In Reply Refer To:

LA TIG Restoration Plan #8

July 7, 2022

Memorandum

To: Chief, Planning and Consultation Branch, Gulf Restoration Office, Fairhope, AL

From: Acting Field Supervisor, Louisiana Ecological Services Office, Lafayette, LA

BRIGETTE FIRMIN

Digitally signed by BRIGETTE FIRMIN
Date: 2022.07.07 11:34:39 -05'00'

Subject: Informal Consultation for the Proposed Louisiana TIG Restoration #8 (Bayou Dularge Ridge and Marsh Restoration; Bayou La Loutre Ridge Restoration and Marsh Creation), Terrebonne and St. Bernard Parishes, Louisiana

This memorandum acknowledges our receipt of your memorandum on April 21, 2022. This response is in accordance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (ESA). We have reviewed your proposed project(s) and concur with your April 21, 2022 determinations for endangered and threatened species, their critical habitat, and at-risk species (should they become listed). We based our concurrence on the justification below. Where more than one justification was applicable, multiple boxes are checked and additional comments are added.

☐ Species-specific surveys were conducted and there are no endangered, threatened, or at-risk species or designated critical habitat on site. Comments:

_____

_____

_____

☐ Endangered, threatened, and at-risk species are not known from and are not expected to occur within the vicinity of the proposed project. Comments:

_____

_____

_____

☑ Appropriate avoidance and minimization measures have been included within the project description to ensure that any effects to listed species (or at-risk species should they become listed) are insignificant or discountable. Comments:

_____

_____

_____

☐ Critical habitat is not present on site and does not occur within the vicinity of the proposed project. Comments:

_____

☐ Appropriate avoidance and minimization measures have been included within the project description to ensure PCEs and/or critical habitat will not be adversely modified or destroyed. Comments:

_____

_____

_____

☐ The proposed project is completely beneficial to the listed or at-risk species and/or critical habitat considered. Comments:

_____

_____

_____

Unless the project description changes, or new information reveals that the effects of the proposed action may affect listed species in a manner or to an extent not considered, or a new species or critical habitat is designated that may be affected by the proposed action, no further action pursuant to the ESA is necessary.

If you have questions, please contact Amy Trahan at 337-291-3126 or email amy_trahan@fws.gov.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Deepwater Horizon Gulf Restoration Office
341 Greeno Road North, Suite A
Fairhope, Alabama 36532

In Reply Refer To:
FWS/R4/DH NRDAR

Memorandum April 21, 2022

To: Field Supervisor, Ecological Services Office, Lafayette, LA

From: Assistant Restoration Manager, Deepwater Horizon Gulf Restoration Office

Subject: Informal Consultation Request for Implementation of Two Restoration Projects proposed in the Louisiana Trustee Implementation Group's Restoration Plan #8: Wetlands, Coastal, and Nearshore

After the Deepwater Horizon (DWH) oil spill, federal and state natural resource trustee agencies (Trustees) came together to assess the effects of the spill and plan for the restoration of injured natural resources. As part of the legal settlement reached with BP in 2016, the Trustees prepared a Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Statement (Final PDARP/PEIS), to provide the framework for DWH oil spill restoration across the Gulf. The Final PDARP/PEIS established Trustee Implementation Groups (TIGs) that develop specific plans for, developing, selecting, and implementing specific restoration actions under the Final PDARP/PEIS.

The Louisiana TIG (LA TIG) has developed the *Draft Restoration Plan and Environmental Assessment #8: Wetlands, Coastal, and Nearshore*, which closed for public comment on April 18, 2022. The restoration plan contains four proposed projects. The LA TIG consists of five Louisiana state trustee agencies and four federal trustee agencies: the Louisiana Coastal Protection and Restoration Authority; the Louisiana Department of Natural Resources; the Louisiana Department of Environmental Quality; the Louisiana Oil Spill Coordinator's Office; the Louisiana Department of Wildlife and Fisheries; the United States Department of Commerce, represented by the National Oceanic and Atmospheric Administration; the United States Department of the Interior, represented by the United States Fish and Wildlife Service and National Park Service; the United States Department of Agriculture; and the United States Environmental Protection Agency. Numerous projects in this plan are being evaluated as potential restoration projects to restore natural resources along the Gulf Coast that were injured as a result of the spill. We have reviewed these projects in accordance with Section 7 of the Endangered Species Act (ESA) of 1973 as amended (16 U.S.S 1531-1544) and have made a May Affect, Not Likely to Adversely Affect determination for two of the four projects. The other two projects will not impact any protected species except as described below. A brief description of the two projects and species determinations are provided in Tables 1 and 2 below for your information. Project specific descriptions are contained in the attached Biological

Evaluations (BE). This memo requests your concurrence with our determinations for the two proposed projects.

Within the BE form, we have reviewed the proposed projects for impacts to bald eagles (*Haliaeetus leucocephalus*) in accordance with the Bald and Golden Eagle Protection Act of 1940 as amended (16 U.S.C. 668-668c) and determined that there are no eagles within the project area and therefore will have No Effect. We have also reviewed the proposed project impacts to migratory birds in accordance with the Migratory Bird Treaty Act of 1918 as amended (16 U.S.C. 703-712) and we determined that take would be avoided.

To facilitate your response, should you concur with our determination, we have attached a template response letter. If you have questions or concerns regarding this request, please contact Michael Barron, Fish and Wildlife Biologist, at 251-421-7030 or michael_barron@fws.gov.

Attachments (3)

- BE form including project maps (2)
- Template response letter

Table 1. Brief descriptions of two proposed projects in LA TIG RP/EA #8.

Proposed Project	Brief Description
Bayou Dularge Ridge and Marsh Restoration	Lake Mechant sediments would be hydraulically dredged and pumped via pipeline to create/nourish approximately 400 - 500 acres of marsh. The proposed design is to place the dredged material to a fill height conducive with marsh creation, approximately +1.3-ft. to +1.5-ft. in elevation, with a 20-year project lifespan. After dewatering and compaction of dredged sediments to the designed elevation, intertidal emergent wetlands would establish. The project includes perimeter containment dikes built with in-situ material to contain the hydraulically dredged sediment. Containment would not be constructed in areas where spoil banks currently exist or along the ridge alignment. This project would also create a ridge feature over a 27.6 acre footprint in three segments (19,860 – 17,200 linear feet). Of the 27.6 acre footprint, 21.3 acres are below mean high water (MHW). The remaining 6.3 acres are above MHW. The table below shows the ridge restoration calculations. The existing 21.3 acres of ridge below MHW will be converted to an approximate above tidal elevation of +5.0- +6.0 ft. The tidal range 0.94 MHW and -0.03 mean low water (MLW). The current proposal is to restore the ridge using material excavated from south of the existing ridge and from Bayou Dularge. Herbaceous plantings (e.g., Seashore paspalum) may occur immediately after construction. Appropriate bottomland hardwood species (seedlings and saplings) would be planted approximately two years after material deposition is complete.
Bayou La Loutre Ridge Restoration and Marsh Creation	The proposed project would create approximately 5.46 miles (28,855 ft.) of ridge along Bayou La Loutre and 19.4 acres of Live Oak /Hackberry Maritime forest habitat. The ridge habitat would be built by bucket dredging Bayou La Loutre down to elevation -10-ft. NAVD88 with a side slope of 3:1 (H:V). Material would be placed on the existing remnant of the ridge at a ground elevation ranging from 0.8 to 1.8-ft., while a marsh buggy grades the ridge to the design cross section. The structure would have a +5-ft. NAVD88 elevation, 15-ft. crest width and 5:1 (H:V) side slopes. Additionally, the newly created ridge would include herbaceous and woody plantings with smooth cord plantings along the toe. The Lena Lagoon site would create and nourish approximately 421 acres of marsh using

	sediment hydraulically dredged from Lake Borgne down to bottom elevation -10 to -20-ft. NAVD88. Lena Lagoon would have a semi-confined south and east flank and a fully confined north flank. Containment would be degraded as necessary to re-establish hydrologic connectivity with adjacent wetlands. The project would result in approximately 163 acres of created marsh, 258 acres of nourished marsh, and approximately 31.7 acres of forested ridge.

Table 2. Summary of ESA determinations for two proposed projects in LA TIG RP/EA #8.
(NE = No Effect, NLAA = May Affect, Not Likely to Adversely Affect)

ESA Species Under USFWS Jurisdiction	**Status**	**Bayou Dularge Ridge and Marsh Restoration**	**Bayou La Loutre Ridge Restoration and Marsh Creation**
Eastern Black Rail (*Laterallus jamaicensis* jamaicensis)	Threatened	NLAA	NLAA
West Indian Manatee (*Trichechus manatus*)	Threatened	NLAA	NLAA
Monarch Butterfly (*Danaus plexippus*)	Candidate	NLAA	NLAA
Gulf Sturgeon (*Acipenser oxyrinchus (=oxyrhynchus) desotoi*)	Threatened	--	NLAA

Biological Evaluation Form

Deepwater Horizon Oil Spill Restoration

U.S. Fish and Wildlife Service & National Marine Fisheries Service

This form will be filled out by the Implementing Trustee and used by the regulatory agencies. The form will provide information to initiate informal Section 7 consultations under the Endangered Species Act (ESA) and may be used to document a No Effect determination or to initiate pre-consultation technical assistance.

It is recommended that this form also be completed to inform and evaluate additional needs for compliance with the following authorities: Migratory Bird Treaty Act (MBTA), Marine Mammal Protection Act (MMPA), Coastal Barrier
Resources Act (CBRA), Bald and Golden Eagle Protection Act (BGEPA) and Section 106 of the National Historic Preservation Act (NHPA).

Further information may be required beyond what is captured on this form. Note: if you need additional space for writing, please attach pages as needed.

For assistance, please contact the compliance liaisons
USFWS: Michael Barron at michael_barron@fws.gov
NMFS: Christy Fellas at christina.fellas@noaa.gov

A. Project Identification

Federal Action Agency(one or more):USFWS ☒ NOAA ☒ EPA ☐ USDA

Implementing Trustee(s): CPRA

Contact Name: Caitlin Glymph Phone: 225-342-4594 Email: Caitlin.Glymph@la.gov

Project Name: Bayou Dularge Ridge and Marsh Restoration

DIVER ID# Click to enter text TIG: Louisiana TIG Restoration Plan # 8

B. Project Phase and Supporting Documentation

Please choose the box which best describes the project status, as proposed in this BE form:

Planning/Conceptual ☐ Construction/Implementation ☒ Engineering & Design ☐

If "Engineering & Design" was selected, please describe the level of design that has been completed and is available for review:
N/A

Supporting Documentation

Please attach any maps, aerial photographs, or design drawings that will support the information in this BE form. Examples of such supporting documentation include, but are not limited to:

- Plan view of design drawings
- Aerial images of project action area and surrounding area
- Map of project area with elements proposed (polygons showing proposed construction elements)
- Map of action area with critical habitat units or sensitive habitats overlayed

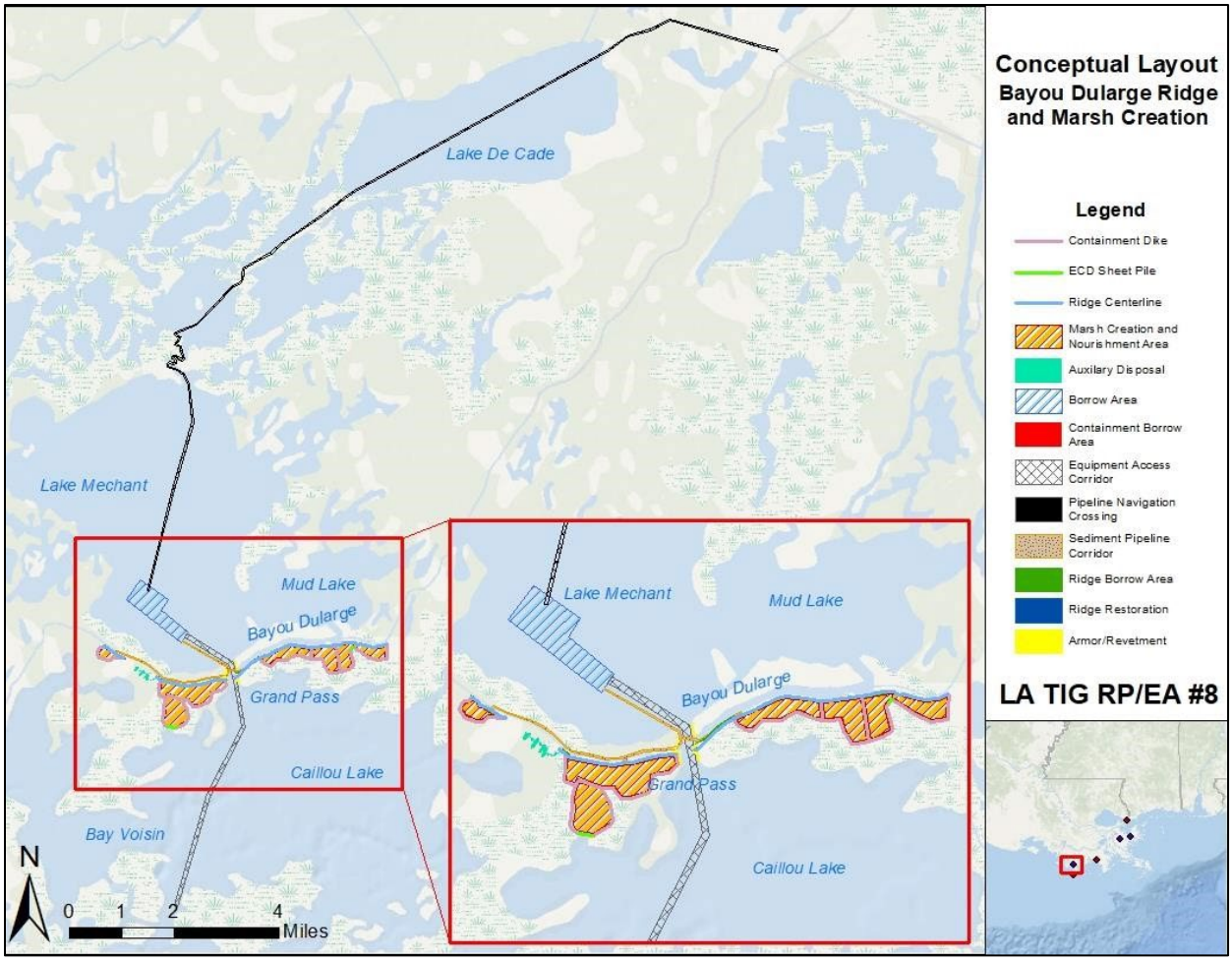
C. Project Location

I. State and County/Parish of action area State of Louisiana, Terrebonne Parish.

II. Latitude/Longitude for action area (Decimal degrees and datum [e.g., 27.71622°N, 80.25174°W NAD83)

[online conversion: https://www.fcc.gov/encyclopedia/degrees-minutes-seconds-tofrom-decimal-degrees]

29.264793°N, 90.935788°W NAD83



D. Existing Compliance Documentation

NEPA Documents

Are there any existing draft or final NEPA analyses (not PDARP/PEIS) that cover all or part of this project?

YES☒ NO☐

Examples:

-TIG Restoration Plan/EA or EIS (draft or final)

-USACE programmatic NEPA analysis

-USACE Clean Water Act individual permit for the project

-NEPA analysis provided by a federal agency that gave approval, funding or authorization

Permits

Have any federal permits been obtained for this project, if so which ones and what is the permit number(s)?

