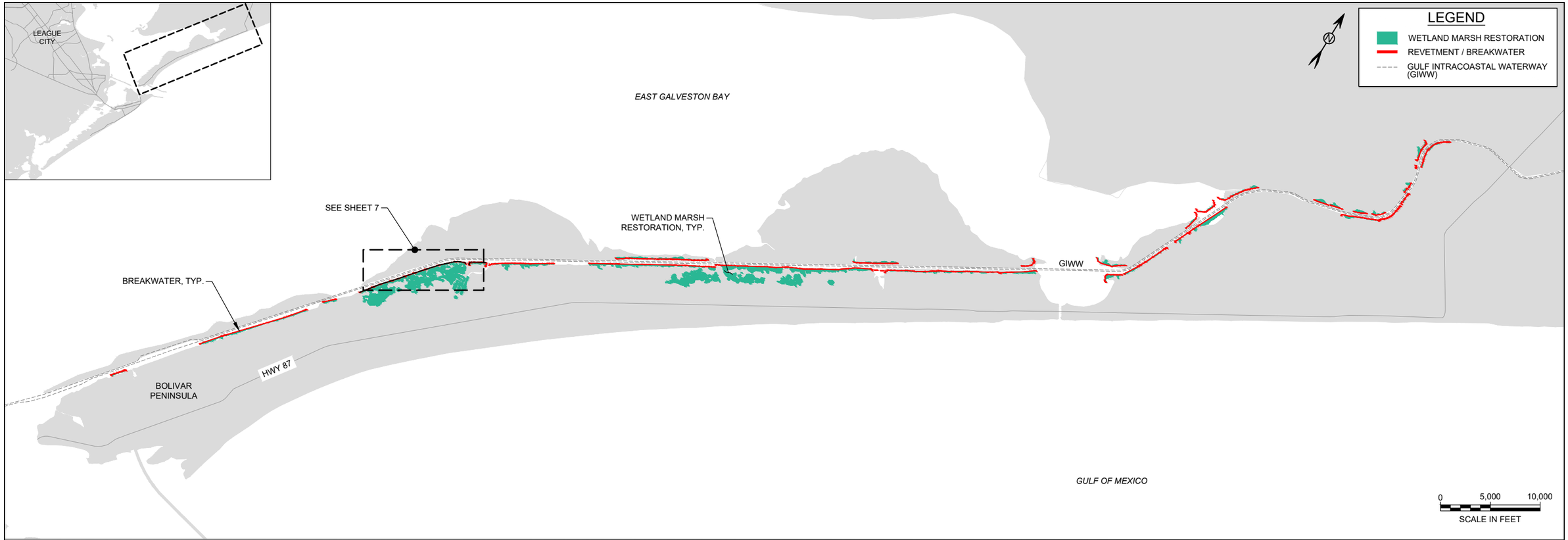
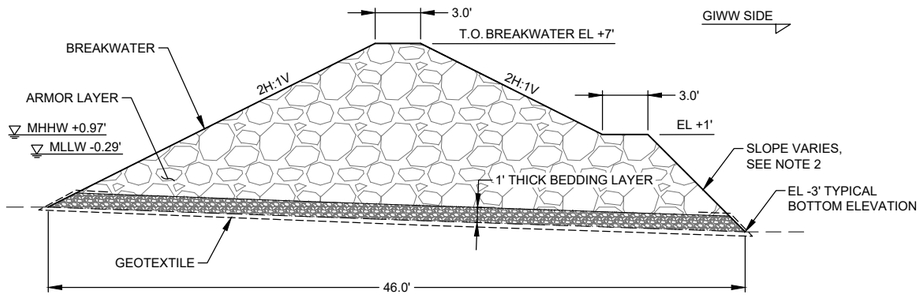
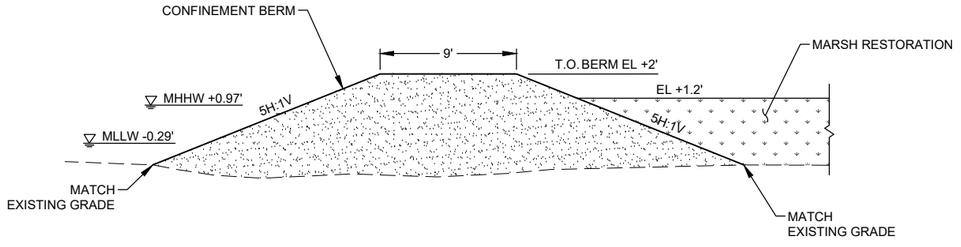




G-28 - BREAKWATER
TYPICAL SECTION



G-28 - MARSH RESTORATION
TYPICAL SECTION

NOTES:

1. ALL ELEVATIONS IN FEET NAVD88.
2. VARY SLOPE OF BREAKWATER TOE SO THAT STONE IS PLACED WITHIN THE 46.0' WIDE BREAKWATER TEMPLATE.
3. DATUMS FROM NOAA GAGE 8771486 GALVESTON RAILROAD BRIDGE, TX.

G-28: BOLIVAR PENINSULA & WEST BAY GIWW SHORELINE & ISLAND PROTECTION (EAST)

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

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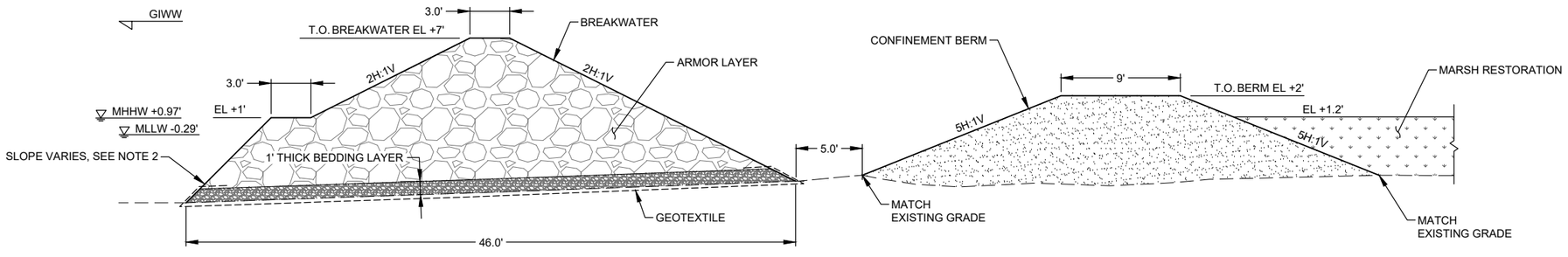

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G-28: COMBINED BREAKWATER & MARSH RESTORATION

TYPICAL SECTION

NOTES:

1. ALL ELEVATIONS IN FEET NAVD88.
2. VARY SLOPE OF BREAKWATER TOE SO THAT STONE IS PLACED WITHIN THE 46.0' WIDE BREAKWATER TEMPLATE.
3. DATUMS FROM NOAA GAGE 8771486 GALVESTON RAILROAD BRIDGE, TX.

G-28: BOLIVAR PENINSULA & WEST BAY GIWW SHORELINE & ISLAND PROTECTION (EAST)

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

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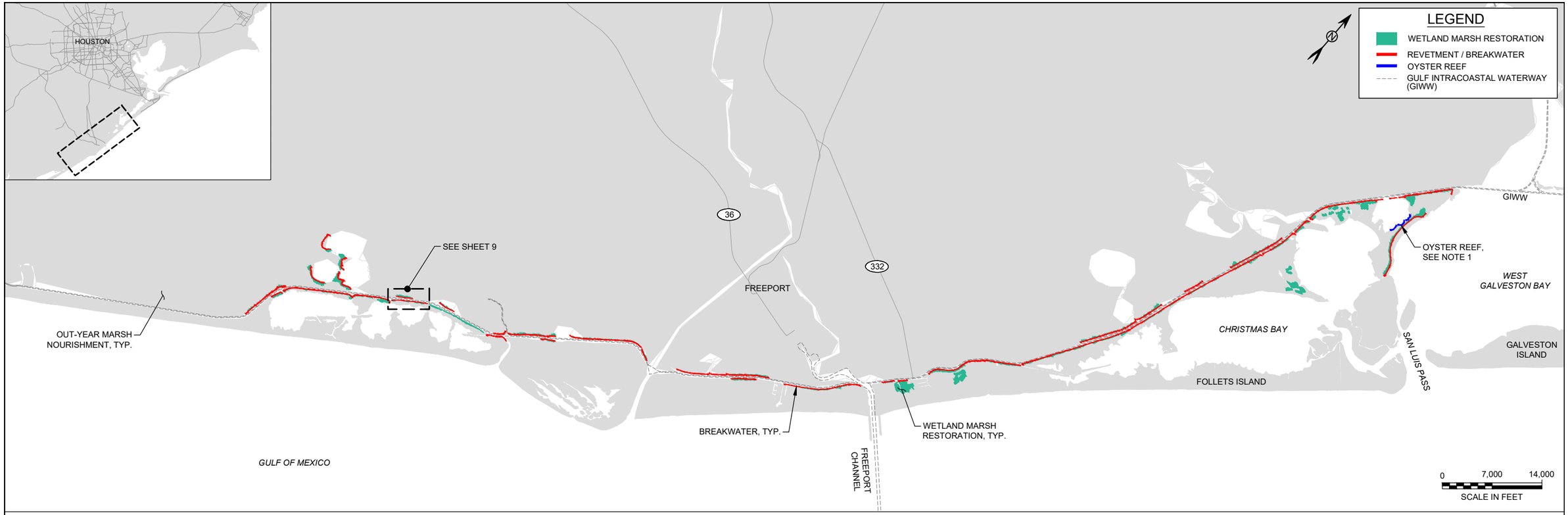
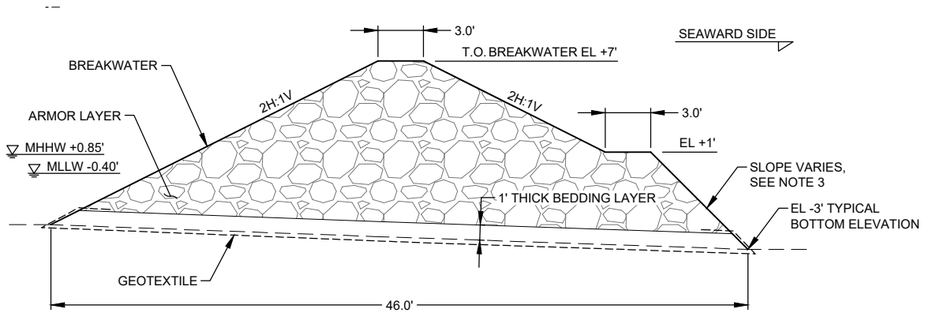
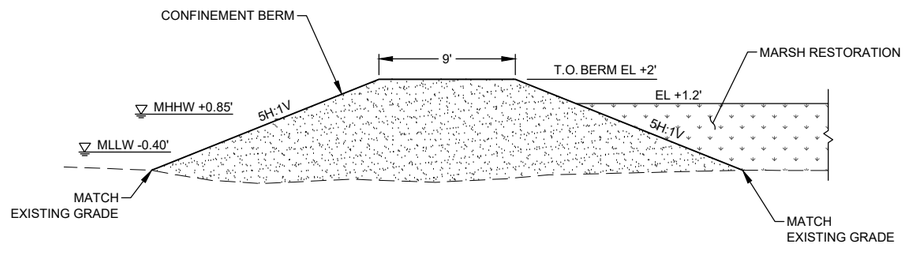




B-12- BREAKWATER
TYPICAL SECTION



B-12 - MARSH RESTORATION
TYPICAL SECTION

NOTES:

1. OYSTER CULCH TO BE PLACED WITHIN OYSTER REEF TEMPLATE. FINAL ELEVATION AND SLOPES OF OYSTER CULCH PLACEMENT TO BE DETERMINED DURING FINAL DESIGN.
2. ALL ELEVATIONS IN FEET NAVD88.
3. VARY SLOPE OF BREAKWATER TOE SO THAT STONE IS PLACED WITHIN THE 46.0' WIDE BREAKWATER TEMPLATE.
4. DATUMS FROM NOAA GAGE 8771972, SAN LUIS PASS, TX.

B-12: BASTROP BAY, OYSTER LAKE, WEST BAY, & GIWW SHORELINE PROTECTION

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

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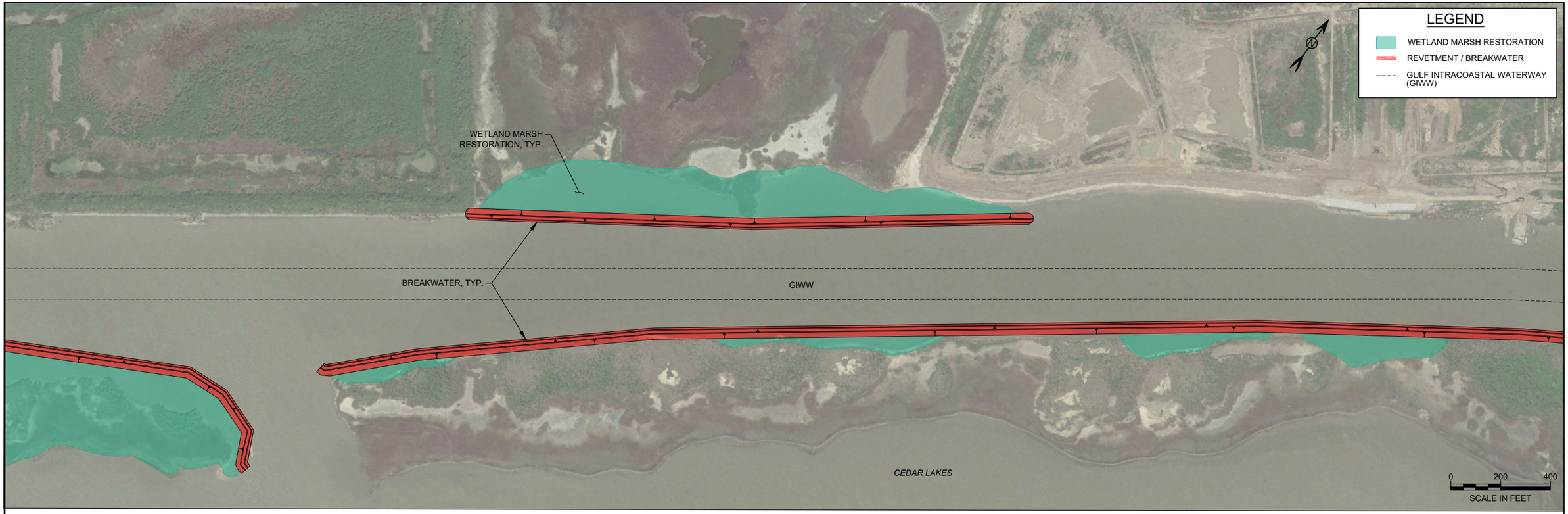

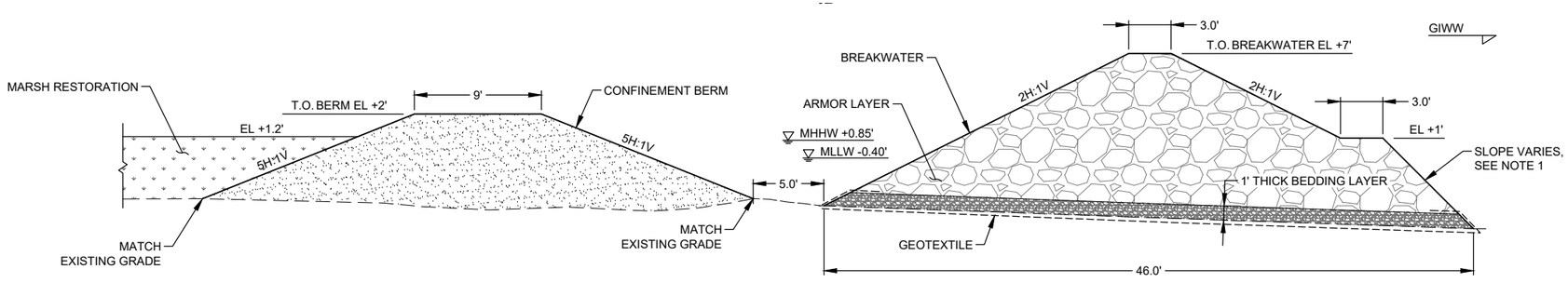

D - B-12: COMBINED BREAKWATER & MARSH RESTORATION

TYPICAL SECTION

NOTES:

1. ALL ELEVATIONS IN FEET NAVD88.
2. VARY SLOPE OF BREAKWATER TOE SO THAT STONE IS PLACED WITHIN THE 46.0' WIDE BREAKWATER TEMPLATE.
3. DATUMS FROM NOAA GAGE 8771972, SAN LUIS PASS, TX.

B-12: BASTROP BAY, OYSTER LAKE, WEST BAY, & GIWW SHORELINE PROTECTION

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

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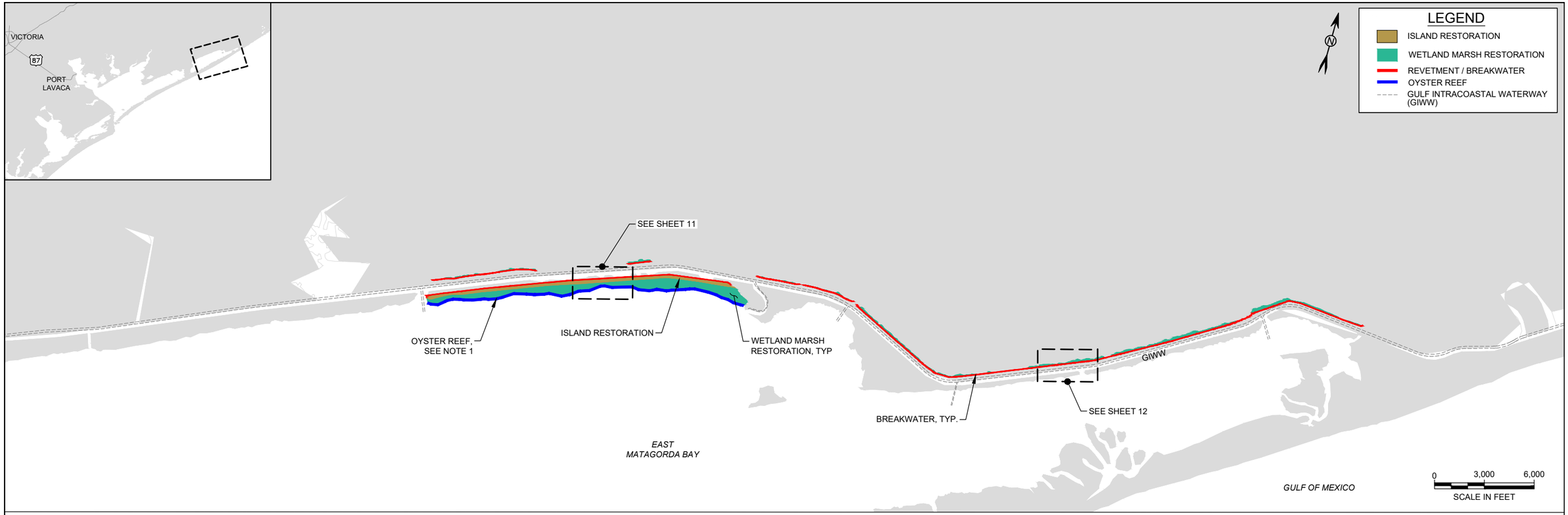
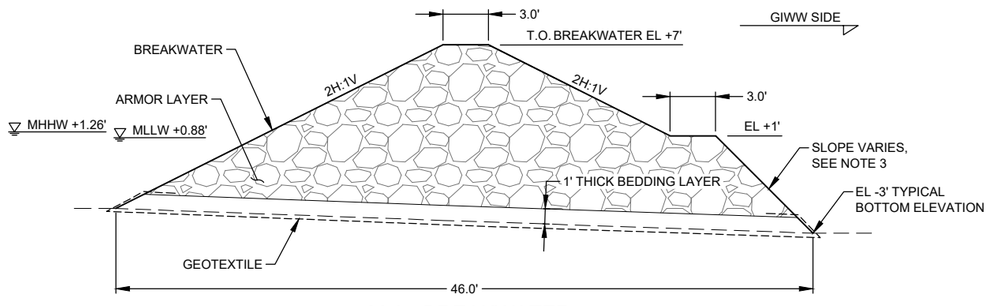
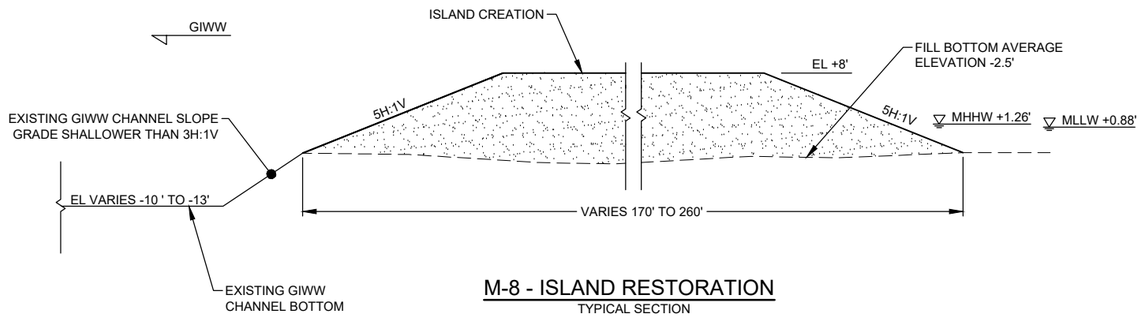
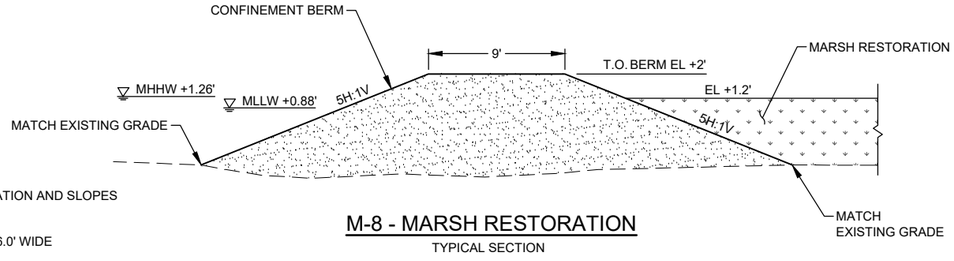




M-8 - BREAKWATER
TYPICAL SECTION



M-8 - ISLAND RESTORATION
TYPICAL SECTION



M-8 - MARSH RESTORATION
TYPICAL SECTION

NOTES:

1. OYSTER CULCH TO BE PLACED WITHIN OYSTER REEF TEMPLATE. FINAL ELEVATION AND SLOPES OF OYSTER CULCH PLACEMENT TO BE DETERMINED DURING FINAL DESIGN.
2. ALL ELEVATIONS IN FEET NAVD88.
3. VARY SLOPE OF BREAKWATER TOE SO THAT STONE IS PLACED WITHIN THE 46.0' WIDE BREAKWATER TEMPLATE.
4. DATUMS FROM NOAA GAGE 8773037 SEADRIFT, TX

M-8: EAST MATAGORDA BAY SHORELINE PROTECTION

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

ENGINEERING APPENDIX
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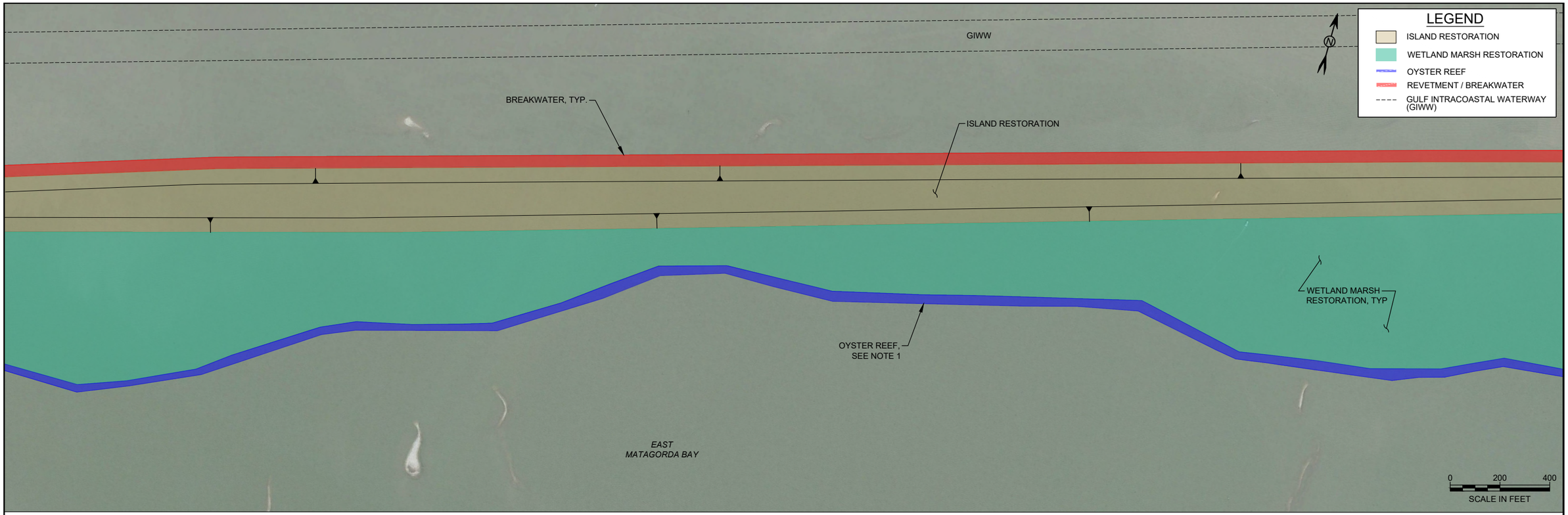

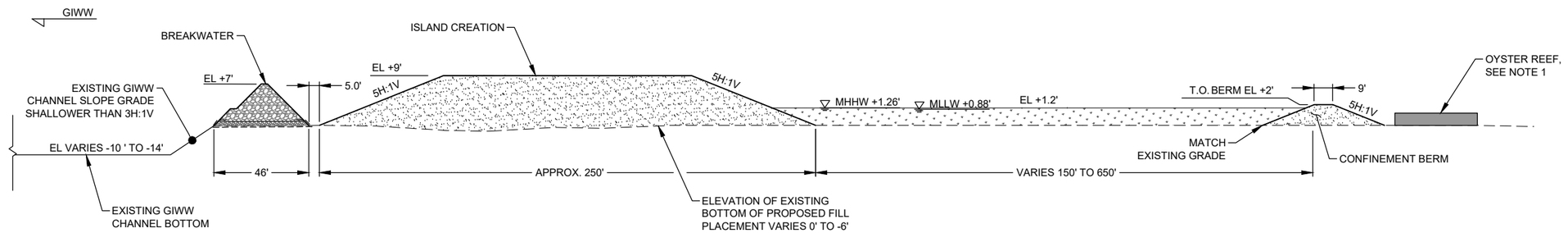

E
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M-8: COMBINED ISLAND RESTORATION, MARSH RESTORATION, AND OYSTER CULTCH SECTION

TYPICAL SECTION

NOTES:

1. OYSTER CULCH TO BE PLACED WITHIN OYSTER REEF TEMPLATE. FINAL ELEVATION AND SLOPES OF OYSTER CULCH PLACEMENT TO BE DETERMINED DURING FINAL DESIGN.
2. ALL ELEVATIONS IN FEET NAVD88.
3. VARY SLOPE OF BREAKWATER TOE SO THAT STONE IS PLACED WITHIN THE 46.0' WIDE BREAKWATER TEMPLATE.
4. DATUMS FROM NOAA GAGE 8773037 SEADRIFT, TX

M-8: EAST MATAGORDA BAY SHORELINE PROTECTION

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

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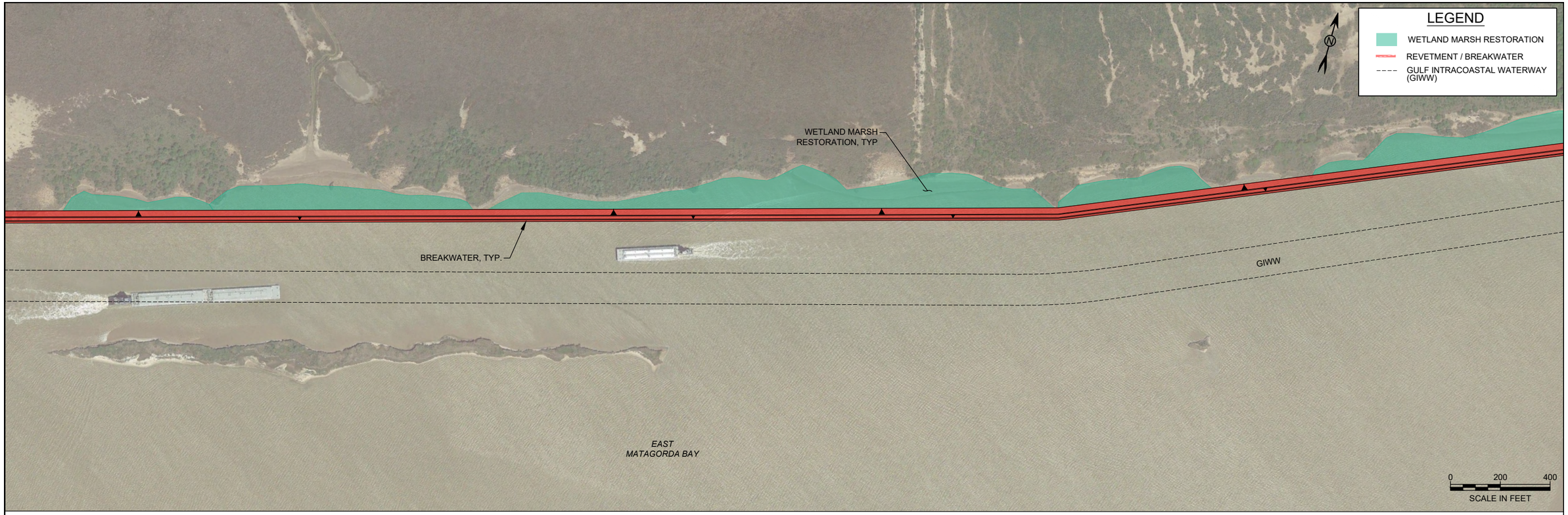