YES☐ NO☒ Permit Number and Type: Click or tap here to enter text

Have any federal permits been applied for but not yet obtained, if so which ones and what is the permit number(s)?

YES☐ NO☒ Permit Number and Type: Click or tap here to enter text.

If yes to any question above, please provide details in the text box (i.e. link to the NEPA document, or name of the document, year, lead federal agency, POC, copy of the permit or permit application, etc.). This is needed to check for consistency of the project scope across different sources and to facilitate the NEPA analysis. If you do not have a link, email the documents to the TIG representative for the Trustee designated as lead federal agency for the restoration plan.

LA TIG Draft RPEA8 available for review on Sharepoint and includes the NEPA analysis. Draft EA prepared under RESTORE

Any documentation or information provided will be very helpful in moving your project forward.

Name of Person Completing this Form: Mindy Joiner
Name of Project Lead: Todd Baker
Date Form Completed: 9/22/2021
Date Form Updated: 3/29/22

E. Description of Action Area

Provide a description of the existing environment (e.g., topography, vegetation type, soil type, substrate type, water quality, water depth, tidal/riverine/estuarine, hydrology and drainage patterns, current flow and direction), and land uses (e.g., public, residential, commercial, industrial, agricultural). Describe all areas that may be directly or indirectly affected by the action.
If CH is not designated in the area, then describe any suitable habitat in the area

a. Waterbody

If applicable. Name the body of water, including wetlands (freshwater or estuarine), on which the project is located. If applicable, please describe water quality, depth, hydrology, current flow, and direction of flow.

The project Area is located within the Terrebonne basin within two Terrebonne Parish Environmental Management Units (EMU). The borrow area is located within the Mechant/Decade EMU, and the marsh creation and nourishment area is within the Caillou Marsh EMU.

Terrebonne Parish is generally poorly drained. The channels of many of the streams, bayous, and canals are at or near sea level and gradients are too low to remove water

effectively. The lower Atchafalaya River, the largest input of freshwater, flows along the western border of the parish. It brings sediment and freshwater from the Mississippi and Red River into the western part of the Parish and farther east via the Gulf Intracoastal Waterway (GIWW) (Terrebonne, 2000).

The Bayou Dularge project area consists of saline marsh south of Bayou Dularge and brackish marsh to the north of Bayou Dularge. The area is irregularly tidally flooded and is dominated by salt-tolerant vegetation. Brackish marsh salinity levels typically average about 8 parts per thousand, and saline marsh salinity levels typically averaging above 20 parts per thousand, but fluctuations are inevitable due to shifts in tidal inundation (Sigma, 2021).

Louisiana Department of Environmental Quality (LDEQ) monitors surface water and groundwater water quality. Surface water management seeks to protect the quality of all waters throughout the state, including rivers, streams, bayous, lakes, reservoirs, wetlands, estuaries, and many other types of surface water. LDEQ issues a biennial integrated report of the status of Louisiana waters. LDEQ defines eight designated uses for surface waters: primary contact recreation (swimming), secondary contact recreation (boating), fish and wildlife propagation, drinking water supply, shellfish propagation, agriculture, outstanding natural resource waters, and limited aquatic and wildlife use (LDEQ, 2021). Each water body is evaluated as fully supporting, partially supporting, or not supporting of each of its designated use(s). The state reports water quality assessments by subsegments of each basin. The project site is within Subsegment LA120703_00 Bayou Dularge from 0.5 mile north of St. Andrews Mission to Caillou Bay and is defined as estuarine. The 2020 Louisiana Water Quality Inventory Integrated Report indicates the subsegment fully supports the designated use of swimming, boating, and oyster propagation, but does not support fish and wildlife propagation (LDEQ, 2021).

Does the project area include a river or estuary?

YES☒ NO☐

If yes, please approximate the navigable distance from the project location to the marine environment.

The project would be constructed in water located within the Terrebonne Basin, specifically in the Central Terrebonne marshes near Grand Pass and between Bayou Dularge and Caillou Lake. The project is located approximately 6.5 miles from the Gulf of Mexico.

b. Existing Structures

If applicable. Describe the current and historical structures found in the action area (e.g., buildings, parking lots, docks, seawalls, groynes, jetties, marina). If known, please provide the years of construction.

There is limited infrastructure located throughout the coastal areas of Bayou Dularge. The project area is accessible by boat. Some recreational camps are located near the project area. The project would occur in open water and fragmented marsh habitat.

c. Seagrasses & Other Marine Vegetation

If applicable. Describe seagrasses found in action area. If a benthic survey was done, provide the date it was completed and a copy of the report. Estimate the species area of coverage and density. Attach a separate map showing the location of the seagrasses in the action area.

The presence or absence of SAV has not been confirmed with a survey. There may be SAV present in the shallow ponds of the project area.

d. Mangroves

If applicable. Describe the mangroves found in action area. Indicate the species found (red, black, white), the species area of coverage in square footage and linear footage along project shoreline. Attach a separate map showing the location of the mangroves in the action area.

Black mangrove (*Avicennia germinans*) has not been documented in the project area however, it has been documented in very limited quantities in the vicinity of the project. No other species of mangrove has been documented in the vicinity of the project.

e. Corals

If applicable. Describe the corals found in action area. If a benthic survey was done, provide the date it was completed and a copy of the report. Estimate the species area of coverage and density. Attach a separate map showing the location of the corals in the action area. Click here to enter text.

N/A

f. Uplands

If applicable. Describe the current terrestrial habitat in which the project is located (e.g. pasture, forest, meadows, beach and dune habitats, etc.).

The project area is regularly flooded and dominated by salt tolerant marsh vegetation. Upland vegetation is limited. Some live oaks are found along old natural levees (Omernik et al., 2008).

g. Marine Mammals

Please select the following marine mammals that could be present within the project area:

Dolphins	YES☒ NO☐
Whales	YES☐ NO☒
Manatees	YES☒ NO☐

If applicable. Indicate and describe the species found in the action area. Use NMFS' Stock Assessment Reports (SARs) for more information, see http://www.nmfs.noaa.gov/pr/sars/region.htm

West Indian manatee (*Trichechus manatus*) are found in open marine waters, bays, and rivers with submerged aquatic beds or floating vegetation but are not commonly found in

Louisiana and therefore it is considered unlikely that they would occur within the project area. Manatees occasionally visit the Pearl, Mermentau, Calcasieu, and Sabine Rivers and waterways of the Pontchartrain and Barataria basins, which are outside of the project vicinity.

The Terrebonne-Timbalier Bay Estuarine System stock of common bottlenose dolphin (*Tursiops truncatus)* could be present in the project area.

h. Soils and Sediments

If applicable. Indicate topography, soil type, substrate type.

The project area is underlain by marsh deposits from the Holocene Age, consisting of very soft to soft clay with varying silt and sand contents. Underlying the layer of Holocene clay is a layer of Pleistocene clay and sandy clay deposits (Weindorf, 2008). The surface geology in this area generally consists of saline marsh and natural levee deposits of the Lafourche Lobe of the Mississippi River delta. This course of the river was abandoned between 1,000 and 3,000 years ago. As a result, some abandoned distributary deposits were encountered below the surficial geologic deposits. The Lafourche Lobe of the river is situated in the Maringouin Delta Complex, a region characterized by regional growth faulting, with faults dipping toward and into the Gulf of Mexico. These growth faults range in depth and in magnitude (Eustis, 2020).

According to Eustis' Geotechnical Data Collection Report, the near surface soils in the marsh fill areas consist of extremely soft to soft dark gray, gray and brown humus, and peat and organic clay within depths of 0 to 4ft. below the mudline. These organic clays are underlain by extremely soft to soft gray clay and silty clay with interbedded strata of very loose to loose gray silty sand, clayey sand, and fine sand, and very loose to loose sandy silt and clayey silt to boring termination depths of 40-ft. below the mudline. These soil types were found throughout the project area and are generally fluid organic soils typically found in poorly drained and ponded areas. These soils support native vegetation and are considered well suited for wildlife habitat (Eustis, 2020).

Within the ridge restoration areas, near surface soils consist of extremely soft to medium stiff tan, gray, and dark gray clay, silty clay, and sandy clay with interbedded loose to medium dense gray fine sand and silty sand, to boring termination depths of 50-ft. below the mudline. The thickness of sands ranged from 1 to 5-ft. The Grand Pass soil borings indicated that soils in the area consist of very soft to soft brown and gray clays, silty clays, and sandy clays that extend approximately 10 to 15-ft. below the mudline. Below these materials, soft to stiff clay and silty clay is encountered to the terminal depths of 120-ft. below the mudline (Eustis, 2020).

i. Land Use

If applicable. Indicate existing or previous land use activities (agriculture, dredge disposal, etc).

The project occurs in an undeveloped area and is within the Louisiana Coastal Zone established by the State and Local Coastal Resources Management Act of 1978. The Terrebonne Parish CZM Program divided the parish into 13 EMUs (Terrebonne, 2000). The project is in the Mechant/Decade and the Caillou Marsh EMU's. Some of the goals for managing the coastal resources in these EMU's that align with the goals of this project include establishing and protecting ridge functions, sustaining wetlands, and shoreline protection and bank stabilization (Terrebonne, 2000). The project area, including its surroundings, is a popular destination for boating, birdwatching, fishing, hunting, and other recreational activities.

j. Essential Fish Habitat

If applicable. Describe any designated Essential Fish Habitat within the project area

The project is in an area designated as essential fish habitat (EFH) for various life stages of federally managed species of shrimp, fish, and sharks. The project area is located within the estuarine habitat zone of Gulf EFH ecoregion 4, and contains multiple categories of EFH that would be impacted by project implementation including emergent marshes, submerged aquatic vegetation, oyster reefs/hard substrate, sand/shell bottoms, mud/soft bottoms, and water column. In addition to being designated as EFH, estuarine wetlands and water bottoms in the project area provide nursery and foraging habitats for a variety of economically important marine fishery species, many of which serve as prey for other federally managed species. Wetlands in the project area also produce nutrients and detritus, important components of the aquatic food web, which contributes to the overall productivity of the coastal estuary.

The project activities would result in both short term negative and long term positive impacts to EFH in the project area. Negative impacts involve construction activities, including bucket dredging in Bayou Dularge and placement of material for the creation of the ridge feature, bucket dredging and placement of materials for the creation of containment dikes for the marsh restoration cells, access dredging and hydraulic dredging in Lake Mechant, and placement of fill material in the marsh restoration cells. Positive impacts include the nourishment and creation of estuarine wetland habitat once the fill material has settled to elevations conducive for marsh vegetation, and after the containment has been gapped to restore tidal connectivity and fishery access. Negative effects to EFH will be minor and temporary, except for the conversion of wetland habitat to non-tidal elevations in the footprint of the ridge feature which would be considered minor and long term. Overall the project is restorative in nature with positive benefits offsetting negative impacts, and it has been designed to minimize short term negative impacts to EFH and maximize long term positive impacts to EFH.

F. Project Description

I. *Describe the Proposed Action/Project Objectives: What are you trying to accomplish and how with this project? Describe in detail the construction equipment and methods** needed; long term vs. short term impacts; duration of short term impacts; dust, erosion, and sedimentation controls; restoration areas; if the project is growth-inducing or facilitates growth; whether the project is part of a larger project or plan; and what permits will need to be obtained.*

Attach a separate map showing project footprint, avoidance areas, construction accesses, staging/laydown areas.

***If construction involves overwater structures, pilings and sheetpiles, boat slips, boat ramps, shoreline armoring, dredging, blasting, artificial reefs or fishery activities, list the method here, but complete the next section(s) in detail.*

Lake Mechant sediments would be hydraulically dredged and pumped via pipeline to create/nourish approximately 400 - 500 acres of marsh. The proposed design is to place the dredged material to a fill height conducive with marsh creation, approximately +1.3-ft. to +1.5-ft. in elevation, with a 20-year project lifespan. After dewatering and compaction of dredged sediments to the designed elevation, intertidal emergent wetlands would establish. The project includes perimeter containment dikes built with in-situ material to contain the hydraulically dredged sediment. Containment would not be constructed in areas where spoil banks currently exist or along the ridge alignment.

This project would also create a ridge feature over a 27.6 acre footprint in three segments (19,860 – 17,200 linear feet). Of the 27.6 acre footprint, 21.3 acres are below mean high water (MHW). The remaining 6.3 acres are above MHW. The table below shows the ridge restoration calculations. The existing 21.3 acres of ridge below MHW will be converted to an approximate above tidal elevation of +5.0- +6.0 ft. The tidal range 0.94 MHW and 0.03 mean low water (MLW).

Segment	Restoration Footprint (Acres)	Existing Ridge below MHW (Acres)	Existing Ridge above MHW (Acres)
1	7.0	2.4	4.6
2	18.5	18.5	0.0
3	2.1	0.4	1.7
Total	27.6	21.3	6.3

The current proposal is to restore the ridge using material excavated from south of the existing ridge and from Bayou Dularge. Herbaceous plantings (e.g., *Seashore paspalum*) may occur immediately after construction. Appropriate bottomland hardwood species (seedlings and saplings) would be planted approximately two years after material deposition is complete. Invasive plant control and maintenance plantings would be included in the project MAM Plan.

Implementation of this project would create and restore marsh habitat that were impacted by the DWH oil spill. This project would also benefit multiple other resources impacted by the oil spill (e.g., birds, protected species, water quality, recreational use, etc.). This project would help ensure that ecosystem benefits would continue to be provided to the diverse habitats of coastal Louisiana well into the future.

The short term impacts due to construction activities over the 18-month construction period would be outweighed by long term benefits of marsh creation in the project area. A detailed review of long and short term impacts and their duration can be found in the Draft LA RPEA #8 document. This project is part of a larger plan. In addition to being included in the LA RPEA #8, this project is included in the Louisiana 2017 Coastal Master Plan, a comprehensive list of projects that have been prioritized by the CPRA to build or maintain land and reduce risk to communities. The necessary permits and compliance for this project include the following:

- ESA Section 7 (NMFS)
- ESA Section 7 (USFWS)
- Essential Fish Habitat (NMFS)
- Marine Mammal Protection Act (NMFS)
- Marine Mammal Protection Act (USFWS)
- Rivers and Harbors Act/ Clean Water Act (Section 10, USACE)
- Section 106 of the National Historic Preservation Act
- Coastal Zone Management Act
- Migratory Bird Treaty Act (USFWS)
- Coastal Barrier Resources Act (USFWS)

II. *Construction Schedule (What is the anticipated schedule for major phases of work? Include duration of in-water work.)*

The estimated construction timeframe of the project is approximately nineteen months, all of which would include in-water work.

III. *Specific In-Water and/or Terrestrial Construction Methods*

Please check yes or no for the following questions related to in-water work and overwater structures

Does this project include in-water work?	YES☒	NO☐
Does this project include terrestrial construction?	YES☐	NO☒
Does this project include construction of an overwater structure?	YES☐	NO☒
Will fishing be allowed from this overwater structure? ***N/A***	YES☐	NO☐
Will wildlife observation be allowed from this overwater structure? ***N/A***	YES☐	NO☐
Will boat docking be allowed from this overwater structure? ***N/A***	YES☐	NO☐
Will fishing be allowed from this overwater structure? ***N/A***	YES☐	NO☐

If this is a fishing pier, please provide the following information: public or private access to pier, estimated number of people fishing per day, plan to address hook and line captures of protected species, specific operating hours/open 24 hours, artificial lighting of pier (if any), number of fish cleaning stations, and number of pier attendants (if any).

N/A The project does not propose a fishing pier.