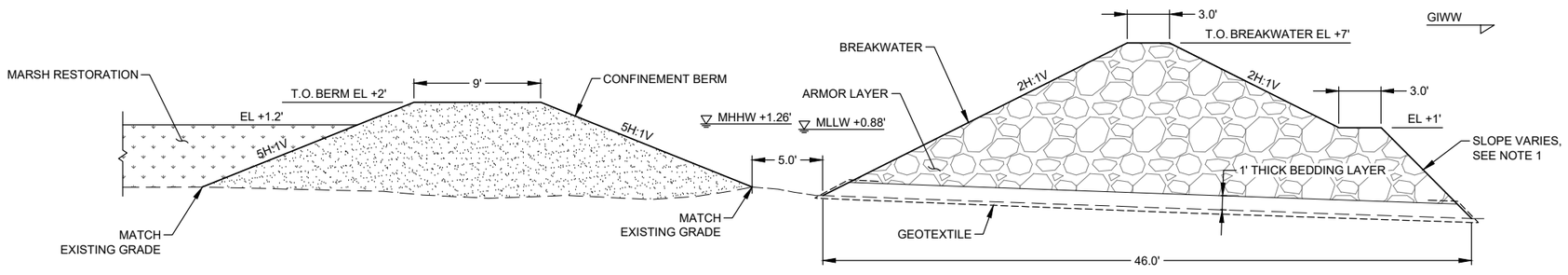

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M-8: COMBINED BREAKWATER & MARSH RESTORATION

TYPICAL SECTION

NOTES:

1. ALL ELEVATIONS IN FEET NAVD88.
2. VARY SLOPE OF BREAKWATER TOE SO THAT STONE IS PLACED WITHIN THE 46.0' WIDE BREAKWATER TEMPLATE.
3. DATUMS FROM NOAA GAGE 8773037 SEADRIFT, TX

M-8: EAST MATAGORDA BAY SHORELINE PROTECTION

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

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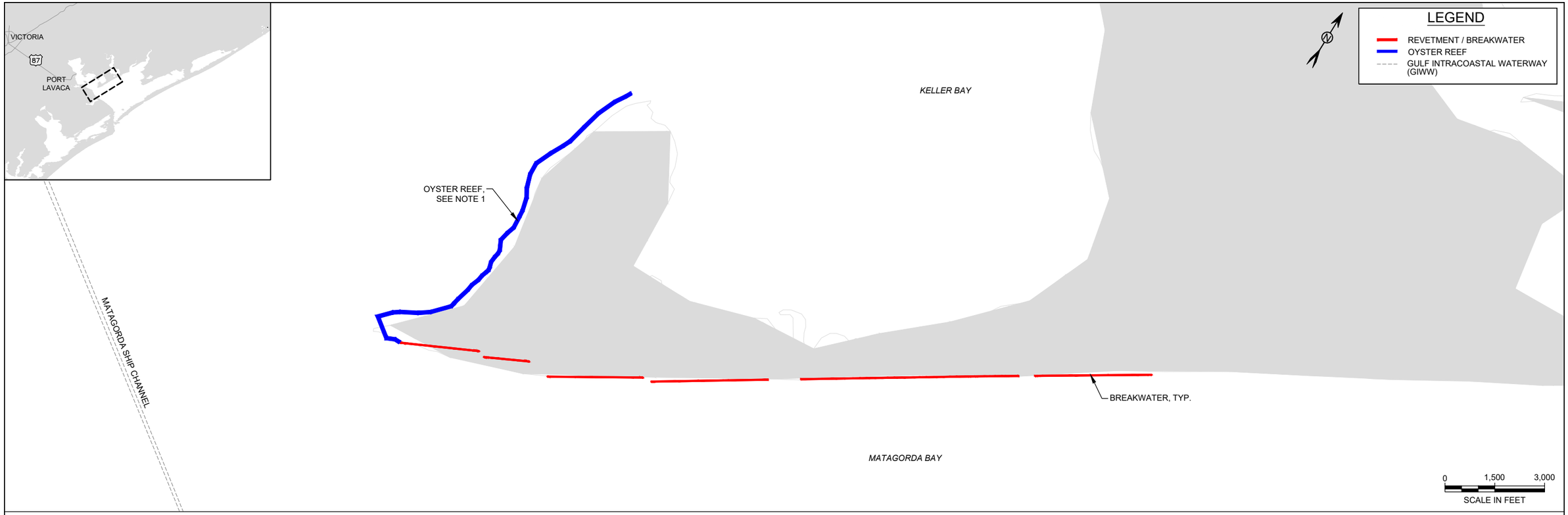

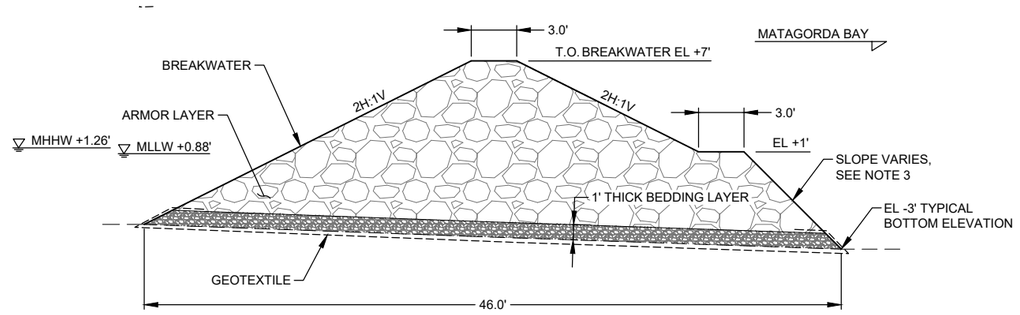

CA-5 - BREAKWATER
TYPICAL SECTION

NOTES:

1. OYSTER CULCH TO BE PLACED WITHIN OYSTER REEF TEMPLATE. FINAL ELEVATION AND SLOPES OF OYSTER CULCH PLACEMENT TO BE DETERMINED DURING FINAL DESIGN.
2. ALL ELEVATIONS IN FEET NAVD88.
3. VARY SLOPE OF BREAKWATER TOE SO THAT STONE IS PLACED WITHIN THE 46.0' WIDE BREAKWATER TEMPLATE.
4. DATUMS FROM NOAA GAGE 8773037 SEADRIFT, TX

CA-5: KELLER BAY RESTORATION

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

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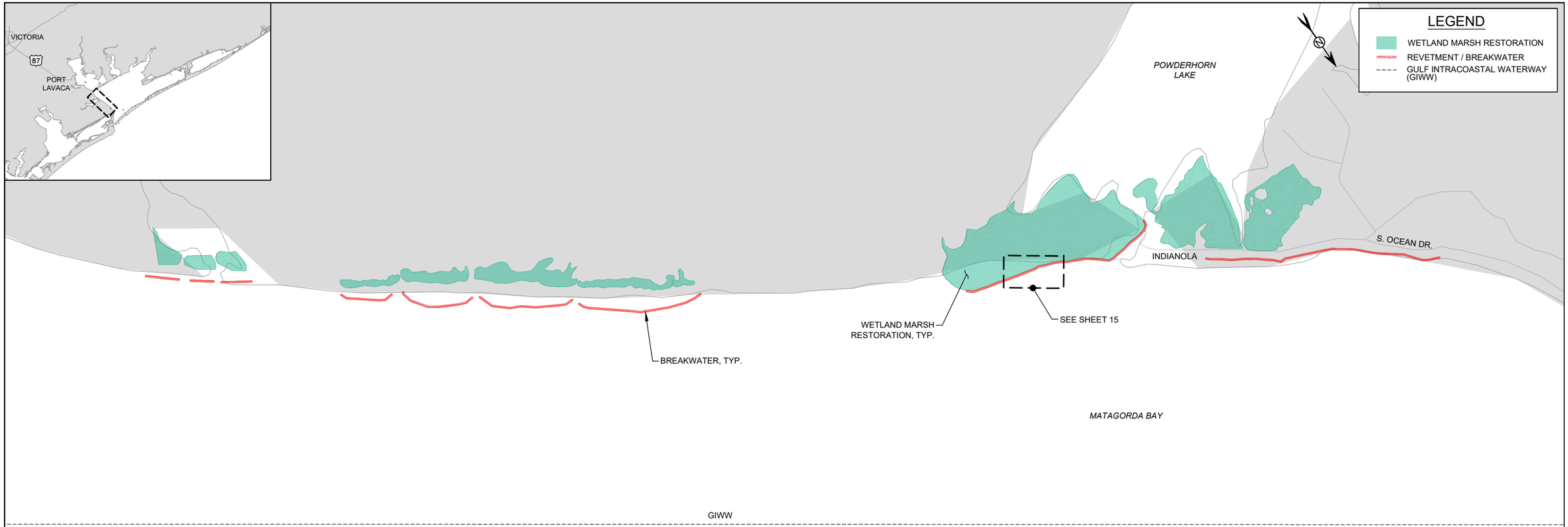
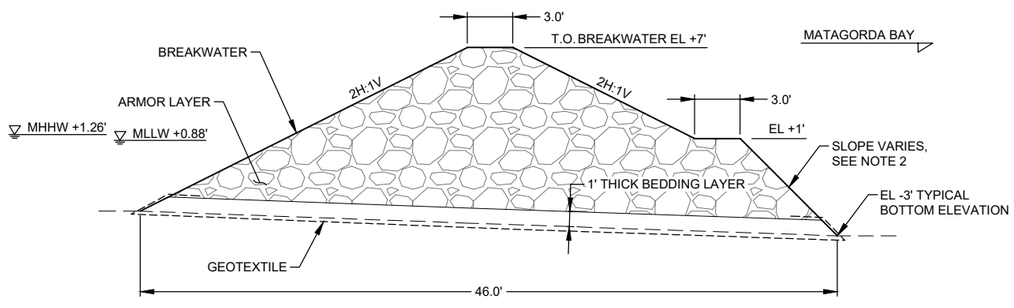
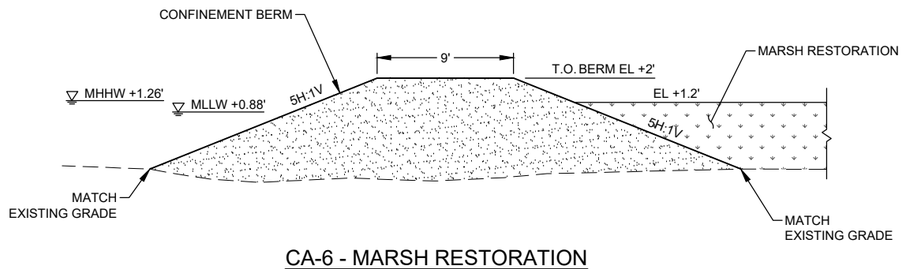
JULY 28, 2020

MOTT MACDONALD





CA-6 - BREAKWATER
TYPICAL SECTION



CA-6 - MARSH RESTORATION
TYPICAL SECTION

NOTES:

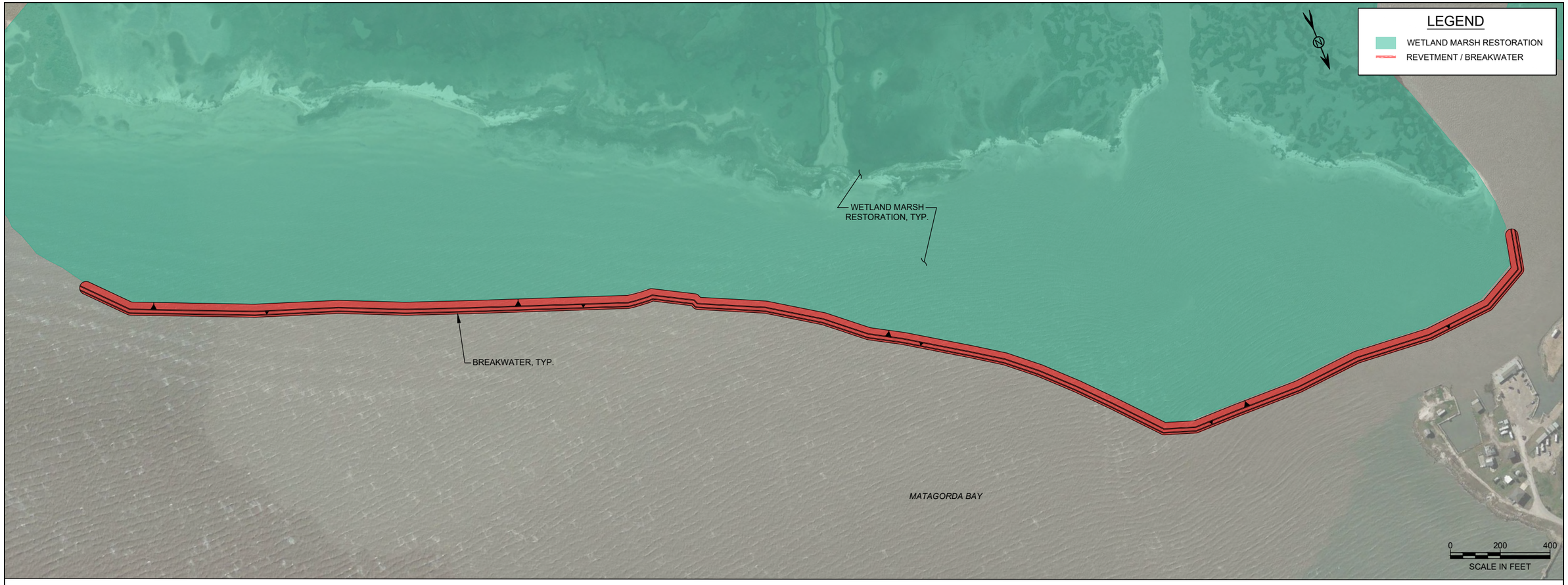
1. ALL ELEVATIONS IN FEET NAVD88.
2. VARY SLOPE OF BREAKWATER TOE SO THAT STONE IS PLACED WITHIN THE 46.0' WIDE BREAKWATER TEMPLATE.
3. DATUMS FROM NOAA GAGE 8773037 SEADRIFT, TX

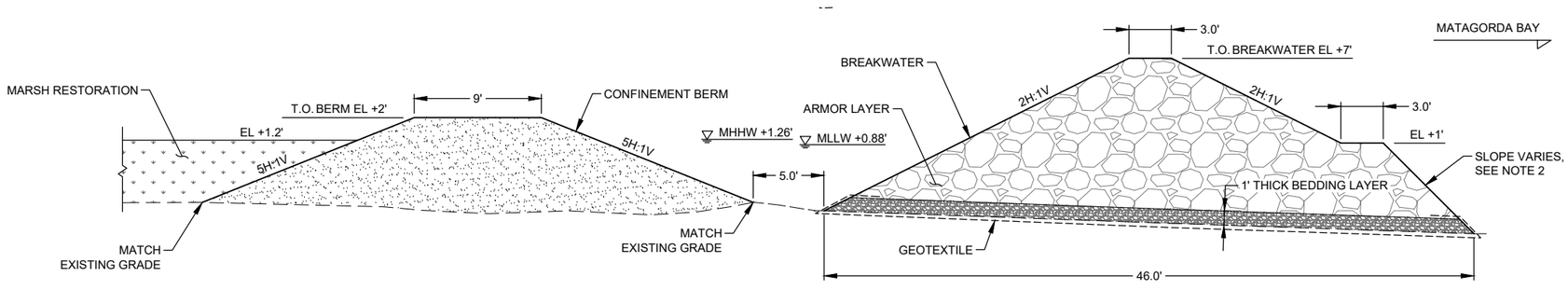
CA-6: POWDERHORN SHORELINE PROTECTION & WETLAND RESTORATION

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

ENGINEERING APPENDIX
DATED:
JULY 28, 2020
MOTT MACDONALD





G-

CA-6: COMBINED BREAKWATER & MARSH RESTORATION

TYPICAL SECTION

NOTES:

1. ALL ELEVATIONS IN FEET NAVD88.
2. VARY SLOPE OF BREAKWATER TOE SO THAT STONE IS PLACED WITHIN THE 46.0' WIDE BREAKWATER TEMPLATE.
3. DATUMS FROM NOAA GAGE 8773037 SEADRIFT, TX

CA-6: POWDERHORN SHORELINE PROTECTION & WETLAND RESTORATION

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

ENGINEERING APPENDIX
DATED:
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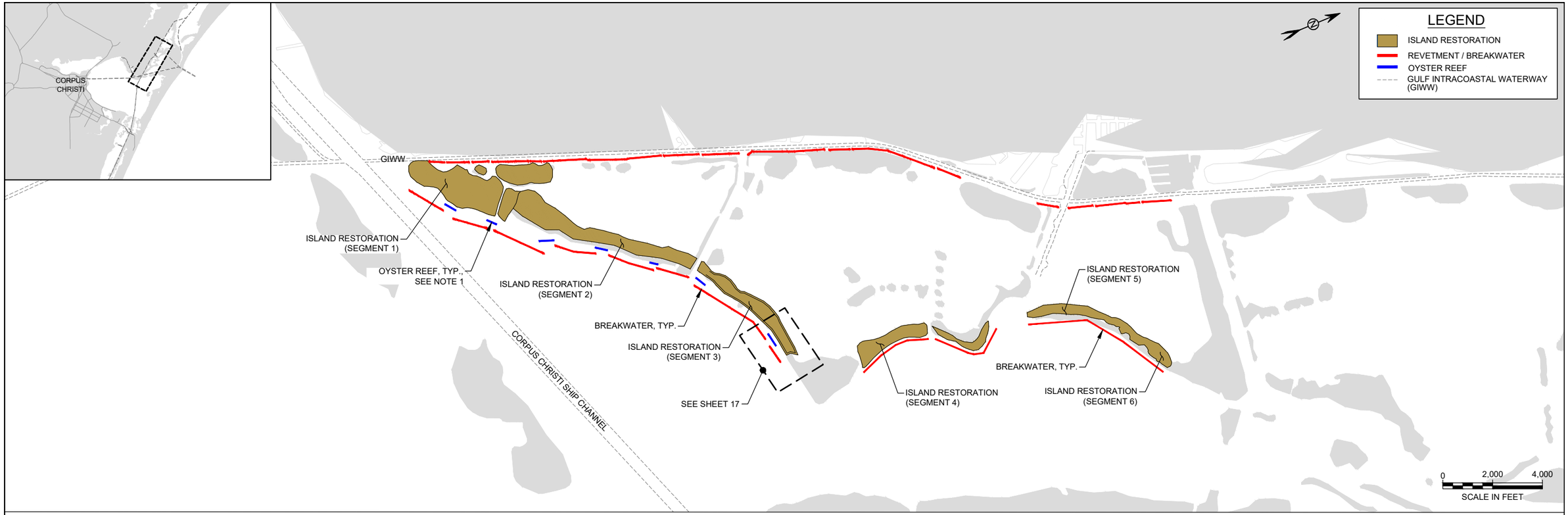
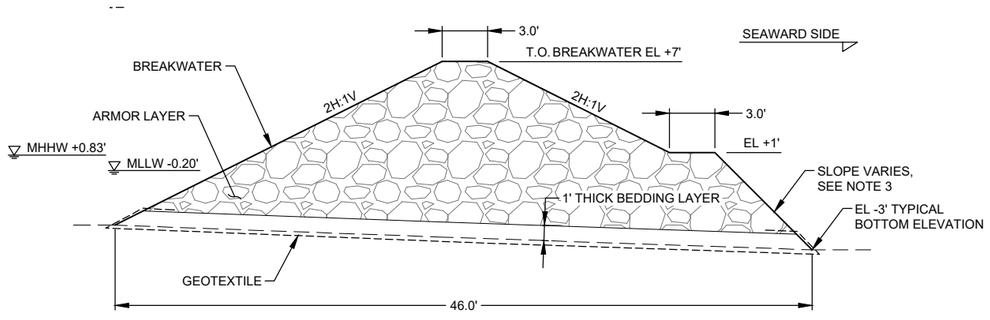
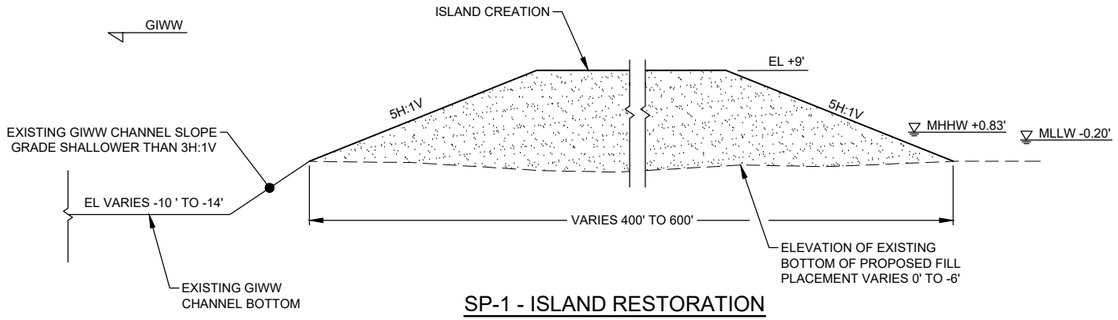
MOTT MACDONALD





SP-1 - BREAKWATER
TYPICAL SECTION



SP-1 - ISLAND RESTORATION
TYPICAL SECTION

NOTES:

1. OYSTER CULCH TO BE PLACED WITHIN OYSTER REEF TEMPLATE. FINAL ELEVATION AND SLOPES OF OYSTER CULCH PLACEMENT TO BE DETERMINED DURING FINAL DESIGN.
2. ALL ELEVATIONS IN FEET NAVD88.
3. VARY SLOPE OF BREAKWATER TOE SO THAT STONE IS PLACED WITHIN THE 46.0' WIDE BREAKWATER TEMPLATE.
4. DATUMS FROM NOAA GAGE 8775237, PORT ARANSAS TX

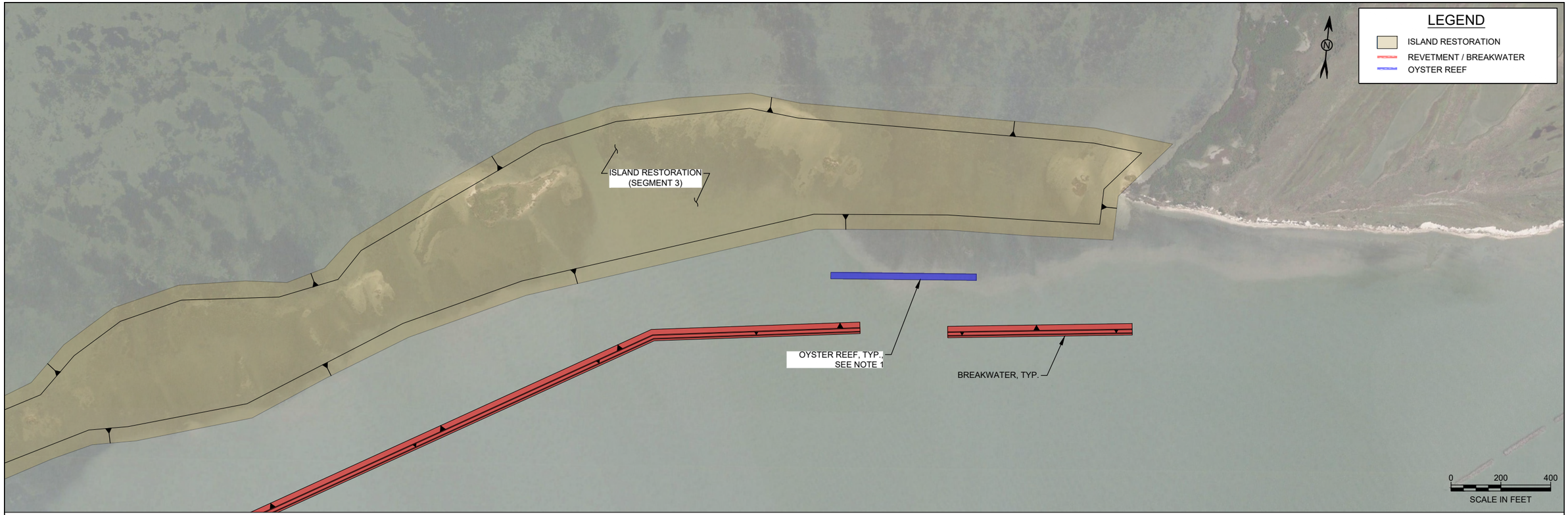
SP-1: REDFISH BAY PROTECTION & ENHANCEMENT

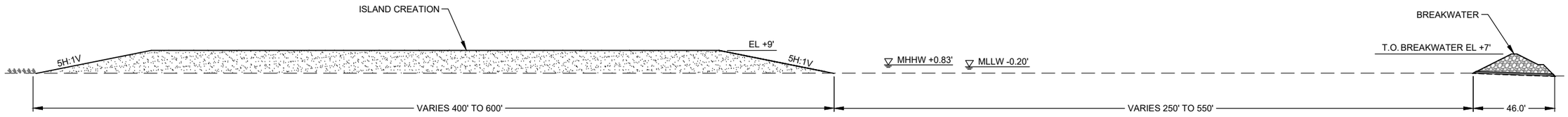
COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

ENGINEERING APPENDIX
DATED:
JULY 28, 2020

MOTT MACDONALD





H
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SP-1: COMBINED ISLAND RESTORATION AND BREAKWATER

TYPICAL SECTION

NOTES:

1. OYSTER CULCH TO BE PLACED WITHIN OYSTER REEF TEMPLATE. FINAL ELEVATION AND SLOPES OF OYSTER CULCH PLACEMENT TO BE DETERMINED DURING FINAL DESIGN.
2. ALL ELEVATIONS IN FEET NAVD88.
3. VARY SLOPE OF BREAKWATER TOE SO THAT STONE IS PLACED WITHIN THE 46.0' WIDE BREAKWATER TEMPLATE.
4. DATUMS FROM NOAA GAGE 8775237, PORT ARANSAS TX

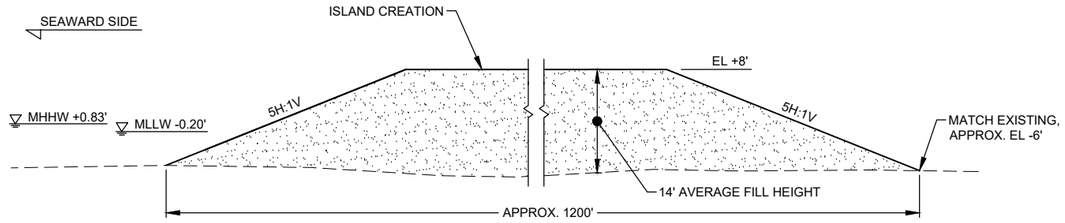
SP-1: REDFISH BAY PROTECTION & ENHANCEMENT

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

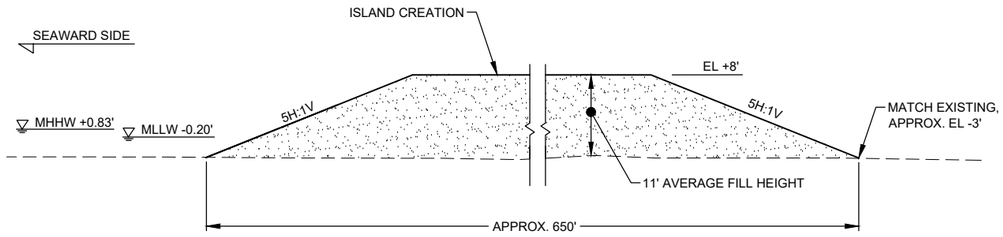
ENGINEERING APPENDIX
DATED:
JULY 28, 2020

MOTT MACDONALD



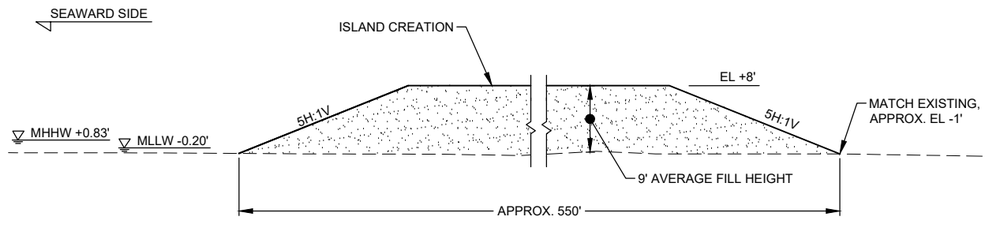
SP-1 - ISLAND RESTORATION (SEGMENT 1)

TYPICAL SECTION



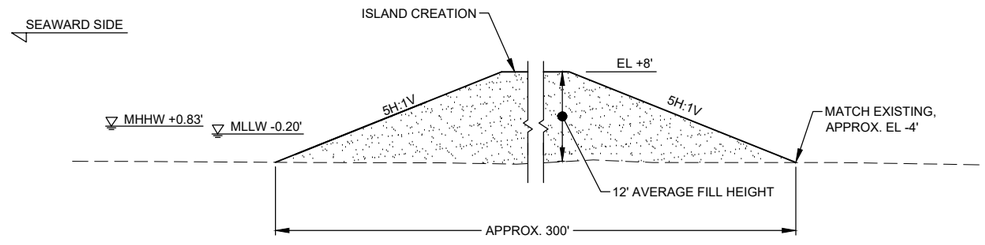
SP-1 - ISLAND RESTORATION (SEGMENT 4)

TYPICAL SECTION



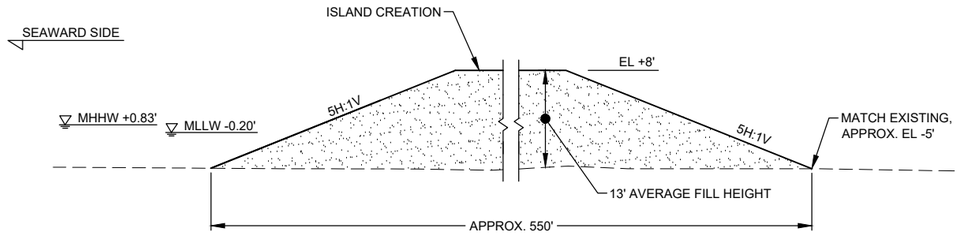
SP-1 - ISLAND RESTORATION (SEGMENT 2)