Construction: Provide a detailed account of construction methods. It is important to include step-by-step descriptions of how demolition or removal of structures is conducted and if any debris will be moved and how. Describe how construction will be implemented, what type and size of materials will be used and if machines will be used, manual labor, or both. Indicate if work will be done from upland, barge, or both.)

iii. *Use of "Dock Construction Guidelines"?*
http://sero.nmfs.noaa.gov/protected_resources/section_7/guidance_docs/documents/dockkey2002.pdf iv. *Type of decking: Grated – 43% open space; Wooden planks or composite planks – proposed spacing?* v. *Height above Mean High Water (MHW) elevation?*
vi. *Directional orientation of main axis of dock?*
vii. *Overwater area (sq ft)?*

Construction of this project would require hydraulic placement of marsh fill material. A cutterhead suction dredge would be used for the marsh fill component. It is not likely (but possible) that a contractor would elect to install a booster pump, because the maximum pumping distance is approximately 3.5 miles. However, this would depend on a contractor's proposed dredge size and horsepower. Marsh fill material would be pumped hydraulically to the project area via a submerged or floating pipeline. If used, the floating pipeline would be limited to use only in the borrow area to allow the dredge to traverse the borrow area. Construction of the marsh fill areas would require the use of heavy machinery to manage the hydraulic pipeline and construct containment dikes. The project area is located on the south side of Bayou Dularge near Grand Pass and can only be accessed via boat; thus work would be done from barges.

Marsh buggies would likely be used to construct the ridge and containment dikes as depths in the marsh fill area appear to be too shallow for use of a bucket or clamshell dredge. The containment dike fill sources would be excavated from the designated areas adjacent to the containment dikes, within the marsh creation/fill areas. Ridge fill sources would be excavated from designated areas inside the marsh creation area and from Bayou Dularge. One of the ridge segments would require the use of a sheet pile wall.

It is expected that the sheetpile wall would be installed using vibratory hammers attached to a long reach marsh buggy, but field conditions could require isolated areas where traditional pile driving. If this occurs, the number of blows would be minimal. Duration of pile driving activities can vary widely based on a number of site-specific variables, though it is likely, given a standard rate of 60 feet per day for large impact pile drivers, that approximately 51 to 60 sheet piles could be driven within an assumed 480 minute workday of hammer operation. At this rate, sheet pile installation for the bulkhead would take approximately 10 to 11 days of sequential

pile driving activity. The number of strikes per pile varies widely (up to an order of magnitude) based on a number environmental variables, and particularly, the type of impact hammer being used. A hammer with a standard energy rating of 52,000 ft-lbs. on a silt/mud substrate type would produce approximately 200 strikes per sheet pile. Despite a wide variance in the number of strikes possible from impact pile hammers, it is expected that an average of 6-7 piles would be installed per hour of workday.

Water control structures would be required to allow excess water to drain from the fill areas.

b. *Pilings & Sheetpiles: If this project includes installation of pilings or sheets, please provide answers to questions 1-11 listed below*

1. Method of pile installation	Vibratory hammers or pile driven
2. Material type of piles used	Steel sheet piles
3. Size (width) of piles/sheets	30 ft long AZ sheet piles
4. Total number of piles/sheets	approximately 545 sheets (1,000 ft of sheet pile)
5. Number of strikes for each single pile	up to 200
6. Number of strikes per hour (for a single pile)	NA; vibratory hammer1,275 – 1,500
7. Expected number of piles to be driven each day	51 - 60
8. Expected amount of time needed to drive each pile (minutes of driving activities)	8 – 9.4 minutes
9. Expected number of sequential days spent pile driving	10 - 11
10. Whether pile driving occurring in-water or on land	In water
11. Depth of water where piles will be driven	Varies, approximately 4 ft of water at MHW.

c. *Marinas and Boat Slips (Describe the number and size of slips and if the number of new slips changes from what is currently available at the project. Indicate how many are wet slips and how many are dry slips. Estimate the shadow effect of the boats - the area (sqft) beneath the boats that will be shaded.)*

N/A. The project does not propose a marina or boat slip.

d. *Boat Ramp (Describe the number and size of boat ramps, the number of vessels that can be moored at the site (e.g., staging area) and if this is a public or private ramp. Indicate the boat trailer parking lot capacity, and if this number changes from what is currently available at the project.)*

N/A. The project does not propose a boat ramp.

e. *Shoreline Armoring (This includes all manner of shoreline armoring (e.g., riprap, seawalls, jetties, groins, breakwaters, etc.). Provide specific information on material and construction methodology used to install the*

shoreline armoring materials. Include linear footage and square footage. Attach a separate map showing the location of the shoreline armoring in the action area.

N/A. The project does not propose shoreline armoring.

f. *Dredging or digging (Provide details about dredge type (hopper, cutterhead, clamshell, etc.), maximum depth of dredging, area (ft2) to be dredged, volume of material (yd3) to be produced, grain size of material, sediment testing for contamination, spoil disposition plans, and hydrodynamic description (average current speed/direction)). If digging in the terrestrial environment, please describe fully with details about possible water jetting, vibration methods to install pilings for dune walk-over structure, or other methods. If using devices/methods/turtle relocation dredging to relocate sea turtles, then describe the methods here.*

Lake Mechant sediments would be hydraulically dredged and pumped via pipeline to create/nourish approximately –400 - 500 acres of marsh. A cutterhead suction dredge would be used for the marsh fill component. The maximum dredging depth of equipment would be -28-ft. NAVD88 with a typical dredge cut to 25-ft. NAVD88. The borrow area encompasses 238 acres. The design marsh creation fill cells would require hydraulic dredging of approximately 2,200,000to 2,500,000 cubic yards of marsh compatible sediments from Lake Mechant. Sediments in the project area are described in Section H.

g. *Blasting (Projects that use blasting might not qualify as "minor projects," and a Biological Assessment (BA) may need to be prepared for the project. Arrange a technical consultation meeting with NMFS Protected Resources Division to determine if a BA is necessary. Please include explosive weights and blasting plan.)*

N/A. The project does not propose blasting.

h. *Artificial Reefs (Provide a detailed account of the artificial reef site selection and reef establishment decisions [i.e., management and siting considerations, stakeholder considerations, environmental considerations, long term maintenance plan (periodic clean-up of lost fishing gear/debris]), deployment schedule, materials used, deployment methods, as well as final depth profile and overhead clearance for vessel traffic. For additional Information and detailed guidance on artificial reefs, please refer to the artificial reef program websites for the particular state the project will occur in.*

N/A. The project does not propose artificial reefs.

i. *Fishery Activities (Describe any use of gear that could entangle or capture protected species. This includes activities that may enhance fishing opportunities (e.g. fishing piers) or be fishery/gear research related (e.g. involve trawl gear, gillnets, hook and line gear, crab pots etc)).*

The project does not propose activities that could result in gear entanglement of protected species.

G. NOAA Species & Critical Habitat and Effects Determination Requested

If your project occurs in a location that does not contain any listed NOAA species or designated Critical Habitats, please check the box below. If this box is checked, you may skip Section G. and proceed to Section H.

☐This project occurs in a location that does not contain any listed NOAA species or designated Critical Habitats.

☐ESA effects have been accounted for under an existing consultation.

1. List all species, critical habitat, proposed species and proposed critical habitat that may be found in the action area. Species that do not currently occur in the action area (but are listed on county species lists) do not need to be listed in drop downs.

2. Attach a separate map identifying species/critical habitat locations within the action area. For information on species and critical habitat under NMFS jurisdiction, visit: http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/Documents/gulf_of_mexico.pdf.

Identify if Gulf sturgeon are in marine or in freshwater in your Species and/or Critical Habitat list to determine which federal agency will perform the analysis (e.g. Gulf sturgeon CH - marine). Identify if sea turtles are in water or on land in your Species and/or Critical Habitat list to determine which federal agency will perform the analysis (e.g. Loggerhead sea turtle CH - terrestrial).

Species and/or Critical Habitat	**CH Unit** (if applicable)	**Location** (Sea turtles and Gulf Sturgeon only)	**Determinations** (see definitions below)	**For "No Effect", please select justification.**
Kemp's Ridley Sea Turtle (E)		Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Loggerhead Sea Turtle		Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Green Sea Turtle (T)		Marine	May Affect, Not Likely to Adversely Affect	Select Most Appropriate
Choose an item.		Choose an item.	Select Most Appropriate	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.

Determination Definitions

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat.

NLAA = may affect, not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response requested is concurrence with the not likely to affect determination. This conclusion is appropriate when effects to the species or critical habitat will be wholly beneficial, discountable, or insignificant. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact, while discountable effects are those that are extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. If the Services concur in writing with the Action Agency's determination of "is not likely to adversely affect" listed species or critical habitat, the section 7 consultation process is completed.

LAA = may affect, likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response requested for listed species is formal consultation for action with a likely to adversely affect determination, with a biological opinion as the concluding document. This conclusion is reached if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable or insignificant. In the event the overall effect of the proposed action is beneficial to the listed species or critical habitat, but may also cause some adverse effect on individuals of the listed species or segments of the critical habitat, then the determination is "likely to adversely affect." Any LAA determination requires formal section 7 consultation and will require additional information.

Critical Habitat No Destruction = When the proposed action will not diminish the value of critical habitat.

H. USFWS Species & Critical Habitat and Effects Determination Requested

If your project occurs in a location that does not contain any listed USFWS species or designated Critical Habitats, please check the box below. If this box is checked, you may skip Section G. and proceed to Section H.

☐This project occurs in a location that does not contain any listed USFWS species or designated Critical Habitats.

☐ESA effects have been accounted for under an existing consultation.

1. List all species, critical habitat, proposed species and proposed critical habitat that may be found in the action area. Species that do not currently occur in the action area (but are listed on county species lists) do not need to be listed in drop downs.

2. Attach a separate map identifying species/critical habitat locations within the action area. For information on species and critical habitat under NMFS jurisdiction, visit: http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/Documents/gulf_of_mexico.pdf.

Identify if Gulf sturgeon are in marine or in freshwater in your Species and/or Critical Habitat list to determine which federal agency will perform the analysis (e.g. Gulf sturgeon CH - marine). Identify if sea turtles are in water or on land in your Species and/or Critical Habitat list to determine which federal agency will perform the analysis (e.g. Loggerhead sea turtle CH - terrestrial).

Species and/or Critical Habitat	**CH Unit** (if applicable)	**Location** (Sea turtles and Gulf Sturgeon only)	**Determinations** (see definitions below)	**For "No Effect", please select justification.**
West Indian Manatee		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.
Eastern Black Rail		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.
Monarch Butterfly		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.
		Choose an item.	Choose an item.	Choose an item.

Determination Definitions

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat.

NLAA = may affect, not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response requested is concurrence with the not likely to affect determination. This conclusion is appropriate when effects to the species or critical habitat will be wholly beneficial, discountable, or insignificant. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact, while discountable effects are those that are extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. If the Services concur in writing with the Action Agency's determination of "is not likely to adversely affect" listed species or critical habitat, the section 7 consultation process is completed.

LAA = may affect, likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response requested for listed species is formal consultation for action with a likely to adversely affect determination, with a biological opinion as the concluding document. This conclusion is reached if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable or insignificant. In the event the overall effect of the proposed action is beneficial to the listed species or critical habitat, but may also cause some adverse effect on individuals of the listed species or segments of the critical habitat, then the determination is "likely to adversely affect." Any LAA

determination requires formal section 7 consultation and will require additional information.

Critical Habitat No Destruction = When the proposed action will not diminish the value of critical habitat.

I. Effects of the proposed project to the species and actions to reduce impacts

NOTE: Species selected as "No Effect" with justification in table do not need to be addressed in Section I or J.

I. *Explain the potential beneficial and adverse effects to each species listed above. Describe what, when, and how the species will be impacted and the likely response to the impact. Be sure to include direct, indirect, and cumulative impacts and where possible, quantify effects.*

If species are present (or potentially present) and will not be adversely affected describe your rationale. If species are unlikely to be present in the general area or action area, explain why. This justification provides documentation for your administrative record, avoids the need for additional correspondence regarding the species, and helps expedite review.

West Indian Manatee- The manatee (*Trichechus manatus*) is found in open marine waters, bays, and rivers with submerged aquatic beds or floating vegetation but is not commonly found in Louisiana. Manatees have visited the Pearl, Mermentau, Calcasieu, and Sabine Rivers and waterways of the Pontchartrain and Barataria basins. Major threats to the manatee include vessel strikes, habitat loss and death due to flood control structures and extended periods of below freezing temperatures. Manatee presence is unlikely within the project area. BMPs including *Measures for Reducing Entrapment Risk to Protected Species*, issued by NOAA Fisheries Southeast Regional Office in May 2012, and *Vessel Strike Avoidance Measures* and the *USACE's Standard Manatee Conditions for In-water Work* (USACE, 2011) would be implemented during construction. These BMPs include measures such as monitoring for protected species, including temporary signage, and operating vessels at idle speeds.

The Eastern Black Rail- The Eastern Black Rail (*Laterallus jamaicensis*) require dense overhead cover and are primarily associated with herbaceous, persistent, emergent wetland plants. Along portions of the Gulf Coast, eastern black rails can be found in higher elevation wetland zones with some shrubby vegetation. Impounded and unimpounded intermediate marshes (marshes closer to high elevation areas) also provide habitat for the subspecies. The primary threats to the eastern black rail are habitat loss and destruction, incompatible land management, sea-level rise and tidal flooding, and increasing storm intensity and frequency. Louisiana has few documented occurrences of eastern black rail, and these occurrences are concentrated in and around southwest Louisiana. Louisiana doesn't have a history of supporting eastern black rails consistently and are considered to be on the peripheries of known breeding areas (DOI, 2020). It is not likely that the eastern black rail would be found in the project area. As intermediate marsh habitats are favored by numerous species of migratory birds, coordination with USFWS

may be required if project implementation is to occur during the breeding season. This may result in requirements to conduct pre-construction nesting bird surveys, nest removal and appropriate abatement measures, and/or bird monitoring during construction (ELOS, 2020).

Monarch Butterfly- The Monarch Butterfly (*Danaus plexippus)* is currently being considered for federal listing under the Endangered Species Act. During the breeding season, monarchs lay their eggs on their obligate milkweed host plant. Habitat loss and fragmentation has occurred throughout the monarch's range. Pesticide use can destroy the milkweed monarchs need to survive. A changing climate has intensified weather events which may impact monarch populations. This project may affect, but is not likely to adversely affect the monarch butterfly as they have the ability to avoid disturbance.

Loggerhead, Kemps Ridley, and Green Sea Turtles-
The loggerhead (*Caretta caretta*) sea turtle inhabits both shallow and deep marine water, especially with submerged seagrass beds, salt marshes, bays, tidal passes, and coastal dunes during nesting season, and has been known to nest on the Chandeleur Islands. Main threats to this species include the erosion of barrier islands where nesting occurs, the take of eggs, young, and adult turtles as food and incidental take by fishing and shrimping gear (Coastal Environments, 2012).

The green (*Chelonia mydas*) and Kemp's ridley (*Lepidochelys kempii*) sea turtles may be present within the project area because it is located within the known ranges of these species. Due to the project's distance from the Gulf of Mexico, it is highly unlikely that any of the sea turtle species would be found nesting in the project area as these species nest almost exclusively on ocean beaches (USFWS, 2018).