TYPICAL SECTION



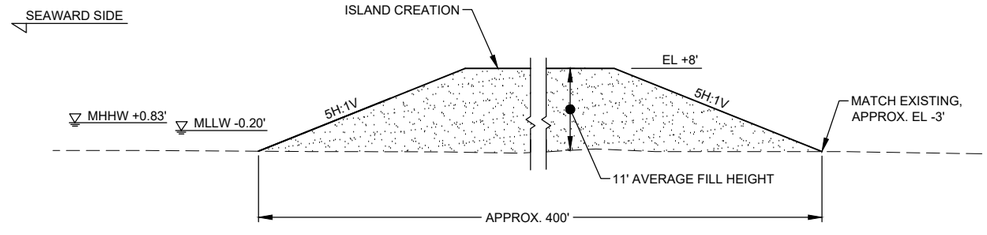
SP-1 - ISLAND RESTORATION (SEGMENT 5)

TYPICAL SECTION



SP-1 - ISLAND RESTORATION (SEGMENT 3)

TYPICAL SECTION



SP-1 - ISLAND RESTORATION (SEGMENT 6)

TYPICAL SECTION

NOTES:

1. ALL ELEVATIONS IN FEET NAVD88.
2. DATUMS FROM NOAA GAGE 8775237, PORT ARANSAS TX

SP-1: REDFISH BAY PROTECTION & ENHANCEMENT

COASTAL TEXAS PROTECTION AND RESTORATION FEASIBILITY STUDY

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

ENGINEERING APPENDIX
DATED:
JULY 28, 2020

MOTT MACDONALD

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Texas Coastal Ecological Services Field Office
17629 El Camino Real, Suite 211
Houston, Texas 77058
281/286-8282 / (FAX) 281/488-5882

In Reply Refer To:
FWS/R2/02ETT
X00-2021-I-0850

January 18, 2021

Colonel Timothy R. Vail
District Commander
Galveston District, U.S. Army Corps of Engineers
Attention: Mr. Jeff Pinsky
Post Office Box 1229
Galveston, Texas 77553-1229

Dear Colonel Vail: Consultation No. 02ETTX00-2021-I-0850

Thank you for submitting a request for concurrence along with a Biological Assessment (BA) dated October 30. 2020, received on November 6, 2020, for the Coastal Texas Protection and Restoration Feasibility Study (Coastal Texas Study). The proposed actionable measures include beach and dune nourishment and sediment management at the South Padre Island (SPI) and seven ER measures along the Texas coast which includes restoration of 15.2 miles of bird rookery islands, 12.32 miles of oyster reef construction, 9.5 miles of beach and dune system restoration, 2,052 acres of marsh restoration, and 112,864 acres of hydrologic connections, as well as 114 miles of breakwater structures along the Gulf Intracoastal Waterway (GIWW). The U.S. Army Corps of Engineers (Corps) determined that the project may affect, but is not likely to adversely affect the piping plover (*Charadrius melodus*), rufa red knot (*Calidris canutus rufa*), whooping crane (*Grus Americana*), Eastern black rail (Laterallus jamaicensis), West Indian manatee (*Trichechus manatus*) and four nesting sea turtle species; green (*Chelonia midas*), hawksbill (*Eretmochelys imbricata*), Kemp's ridley (*Lepidochelys kempii*), and loggerhead (*Caretta Caretta*),

The Corps has also determined that the actionable measures would have *no effect* on the northern Aplomado Falcon (*Falco femoralis septentrionalis)*, the Attwater's Greater Prairie-Chicken *(Tympanuchus cupido attwateri*), Texas Fawnsfoot *(Truncilla macrodon),* Gulf Coast Jaguarundi (*Herpailurus yagouaroundi cacomitli*), Ocelot (*Leopardus pardalis*),, Texas Ayenia (*Ayenia limitaris*), South Texas Ambrosia (*Ambrosia cheiranthifolia*), Slender Rush-pea *(Hoffmannseggia tenella*), Texas prairie dawn-flower *(Hymenoxys texana)* due to lack of suitable habitat and/or use of the action area.

Under section 7(a)(2) of the Endangered Species Act (Act), the federal action agency, or its designated representative, is responsible for determining the effects of their actions on listed species or critical habitat (50 CFR § 402.14 [a]) and is ultimately responsible for Section 7 obligations. If the action agency determines its proposed action will have no effect on federally

listed species or critical habitat, no contact with the U.S Fish and Wildlife Service (Service) is necessary. However, you should maintain a complete record of your evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles. The Service's Consultation Handbook (https://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf) is available online for further information on definitions and process.

Per the Service Memorandum of Understanding with National Marine Fisheries Service (NMFS) dated July 18, 1977, the Service has jurisdiction on sea turtles when on land only. The Service recommends the Corps contact NMFS for additional sea turtle requirements while in the marine environment.

The Service is writing to express concerns regarding impacts of the referenced project on the piping plover, rufa red knot, whooping crane, and Eastern black rail. In addition, the Service has concerns in regards to the four species of sea turtle that nest along the coast the green, hawksbill, Kemp's ridley and loggerhead. Specifically the impacts caused by the beach and dune nourishment portions of the project proposed along 9.5 miles of North Padre Island (section W-3) and 2.9 miles along South Padre Island (section SPI). Several conference calls have occurred where the Service expressed its concerns regarding impacts caused by beach and dune nourishment and the affects on the piping plover, red knot, and sea turtles. These concerns are outlined below:

- The Corps could not set timing restrictions to avoid turtle nesting season in section W-3
- Ongoing debates occurred regarding the habitat quality of W-3 in regards to use by piping plovers and red knots.
- The Service must be consistent with these types of project as there are formal consultations for existing and on-going beach nourishment projects, particularly of this size.
- The Service recommends benthic studies/surveys be conducted along with beach nourishment project to ensure a healthy ecosystem returns within a relatively short period of time.
- The Service is requesting that the Corps implement remedial actions if the sand composition, not consistent with beach quality sand within or adjacent to the nourishment area, is placed in nourishment areas.

During our most recent conference call on January 13, 2021, the Corps agreed to remove W-3 and SPI from the "actionable measures" and they have agreed to submit a revised BA excluding these portions of the project. These projects will be reviewed at a later date and will require a tier two environmental analysis prior to construction.

The Service is submitting the following avoidance and minimization measures for the Eastern black rail and the whooping crane which we believe will support the Corps determination of not likely to adversely affect. Please revise the BA to include these measures.

Eastern black rail (BLRA) avoidance and minimization measures for Marsh Restoration Activities:

- No marsh construction activities will occur from March 1st through September 30 (breeding, nesting, chick rearing, and molting season). If this timing restriction cannot be achieved then the following will take place:
    - On site vegetative field surveys will be conducted before work begins to identify BLRA habitat types along the GIWW adjacent to the proposed breakwater structures.
    - No material for marsh restoration will be placed in high marsh dominated by gulf cordgrass (*Spartina spartinea*), saltmeadow cordgrass (*S. Patens*), sea-oxeye (*Borrichia frutescens*), and/or saltgrass (*Distichlis spicata*) or dense overhead cover that meets the target marsh elevation for BLRA habitat.
    - If temporary access routes, pipeline routes, or staging areas occur within identified BLRA habitat the contractor must minimize traffic in these areas therefore minimizing the construction foot print, i.e., limited paths.
    - In addition to minimizing access routes, areas of high marsh habitat should be left intact to provide refugia for the BLRA to ensure escape access routes. The Corps should work with the Service to identify refugia areas once site specific planning begins.
    - Monitors will be needed to assist construction crews with avoidance and minimization to BLRA habitats once work begins.
- Tidal connections must not be restricted such that the flow and salinity regimes are modified.
- Use of construction lighting at night shall be minimized, directed toward the construction activity area, and shielded from view outside of the project area.

Whooping Crane avoidance and minimization measures

- Avoid construction activities during whooping crane wintering season November 1 through April 30. If this timing restriction cannot be achieved then the following will take place:
    - A biological monitor qualified in identifying whooping cranes, with stop work authority, will be on site while construction is in progress.
    - A 1,000 foot-radius of the work site will be delineated before work begins. If a whooping crane is observed within the 1,000-foot radius, the biological monitor shall halt construction activities, including shutting down any running equipment until the bird has vacated the radius.
    - If construction equipment is over 15 feet tall, the equipment must be laid down and dusk, overnight, and during inclement weather so as to avoid whooping crane strikes during times of low visibility
    - If equipment cannot be laid down at these times, then such equipment will be marked using surveyors flagging tape, red plastic balls or other suitable marking

devices and lighted during inclement weather condition when low light and or fog is present.

- All whooping crane sightings will be immediately reported to the Texas Coastal Services Field Office at (361) 533-6765.

The Service has also made comments throughout the Corps BA dated October 30, 2020 (attached via email). Please review the comments and revise as needed.

At this time the Service cannot concur with the not likely to adversely affect determination made for the piping plover, rufa red knot, whooping crane, Eastern black rail and the four nesting sea turtle species - green, hawksbill, Kemp's ridley, and loggerhead. We look forward to working with you to address our concerns and ensure compliance with the Endangered Species Act.

If you have questions or need additional information, please contact staff biologist Moni Belton at Moni_Belton@fws.gov.

Sincerely,

Charles Ardizzone
Project Leader

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

October 30, 2020

REPLY TO THE ATTENTION OF
CESWF-PEE-C

Dr. Roy E. Crabtree
Regional Administrator
National Marine Fisheries Service
Southeast Regional Office
Protected Resources Division
263 13th Avenue South
St. Petersburg, Florida 33701-5505

Dear Dr. Crabtree:

The U.S. Army Corps of Engineers (USACE) Galveston District along with the Texas General Land Office (GLO), the non-federal sponsor (NFS), are proposing the Coastal Texas Protection and Restoration Feasibility Study (Coastal Texas Study) for Coastal Storm Risk Management (CSRM) and Ecosystem Restoration (ER).

The Draft Feasibility Report presents the findings and recommendations and the DEIS provides a broad overview of potential impacts to the human and natural environment from implementing any of the focused array of alternatives, pursuant to the National Environmental Policy Act (NEPA) of 1969. The Coastal Texas Study employs a tiered NEPA compliance approach, in accordance with the Council on Environmental Quality's (CEQ's) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR 1500—1508, specifically 1502.20). Under this structure, all but one of the ER measures and the South Padre Island feature are considered actionable measures and have a complete NEPA analysis, while all other features (Tier One Measures) will require future Tier Two environmental analysis prior to construction.

This request is only pursuant to the actionable measures included in the Recommended Plan. ESA consultations will continue for the remaining measures as part of the Tier Two environmental reviews. The actionable measures in the DEIS include beach and dune nourishment and sediment management at South Padre Island and seven ER measures along the coast and include restoration of 15.2 miles of bird rookery islands, 12.32 miles of oyster reef, 9.5 miles of beach and dune system, 2,052 acres of marsh, and 112,864.1 acres of hydrologic connection, as well as approximately 114 miles of breakwaters intended to protect existing habitat from erosion.

To implement this plan, borrow material would be dredged from the Gulf Intracoastal Waterway (GIWW), the Houston Ship Channel, the Matagorda Ship Channel, the Mansfield Channel, Brazos Island Harbor, and from one of four offshore sand borrow sources located approximately 5 miles offshore of South Padre Island. The maintenance dredging would follow the regular Maintenance Dredging Cycles and Plans, except that dredged material would be beneficially used for marsh restoration, island creation, and beach nourishment rather than being placed in the identified placement areas. For maintenance dredging, the *Gulf of Mexico Regional Biological Opinion on Hopper Dredge use for Maintenance Dredging of Channels and Sand Mining by the four USACE Gulf of Mexico Districts* (GRBO) was issued November 19, 2003 (#F/SER/2000/01287), with several amendments since.

The four offshore sand borrow sources located approximately 5 miles offshore of South Padre Island would be the only dredge activity, included in the actionable measures, not covered by an existing determination in the GRBO. The offshore dredging would be conducted using a cutterhead dredge and material would be hydraulically pumped to the placement site. USACE has determined that the proposed offshore dredging may effect but is not likely to adversely affect the Hawskbill Sea Turtle (*Eretmochelys imbricate*), the Leatherback Sea Turtle (*Dermochelys coriacea*), the Green Sea Turtle (*Chelonia mydas*), the Kemp's Ridley Sea Turtle (*Lepidochelys kempii*), and the Loggerhead Sea Turtle (*Caretta caretta*).

A description of the construction activities, as well as the USACE assessment of effects on the newly listed species, as required under Section 7(a)(2) of the ESA, is provided in the attached Biological Assessment (BA). The Draft Feasibility Report and DEIS will be available for download starting October 30, 2020 from the project website which can be found at: http://coastalstudy.texas.gov. These two documents supersede the previously issued 2018 Draft Integrated Feasibility Report and Environmental Impact Statement and represents the most current and complete findings of this study effort. As well, the study team has developed an interactive story map that provides a wealth of user-friendly information about the recommended plan that you may find useful during your review. The story map can be found at: https://coastal-texas-hub-usace-swg.argic.com/.

We request your written concurrence, pursuant to the informal consultation procedures prescribed in 50 CFR 402.13, that the proposed action may effect, but not likely adversely affect federally-listed species or designated critical habitat under your agency's jurisdiction. We appreciate your continued cooperation in helping fulfill our responsibilities under the Endangered Species Act.

If you have any question or need additional information to conduct your review, please contact Mr. Jeff Pinsky, Environmental Branch, Regional Planning and Environmental Center, PO Box 1229, Galveston, TX 77553-1229, or you may e-mail comments or questions to Jeffrey.F.Pinsky@usace.army.mil.

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Date: 2020.10.30 17:17:19 -05'00'

Amanda M. McGuire
Chief, Environmental Branch
Regional Planning and Environmental Center

Enclosure

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON, TEXAS 77553-1229

October 30, 2020

REPLY TO THE ATTENTION OF
CESWF-PEE-C

Mr. Chuck Ardizzone
United States Fish and Wildlife Service
Texas Coastal Ecological Services–Houston
17629 El Camino Real, Suite 211
Houston, Texas 77058

Dear Mr. Ardizzone:

The U.S. Army Corps of Engineers (USACE) Galveston District, in partnership with the Texas General Land Office (GLO), the non-federal sponsor (NFS), is conducting the Coastal Texas Protection and Restoration Feasibility Study (Coastal Texas Study).

The Draft Feasibility Report presents the findings and recommendations and the DEIS provides a broad overview of potential impacts to the human and natural environment from implementing any of the focused array of alternatives, pursuant to the National Environmental Policy Act (NEPA) of 1969. The Coastal Texas Study employs a tiered NEPA compliance approach, in accordance with the Council on Environmental Quality's (CEQ's) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR 1500—1508, specifically 1502.20). Under this structure, all but one of the ER measures and the South Padre Island feature are considered actionable measures and have a complete NEPA analysis, while all other features (Tier One Measures) will require future Tier Two environmental analysis prior to construction.

This request is only pursuant to the actionable measures included in the Recommended Plan. ESA consultations will continue for the remaining measures as part of the Tier Two environmental reviews. The actionable measures in the DEIS include beach and dune nourishment and sediment management at South Padre Island and seven ER measures along the coast and include restoration of 15.2 miles of bird rookery islands, 12.32 miles of oyster reef, 9.5 miles of beach and dune system, 2,052 acres of marsh, and 112,864.1 acres of hydrologic connection, as well as approximately 114 miles of breakwaters intended to protect existing habitat from erosion.