The two other protected sea turtle species, the hawksbill sea turtle (*Eretmochelys imbricata*) and leatherback sea turtle (*Dermochelys coriacea*) are rarely observed in coastal Louisiana. It is highly unlikely that any of the sea turtle species would be found nesting in the project area as these species nest almost exclusively on ocean (USFWS, 2018). These species would be unlikely to occur in the project area or associated borrow areas, as they lack the coral reef habitat preferred by the hawksbill sea turtle and are too shallow for the leatherback sea turtle.

This project may affect, but is not likely to adversely affect loggerhead sea turtle, Kemp's ridley sea turtle, and the green sea turtle, which infrequently utilize the waters in the project area. Dredging activities in Lake Mechant associated with the project could result in disturbance/displacement of sea turtles that may be in the area during construction; however, any disturbance/displacement would be temporary and sea turtles would likely move to other open water habitat during dredging activities. Because the marsh restoration feature of the project area is fully confined by containment dikes accessibility by sea turtles would be unlikely during construction.

BMPs including *Measures for Reducing Entrapment Risk to Protected Species*, issued by NOAA Fisheries Southeast Regional Office in May 2012, and *Vessel Strike Avoidance Measures* would be implemented during construction. These BMPs include measures such as monitoring for protected species, including temporary signage, and operating vessels at idle speeds.

Potential Species Impacts

Project specific activities that could potentially affect West Indian manatees, Eastern Black Rails, and Monarch Butterflies, loggerhead, Kemps ridley, and green sea turtles would include dredging, ridge and marsh fill, and placement of dredge pipelines. This project may affect, but is not likely to adversely affect these species. Affects are possible due to water quality, noise, entrapment, and collisions with watercraft and dredge equipment. These affects to the species would be unlikely as they are rare in the project area and if present, have the ability to avoid disturbance.

Water quality: In-water construction activities could produce turbidity and siltation. Turbidity could also cause behavioral affects to species and result in reduced productivity (ability of the ecosystem to produce and export energy). Behavioral affects could include fleeing of the area and/or ceasing of feeding or spawning in the area. Siltation could result in displacement of mobile individuals or the mortality of individuals that cannot easily flee.

Noise: Sources of project related in-water and in-air noise could include the use of pile drivers for sheet pile wall installations, earthmoving equipment, dredges, and vessels such as tugboats and service boats.

In-water noise

Vibratory installation of steel sheet pile walls could produce noise levels of up to 163 dBrms at 32.8 ft (10 m) from the source (CalTrans, 2020). Hydraulic cutterhead dredges typically produce underwater noise levels of 175 dB at 3.28 ft (1 m) from the source (Reine and Dickerson, 2014). Tugboats could produce in-water noise levels of up to 175 dBrms at 32.8 ft (10 m) from the source (Veirs et al., 2016). Excavators can result in in-water noise levels of up to 179 dBrms at 3.28 ft (1 m) from the source. Earthmoving equipment and pile drivers would be used in shallow water environments where noise does not propagate effectively (WSDOT, 2020) and would be limited by the adjacent land. It is therefore anticipated that all in-water noise within shallow water environments, would be negligible. In-water project related noise could result in avoidance of the immediate construction area. Any species that leave the immediate construction area due to noise disruptions would be anticipated to return once construction commences.

In-air noise

Pile drivers could produce in-air noise levels of up to 101 dBA at 50 feet from the source (FHWA 2006).

Excavators could produce noise levels of up to 81 dBA at 50 feet from the source (FHWA 2006).

Tugboats could produce noise levels of up to 87 dBA at 50 feet from the source (Epsilon Associated Inc., 2006). Hydraulic dredges could produce noise levels of up to 80 dBA at 50 feet from the source (Columbia Association 2016). In-air project related noise could result in non-aquatic species including birds avoiding the immediate construction area. Any species that leave the immediate construction area due to noise disruptions would be anticipated to return once construction commences.

Entrapment: Protected species can become entrapped within construction sites. Therefore, NMFS developed entrapment minimization measures for projects that enclose shallow open water areas for wetland creation or nourishment. For any in-water work, the project would implement measures from *Measures for Reducing Entrapment Risk to Protected Species*, issued by NOAA Fisheries Southeast Regional Office in May 2012.

Vessel Collision**:** Major threats to manatees and dolphins include being struck by boats and barges. The project would implement the *Vessel Strike Avoidance Measures* and the *USACE's Standard Manatee Conditions for Inwater Work* (USACE, 2011).

With the proposed avoidance and minimization measures the project *may affect but is not likely to adversely affect* West Indian manatees, Eastern Black Rails, and Monarch Butterflies, loggerhead, Kemps ridley, and green sea turtles.

II. *Explain the actions to reduce adverse effects to each species listed above. For each species for which impacts were identified, describe any conservation measures (e.g. BMPs) that will be implemented to avoid or minimize the impacts. Conservation measures are designed to avoid or minimize effects to listed species and critical habitats or further the recovery of the species under review. Conservation measures are considered part of the proposed action and their implementation is required. Any changes to, modifications of, or failure to implement these conservation measures may result in a need to reinitiate this consultation.*

Frequently Recommended BMPs: This checklist provides standard BMPs recommended by NOAA and USFWS. Please select any BMPs that will be implemented:

- ☒ **USFWS Standard Manatee In Water Conditions**
- ☒ **NMFS Protected Species Conditions**[1]
- ☒ **NMFS Measures for Reducing the Entrapment Risk to Protected Species**[1]
- ☒ **NFMS Vessel Strike Avoidance Measures and Reporting for Mariners**[1]

Additional BMPs or Conservation Measures

Chapter 6 of the PDARP included an important appendix (6.A) of best practices, see information starting on page 6-173. http://www.gulfspillrestoration.noaa.gov/sites/default/files/wp-content/uploads/Chapter-6_Environmental-Consequences_508.pdf

Use the box below to indicate which best management practices or conservation measures you'll be using in your project (that were not listed in Section I above)

[1] Documents can be found here: http://sero.nmfs.noaa.gov/protected_resources/section_7/guidance_docs/index.html

J. Effects to critical habitats and actions to reduce impacts

NOTE: Species selected as "No Effect" with justification in table do not need to be addressed in Section I or J.

I. *Explain the potential beneficial and adverse effects to critical habitat listed above. Describe what, when, and how the critical habitat will be impacted and the likely response to the impact. Be sure to include direct, indirect, and cumulative impacts to physical and biological features, and where possible, quantify effects (e.g. acres of habitat, miles of habitat).*

Describe your rationale if designated or proposed critical habitats are present and will not be adversely affected.

N/A. Critical habitat does not occur in the project area.

II. *Explain the actions to reduce adverse effects to critical habitat listed above. For critical habitat for which impacts were identified, describe any conservation measures (e.g. BMPs) that will be implemented to avoid or minimize the impacts. Conservation measures are designed to avoid or minimize effects to listed species and critical habitats or further the recovery of the species under review.*
Conservation measures are considered part of the proposed action and their implementation is required. Any changes to, modifications of, or failure to implement these conservation measures may result in a need to reinitiate this consultation.

N/A.

K. Marine Mammals

I. The Marine Mammal Protection Act prohibits the taking (including disruption of behavior, entrapment, injury, or death) of all marine mammals (e.g.,whales, dolphins, manatees). However, the MMPA allows limited exceptions to the take prohibition if authorized, such as the incidental (i.e., unintentional but not unexpected) take of marine mammals. The following questions are designed to allow the Agencies to quickly determine if your action has the potential to take marine mammals. If the information provided indicates that incidental take is possible, further discussion with the Agencies is required.

Is your activity occurring in or on marine or estuarine waters? ☐NO ☒YES

If yes, is your activity likely to cause large-scale, ecosystem level impacts to the quality (e.g. salinity, temperature) of marine or

estuarine waters?

☒NO ☐YES

Click here to
enter text.

II. If Yes, describe activities further using checkboxes. Does your activity involve any of the following:

NO	YES	ACTIVITY
☒	☐	*a) Use of active acoustic equipment (e.g., echosounder) producing sound below 200 kHz*
☐	☒	*b) In-water construction or demolition*
☒	☐	*c) Temporary or fixed use of active or passive sampling gear (e.g., nets, lines, traps; turtle relocation trawls)*
☒	☐	*d) In-water Explosive detonation*
☒	☐	*e) Aquaculture*
☒	☐	*f) Restoration of barrier islands, levee construction or similar projects*
☒	☐	*g) Fresh-water river diversions*
☒	☐	*h) Building or enhancing areas for water-related recreational use or fishing opportunities (e.g. fishing piers, bridges, boat ramps, marinas)*
☐	☒	*i) Dredging or in-water construction activities to change hydrologic conditions or connectivity, create breakwaters an living shorelines, etc.*
☐	☒	*j) Conducting driving of sheet piles or pilings*
☐	☒	*k) Use of floating pipeline during dredging activities*

III. If you checked "Yes" to any of the activities immediately above or the activity could impact the quality of marine or estuarine waters, please describe the nature of the activities in more detail or indicate which section of the form already includes these descriptions. See the NOAA Acoustic Guidance for more information: http://www.nmfs.noaa.gov/pr/acoustics/faq.htm

See Section F of this form for a full description of the proposed project activities.

IV. *Frequently Recommended BMPs for marine mammals (manatees are covered in Section I above): This checklist provides standard BMPs recommended by NOAA. Please select any BMPs that will be implemented:*

☐	NMFS Southeast U.S. Marine Mammal and Sea Turtle Viewing Guidelines[2]
☒	NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions[3]
☒	NMFS Measures for Reducing the Entrapment Risk to Protected Species[3]
☒	NFMS Vessel Strike Avoidance Measures and Reporting for Mariners[3]
☐	Reproducing and posting outreach signs: Dolphin Friendly Fishing Tips sign, Don't Feed Wild Dolphins sign[3]

If not listed above, please describe any additional BMPs or conservation measures that may be be implemented for marine mammals.

Project specific BMPs and conservation measures to protect marine mammals include:

- reporting any collisions to the USFWS or state resource agency and following the most recent version of the standard manatee conditions.
- Monitoring/observing for dolphins during dredging activities following the same protocols used for sea turtles and manatees. Specifically:

[2] Documents can be found here: http://sero.nmfs.noaa.gov/protected_resources/outreach_and_education/index.html
[3] Documents can be found here: http://sero.nmfs.noaa.gov/protected_resources/section_7/guidance_docs/index.html

- (a) if dolphins come within 50 yards of active dredging and are not just traveling through the area (e.g. remaining within 50 yards to forage), dredge operations should not start or, if dredging has already begun, they should cease until the dolphins are beyond and are not likely to re-enter (i.e., are on a dedicated path away from the 50 yard area). This is to avoid physical harm from dredge equipment.
- (b) To avoid perceived physical barriers to dolphins, avoid trans-versing waterbodies with any floating pipelines from the dredge activities.

L. Bald Eagles

Are bald eagles present in the action area? ☒NO ☐YES

If YES, the following conservation measures should be implemented:

1. If bald eagle breeding or nesting behaviors are observed or a nest is discovered or known, all activities (e.g., walking, camping, clean-up, use of a UTV, ATV, or boat) should avoid the nest by a minimum of 660 feet. If the nest is protected by a vegetated buffer where there is *no* line of sight to the nest, then the minimum avoidance distance is 330 feet. This avoidance distance shall be maintained from the onset of breeding/courtship behaviors until any eggs have hatched and eaglets have fledged (approximately 6 months).
2. If a similar activity (e.g., driving on a roadway) is closer than 660 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
3. If a vegetated buffer is present and there is no line of sight to the nest and a similar activity is closer than 330 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
4. In some instances, activities conducted at a distance greater than 660 feet of a nest may result in disturbance. If an activity appears to cause initial disturbance, the activity shall stop and all individuals and equipment will be moved away until the eagles are no longer displaying disturbance behaviors.

Will you implement the above measures? ☐NO ☒YES

If these measures cannot be implemented, then you must contact the Service's Migratory Bird Permit Office.
Texas – (505) 248-7882 or by email: permitsR2MB@fws.gov
Louisiana, Mississippi, Alabama, Florida – (404) 679-7070 or by email: permitsR4MB@fws.gov

M. Request approval for use of NMFS PDCs for this project

Complete this section only if your project qualifies for streamlined ESA consultation under the ESA Framework Programmatic Biological Opinion completed by NMFS on February 10, 2016. To be eligible for streamlined ESA consultation with NMFS, you must implement all Project Design Criteria (PDCs) applicable to your project. Check "yes" for PDC categories that apply to the proposed project, and request PDC checklist from NMFS.

NO	YES	ACTIVITY
☒	☐	**Oyster Reef Creation and Enhancement**
☒	☐	**Marine Debris Removal**
☒	☐	**Construction of Living Shorelines**
☒	☐	**Marsh Creation and Enhancement**
☒	☐	**Construction of Non-Fishing Piers**

N. Submitting the BE Form

We request that all BE forms and consultation materials be placed on Sharepoint for review. Upon receipt, we will conduct a preliminary review and provide any comments and feedback, including any requests for modifications or additional information. If modifications or additional information is necessary, we will work with you until the Biological Evaluation form is considered complete. Once complete, we will use the Biological Evaluation form to initiate appropriate consultations.

Questions may be directed to:

NMFS ESA § 7 Consultation

Christy Fellas, National Oceanic Atmospheric Administration
Email: Christina.Fellas@noaa.gov
Phone: 727-551-5714

USFWS ESA § 7 Consultation

Michael Barron, Department of the Interior
Email: michael_barron@fws.gov
Phone: 251-421-7030

References:

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Biological Evaluation Form

Deepwater Horizon Oil Spill Restoration

U.S. Fish and Wildlife Service & National Marine Fisheries Service

This form will be filled out by the Implementing Trustee and used by the regulatory agencies. The form will provide information to initiate informal Section 7 consultations under the Endangered Species Act (ESA) and may be used to document a No Effect determination or to initiate pre-consultation technical assistance.

It is recommended that this form also be completed to inform and evaluate additional needs for compliance with the following authorities: Migratory Bird Treaty Act (MBTA), Marine Mammal Protection Act (MMPA), Coastal Barrier
Resources Act (CBRA), Bald and Golden Eagle Protection Act (BGEPA) and Section 106 of the National Historic Preservation Act (NHPA).

Further information may be required beyond what is captured on this form. Note: if you need additional space for writing, please attach pages as needed.

For assistance, please contact the
compliance liaisons USFWS: Michael
Barron at michael_barron@fws.gov
NMFS: Christy Fellas at
christina.fellas@noaa.gov

A. Project Identification

Federal Action Agency(one or more):USFWS ☒ NOAA ☒ EPA ☐ USDA

Implementing Trustee(s): NOAA, CPRA

Contact Name: Caitlin Glymph Phone: 225-342-4594 Email: Caitlin.Glymph@la.gov

Project Name: Bayou La Loutre Ridge Restoration and Marsh Creation Project

DIVER ID# Click to enter text TIG: Louisiana TIG Restoration Plan # 8

B. Project Phase and Supporting Documentation

Please choose the box which best describes the project status, as proposed in this BE form:

Planning/Conceptual ☐ Construction/Implementation ☒ Engineering & Design ☐

If "Engineering & Design" was selected, please describe the level of design that has been completed and is available for review:

N/A

Supporting Documentation

Please attach any maps, aerial photographs, or design drawings that will support the information in this BE form. Examples of such supporting documentation include, but are not limited to:

- Plan view of design drawings
- Aerial images of project action area and surrounding area
- Map of project area with elements proposed (polygons showing proposed construction elements)
- Map of action area with critical habitat units or sensitive habitats overlayed

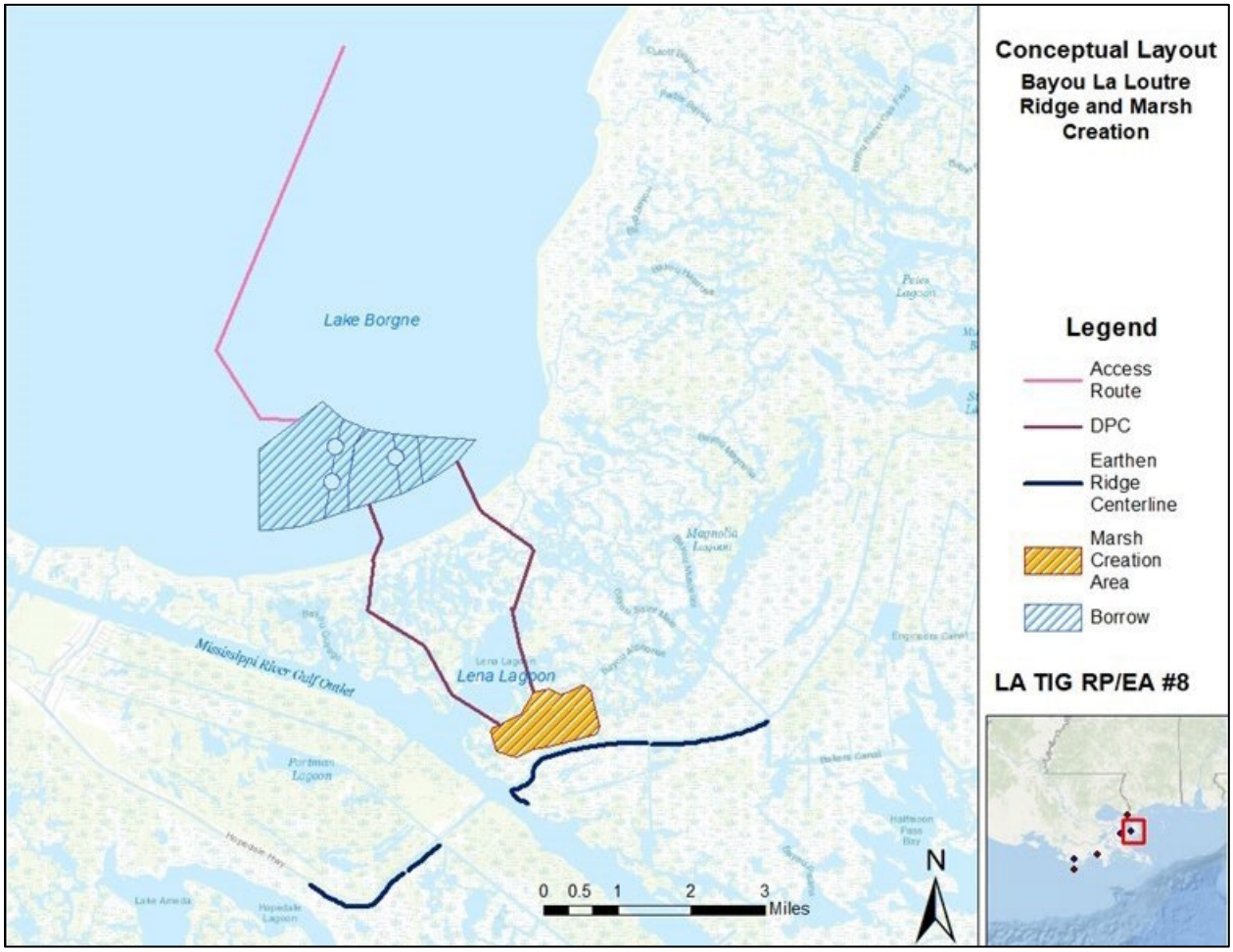
C. Project Location

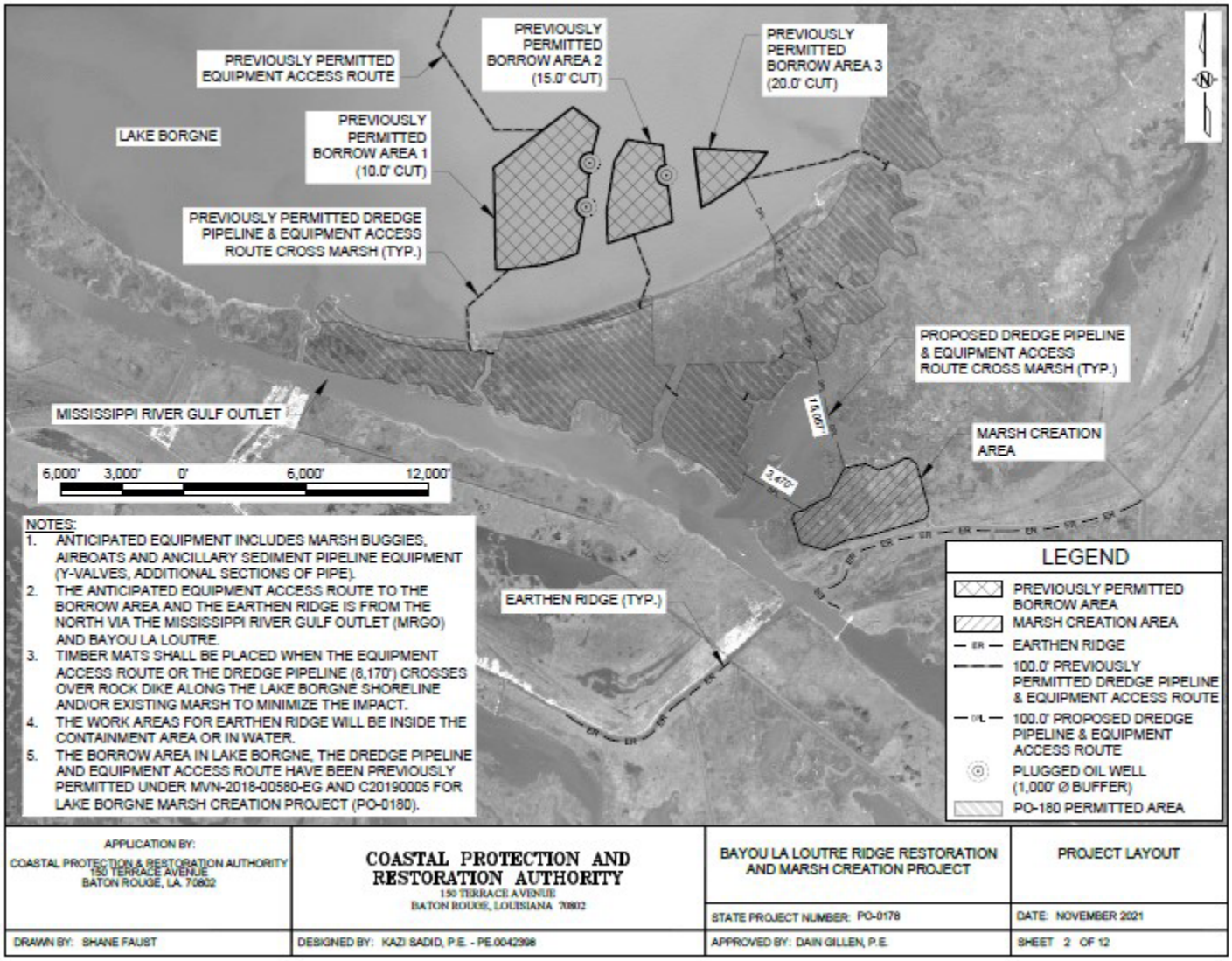
I. State and County/Parish of action area State of Louisiana,
St. Bernard Parish.

II. Latitude/Longitude for action area (Decimal degrees and datum [e.g., 27.71622°N, 80.25174°W NAD83)

[online conversion: https://www.fcc.gov/encyclopedia/degrees-minutes-seconds-tofrom-decimal-degrees]

29.844179°N, 89.601784°W NAD83





D. Existing Compliance Documentation

NEPA Documents

Are there any existing draft or final NEPA analyses (not PDARP/PEIS) that cover all or part of this project?

YES☒ NO☐

- Draft EA prepared under CWPPRA
- The borrow area will be the previously cleared PO-180 Lake Borgne Marsh Creation project borrow source. RP/EA 1.2 covers that portion of this project's NEPA Examples:

-TIG Restoration Plan/EA or EIS (draft or final)

-USACE programmatic NEPA analysis

-USACE Clean Water Act individual permit for the project

-NEPA analysis provided by a federal agency that gave approval, funding or authorization

Permits

Have any federal permits been obtained for this project, if so which ones and what is the permit number(s)?

YES☐ NO☒ Permit Number and Type: Click or tap here to enter text

Have any federal permits been applied for but not yet obtained, if so which ones and what is the permit number(s)?

YES☒ NO☐ Permit Number and Type: Section 404 applied for; no permit number issued yet.

If yes to any question above, please provide details in the text box (i.e. link to the NEPA document, or name of the document, year, lead federal agency, POC, copy of the permit or permit application, etc.). This is needed to check for consistency of the project scope across different sources and to facilitate the NEPA analysis. If you do not have a link, email the documents to the TIG representative for the Trustee designated as lead federal agency for the restoration plan.

LA TIG Draft RP8 available for review and includes the NEPA analysis.

Compliance reviews were completed for the Lake Borgne Marsh Creation project from LA TIG RP/EA 1.2, which included everything noted as “previously permitted” in the figure above.

Any documentation or information provided will be very helpful in moving your project forward.

Name of Person Completing this Form: Mindy Joiner
Name of Project Lead: Vida Carver
Date Form Completed: 9/21/2021
Date Form Updated: 3/29/22 Click here to enter text.

E. Description of Action Area

Provide a description of the existing environment (e.g., topography, vegetation type, soil type, substrate type, water quality, water depth, tidal/riverine/estuarine, hydrology and drainage patterns, current flow and direction), and land uses (e.g., public, residential, commercial, industrial, agricultural). Describe all areas that may be directly or indirectly affected by the action.
If CH is not designated in the area, then describe any suitable habitat in the area

a. Waterbody

If applicable. Name the body of water, including wetlands (freshwater or estuarine), on which the project is located. If applicable, please describe water quality, depth, hydrology, current flow, and direction of flow.

The project Area is located within the Pontchartrain Basin and Breton Sound Basin within two St. Bernard Parish environmental management units (EMU). The marsh creation area is located within the BienvenueProctor Point Marsh EMU and Lake Borgne (borrow area) is located within the Lake Borgne EMU.

The Pontchartrain Basin, located in southeastern Louisiana, consists of the tributaries and distributaries of
Lake Pontchartrain, a large estuarine lake. The basin is bounded on the north by the Mississippi state line, on
the west and south by the east bank Mississippi River levee, on the east by the Pearl River Basin, and on the southeast by Breton and Chandeleur Sounds. This basin includes Lake Borgne, Breton Sound, Chandeleur Sound, and the Chandeleur Islands (LDEQ, 2021). Like the Pontchartrain Basin, the Breton Sound Basin is a remnant of the Mississippi River delta lobe, the abandoned St. Bernard Delta. The principal hydrologic features of the Breton Sound Basin include the Mississippi River and its natural levee ridges, the flood protection levee, abandoned delta distributaries, and the freshwater diversions at Caernarvon, White's Ditch, Bohemia, and Bayou Lamoque. The barrier islands, which make up the Breton National Wildlife Refuge are far offshore and thus provide minimal protection (CWPPRA, 2021b).

The hydrologic regime of St. Bernard Parish involves the movement of freshwater and saltwater masses through the region as a result of the interactions among river discharge, regional precipitation, winds and tides. This present hydrologic regime is influenced by both natural and man-made factors. Within the parish, the basic, natural hydrologic system is governed by the pattern of major abandoned distributary channels of the ancient Mississippi River delta complex (i.e., Bayous La Loutre and Terre aux Boeufs) and interdistributary basin channels that serve to drain swamps and marshes into the estuarine lakes, bays, the Chandeleur Sound, and the Breton Sound (Coastal Environments, 2013).

Under natural conditions, tidal channels leading from Lake Borgne alternately flooded and drained the marsh. With the Mississippi River Gulf Outlet (MRGO) construction, the original drainage pattern changed drastically. The MRGO cut through many of the existing tidal bayous, disrupting water circulation, increasing salinity, and creating great fluctuations in water levels. Fall surface water salinities increased to 15 parts per thousand (ppt) near Shell Beach and 10 ppt at Proctor Point (Coastal Environments, 2013). With closure of the MRGO at the Bayou La Loutre ridge, there has been a blockage of the saltwater wedge up the MRGO channel and salinities have decreased northwest of the dam.

Louisiana Department of Environmental Quality (LDEQ) monitors surface water and groundwater water quality. Surface water management seeks to protect the quality of all waters throughout the state including rivers, streams, bayous, lakes, reservoirs, wetlands,

estuaries, and many other types of surface water. LDEQ issues a biennial integrated report of the status of Louisiana waters. LDEQ defines eight designated uses for surface waters: primary contact recreation (swimming), secondary contact recreation (boating), fish and wildlife propagation, drinking water supply, shellfish propagation, agriculture, outstanding natural resource waters, and limited aquatic and wildlife use (LDEQ, 2021). Each water body is evaluated as fully supporting, partially supporting, or not supporting of each of its designated use(s). The state reports water quality assessments by subsegments of each basin. The project site is within Subsegment LA042003_00 Bayou La Loutre. From MRGO to Eloi Bay and is defined as estuarine. The 2020 Louisiana Water Quality Inventory Integrated Report indicates the subsegment does not support the designated use of swimming, but fully supports boating, fish and wildlife propagation, and oyster propagation (LDEQ, 2021).

Does the project area include a river or estuary?

YES☒ NO☐

If yes, please approximate the navigable distance from the project location to the marine environment.
The project would be constructed in an existing marsh area situated south of Lake Borgne and approximately 15 miles north of Chandeleur Sound.

b. Existing Structures

If applicable. Describe the current and historical structures found in the action area (e.g., buildings, parking lots, docks, seawalls, groynes, jetties, marina). If known, please provide the years of construction.

The project occurs in an undeveloped marsh area, but is adjacent to the MRGO. The MRGO is a defunct 76mile channel constructed by the USACE to provide a shorter route between the Gulf of Mexico and the Port of New Orleans. The channel was closed using a permanent storm surge barrier in 2009.

c. Seagrasses & Other Marine Vegetation

If applicable. Describe seagrasses found in action area. If a benthic survey was done, provide the date it was completed and a copy of the report. Estimate the species area of coverage and density. Attach a separate map showing the location of the seagrasses in the action area.

The dominant submerged aquatic vegetation (SAV) observed in the proposed fill area during a 2018 site reconnaissance included: Eurasian watermilfoil (*Myriophyllum spicatum*) (invasive), horned pondweed (*Zannechelia palustris*), and widgeon grass (*Ruppia maritima*). Other common species of estuarine sea grasses that may be present include wild celery (*Vallisneria americana*), southern naiad (*Najas quadalupensis*), and clasping-leaf pondweed (*Potamogeton perfoliatus*).

d. Mangroves

If applicable. Describe the mangroves found in action area. Indicate the species found (red, black, white), the

species area of coverage in square footage and linear footage along project shoreline. Attach a separate map showing the location of the mangroves in the action area.

Black mangroves occur in the vicinity of the project area, but have not been observed in the action area.

e. Corals

If applicable. Describe the corals found in action area. If a benthic survey was done, provide the date it was completed and a copy of the report. Estimate the species area of coverage and density. Attach a separate map showing the location of the corals in the action area. Click here to enter text.