A Biological Assessment was prepared to analyze the impacts of implementing the actionable measures included in the Recommended Plan. We request initiation of informal consultation under Section 7(a)(2) of the Endangered Species Act for the Coastal Texas Study. Based on the enclosed analysis, USACE has determined that the actionable measures *may affect, but is not likely to adversely affect* the Piping Plover, Rufa Red Knot, Whooping Crane, Eastern Black Rail, West Indian Manatee, and

nesting sea turtles (including the loggerhead, green, hawksbill, and Kemp's ridley sea turtles) or their critical habitats because with the proposed conservation measures in place, all effects to the species and their habitats would be insignificant and/or discountable. USACE has also determined that the actionable measures would have ***no effect*** on the Northern Aplomado Falcon, the Attwater's Greater Prairie-Chicken, Texas Fawnsfoot, Gulf Coast Jaguarundi, Ocelot, Texas Ayenia, South Texas Ambrosia, Slender Rush-pea, Texas prairie dawnflower due to lack of suitable habitat and/or use of the action area. No critical habitat is present within the action areas for the actionable measures. We request your concurrence with this determination.

If you have any question or need additional information to conduct your review, please contact Mr. Jeff Pinsky, Environmental Branch, Regional Planning and Environmental Center, PO Box 1229, Galveston, TX 77553-1229, or you may e-mail comments or questions to Jeffrey.F.Pinsky@usace.army.mil.

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Amanda M. McGuire
Chief, Environmental Chief
Regional Planning and Environmental Center

Enclosure

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Coastal Ecological Services Field Office
17629 El Camino Real, Suite 211
Houston, Texas 77058
281/286-8282 / (FAX) 281/488-5882

In Reply Refer To:
FWS/R2/CESFO/
02ETXX0-2019-
F-0375

November 26, 2018

Colonel Lars N. Zetterstrom
U.S. Army Corps of Engineers
Attn: Jennifer Morgan
P.O. Box 1229
Galveston, Texas 77553-1229

Dear Colonel Zetterstrom:

Thank you for your October 26, 2018, request to initiate formal consultation under section 7 of the Endangered Species Act (Act) for the Corps' Coastal Texas Protection and Restoration Study, Draft Integrated Feasibility Report – Environmental Impact Statement (Project). The subject Project is a proposed Coastal Storm Risk Management (CSRM) and Ecosystem Restoration (ER) series of measures including coastal barrier components in Galveston Bay, Galveston Island, Bolivar peninsula, and restoration components from Chambers to Cameron Counties, Texas. The Service's Texas Coastal Ecological Services Field Office (CESFO) has received and reviewed a biological assessment (BA) accompanying your letter request and in accordance with section 7 of the Act, our implementing regulations at 50 CFR 402, and Service guidance. This response is provided in accordance with the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

As described in the October 2018 BA, the Corps determined that the Project may affect the federally listed West Indian manatee *Trichechus manatus*, Interior least tern *Sterna antillarum*, Northern aplomado falcon *Falco femoralis septentrionalis*, Piping plover *Charadrius melodus*, Rufa red knot *Calidris canutus rufa*, Whooping crane *Grus americana*, Hawksbill sea turtle *Eretmochelys imbricata*, Leatherback sea turtle *Dermochelys coriacea*, Texas prairie dawn-flower *Hymenoxys texana*, Green sea turtle *Chelonia mydas*, Kemp's ridley sea turtle *Lepidochelys kempii*, and Loggerhead sea turtle *Caretta caretta*. The Corps requests concurrence with its may affect, not likely to adversely affect determinations for several species and to engage in formal consultation for several species of sea turtle. The Project also includes impacts within designated critical habitat for the Piping plover.

Upon our review of the BA, the Service finds the document/initiation package to be incomplete. The BA does not include a recent, official species list, present a sufficient description of the action, lacks environmental baseline information on the current status of these species, contains

no description of action area(s), contains no substantive or substantiated analysis of effects of the action, contains no substantive or substantiated analysis regarding destruction or adverse modification of designated critical habitat, and contains no substantive or substantiated analysis of cumulative effects. Thus, we find the BA incomplete and request the Corps and applicant address the following updates or deficiencies:

- The BA includes an unofficial species list from May of 2018. The Service recommends the Corps generate an official species list from our Information for Planning and Consultation (IPaC) website at: https://ecos.fws.gov/ipac/.
- Regarding the description of the action, the BA makes reference to levees/floodwalls for Galveston Island and Bolivar peninsula, in addition to floodgates, navigable gate structures, including a 1,200-foot-wide floating sector gate at the entrance to the Houston Entrance Channel, ancillary structures (e.g., pump stations), and the vertical lift gates across approximately 10,000 feet of Bolivar Roads, but provides no other dimensions, Project footprint, schedule, construction methods, timing, sequence, access, sources of materials, Project lifespan, maintenance or operation actions. For a project of this scope and potential consequence to ESA protected taxa, the revised BA should provide details of all aspects of the Project.
- Similarly, description of potential Project alternatives is not useful to fulfillment of the action agency's section 7 obligations. In brief, the Service only wishes to consult on the effects of the action and not on a series of alternative actions.
- The BA does not describe the action area(s) for each Project component. The revised BA should address this deficiency.
- The BA provides little discussion on the environmental baseline. Please recall that this part of the BA should describe past and present effects of human actions on the species in the action area.
- The section of the BA addressing effects of the Project speaks only to effects in general, without analysis of the timing, intensity, duration of such effects on the species life stages and in consideration of their biological needs (e.g., feeding, breeding, sheltering). In order to conduct an adequate analysis, the Service requests that the assessment be revised considering the potential effects (e.g., on a continuum from no effect to lethal effects and at the level of the individual, population, and species, as appropriate) in terms of exposure (e.g., to construction noise, or to being crushed by construction equipment, or residing in a more fragmented patch of habitat due to presence of the Project) and response (e.g., avoidance of an area around the stressor, death, or potentially lack of reproductive success). For each potential effect, consider and document the likely and reasonable response(s) of individuals of the species taking into consideration their potential presence, the length of exposure to a stressor, the magnitude or severity of the stressor, the sensitivity of the species to such stressor, and the life stage or stages that may be differentially affected with regard to their feeding, breeding or sheltering. This analysis should also put forth the likely and reasonable response of populations and the species as a whole, as appropriate. Similarly, an analysis of the effect of the Project on designated critical habitat should be included. Follow that with a discussion of how

reasonable and prudent measures (e.g., Project timing, implementation, restoration, and any offset) may change these effects to the species.

- Other State or private developments and actions in the action area may contribute to cumulative effects on the species. These should be analyzed as above. For example, if the Corps or applicant is aware of pending developments in the action area, these should be disclosed and their effects, if any, analyzed.
- In accordance with Secretarial Order 3206 (Appendix, Section 3C(c)) the Service encourages the Corps to invite potentially affected tribes and the Bureau of Indian Affairs to participate in the ESA consultation process. While the Corps appears to have enlisted the participation of the tribes in its NEPA compliance, the Service is unaware of any additional invitation regarding section 7 consultation.
- While it is not cause for this request for additional information, the Service recommends the Corps seek to bolster their determinations of effects with Project schedule information. No effect determinations in particular would be made more defensible by incorporation of this temporal element, as appropriate.
- The Service herein has requested a significant revision to the consultation initiation materials provided. As such, we reserve the right to review and make subsequent additional requests based upon any revisions received in future submittals for this Project.

If you need clarification of our comments, have questions, or need additional information, please contact staff biologist Jeff Hill at 281/286-8282 ext. 26508.

Sincerely,

Charles Ardizzone
Field Supervisor

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
Phone: (281) 286-8282 Fax: (281) 488-5882
http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: January 03, 2020
Consultation Code: 02ETTX00-2020-SLI-0666
Event Code: 02ETTX00-2020-E-01360
Project Name: Coastal Texas Protection and Restoration Study - ER - G-28

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: http://www.fws.gov/southwest/es/TexasCoastal/Map.html. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

Section 7

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

Is 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. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf

Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

Proposed Species and/or Proposed Critical Habitat

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek conference from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

Candidate Species

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical

assistance to help avoid or minimize adverse effects. Addressing potential impacts to these species at this stage could better provide for overall ecosystem healh in the local area and ay avert potential future listing.

Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that that you implement the best management practices found at: http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at http://www.fws.gov/endangered/what-we-do/cca.html.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the goden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidlines, we recommend you review information provided at http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project

developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at http://www.aplic.org/.

Meteorological and communication towers are estimated to kill millions of birds per year. We recommend following the guidance set forth in the Service Interim Guidelines for Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning, found online at: http://www.fws.gov/habitatconservation/communicationtowers.html, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight into the effectiveness of the minimization measures. We request the results of any wildlife mortality monitoring at towers associated with this project.

We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html.

Wetlands and Wildlife Habitat

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/.

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2020-SLI-0666

Event Code: 02ETTX00-2020-E-01360

Project Name: Coastal Texas Protection and Restoration Study - ER - G-28

Project Type: LAND - RESTORATION / ENHANCEMENT

Project Description: Measure G-28 – Bolivar Peninsula and West Bay GIWW Shoreline and Island Protection
Project Description. Install breakwaters and restore marsh habitat to protect 27 miles of marsh habitat along the
GIWW on Bolivar Peninsula and 9 miles of shoreline along the north shore of West Bay. Use sediment to
restore, create, and/or enhance islands adjacent to the GIWW to protect 5 miles of shoreline habitat along the
north shore of West Bay, which is eroding. Subsequently in the future, based on RSLR, renourish 6,891 acres
of marsh identified as “unconsolidated shore” using the NOAA (2017a) marsh migration layer.
Project Benefits. Breakwaters are a proven method to greatly reduce, and sometimes reverse, the loss of marsh
habitat that erodes along the GIWW due to barge wakes. The shoreline and marshes in these areas would be
restored and protected from storm surge and erosion. Beyond the ecological lift just described, this project also
could reduce maintenance dredging of the GIWW.
FWOP If the habitat along the shoreline is not protected, approximately 18,000 acres of existing intertidal to
high marsh along the south shore of the GIWW through Bolivar Peninsula and the north shore of West Bay
would be inundated at a RSLR of 3 feet (NOAA, 2017a). This marsh habitat also serves as a buffer from some
storm impacts to area infrastructure.
Ancillary benefits can be expected when the ecological habitat is restored in this way. Aside from the ecological
loss when sediment is lost from the marsh, the accumulation in the GIWW increases shoaling and maintenance
dredging frequency. The increased width of open water in the GIWW due to the loss of marsh and the erosion of the islands adjacent to the GIWW can change the waves and currents and accelerate erosion. These factors can negatively impact navigation.
Protecting the bay shoreline of Bolivar Peninsula reduces the likelihood it

will breach to the Gulf since, at 3 feet
of RSLR, portions of the peninsula may narrow to less than 2,000 feet wide. Breaching can increase salinities
in East Bay, which impact bay habitat.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/29.385775471870915N94.76730673832407W

Counties: Brazoria, TX | Chambers, TX | Galveston, TX

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
West Indian Manatee *Trichechus manatus*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.
Species profile: https://ecos.fws.gov/ecp/species/4469

Birds

NAME	STATUS
Attwater's Greater Prairie-chicken *Tympanuchus cupido attwateri* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7259	Endangered
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle *Dermochelys coriacea* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Piping Plover *Charadrius melodus* https://ecos.fws.gov/ecp/species/6039#crithab	Final

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
Phone: (281) 286-8282 Fax: (281) 488-5882
http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: December 30, 2019
Consultation Code: 02ETTX00-2020-SLI-0607
Event Code: 02ETTX00-2020-E-01235
Project Name: Coastal Texas Protection and Restoration Study - Ecosystem Restoration - B-2

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

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The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

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Section 7

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Is 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. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf

Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

Proposed Species and/or Proposed Critical Habitat

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek conference from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

Candidate Species

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical

assistance to help avoid or minimize adverse effects. Addressing potential impacts to these species at this stage could better provide for overall ecosystem healh in the local area and ay avert potential future listing.

Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that that you implement the best management practices found at: http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at http://www.fws.gov/endangered/what-we-do/cca.html.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the goden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidlines, we recommend you review information provided at http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project

developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at http://www.aplic.org/.

Meteorological and communication towers are estimated to kill millions of birds per year. We recommend following the guidance set forth in the Service Interim Guidelines for Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning, found online at: http://www.fws.gov/habitatconservation/communicationtowers.html, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight into the effectiveness of the minimization measures. We request the results of any wildlife mortality monitoring at towers associated with this project.

We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html.

Wetlands and Wildlife Habitat

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/.

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2020-SLI-0607

Event Code: 02ETTX00-2020-E-01235

Project Name: Coastal Texas Protection and Restoration Study - Ecosystem Restoration - B-2

Project Type: LAND - RESTORATION / ENHANCEMENT

Project Description: Gulf Beach and Dune Restoration – Follets Island (S2G Measure 5-11), Brazoria County: The plan would also restore and/or enhance beach and dune complex on approximately 10 miles of Gulf shoreline on Follets Island in Brazoria County. A total of 1,113.8 acres would be restored, created, protected, and/or enhanced by placing 8.7 million cy of beach fill from an offshore source.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/29.023231677277856N95.19087585808875W

Counties: Brazoria, TX

Endangered Species Act Species

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location is outside the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle *Dermochelys coriacea* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
Phone: (281) 286-8282 Fax: (281) 488-5882
http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: December 30, 2019
Consultation Code: 02ETTX00-2020-SLI-0608
Event Code: 02ETTX00-2020-E-01237
Project Name: Coastal Texas Protection and Restoration Study - Ecosystem Restoration - B-12

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: http://www.fws.gov/southwest/es/TexasCoastal/Map.html. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

Section 7

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

Is 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. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

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Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf

Service Response

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This species list is provided by:

Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2020-SLI-0608

Event Code: 02ETTX00-2020-E-01237

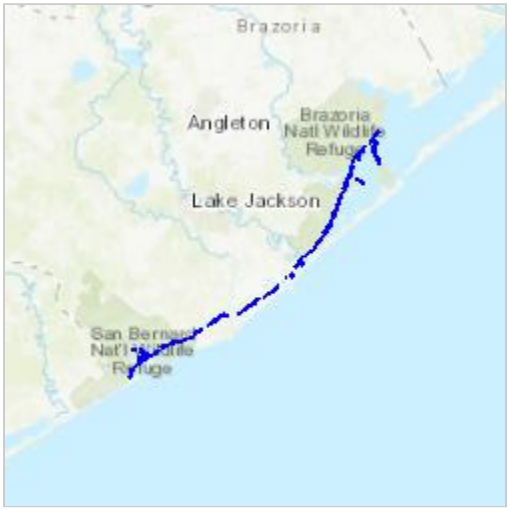
Project Name: Coastal Texas Protection and Restoration Study - Ecosystem Restoration - B-12

Project Type: LAND - RESTORATION / ENHANCEMENT

Project Description: In the bay complex of Bastrop Bay, Oyster Lake, Cowtrap Lakes, and the western side of West Bay, the plan would restore, create, and/or enhance critical areas of shoreline (Measure B-12). A total of 551 acres of estuarine marsh would be restored using an estimated 400,000 cy of fill material. A total of 43.2 miles of breakwaters would be placed on the western side of West Bay and Cowtrap Lakes, and along selected segments of the GIWW in Brazoria County. In the area of Oyster Lake, 3,708 linear feet of oyster reef or 0.17 acre of oyster reef would be created to prevent the lake from joining with West Bay. Also, subsequently in the future, the plan would, through future construction activities, would nourish 19,800 acres of marsh along the GIWW which is expected to be lost based on RSLR impacts.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/28.84709668741528N95.51688858981944W



Counties: Brazoria, TX | Matagorda, TX

Endangered Species Act Species

There is a total of 11 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location is outside the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
Northern Aplomado Falcon *Falco femoralis septentrionalis* Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1923	Endangered
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle *Dermochelys coriacea* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Clams

NAME	STATUS
Texas Fawnsfoot *Truncilla macrodon*	Candidate

No critical habitat has been designated for this species.