N/A.

f. Uplands

If applicable. Describe the current terrestrial habitat in which the project is located (e.g. pasture, forest, meadows, beach and dune habitats, etc.).

The existing upland in the project area is ridge habitat consisting of live oak/hackberry maritime forest which is utilized by trans-Gulf migratory bird species when crossing the Gulf of Mexico. This ridge habitat is degraded as it is subject to subsidence and shoreline erosion.

The northern part of the Lake Pontchartrain Basin consists of wooded uplands including both pine and hardwood forests. The southern portions of the basin consist of cypress-tupelo swamps, lowlands, and both brackish and saline marshes. Historic and current ridge habitat loss occurs in the form of subsidence and shoreline erosion along Bayou La Loutre. The shoreline erosion is caused by increased boat traffic diverted due to the closure of the MRGO channel.

The freshwater swampland flanking the backslopes of the natural levees historically supported cypress forests. The original stands of cypress were logged by the beginning of the twentieth century and the regenerated cypress forests outside the flood protection levees, north of the Bayou La Loutre ridge, were severely impacted by a combination of processes including subsidence, alteration of the natural hydrologic regime, and especially saltwater intrusion associated with opening of the MRGO in 1963. Typical species of trees found in the swamp forests include bald cypress (*Taxodium distichum*), swamp red maple (*Acer rubrum*), water oak (*Quercus nigra*), and tupelo gum (*Nyssa sylvatica*). Typical understory vegetation includes dwarf palmetto (*Sabal minor*), button bush (*Cephalanthus occidentalis*), Baccharis, and marsh elder (*Iva annua*). Commonly occurring grasses include paille fine (*Panicum hemitomo*), sawgrass (*Cladium*), feather grass (*Nassella tenuissima*), and wiregrass (*Eleusine indica*) (Coastal Environments, 2013). Ridge habitat consists of Live Oak/ Hackberry Maritime Forest.

g. Marine Mammals

Please select the following marine mammals that could be present within the project area:

Dolphins
YES☒ NO☐
Whales YES☐
NO☒
Manatees YES☒ YES☐

If applicable. Indicate and describe the species found in the action area. Use NMFS' Stock Assessment Reports (SARs) for more information, see http://www.nmfs.noaa.gov/pr/sars/region.htm

West Indian manatee (*Trichechus manatus*) are found in open marine waters, bays, and rivers with submerged aquatic beds or floating vegetation but are not commonly found in Louisiana and therefore it is considered unlikely that they would occur within the project area. However, manatees occasionally visit the Pearl, Mermentau, Calcasieu, and Sabine Rivers and waterways of the Pontchartrain and Barataria basins.

The Mississippi Sound, Lake Borgne, Bay Boudreau stock of common bottlenose dolphin (*Tursiops truncatus*) could be present in the project area.

h. Soils and Sediments

If applicable. Indicate topography, soil type, substrate type.

Based on the USACE Geological Investigation, Yscloskey Quadrangle geologic map, a ridge feature lying along a historic abandoned channel with point bar and interdistributary deposits is present within the project area. Generally, the point bar deposits along the abandoned course consist of clays and sandy clays underlain by sands, clayey sands, and silty sands. Marsh deposits are mapped to the north of the point bar and generally consist of organic clays underlain by inorganic clays with some clayey sands and silty sands (S&ME, 2020).

The dominant geomorphic unit in the project vicinity is interdistributary deposits, which are defined “primarily on the basis of the vegetative communities” they support. The ridge restoration portion of the study area is located on the Fausse soil association, while the marsh creation portion of the study area is located on the Lafitte-Clovelly soil association. The Fausse association is characterized as level, very poorly drained soils that are clayey throughout. Saline swamps and the Lafitte-Clovelly association are described as “level, very poorly drained soils that have a thick or moderately thick, mucky surface layer and clayey underlying material; in brackish areas” (Pan-American, 2020).

The geotechnical subsurface investigation and geotechnical engineering analyses for the MCA were conducted by S&ME, Inc. (S&ME) and by Geoengineers, Inc. (Geoengineers) for the borrow area as part of the PO-0180 project. The borings taken along the existing ridge feature typically encountered a medium to stiff clay from the ground surface to depths

varying from approximately 5 to 12-ft. Below the clay layer, there were granular materials (sand, silty sand, and clayey sand) which were encountered with pockets and layers of clay present to boring completion depth. The soil conditions in Bayou La Loutre were similar to the ridge. The soil borings in the MCA showed very soft to soft organic clay from the mudline to depths approximately 12 to 23-ft. below the mudline. After the organic layer, there was very soft to soft clay from depth 16 to 33ft., followed by silt, sandy silt, silty sand, and sand to the maximum boring depth. The soil borings in the marsh creation borrow areas showed very soft fat and organic clays from the mudline to depths varying from approximately 8 to 16-ft. Below the soft clay, there were medium clays in broken layers with seams of silt (S&ME, 2020).

i. Land Use

If applicable. Indicate existing or previous land use activities (agriculture, dredge disposal, etc).

The project occurs in an undeveloped area and is within the Louisiana Coastal Zone established by the State and Local Coastal Resources Management Act of 1978. The St. Bernard Parish Coastal Zone Management (CZM) Program divided the parish into 15 EMUs (Coastal Environments, 2013). The marsh creation area is in the Bienvenue-Proctor Point Marsh EMU and the borrow area in Lake Borgne is located within the Lake Borgne EMU. Some of the goals for managing the coastal resources in this EMU that align with the goals of this project include protecting stable wetlands, reducing land loss in deteriorating wetlands; creating and restoring wetlands where practicable; reducing shoreline erosion to preserve wetlands and preserve shallow estuarine areas and protect water-dependent development outside of fastlands; and restoring wetlands, including marshes and where feasible cypress swamps, using sustained freshwater diversions and dredged material near levees for additional protection from storms (Coastal Environments, 2013). The project area is a popular destination for boating, bird watching, trapping, fishing, and hunting activities in the wetlands.

j. Essential Fish Habitat

If applicable. Describe any designated Essential Fish Habitat within the project area

The project is in an area designated as essential fish habitat (EFH) for various life stages of federally managed species of shrimp, fish, and sharks. The project area is located within the estuarine habitat zone of Gulf EFH eco-region 3, and contains multiple categories of EFH that would be impacted by project implementation including emergent marshes, submerged aquatic vegetation, oyster reefs/hard substrate, sand/shell bottoms, mud/soft bottoms, and water column. In addition to being designated as EFH, estuarine wetlands and water bottoms in the project area provide nursery and foraging habitats for a variety of economically important marine fishery species, many of which serve as prey for other federally managed species. Wetlands in the project area also produce nutrients and detritus, important components of the aquatic food web, which contributes to the overall productivity of the coastal estuary.

The project activities would result in both short term negative and long term positive impacts to EFH in the project area. Negative impacts will be minor and temporary, and involve construction activities, including bucket dredging of Bayou La Loutre for the ridge feature, bucket dredging and placement of materials for the creation of containment dikes for the marsh restoration cell, hydraulic dredging in Lake Borgne, and placement of fill material in the marsh restoration cell. Positive impacts include the nourishment and creation of estuarine wetland habitat once the fill material has settled to elevations conducive for marsh vegetation, and after the containment has been gapped to restore tidal connectivity and fishery access. The project is restorative in nature, and has been designed to minimize short term negative impacts to EFH and maximize long term positive impacts to EFH.

F. Project Description

I. *Describe the Proposed Action/Project Objectives: What are you trying to accomplish and how with this project? Describe in detail the construction equipment and methods** needed; long term vs. short term impacts; duration of short term impacts; dust, erosion, and sedimentation controls; restoration areas; if the project is growth-inducing or facilitates growth; whether the project is part of a larger project or plan; and what permits will need to be obtained.*

Attach a separate map showing project footprint, avoidance areas, construction accesses, staging/laydown areas.

***If construction involves overwater structures, pilings and sheetpiles, boat slips, boat ramps, shoreline armoring, dredging, blasting, artificial reefs or fishery activities, list the method here, but complete the next section(s) in detail.*

The proposed project would create approximately 5.46 miles (28,855 ft.) of ridge along Bayou La Loutre and 19.4 acres of Live Oak /Hackberry Maritime forest habitat. The ridge habitat would be built by bucket dredging Bayou La Loutre down to elevation -10-ft. NAVD88 with a side slope of 3:1 (H:V). Material would be placed on the existing remnant of the ridge at a ground elevation ranging from 0.8 to 1.8-ft., while a marsh buggy grades the ridge to the design cross section. The structure would have a +5-ft. NAVD88 elevation, 15-ft. crest width and 5:1 (H:V) side slopes. Additionally, the newly created ridge would include herbaceous and woody plantings with smooth cord plantings along the toe.

The Lena Lagoon site would create and nourish approximately 421 acres of marsh using sediment hydraulically dredged from Lake Borgne down to bottom elevation -10 to -20-ft. NAVD88. Lena Lagoon would have a semi-confined south and east flank and a fully confined north flank. Containment would be degraded as necessary to re-establish hydrologic connectivity with adjacent wetlands.

Consistent with the Trustee's approach to "Create, restore, and enhance coastal wetlands," the

project would result in approximately 163 acres of created marsh, 258 acres of nourished marsh, and approximately 31.7 acres of forested ridge. Implementation of this project would create and restore marsh habitats that were impacted by the DWH oil spill. This project would also benefit multiple other resources impacted by the oil spill (e.g., birds, protected species, water quality, recreational use, etc.). This project would help ensure that ecosystem benefits would continue to be provided to the diverse habitats of coastal Louisiana well into the future. The project would provide critical habitat for threatened and endangered bird species.

A detailed review of long- and short-term impacts and their duration can be found in the Draft LA RPEA 8 document. This project is part of a larger plan. In addition to being included in the LA RPEA #8, this project is included in the Louisiana 2017 Coastal Master Plan, a comprehensive list of projects that have been prioritized by the CPRA to build or maintain land and reduce risk to communities. The necessary permits and compliance for this project include the following:

- ESA Section 7 (NMFS)
- ESA Section 7 (USFWS)
- Essential Fish Habitat (NMFS)
- Marine Mammal Protection Act (NMFS)
- Marine Mammal Protection Act (USFWS)
- Rivers and Harbors Act/ Clean Water Act (Section 10, USACE)
- Section 106 of the National Historic Preservation Act
- Coastal Zone Management Act
- Migratory Bird Treaty Act (USFWS)
- Coastal Barrier Resources Act (USFWS)

II. *Construction Schedule (What is the anticipated schedule for major phases of work? Include duration of in-water work.)* The estimated construction timeframe of the project is approximately 15 months.

III. *Specific In-Water and/or Terrestrial Construction Methods*

Please check yes or no for the following questions related to in-water work and overwater structures

Does this project include in-water work?	YES☒	NO☐
Does this project include terrestrial construction?	YES☐	NO☒
Does this project include construction of an overwater structure?	YES☐	NO☒
Will fishing be allowed from this overwater structure? N/A	YES☐	NO☐
Will wildlife observation be allowed from this overwater structure? N/A	YES☐	NO☐
Will boat docking be allowed from this overwater structure? N/A	YES☐	NO☐
Will fishing be allowed from this overwater structure? N/A	YES☐	NO☐

If this is a fishing pier, please provide the following information: public or private access to pier, estimated number of people fishing per day, plan to address hook and line captures of protected species, specific operating hours/open 24 hours, artificial lighting of pier (if any), number of fish cleaning stations, and number of pier

attendants (if any).

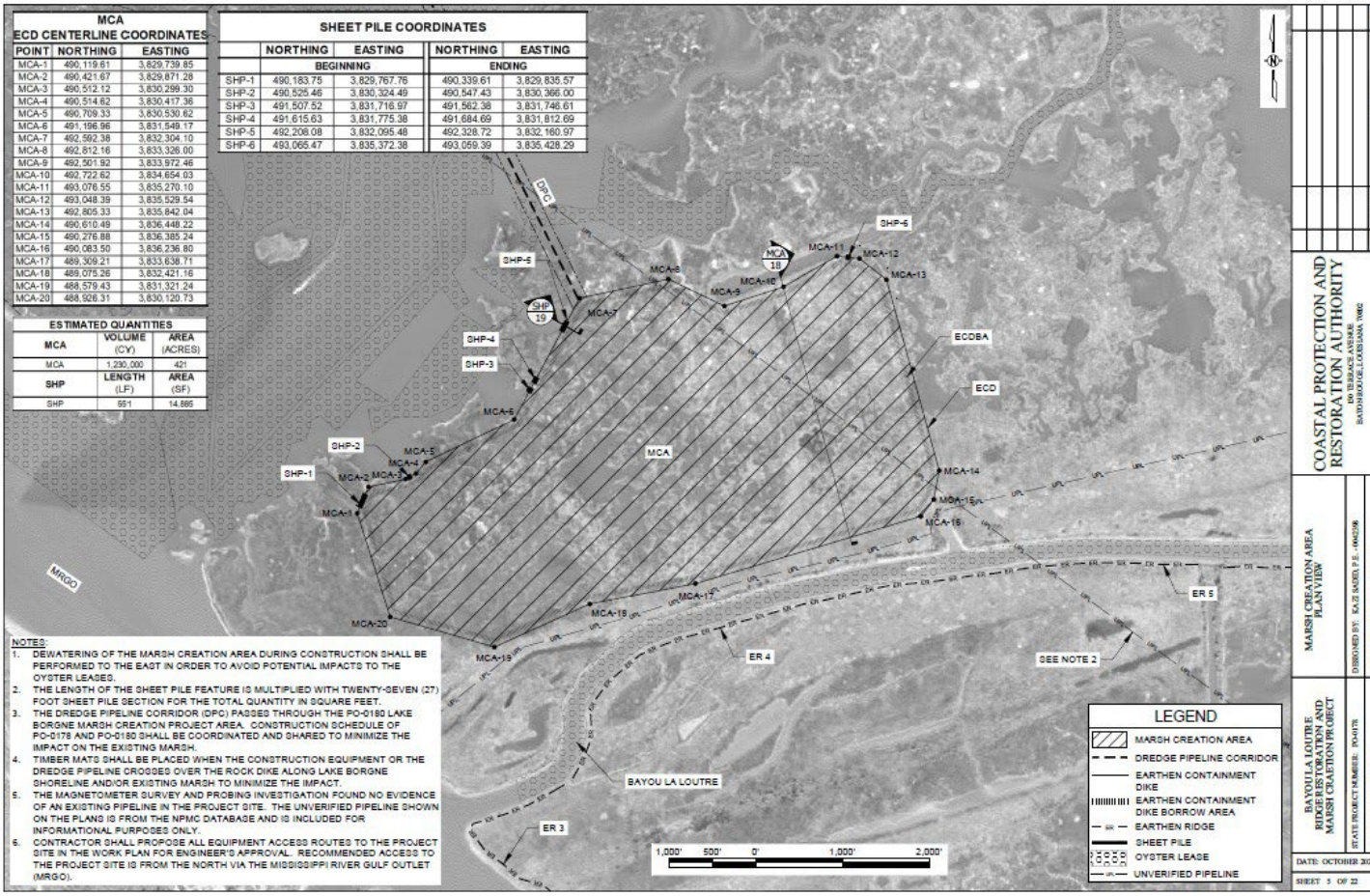
N/A. The project does not propose a fishing pier.