Species profile: https://ecos.fws.gov/ecp/species/8965

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
Phone: (281) 286-8282 Fax: (281) 488-5882
http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: December 30, 2019
Consultation Code: 02ETTX00-2020-SLI-0610
Event Code: 02ETTX00-2020-E-01241
Project Name: Coastal Texas Protection and Restoration Study - Ecosystem Restoration -CA5

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: http://www.fws.gov/southwest/es/TexasCoastal/Map.html. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

Section 7

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

Is 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. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf

Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

Proposed Species and/or Proposed Critical Habitat

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek conference from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

Candidate Species

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical

assistance to help avoid or minimize adverse effects. Addressing potential impacts to these species at this stage could better provide for overall ecosystem healh in the local area and ay avert potential future listing.

Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that that you implement the best management practices found at: http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at http://www.fws.gov/endangered/what-we-do/cca.html.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the goden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidlines, we recommend you review information provided at http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project

developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at http://www.aplic.org/.

Meteorological and communication towers are estimated to kill millions of birds per year. We recommend following the guidance set forth in the Service Interim Guidelines for Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning, found online at: http://www.fws.gov/habitatconservation/communicationtowers.html, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight into the effectiveness of the minimization measures. We request the results of any wildlife mortality monitoring at towers associated with this project.

We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html.

Wetlands and Wildlife Habitat

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/.

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2020-SLI-0610

Event Code: 02ETTX00-2020-E-01241

Project Name: Coastal Texas Protection and Restoration Study - Ecosystem Restoration -CA5

Project Type: LAND - RESTORATION / ENHANCEMENT

Project Description: Along the Matagorda Bay shoreline between Matagorda Bay and Keller Bay, the plan would use breakwaters and/or living shorelines to restore, protect, create, and/or enhance approximately 6 miles of shoreline (Measure CA-5). A total of 3.8 miles of breakwaters would be placed along the southern reach the project area while 2.3 miles of oyster reef creation would be used on the western reaches of the project area. The plan would also, through future construction activities, nourish 623 acres of marsh directly behind the breakwaters.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/28.572510417810868N96.47770042680534W

Counties: Calhoun, TX

Endangered Species Act Species

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gulf Coast Jaguarundi *Herpailurus (=Felis) yagouaroundi cacomitli* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3945	Endangered
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location is outside the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
Least Tern *Sterna antillarum*	Endangered
Northern Aplomado Falcon *Falco femoralis septentrionalis*	Endangered
Piping Plover *Charadrius melodus*	Threatened
Red Knot *Calidris canutus rufa*	Threatened
Whooping Crane *Grus americana*	Endangered

Least Tern *Sterna antillarum* — Endangered

Population: interior pop.

No critical habitat has been designated for this species.

This species only needs to be considered under the following conditions:

- Wind Related Projects Within Migratory Route

Species profile: https://ecos.fws.gov/ecp/species/8505

Northern Aplomado Falcon *Falco femoralis septentrionalis* — Endangered

Population: Wherever found, except where listed as an experimental population

No critical habitat has been designated for this species.

Species profile: https://ecos.fws.gov/ecp/species/1923

Piping Plover *Charadrius melodus* — Threatened

Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.

There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/6039

Red Knot *Calidris canutus rufa* — Threatened

No critical habitat has been designated for this species.

Species profile: https://ecos.fws.gov/ecp/species/1864

Whooping Crane *Grus americana* — Endangered

Population: Wherever found, except where listed as an experimental population

There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/758

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle *Dermochelys coriacea* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
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Phone: (281) 286-8282 Fax: (281) 488-5882
http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: December 30, 2019
Consultation Code: 02ETTX00-2020-SLI-0611
Event Code: 02ETTX00-2020-E-01243
Project Name: Coastal Texas Protection and Restoration Study - Ecosystem Restoration - CA6

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: http://www.fws.gov/southwest/es/TexasCoastal/Map.html. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

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Section 7

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Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

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Section 10

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Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

Proposed Species and/or Proposed Critical Habitat

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek conference from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

Candidate Species

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical

assistance to help avoid or minimize adverse effects. Addressing potential impacts to these species at this stage could better provide for overall ecosystem healh in the local area and ay avert potential future listing.

Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that that you implement the best management practices found at: http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at http://www.fws.gov/endangered/what-we-do/cca.html.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the goden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidlines, we recommend you review information provided at http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project

developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at http://www.aplic.org/.

Meteorological and communication towers are estimated to kill millions of birds per year. We recommend following the guidance set forth in the Service Interim Guidelines for Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning, found online at: http://www.fws.gov/habitatconservation/communicationtowers.html, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight into the effectiveness of the minimization measures. We request the results of any wildlife mortality monitoring at towers associated with this project.

We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html.

Wetlands and Wildlife Habitat

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/.

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2020-SLI-0611

Event Code: 02ETTX00-2020-E-01243

Project Name: Coastal Texas Protection and Restoration Study - Ecosystem Restoration - CA6

Project Type: LAND - RESTORATION / ENHANCEMENT

Project Description: Near the Powderhorn Lake area, along Matagorda Bay the plan would restore, create, and/or enhance critical areas of shoreline (Measure CA-6). A total of 5 miles of breakwaters would be used for shoreline stabilization, fronting the portions of Indianola, the Powderhorn Lake estuary, and TPWD's Powderhorn Ranch. In addition, 531 acres of estuarine marsh restoration would be created using 385,760 cy of fill material in areas near the Powderhorn Lake estuary, which has converted to unconsolidated shorelines.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/28.50551712161721N96.47899341609546W

Counties: Calhoun, TX

Endangered Species Act Species

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gulf Coast Jaguarundi *Herpailurus (=Felis) yagouaroundi cacomitli* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3945	Endangered
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location is outside the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
Least Tern *Sterna antillarum*	Endangered
Northern Aplomado Falcon *Falco femoralis septentrionalis*	Endangered
Piping Plover *Charadrius melodus*	Threatened
Red Knot *Calidris canutus rufa*	Threatened
Whooping Crane *Grus americana*	Endangered

Least Tern *Sterna antillarum*
- Population: interior pop.
- No critical habitat has been designated for this species.
- This species only needs to be considered under the following conditions:
  - Wind Related Projects Within Migratory Route
- Species profile: https://ecos.fws.gov/ecp/species/8505

Northern Aplomado Falcon *Falco femoralis septentrionalis*
- Population: Wherever found, except where listed as an experimental population
- No critical habitat has been designated for this species.
- Species profile: https://ecos.fws.gov/ecp/species/1923

Piping Plover *Charadrius melodus*
- Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.
- There is **final** critical habitat for this species. Your location is outside the critical habitat.
- Species profile: https://ecos.fws.gov/ecp/species/6039

Red Knot *Calidris canutus rufa*
- No critical habitat has been designated for this species.
- Species profile: https://ecos.fws.gov/ecp/species/1864

Whooping Crane *Grus americana*
- Population: Wherever found, except where listed as an experimental population
- There is **final** critical habitat for this species. Your location is outside the critical habitat.
- Species profile: https://ecos.fws.gov/ecp/species/758

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle *Dermochelys coriacea* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
Phone: (281) 286-8282 Fax: (281) 488-5882
http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: December 30, 2019
Consultation Code: 02ETTX00-2020-SLI-0609
Event Code: 02ETTX00-2020-E-01239
Project Name: Coastal Texas Protection and Restoration Study - Ecosystem Restoration - M8

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: http://www.fws.gov/southwest/es/TexasCoastal/Map.html. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

Section 7

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

Is 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. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf

Service Response

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Proposed Species and/or Proposed Critical Habitat

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek conference from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

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We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

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If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

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If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2020-SLI-0609

Event Code: 02ETTX00-2020-E-01239

Project Name: Coastal Texas Protection and Restoration Study - Ecosystem Restoration - M8

Project Type: LAND - RESTORATION / ENHANCEMENT

Project Description: The plan includes the use of living shorelines and/or breakwaters to restore, protect, create, and/or enhance approximately 12.4 miles of shoreline and associated marsh along the Big Boggy NWR shoreline and eastward to the end of East Matagorda Bay (Measure M-8); however, no breakwaters would be constructed where portions of the GIWW shoreline are already stabilized by adjacent dredged material placement areas. The plan would also restore 96.1 acres/3.5 miles of islands adjacent to the Big Boggy NWR along the GIWW, using 1.1 million cy of fill. The 31,355 linear feet of oyster reefs on the bayside of the islands would also be created.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/28.740671893110505N95.8022795696657W

Counties: Matagorda, TX

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
West Indian Manatee *Trichechus manatus*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.
Species profile: https://ecos.fws.gov/ecp/species/4469

Birds

NAME	STATUS
Northern Aplomado Falcon *Falco femoralis septentrionalis* Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1923	Endangered
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle *Dermochelys coriacea* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
Phone: (281) 286-8282 Fax: (281) 488-5882
http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: December 30, 2019
Consultation Code: 02ETTX00-2020-SLI-0613
Event Code: 02ETTX00-2020-E-01247
Project Name: Coastal Texas Protection and Restoration Study - Ecosystem Restoration - SP1

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: http://www.fws.gov/southwest/es/TexasCoastal/Map.html. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

Section 7

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

Is 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. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf

Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

Proposed Species and/or Proposed Critical Habitat

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek conference from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

Candidate Species

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical

assistance to help avoid or minimize adverse effects. Addressing potential impacts to these species at this stage could better provide for overall ecosystem healh in the local area and ay avert potential future listing.

Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that that you implement the best management practices found at: http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at http://www.fws.gov/endangered/what-we-do/cca.html.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the goden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidlines, we recommend you review information provided at http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project

developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at http://www.aplic.org/.

Meteorological and communication towers are estimated to kill millions of birds per year. We recommend following the guidance set forth in the Service Interim Guidelines for Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning, found online at: http://www.fws.gov/habitatconservation/communicationtowers.html, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight into the effectiveness of the minimization measures. We request the results of any wildlife mortality monitoring at towers associated with this project.

We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html.

Wetlands and Wildlife Habitat

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/.

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2020-SLI-0613

Event Code: 02ETTX00-2020-E-01247

Project Name: Coastal Texas Protection and Restoration Study - Ecosystem Restoration - SP1

Project Type: LAND - RESTORATION / ENHANCEMENT

Project Description: The plan includes using breakwaters and/or living shorelines, BU material, and oyster reef balls to restore, create, and/or enhance the island complex of Dagger, Ransom, and Stedman islands in Redfish Bay (Measure SP-1). The plan would include creating 392 acres of island habitat in the complex and would require 6.7 million cy of fill material. Also, along the unprotected GIWW shorelines, along the backside of Redfish Bay and the bayside of the restored islands the plan would place 7.4 miles of breakwaters around the system. In the interior of the system 7,392 linear feet of oyster reef would be created to enhance SAV growth.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/27.82776343737588N97.18184891839235W

Counties: Nueces, TX

Endangered Species Act Species

There is a total of 15 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gulf Coast Jaguarundi *Herpailurus (=Felis) yagouaroundi cacomitli* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3945	Endangered
Ocelot *Leopardus (=Felis) pardalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4474	Endangered
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location is outside the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
Least Tern *Sterna antillarum*	Endangered
Northern Aplomado Falcon *Falco femoralis septentrionalis*	Endangered
Piping Plover *Charadrius melodus*	Threatened
Red Knot *Calidris canutus rufa*	Threatened
Whooping Crane *Grus americana*	Endangered

Least Tern *Sterna antillarum* — Endangered

Population: interior pop.

No critical habitat has been designated for this species.

This species only needs to be considered under the following conditions:

- Wind Related Projects Within Migratory Route

Species profile: https://ecos.fws.gov/ecp/species/8505

Northern Aplomado Falcon *Falco femoralis septentrionalis* — Endangered

Population: Wherever found, except where listed as an experimental population

No critical habitat has been designated for this species.

Species profile: https://ecos.fws.gov/ecp/species/1923

Piping Plover *Charadrius melodus* — Threatened

Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.

There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/6039

Red Knot *Calidris canutus rufa* — Threatened

No critical habitat has been designated for this species.

Species profile: https://ecos.fws.gov/ecp/species/1864

Whooping Crane *Grus americana* — Endangered

Population: Wherever found, except where listed as an experimental population

There is **final** critical habitat for this species. Your location is outside the critical habitat.

Species profile: https://ecos.fws.gov/ecp/species/758

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
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Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Flowering Plants

NAME	STATUS
Slender Rush-pea *Hoffmannseggia tenella* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5298	Endangered
South Texas Ambrosia *Ambrosia cheiranthifolia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3331	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

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In Reply Refer To: December 30, 2019
Consultation Code: 02ETTX00-2020-SLI-0614
Event Code: 02ETTX00-2020-E-01249
Project Name: Coastal Texas Protection and Restoration Study - Ecosystem Restoration - W3

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

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New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

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project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

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Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical

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Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that that you implement the best management practices found at: http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at http://www.fws.gov/endangered/what-we-do/cca.html.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the goden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidlines, we recommend you review information provided at http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project

developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at http://www.aplic.org/.

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We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html.

Wetlands and Wildlife Habitat

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/.