Construction: Provide a detailed account of construction methods. It is important to include step-by-step descriptions of how demolition or removal of structures is conducted and if any debris will be moved and how. Describe how construction will be implemented, what type and size of materials will be used and if machines will be used, manual labor, or both. Indicate if work will be done from upland, barge, or both.)

iii. *Use of "Dock Construction Guidelines"?*
http://sero.nmfs.noaa.gov/protected_resources/section_7/guidance_docs/documents/dockkey2002.pdf iv. *Type of decking: Grated – 43% open space; Wooden planks or composite planks – proposed spacing?* v. *Height above Mean High Water (MHW) elevation?*
vi. *Directional orientation of main axis of dock?*
vii. *Overwater area (sq ft)?*

Construction of this project would require hydraulic placement of marsh fill material. A cutterhead dredge would be used for the marsh fill component. Marsh fill material would be pumped hydraulically to the project area via a submerged or floating pipeline. If used, the floating pipeline would be limited to use only in the borrow area to allow the dredge to traverse the borrow area. Marsh buggies would likely be used to construct the ridge and containment dikes as depths in the marsh fill area appear to be too shallow for use of a bucket or clamshell dredge.

The containment dike fill sources would be excavated from the designated areas adjacent to the containment dikes, within the marsh creation/fill areas. There are several tidal channels which are not conducive to traditional earthen containment dikes due to their depth, which would require sheet pile as containment. These are shown in the figure below. While final construction methods would be left to the contractor, it is possible that sheet piles would be installed using vibratory hammers and pile hammers.



b. *Pilings & Sheetpiles: If this project includes installation of pilings or sheets, please provide answers to questions 1-11 listed below*

1. Method of pile installation	Barge Mounded Excavator
2. Material type of piles used	Steel sheet piles (PZ-22). PZ 22 sheet pile has Modulus of Elasticity of 2.9 x 10^7 psi, Moment of Inertia 84.38 in^4/ft and wall weight 22 lbs/ft^2
3. Size (width) of piles/sheets	22 inches
4. Total number of piles/sheets	350
5. Number of strikes for each single pile	Sheets vibrated in place
6. Number of strikes per hour (for a single pile)	NA
7. Expected number of piles to be driven each day	30
8. Expected amount of time needed to drive each pile (minutes of driving activities)	10 min
9. Expected number of sequential days spent pile driving	12
10. Whether pile driving occurring in-water or on land	In water
11. Depth of water where piles will be driven	Varies from -3.0 ft. to -7.0 ft. NAVD88

c. *Marinas and Boat Slips (Describe the number and size of slips and if the number of new slips changes from what is currently available at the project. Indicate how many are wet slips and how many are dry slips. Estimate the shadow effect of the boats - the area (sqft) beneath the boats that will be shaded.)*

N/A. The project does not propose a marina or boat slip.

d. *Boat Ramp (Describe the number and size of boat ramps, the number of vessels that can be moored at the site (e.g., staging area) and if this is a public or private ramp. Indicate the boat trailer parking lot capacity, and if this number changes from what is currently available at the project.)*

N/A. The project does not propose a boat ramp.

e. *Shoreline Armoring (This includes all manner of shoreline armoring (e.g., riprap, seawalls, jetties, groins, breakwaters, etc.). Provide specific information on material and construction methodology used to install the shoreline armoring materials. Include linear footage and square footage. Attach a separate map showing the location of the shoreline armoring in the action area.*

N/A. The project does not propose shoreline armoring.

f. *Dredging or digging (Provide details about dredge type (hopper, cutterhead, clamshell, etc.), maximum depth of dredging, area (ft2) to be dredged, volume of material (yd3) to be produced, grain size of material, sediment testing for contamination, spoil disposition plans, and hydrodynamic description (average current speed/direction)). If digging in the terrestrial environment, please describe fully with details about possible water jetting, vibration methods to install pilings for dune walk-over structure, or other methods. If using devices/methods/turtle relocation dredging to relocate sea turtles, then describe the methods here.*

The ridge habitat would be built by bucket dredging Bayou La Loutre down to elevation -10-ft NAVD88 with a side slope of 3:1 (H:V). Approximately 421 acres of marsh would be built using sediment hydraulically dredged from Lake Borgne down to bottom elevation -20-ft NAVD88. The marsh creation dredge borrow area is 581 acres. Approximately 1,230,000 cubic yards of sediment would be dredged for marsh creation from the previously approved PO-180 Lake Borgne Marsh Creation project borrow source. A 24-inch cutter head dredge is expected to be used. Sediments in the project area are described in Section E.

Tidal data were procured using the Coastwide Reference Monitoring System (CRMS) stations. Data collected at the CRMS stations between June 1, 2014 to June 1, 2019. Results are shown in the following table:

Station	Mean High Water, ft. (NAVD88, GEOID12A)	Mean Low Water, ft. (NAVD88, GEOID12A)	Mean Tide Level, ft. (NAVD88, GEOID12A)
CRMS 04551	1.20	-0.13	0.53

CRMS 04557	1.14	-0.23	0.46
NOAA 8761305	1.16	-0.21	0.47
Average	**1.17**	**-0.19**	**0.49**

g. *Blasting (Projects that use blasting might not qualify as "minor projects," and a Biological Assessment (BA) may need to be prepared for the project. Arrange a technical consultation meeting with NMFS Protected Resources Division to determine if a BA is necessary. Please include explosive weights and blasting plan.)*

N/A. The project does not propose blasting.

h. *Artificial Reefs (Provide a detailed account of the artificial reef site selection and reef establishment decisions [i.e., management and siting considerations, stakeholder considerations, environmental considerations, long term maintenance plan (periodic clean-up of lost fishing gear/debris]), deployment schedule, materials used, deployment methods, as well as final depth profile and overhead clearance for vessel traffic. For additional Information and detailed guidance on artificial reefs, please refer to the artificial reef program websites for the particular state the project will occur in.*

N/A. The project does not propose artificial reefs.

i. *Fishery Activities (Describe any use of gear that could entangle or capture protected species. This includes activities that may enhance fishing opportunities (e.g. fishing piers) or be fishery/gear research related (e.g. involve trawl gear, gillnets, hook and line gear, crab pots etc)).*

The project does not propose activities that could result in gear entanglement of protected species.

G. NOAA Species & Critical Habitat and Effects Determination Requested

If your project occurs in a location that does not contain any listed NOAA species or designated Critical Habitats, please check the box below. If this box is checked, you may skip Section G. and proceed to Section H.

☐This project occurs in a location that does not contain any listed NOAA species or designated Critical Habitats.

☐ESA effects have been accounted for under an existing consultation.

1. List all species, critical habitat, proposed species and proposed critical habitat that may be found in the action area. Species that do not currently occur in the action area (but are listed on county species lists) do not need to be listed in drop downs.

2. Attach a separate map identifying species/critical habitat locations within the action area. For information on species and critical habitat under NMFS jurisdiction, visit: http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/Documents/gulf_of_mexico.pdf.

Identify if Gulf sturgeon are in marine or in freshwater in your Species and/or Critical Habitat list to determine which federal agency will perform the analysis (e.g. Gulf sturgeon CH - marine). Identify if sea turtles are in water or on land in your Species and/or Critical Habitat list to determine which federal agency will perform the analysis (e.g. Loggerhead sea turtle CH - terrestrial).

Species and/or Critical Habitat	**CH Unit** (if applicable)	**Location** (Sea turtles and Gulf Sturgeon only)	**Determinations** (see definitions below)	**For "No Effect", please select justification.**
Gulf Sturgeon CH	Unit 8	Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Gulf Sturgeon (T)	Unit 8	Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Loggerhead Sea Turtle		Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Kemp's Ridley Sea Turtle (E)		Marine	May Affect, Not Likely to Adversely Affect	Select Most Appropriate
Green Sea Turtle (T)		Marine	May Affect, Not Likely to Adversely Affect	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
Choose an item.		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.
		Choose an item.	Choose an item.	Choose an item.

Determination Definitions

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat.

NLAA = may affect, not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response requested is concurrence with the not likely to affect determination. This conclusion is appropriate when effects to the species or critical habitat will be wholly beneficial, discountable, or insignificant. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact, while discountable effects are those that are extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. If the

Services concur in writing with the Action Agency's determination of "is not likely to adversely affect" listed species or critical habitat, the section 7 consultation process is completed.

LAA = may affect, likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response requested for listed species is formal consultation for action with a likely to adversely affect determination, with a biological opinion as the concluding document. This conclusion is reached if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable or insignificant. In the event the overall effect of the proposed action is beneficial to the listed species or critical habitat, but may also cause some adverse effect on individuals of the listed species or segments of the critical habitat, then the determination is "likely to adversely affect." Any LAA determination requires formal section 7 consultation and will require additional information.

Critical Habitat No Destruction = When the proposed action will not diminish the value of critical habitat.

H. USFWS Species & Critical Habitat and Effects Determination Requested

If your project occurs in a location that does not contain any listed USFWS species or designated Critical Habitats, please check the box below. If this box is checked, you may skip Section G. and proceed to Section H.

☐This project occurs in a location that does not contain any listed USFWS species or designated Critical Habitats.

☐ESA effects have been accounted for under an existing consultation.

1. List all species, critical habitat, proposed species and proposed critical habitat that may be found in the action area. Species that do not currently occur in the action area (but are listed on county species lists) do not need to be listed in drop downs.

2. Attach a separate map identifying species/critical habitat locations within the action area. For information on species and critical habitat under NMFS jurisdiction, visit: http://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/Documents/gulf_of_mexico.pdf.

Identify if Gulf sturgeon are in marine or in freshwater in your Species and/or Critical Habitat list to determine which federal agency will perform the analysis (e.g. Gulf sturgeon CH - marine). Identify if sea turtles are in water or on land in your Species and/or Critical Habitat list to determine which federal agency will perform the analysis (e.g. Loggerhead sea turtle CH - terrestrial).

Species and/or Critical Habitat	**CH Unit** (if applicable)	**Location** (Sea turtles and Gulf Sturgeon only)	**Determinations** (see definitions below)	**For "No Effect", please select justification.**
West Indian Manatee		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.

Eastern Black Rail		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.
Gulf Sturgeon		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.
Monarch Butterfly		Choose an item.	May Affect, Not Likely to Adversely Affect	Choose an item.

Determination Definitions

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat.

NLAA = may affect, not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response requested is concurrence with the not likely to affect determination. This conclusion is appropriate when effects to the species or critical habitat will be wholly beneficial, discountable, or insignificant. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact, while discountable effects are those that are extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. If the Services concur in writing with the Action Agency's determination of "is not likely to adversely affect" listed species or critical habitat, the section 7 consultation process is completed.

LAA = may affect, likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response requested for listed species is formal consultation for action with a likely to adversely affect determination, with a biological opinion as the concluding document. This conclusion is reached if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable or insignificant. In the event the overall effect of the proposed action is beneficial to the listed species or critical habitat, but may also cause some adverse effect on individuals of the listed species or segments of the critical habitat, then the determination is "likely to adversely affect." Any LAA determination requires formal section 7 consultation and will require additional information.

Critical Habitat No Destruction = When the proposed action will not diminish the value of critical habitat.

I. Effects of the proposed project to the species and actions to reduce impacts

NOTE: Species selected as "No Effect" with justification in table do not need to be addressed in Section I or J.

I. *Explain the potential beneficial and adverse effects to each species listed above. Describe what, when, and how the species will be impacted and the likely response to the impact. Be sure to include direct, indirect, and cumulative impacts and where possible, quantify effects.*

If species are present (or potentially present) and will not be adversely affected describe your rationale. If species

are unlikely to be present in the general area or action area, explain why. This justification provides documentation for your administrative record, avoids the need for additional correspondence regarding the species, and helps expedite review.

Loggerhead, Kemp's Ridley, and Green Sea Turtles-
The loggerhead sea turtle (*Caretta caretta*) inhabits both shallow and deep marine water, especially with submerged seagrass beds, salt marshes, bays, tidal passes, and coastal dunes during nesting season, and has been known to nest on the Chandeleur Islands. Main threats to this species include the erosion of barrier islands where nesting occurs, the take of eggs, young, and adult turtles as food and incidental take by fishing and shrimping gear (Coastal Environments, 2013).

Green (*Chelonia mydas*) and Kemp's ridley (*Lepidochelys kempii*) sea turtles may be present in waters within the project area because it is located within the known ranges of these species. Due to the project's distance from the Gulf of Mexico, it is highly unlikely that any of the sea turtle species would be found nesting in the project area as these species nest almost exclusively on ocean beaches (USFWS, 2018).

The two other protected sea turtle species, the hawksbill sea turtle (*Eretmochelys imbricata*) and leatherback sea turtle (*Dermochelys coriacea*) are rarely observed in coastal Louisiana. It is highly unlikely that any of the sea turtle species would be found nesting in the project area as these species nest almost exclusively on ocean beaches (USFWS, 2018). These species would be unlikely to occur in the project area or associated borrow areas, as they lack the coral reef habitat preferred by the hawksbill sea turtle and are too shallow for the leatherback sea turtle.

The project may affect, but is not likely to adversely affect loggerhead sea turtle, Kemp's ridley sea turtle, and the green sea turtle, which infrequently utilize the waters in the project area. Dredging activities associated with the project could result in disturbance/displacement of sea turtles that may be in the area during construction; however, any disturbance/displacement would be temporary and sea turtles would likely move to other open water habitat during dredging activities. Because the marsh restoration feature of the project area is fully confined by containment dikes accessibility by sea turtles would be unlikely during construction.

BMPs including *Measures for Reducing Entrapment Risk to Protected Species*, issued by NOAA Fisheries Southeast Regional Office in May 2012, and *Vessel Strike Avoidance Measures* would be implemented during construction. These BMPs include measures such as monitoring for protected species, including temporary signage, and operating vessels at idle speeds.

West Indian Manatee- The manatee (*Trichechus manatus*) is found in open marine waters, bays, and rivers with submerged aquatic beds or floating vegetation but is not commonly found in Louisiana. Manatees have occasionally visited waterways of the Pontchartrain and Barataria basins. Major threats to the manatee include vessel strike, habitat loss and death due to flood control structures, and extended periods of below freezing temperatures. Manatee presence is

unlikely within the project area. BMPs including *Measures for Reducing Entrapment Risk to Protected Species*, issued by NOAA Fisheries Southeast Regional Office in May 2012, and *Vessel Strike Avoidance Measures* and the *USACE's Standard Manatee Conditions for In-water Work* (USACE, 2011) would be implemented during construction. These BMPs include measures such as monitoring for protected species, including temporary signage, and operating vessels at idle speeds.

Gulf Sturgeon- The project location overlaps the critical habitat for the Gulf sturgeon (*Acipenseriformes oxyrinchus*). Most records of the Gulf sturgeon have been in the Pearl, Bogue Chitto and Tchefuncte rivers, although it is likely to be found in any large river in the Lake Pontchartrain drainage basin. The single most important threat to this species is the incidental catch in trammel and gill nets (LDWF, 2021).

Some of the project specific BMPs and conservation measures include:

1. Avoiding working in riverine critical habitats where Gulf sturgeon are likely to be present (April to October),
2. Operating dredge equipment in a manner to avoid risks to Gulf sturgeon (e.g., disengage pumps when the cutter head is not in the substrate; avoid pumping water from the bottom of the water column).