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2020-SLI-0614

Event Code: 02ETTX00-2020-E-01249

Project Name: Coastal Texas Protection and Restoration Study - Ecosystem Restoration - W3

Project Type: LAND - RESTORATION / ENHANCEMENT

Project Description: In order to maintain the geomorphic function of the Gulf shoreline north of the Port Mansfield Channel and restore and maintain the hydrologic connection between the Laguna Madre and the Gulf, the plan would dredge 6.9 miles of the Port Mansfield Ship Channel (Measure W-3). The plan would also include a bird island restoration using the dredge material to restore 27.8 acres of an existing island. A 0.7-mile breakwater would also be placed on the island to maintain the system. The action of restoring and maintain the hydrologic connection between the Laguna Madre and the Gulf would hydrologically restore over 112,800 acres in the Lower Laguna Madre.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/26.630564338534256N97.30143192684072W

Counties: Kenedy, TX | Willacy, TX

Endangered Species Act Species

There is a total of 14 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gulf Coast Jaguarundi *Herpailurus (=Felis) yagouaroundi cacomitli* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3945	Endangered
Ocelot *Leopardus (=Felis) pardalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4474	Endangered
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location is outside the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
Least Tern *Sterna antillarum*	Endangered
Northern Aplomado Falcon *Falco femoralis septentrionalis*	Endangered
Piping Plover *Charadrius melodus*	Threatened
Red Knot *Calidris canutus rufa*	Threatened
Whooping Crane *Grus americana*	Endangered

Least Tern *Sterna antillarum*
Population: interior pop.
No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:
- Wind Related Projects Within Migratory Route

Species profile: https://ecos.fws.gov/ecp/species/8505

Northern Aplomado Falcon *Falco femoralis septentrionalis*
Population: Wherever found, except where listed as an experimental population
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1923

Piping Plover *Charadrius melodus*
Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.
There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/6039

Red Knot *Calidris canutus rufa*
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1864

Whooping Crane *Grus americana*
Population: Wherever found, except where listed as an experimental population
There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/758

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle *Dermochelys coriacea* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Flowering Plants

NAME	STATUS
Texas Ayenia *Ayenia limitaris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4942	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
Phone: (281) 286-8282 Fax: (281) 488-5882
http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: January 02, 2020
Consultation Code: 02ETTX00-2020-SLI-0664
Event Code: 02ETTX00-2020-E-01353
Project Name: Coastal Texas Protection and Restoration Study - CSRM - Bolivar Roads Surge Gate

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: http://www.fws.gov/southwest/es/TexasCoastal/Map.html. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

Section 7

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

Is 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. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf

Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

Proposed Species and/or Proposed Critical Habitat

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek conference from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

Candidate Species

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical

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If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

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Official Species List

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This species list is provided by:

Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2020-SLI-0664

Event Code: 02ETTX00-2020-E-01353

Project Name: Coastal Texas Protection and Restoration Study - CSRM - Bolivar Roads Surge Gate

Project Type: LAND - FLOODING

Project Description: From the Bolivar side to the Galveston side, the gate structure would be comprised of 16 shallow water environmental gates that have a cross sectional opening of 16- by 16-feet and a sill depth of -5-foot NAVD88; five vertical lift gates with a 300-foot-wide opening and a sill elevation of -20-foot NAVD88; three vertical lift gates with a 300-foot-wide opening and a sill elevation of -40-foot NAVD88; one small navigation sector gate with a 125-foot wide opening and a -40-foot NAVD88 sill elevation; two navigation sector gates for the Houston Ship Channel, each with a 650-foot-wide opening and a sill elevation of -60-foot NAVD88; one small navigation sector gate with a 125-foot wide opening and a -40-foot NAVD88 sill elevation; two vertical lift gates with a 300-foot-wide opening and a sill elevation of -40-foot NAVD88; and three vertical lift gates with a 300-foot-wide opening and a sill elevation of -20-foot NAVD88. A combi/floodwall would be constructed on Bolivar and would tie into the beach/dune feature. On the Galveston side there would be a control station and access road constructed on the Galveston side of the project area.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/29.36749688999474N94.75360196846925W

Counties: Galveston, TX

Endangered Species Act Species

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location is outside the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
Attwater's Greater Prairie-chicken *Tympanuchus cupido attwateri* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7259	Endangered
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle *Dermochelys coriacea* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Piping Plover *Charadrius melodus* https://ecos.fws.gov/ecp/species/6039#crithab	Final

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
Phone: (281) 286-8282 Fax: (281) 488-5882
http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: December 30, 2019
Consultation Code: 02ETTX00-2020-SLI-0615
Event Code: 02ETTX00-2020-E-01251
Project Name: Coastal Texas Protection and Restoration Study - CSRM - Bolivar Peninsula/ Galveston Beach/Dune

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: http://www.fws.gov/southwest/es/TexasCoastal/Map.html. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

Section 7

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

Is 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. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf

Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

Proposed Species and/or Proposed Critical Habitat

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek conference from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

Candidate Species

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical

assistance to help avoid or minimize adverse effects. Addressing potential impacts to these species at this stage could better provide for overall ecosystem healh in the local area and ay avert potential future listing.

Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that that you implement the best management practices found at: http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at http://www.fws.gov/endangered/what-we-do/cca.html.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the goden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidlines, we recommend you review information provided at http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project

developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at http://www.aplic.org/.

Meteorological and communication towers are estimated to kill millions of birds per year. We recommend following the guidance set forth in the Service Interim Guidelines for Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning, found online at: http://www.fws.gov/habitatconservation/communicationtowers.html, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight into the effectiveness of the minimization measures. We request the results of any wildlife mortality monitoring at towers associated with this project.

We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html.

Wetlands and Wildlife Habitat

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/.

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2020-SLI-0615

Event Code: 02ETTX00-2020-E-01251

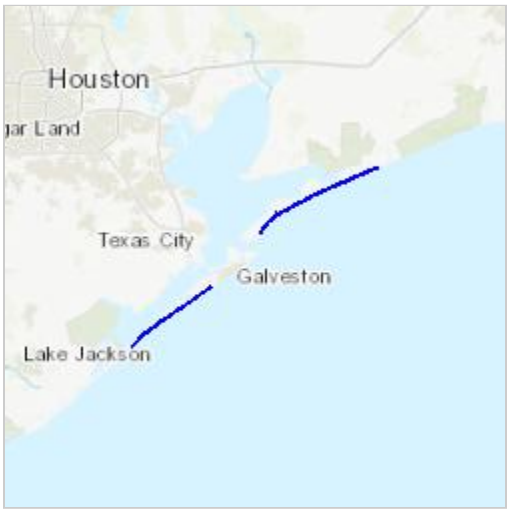
Project Name: Coastal Texas Protection and Restoration Study - CSRM - Bolivar Peninsula/ Galveston Beach/Dune

Project Type: LAND - FLOODING

Project Description: Restore approximately 26.6 miles of Gulf shoreline from High Island on Bolivar Peninsula to the Galveston East Jetty and 18.6 miles of Galveston Island shoreline west of the Galveston seawall. An initial 33 to 66 million cy of beach and dune fill for environmental restoration purposes would be placed over the area. A total of 5,057 acres would be restored, created, protected, and/or enhanced.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/29.438889350358114N94.67009833895631W



Counties: Chambers, TX | Galveston, TX

Endangered Species Act Species

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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Mammals

NAME	STATUS
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location is outside the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
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Reptiles

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Critical habitats

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United States Department of the Interior

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In Reply Refer To: January 02, 2020
Consultation Code: 02ETTX00-2020-SLI-0658
Event Code: 02ETTX00-2020-E-01338
Project Name: Coastal Texas Protection and Restoration Study-CSRM-Clear Creek, Dickinson Bayou gates, nonstructure

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

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The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the goden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidlines, we recommend you review information provided at http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project

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We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html.

Wetlands and Wildlife Habitat

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/.

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2020-SLI-0658

Event Code: 02ETTX00-2020-E-01338

Project Name: Coastal Texas Protection and Restoration Study-CSRM-Clear Creek, Dickinson Bayou gates, nonstructure

Project Type: LAND - FLOODING

Project Description: The system would include closures at Clear Creek Channel and Dickinson Bayou to address wind-driven
surges in the bay. The features at both areas consist of sector gates across the channel, associated barrier walls,
and pump stations. For planning purposes, the elevation of the walls and gates were set at an elevation of 17.0
feet. The plan would also include nonstructural measures along the west side of Galveston Bay to address residual
damages from wind-driven bay surges. As discussed above, elevation is a common approach already being
undertaken by residents and businesses in the study area. Due to the general uncertainty associated with structures'
first-floor elevations and locations in the floodplain, additional structure inventory investigations would be
undertaken to evaluate which structures are at risk if this alternative moves forward. The focus would be on the
approximately 10,000 structures between SH 146 and the bay rim.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/29.488211727000053N94.94032993993434W

Counties: Chambers, TX | Galveston, TX | Harris, TX

Endangered Species Act Species

There is a total of 11 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
West Indian Manatee *Trichechus manatus*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.
Species profile: https://ecos.fws.gov/ecp/species/4469

Birds

NAME	STATUS
Attwater's Greater Prairie-chicken *Tympanuchus cupido attwateri* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7259	Endangered
Least Tern *Sterna antillarum* Population: interior pop. No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ Wind related projects within migratory route. Species profile: https://ecos.fws.gov/ecp/species/8505	Endangered
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle *Dermochelys coriacea* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Flowering Plants

NAME	STATUS
Texas Prairie Dawn-flower *Hymenoxys texana*	Endangered

No critical habitat has been designated for this species.

Species profile: https://ecos.fws.gov/ecp/species/6471

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
Phone: (281) 286-8282 Fax: (281) 488-5882
http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: January 02, 2020
Consultation Code: 02ETTX00-2020-SLI-0662
Event Code: 02ETTX00-2020-E-01349
Project Name: Coastal Texas Protection and Restoration Study - CSRM - Galveston Ring Levee

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: http://www.fws.gov/southwest/es/TexasCoastal/Map.html. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

Section 7

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

Is 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. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf

Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

Proposed Species and/or Proposed Critical Habitat

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek conference from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

Candidate Species

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical

assistance to help avoid or minimize adverse effects. Addressing potential impacts to these species at this stage could better provide for overall ecosystem healh in the local area and ay avert potential future listing.

Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that that you implement the best management practices found at: http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at http://www.fws.gov/endangered/what-we-do/cca.html.

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If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

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Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2020-SLI-0662

Event Code: 02ETTX00-2020-E-01349

Project Name: Coastal Texas Protection and Restoration Study - CSRM - Galveston Ring Levee

Project Type: LAND - FLOODING

Project Description: This measure is referred to as the Galveston Ring Levee and is being evaluated as part of the Coastal Texas Protection and Restoration Study. It would include the construction of a flood wall that would tie into the existing seawall and would protect a large portion of Galveston Island from storm surge coming from Galveston Bay. The components of the Galveston Ring Levee have a stickup height of +14-foot NAVD88, have a foundation that includes sub piling that extends approximately 45 feet below the bottom of the footing. The uploaded shape file includes both the permanent footprint and the temporary construction ROW. The floodwall would tie into high ground near the west end of the seawall and would extend northward to cross Offatts Bayou would then run across I-45, along the northside of Galveston and would tie back into the Seawall near the ferry landing. The Offatts bayou crossing would be comprised of a combi/floodwall and a surge barrier gate system. Specifically, navigation structures would be a sector gate with a sill depth of -15 and an opening of 130 ft. The overall footprint of the gate structure on the north and south sides of the channel will be 160ft by 140ft for an overall footprint of 160ft by 410ft. The vertical lift gate that will have a sill elevation of -10 and an opening 80ft wide. The gate will have a footprint of 80ft by 140ft and vertical clearance when open of 50ft. Circulation gates are sluice gates and will be in 2 sections. Section 1 is 544ft of gates that will have a sill elevation of -5 and a gate size of 15ft by 10ft for a total of 32 gates. Section 2 is 850ft of gates that will have a sill elevation of -5 and a gate size of 15ft by 10ft for a total of 50 gates.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/29.301904664977613N94.81672071673248W

Counties: Galveston, TX

Endangered Species Act Species

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location is outside the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
Attwater's Greater Prairie-chicken *Tympanuchus cupido attwateri* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7259	Endangered
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle *Dermochelys coriacea* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
Phone: (281) 286-8282 Fax: (281) 488-5882
http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: January 02, 2020
Consultation Code: 02ETTX00-2020-SLI-0655
Event Code: 02ETTX00-2020-E-01332
Project Name: Coastal Texas Protection and Restoration Study - CSRM - South Padre Island

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: http://www.fws.gov/southwest/es/TexasCoastal/Map.html. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

Section 7

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

Is 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. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf

Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

Proposed Species and/or Proposed Critical Habitat

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek conference from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

Candidate Species

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical

assistance to help avoid or minimize adverse effects. Addressing potential impacts to these species at this stage could better provide for overall ecosystem healh in the local area and ay avert potential future listing.

Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that that you implement the best management practices found at: http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at http://www.fws.gov/endangered/what-we-do/cca.html.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the goden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidlines, we recommend you review information provided at http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project

developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at http://www.aplic.org/.

Meteorological and communication towers are estimated to kill millions of birds per year. We recommend following the guidance set forth in the Service Interim Guidelines for Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning, found online at: http://www.fws.gov/habitatconservation/communicationtowers.html, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight into the effectiveness of the minimization measures. We request the results of any wildlife mortality monitoring at towers associated with this project.

We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html.

Wetlands and Wildlife Habitat

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/.

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2020-SLI-0655

Event Code: 02ETTX00-2020-E-01332

Project Name: Coastal Texas Protection and Restoration Study - CSRM - South Padre Island

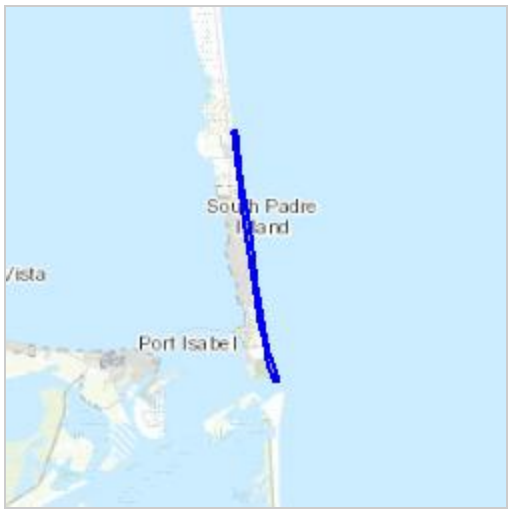
Project Type: LAND - FLOODING

Project Description: The selected plan for the South Padre Island CSRM feature consist of a beach fill template with an equilibrium dune height of 12.5 feet NAVD 88. The dune would have a width of 20 feet and berm width of 100 feet. The berm height would be 4-foot NAVD 88. It is assumed a re-nourishment for the template would be a 10-year interval. Initial construction would require an estimated 234,600 cy of sediment. Renourishment estimates are indicated in Table 6-10. A hopper dredge and gravity pipe will dredge and redirect the sediment from the Brownsville jetties to the shoreline. Once placed, the sediment will be shaped to the template utilizing earth moving equipment such as bulldozers and graders.

Table 6 10. Renourishment Estimates
Cycle Year Quantity (cy)
First Cycle 10 436,400
Second Cycle 20 801,200
Third Cycle 30 1,099,400
Fourth Cycle 40 1,240,400
Total 3,812,000

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/26.112204591500046N97.1636029759265W



Counties: Cameron, TX

Endangered Species Act Species

There is a total of 14 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gulf Coast Jaguarundi *Herpailurus (=Felis) yagouaroundi cacomitli* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3945	Endangered
Ocelot *Leopardus (=Felis) pardalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4474	Endangered
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location is outside the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
Least Tern *Sterna antillarum*	Endangered
Population: interior pop. No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ Wind Related Projects Within Migratory Route Species profile: https://ecos.fws.gov/ecp/species/8505	
Northern Aplomado Falcon *Falco femoralis septentrionalis*	Endangered
Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1923	
Piping Plover *Charadrius melodus*	Threatened
Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	
Red Knot *Calidris canutus rufa*	Threatened
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: North Atlantic DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle *Eretmochelys imbricata* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle *Lepidochelys kempii* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle *Dermochelys coriacea* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle *Caretta caretta* Population: Northwest Atlantic Ocean DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Flowering Plants

NAME	STATUS
South Texas Ambrosia *Ambrosia cheiranthifolia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3331	Endangered
Texas Ayenia *Ayenia limitaris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4942	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Piping Plover *Charadrius melodus* https://ecos.fws.gov/ecp/species/6039#crithab	Final