Eastern Black Rail- The Easter Black Rail (*Laterallus jamaicensis*) require dense overhead cover and are primarily associated with herbaceous, persistent, emergent wetland plants. Along portions of the Gulf Coast, eastern black rails can be found in higher elevation wetland zones with some shrubby vegetation. Impounded and unimpounded intermediate marshes (marshes closer to high elevation areas) also provide habitat for the subspecies. The primary threats to the eastern black rail are habitat loss and destruction, incompatible land management, sea-level rise and tidal flooding, and increasing storm intensity and frequency. . Louisiana has few documented occurrences of eastern black rail, and these occurrences are concentrated in and around southwest Louisiana. Louisiana doesn't have a history of supporting eastern black rails consistently and are considered to be on the peripheries of known breeding areas (DOI, 2020). It is not likely that the eastern black rail would be found in the project area. As intermediate marsh habitats are favored by numerous species of migratory birds, coordination with USFWS may be required if project implementation is to occur during the breeding season. This may result in requirements to conduct pre-construction nesting bird surveys, nest removal and appropriate abatement measures, and/or bird monitoring during construction (ELOS, 2020).

Monarch Butterfly- The Monarch Butterfly (*Danaus plexippus)* is currently being considered for federal listing under the Endangered Species Act. During the breeding season, monarchs lay their eggs on their obligate milkweed host plant. Habitat loss and fragmentation has occurred throughout the monarch's range. Pesticide use can destroy the milkweed monarchs need to survive. A changing climate has intensified weather events which may impact monarch populations. This project may affect, but is not likely to adversely affect the monarch butterfly as they have the ability to avoid disturbance.

Potential Species Impacts

Project specific activities that could potentially affect ESA-listed West Indian manatees, eastern black rail, monarch butterfly, loggerhead, Kemp's ridley, and green sea turtles, and Gulf sturgeon include dredging, ridge and marsh fill, and placement of dredge pipelines. This project may affect, but is not likely to adversely affect these species. Affects to these species are possible due to water quality, noise, entrapment, and collisions with watercraft and dredge equipment. Affects to these species would be unlikely as they are rare in the project area and if present, have the ability to avoid disturbance.

Water quality: In-water construction activities could produce turbidity and siltation. Turbidity could also cause behavioral affects to species and result in reduced productivity (ability of the ecosystem to produce and export energy). Behavioral affects could include fleeing of the area and/or ceasing of feeding or spawning in the area. Siltation could result in displacement of mobile individuals or the mortality of individuals that cannot easily flee.

Noise: Sources of project related in-water and in-air noise could include the use of pile drivers for sheet pile wall installations, earthmoving equipment, dredges, and vessels such as tugboats and service boats.

In-water noise

Vibratory installation of steel sheet pile walls could produce noise levels of up to 163 dBrms at 32.8 ft (10 m) from the source (CalTrans, 2020). Hydraulic cutterhead dredges typically produce underwater noise levels of 175 dB at 3.28 ft (1 m) from the source (Reine and Dickerson, 2014). Tugboats could produce in-water noise levels of up to 175 dBrms at 32.8 ft (10 m) from the source (Veirs et al., 2016). Excavators can result in in-water noise levels of up to 179 dBrms at 3.28 ft (1 m) from the source. Earthmoving equipment and pile drivers would be used in shallow water environments where noise does not propagate effectively (WSDOT, 2020) and would be limited by the adjacent land. It is therefore anticipated that all in-water noise within shallow water environments, would be negligible. In-water project related noise could result in avoidance of the immediate construction area. Any species that leave the immediate construction area due to noise disruptions would be anticipated to return once construction has ended.

In-air noise

Pile drivers could produce in-air noise levels of up to 101 dBA at 50 feet from the source (FHWA 2006).

Excavators could produce noise levels of up to 81 dBA at 50 feet from the source (FHWA 2006).

Tugboats could produce noise levels of up to 87 dBA at 50 feet from the source (Epsilon Associated Inc., 2006). Hydraulic dredges could produce noise levels of up to 80 dBA at 50 feet from the source (Columbia Association 2016). In-air project related noise could result in non-aquatic species including birds avoiding the immediate construction area. Any species that leave the immediate construction area due to noise disruptions would be anticipated to return

once construction commences.

Entrapment: Protected species can become entrapped within construction sites. Therefore, NMFS developed entrapment minimization measures for projects that enclose shallow open water areas for wetland creation or nourishment. For any in-water work, the project would implement measures from *Measures for Reducing Entrapment Risk to Protected Species*, issued by NOAA Fisheries Southeast Regional Office in May 2012.

Vessel Collision: Vessel strike is a potential threat to marine mammals. The project would implement the *Vessel Strike Avoidance Measures* and the *USACE's Standard Manatee Conditions for In-water Work* (USACE, 2011) to minimize potential vessel collision impacts.

With the proposed avoidance and minimization measures the project *may affect but is not likely to adversely affect* West Indian manatees, Eastern Black Rail, Monarch Butterflies, loggerhead, Kemp's ridley, and green sea turtles, and Gulf sturgeon.

II. *Explain the actions to reduce adverse effects to each species listed above. For each species for which impacts were identified, describe any conservation measures (e.g. BMPs) that will be implemented to avoid or minimize the impacts. Conservation measures are designed to avoid or minimize effects to listed species and critical habitats or further the recovery of the species under review. Conservation measures are considered part of the proposed action and their implementation is required. Any changes to, modifications of, or failure to implement these conservation measures may result in a need to reinitiate this consultation.*

Frequently Recommended BMPs: This checklist provides standard BMPs recommended by NOAA and USFWS. Please select any BMPs that will be implemented:

☒	**USFWS Standard Manatee In Water Conditions**
☒	**NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions**[4]
☒	**NMFS Measures for Reducing the Entrapment Risk to Protected Species**[1]
☒	**NFMS Vessel Strike Avoidance Measures and Reporting for Mariners**[1]

Additional BMPs or Conservation Measures

Chapter 6 of the PDARP included an important appendix (6.A) of best practices, see information starting on page 6-173. http://www.gulfspillrestoration.noaa.gov/sites/default/files/wp-content/uploads/Chapter-6_Environmental- Consequences_508.pdf

Use the box below to indicate which best management practices or conservation measures you'll be using in your project (that were not listed in Section I above)

Click here to enter text.

[4] Documents can be found here: http://sero.nmfs.noaa.gov/protected_resources/section_7/guidance_docs/index.html

J. Effects to critical habitats and actions to reduce impacts

NOTE: Species selected as "No Effect" with justification in table do not need to be addressed in Section I or J.

I. *Explain the potential beneficial and adverse effects to critical habitat listed above. Describe what, when, and how the critical habitat will be impacted and the likely response to the impact. Be sure to include direct, indirect, and cumulative impacts to physical and biological features, and where possible, quantify effects (e.g. acres of habitat, miles of habitat).*

Describe your rationale if designated or proposed critical habitats are present and will not be adversely affected.

The borrow area is located in a broad region designated as critical habitat for Gulf sturgeon under the Endangered Species Act, and the depths in Lake Borgne are suitable for Gulf sturgeon (Ross et al., 2009). However, previous studies indicate that Gulf sturgeon prefer foraging habitats with substrate composed of a higher percentage of sand (typically 80 percent or greater) than what is found in Lake Borgne (Ross et al., 2009). Soil classification studies conducted by S&ME, Inc. designated Lake Borne soils as soft fat and organic clays from the mudline to depths varying from approximately 8 to 16-ft., below the soft clay, there were medium clays in broken lays with seams of silt (S&ME, 2019).

The proposed borrow area for this project has been previously permitted for a separate project, PO-180 Lake
Borgne Marsh Creation project. This project was included in the *Louisiana Trustee Implementation Group Draft*
Phase 2 Restoration Plan/Environmental Assessment #1.2: Spanish Pass Ridge and Marsh Creation Project and
Lake Borgne Marsh Creation Project. Following the release of the draft RP/EA 1.2, formal consultation with National Marine Fisheries Service (NMFS) commenced. Prior to the formal consultation, multiple preconsultation calls and meetings were held. Formal consultation included numerous correspondences between project proponents and NMFS. Following a thorough review of the potential impacts to listed species and critical habitat, all potential project effects were found to be discountable, insignificant, or beneficial. It was concluded that the proposed action is not likely to adversely affect ESA-listed species or designated critical habitat under NMFS purview.

Using a borrow area that is already permitted will avoid creating new or additional impacts outside of the area that has been approved. Given the extensive review of the proposed borrow site, it is concluded that this project may affect but is not likely to adversely affect Gulf sturgeon critical habitat.

II. *Explain the actions to reduce adverse effects to critical habitat listed above. For critical habitat for which impacts were identified, describe any conservation measures (e.g. BMPs) that will be implemented to avoid or minimize the impacts. Conservation measures are designed to avoid or minimize effects to listed species and critical habitats or further the recovery of the species under review.*

Conservation measures are considered part of the proposed action and their implementation is required. Any changes to, modifications of, or failure to implement these conservation measures may result in a need to reinitiate this consultation.

Some of the project specific BMPs and conservation measures for the Gulf sturgeon critical habitat include: avoiding working in riverine critical habitats where Gulf sturgeon are likely to be present (April to October), avoid spawning areas when Gulf sturgeon are likely to be present, operating dredge equipment in a manner to avoid risks to Gulf sturgeon (e.g., disengage pumps when the cutter head is not in the substrate; avoid pumping water from the bottom of the water column).

K. Marine Mammals

I. The Marine Mammal Protection Act prohibits the taking (including disruption of behavior, entrapment, injury, or death) of all marine mammals (e.g.,whales, dolphins, manatees). However, the MMPA allows limited exceptions to the take prohibition if authorized, such as the incidental (i.e., unintentional but not unexpected) take of marine mammals. The following questions are designed to allow the Agencies to quickly determine if your action has the potential to take marine mammals. If the information provided indicates that incidental take is possible, further discussion with the Agencies is required.

Is your activity occurring in or on marine or estuarine waters? ☐NO ☒YES

If yes, is your activity likely to cause large-scale, ecosystem level impacts to the quality (e.g. salinity, temperature) of marine or

estuarine waters? ☒NO ☐YES

II. If Yes, describe activities further using checkboxes. Does your activity involve any of the following:

NO	YES	ACTIVITY
☒	☐	*a) Use of active acoustic equipment (e.g., echosounder) producing sound below 200 kHz*
☐	☒	*b) In-water construction or demolition*
☒	☐	*c) Temporary or fixed use of active or passive sampling gear (e.g., nets, lines, traps; turtle relocation trawls)*
☒	☐	*d) In-water Explosive detonation*
☒	☐	*e) Aquaculture*
☒	☐	*f) Restoration of barrier islands, levee construction or similar projects*
☒	☐	*g) Fresh-water river diversions*
☒	☐	*h) Building or enhancing areas for water-related recreational use or fishing opportunities (e.g. fishing piers, bridges, boat ramps, marinas)*
☐	☒	*i) Dredging or in-water construction activities to change hydrologic conditions or connectivity, create breakwaters an living shorelines, etc.*
☐	☒	*j) Conducting driving of sheet piles or pilings*
☐	☒	*k) Use of floating pipeline during dredging activities*

III. If you checked "Yes" to any of the activities immediately above or the activity could impact the quality of marine or estuarine waters, please describe the nature of the activities in more detail or indicate which section of the form already includes these descriptions. See the NOAA Acoustic Guidance for more information: http://www.nmfs.noaa.gov/pr/acoustics/faq.htm

See Section F of this form for a full description of the proposed project activities.

IV. *Frequently Recommended BMPs for marine mammals (manatees are covered in Section I above): This checklist provides standard BMPs recommended by NOAA. Please select any BMPs that will be implemented:*

☒	NMFS Southeast U.S. Marine Mammal and Sea Turtle Viewing Guidelines[5]
☒	NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions[6]
☒	NMFS Measures for Reducing the Entrapment Risk to Protected Species[3]
☒	NFMS Vessel Strike Avoidance Measures and Reporting for Mariners[3]
☒	Reproducing and posting outreach signs: Dolphin Friendly Fishing Tips sign, Don't Feed Wild Dolphins sign[3]

If not listed above, please describe any additional BMPs or conservation measures that may be implemented for marine mammals. Project specific BMPs and conservation measures to protect marine mammals include:

- reporting any collisions to the USFWS or state resource agency and following the most recent version of the standard manatee conditions.
- Monitoring/observing for dolphins during dredging activities following the same protocols used for sea turtles and manatees. Specifically:
    - (a) if dolphins come within 50 yards of active dredging and are not just traveling through the area (e.g. remaining within 50 yards to forage), dredge operations should not start or, if dredging has already begun, they should cease until the dolphins are beyond and are not likely to re-enter (i.e., are on a dedicated path away from the 50 yard area). This is to avoid physical harm from dredge equipment.
    - (b) To avoid perceived physical barriers to dolphins, avoid trans-versing waterbodies with any floating pipelines from the dredge activities.

L. Bald Eagles

Are bald eagles present in the action area? ☒NO ☐YES

If YES, the following conservation measures should be implemented:

[5] Documents can be found here: http://sero.nmfs.noaa.gov/protected_resources/outreach_and_education/index.html
[6] Documents can be found here: http://sero.nmfs.noaa.gov/protected_resources/section_7/guidance_docs/index.html

1. If bald eagle breeding or nesting behaviors are observed or a nest is discovered or known, all activities (e.g., walking, camping, clean-up, use of a UTV, ATV, or boat) should avoid the nest by a minimum of 660 feet. If the nest is protected by a vegetated buffer where there is *no* line of sight to the nest, then the minimum avoidance distance is 330 feet. This avoidance distance shall be maintained from the onset of breeding/courtship behaviors until any eggs have hatched and eaglets have fledged (approximately 6 months).
2. If a similar activity (e.g., driving on a roadway) is closer than 660 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
3. If a vegetated buffer is present and there is no line of sight to the nest and a similar activity is closer than 330 feet to a nest, then you may maintain a distance buffer as close to the nest as the existing tolerated activity.
4. In some instances, activities conducted at a distance greater than 660 feet of a nest may result in disturbance. If an activity appears to cause initial disturbance, the activity shall stop and all individuals and equipment will be moved away until the eagles are no longer displaying disturbance behaviors.

Will you implement the above measures? ☐NO ☒YES

If these measures cannot be implemented, then you must contact the Service's Migratory Bird Permit Office.
Texas – (505) 248-7882 or by email: permitsR2MB@fws.gov
Louisiana, Mississippi, Alabama, Florida – (404) 679-7070 or by email: permitsR4MB@fws.gov

M. Request approval for use of NMFS PDCs for this project

Complete this section only if your project qualifies for streamlined ESA consultation under the ESA Framework Programmatic Biological Opinion completed by NMFS on February 10, 2016. To be eligible for streamlined ESA consultation with NMFS, you must implement all Project Design Criteria (PDCs) applicable to your project. Check "yes" for PDC categories that apply to the proposed project, and request PDC checklist from NMFS.

NO	YES	ACTIVITY
☒	☐	**Oyster Reef Creation and Enhancement**
☒	☐	**Marine Debris Removal**
☒	☐	**Construction of Living Shorelines**
☒	☐	**Marsh Creation and Enhancement**
☒	☐	**Construction of Non-Fishing Piers**

N. Submitting the BE Form

We request that all BE forms and consultation materials be placed on Sharepoint for review. Upon receipt, we will conduct a preliminary review and provide any comments and feedback, including any requests for modifications or additional information. If modifications or additional information is necessary, we will work with you until the Biological Evaluation form is considered complete. Once complete, we will use the Biological Evaluation form to initiate appropriate consultations.

Questions may be directed to:

NMFS ESA § 7 Consultation

Christy Fellas, National Oceanic Atmospheric Administration Email: Christina.Fellas@noaa.gov
Phone: 727-551-5714

USFWS ESA § 7 Consultation

Michael Barron, Department of the Interior
Email:
michael_barron@fws
.gov Phone: 251-421-
7030

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