



DEPARTMENT OF THE ARMY  
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 60267  
NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO  
ATTENTION OF

Regional Planning and Environment  
Division, South  
Environmental Planning Branch

## DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)

### SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT #537 NEW ORLEANS TO VENICE HURRICANE RISK REDUCTION PROJECT: CHANGES TO THE NON-FEDERAL LEVEES PROJECT, OAKVILLE TO ST. JUDE, PLAQUEMINES PARISH, LOUISIANA

**Description of the Proposed Action:** The NFL project consists of approximately 32 miles of levees along the west bank of the Mississippi River. Currently, the levee heights vary throughout the NFL alignment. Authorization was granted for incorporation of replacements and modifications into the New Orleans to Venice Federal project after the NFL received extensive damage from Hurricanes Katrina and Rita.

The NFL project was documented and assessed in the Final Environmental Impact Statement ("FEIS") titled "*Final Environmental Impact Statement New Orleans to Venice, Louisiana Hurricane Risk Reduction Project: Incorporation of Non-Federal Levees from Oakville to St. Jude, Plaquemines Parish, Louisiana*" with a Record of Decision ("ROD") signed October 31, 2011. The original design features, environmental impacts, and mitigation requirements as defined in the FEIS are supplemented by Supplemental Environmental Assessment #537 and this Finding of No Significant Impact. The FEIS and ROD are hereby incorporated into this document by reference.

The FEIS and ROD for the project included an analysis of several alternatives for the construction of the NFL levee. Among the action alternatives, Alternative B was developed to replace or modify 32 miles of the west bank NFL and construct from ground level 2 miles of earthen back levees where no NFL levees previously existed (South Section 5 - West Point a la Hache to St. Jude). In Alternative B, Sections 1-5 of the levees would be raised to an authorized 2 percent design elevation, or approximately a 50-year level of risk reduction elevation using current design criteria. Alternative C included Sections 1-3 of the NFL levee as proposed in Alternative B, but included a "cut-through" to the Mississippi River Levee at the end of Section 3. This would have resulted in Sections 4 and 5 of the NFL being designed only, and not constructed due to insufficient funding. An evaluation of available funding by the U.S. Army Corps of Engineers in August of 2011 determined that current funding levels would not likely be sufficient to complete the NFL project as proposed in Alternative B.

Therefore, the signed ROD approved Alternative C as the recommended plan for the NFL.

A risk analysis performed for the New Orleans to Venice/Non-Federal Levees project by the U.S. Army Corps of Engineers Risk Management Center in August 2015 determined that changing the level of risk reduction elevation from 50-year to approximately 25-year for NFL Sections 2 and 3 would make construction of levees possible for Sections 4 and 5 despite funding constraints. The resulting proposed action reverts back to Alternative B - which had been the preferred alternative in the 2011 FEIS due to the increased level of protection that it could provide – but modifies it to lower the levels of risk reduction in certain areas, as explained above, and to include additional right-of-way.

The proposed action as described in SEA #537 would revert the NFL project design back to Alternative B, with modifications not addressed in the FEIS. These modifications would include a reduction of the LORR to the 25-year/4 percent in several of the levee reaches in NFL Sections 2 - 5. The decrease in the LORR to the 25-year/4 percent in those reaches would allow for the construction and incorporation of NFL Sections 1-5 into the Federal hurricane and storm risk reduction system, as recommended in the risk analysis. Other modifications to Alternative B as described in the FEIS would include additional areas outside of the original project right-of-way; the construction of an earthen levee across the Jefferson Lake Canal Marina; and the relocation of an existing drainage canal and lateral ditches by the Plaquemines Parish Government (“PPG”). The relocation of the existing drainage canal would be carried out by the PPG, and though the need to relocate the drainage canal is a result of the levee construction associated with the proposed action (Alternative B), it is not part of the USACE project activities.

**Factors Considered in Determination:** This U.S. Army Corps of Engineers, New Orleans District (“CEMVN”) has assessed the impacts of the Federal action on important resources including: wetlands; wildlife; threatened and endangered species; essential fish habitat; cultural resources; recreational resources; aesthetics (visual resources); socio-economics; air quality; and noise. On January 19, 2016, draft EA #537 and the associated draft Finding of No Significant Impact were mailed out for a 30-day public review and comment period. Environmental compliance for the Federal action was achieved based upon the following actions.

**Executive Order (E.O.) 11988 Floodplain Management:** Executive Order 11988 directs Federal agencies to reduce flood loss risk; minimize flood impacts on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by flood plains. Agencies must consider alternatives to avoid adverse and incompatible development in the flood plain. If the only practical alternative requires action in the flood plain, agencies must design or modify their action to minimize

adverse impacts. The proposed action represents the least environmentally damaging alternative to accomplish the needed risk reduction system modifications.

**Clean Air Act of 1972:** The Clean Air Act (“CAA”) sets goals and standards for the quality and purity of air. It requires the Environmental Protection Agency to set National Ambient Air Quality Standards (“NAAQS”) for pollutants considered harmful to public health and the environment. The Project area is in Jefferson Parish, which is currently in attainment of NAAQS. The proposed action project area is located in Plaquemines Parish which is currently in attainment of NAAQS. The Louisiana Department of Environmental Quality is not required by the CAA and Louisiana Administrative Code, Title 33 to grant a general conformity determination.

**Clean Water Act Section 404(b)(1):** A Clean Water Act Section 404(b)(1) evaluation and public notice were mailed out for review and comment on January 25, 2016.

**Clean Water Act Section 401:** Coordination with the Louisiana Department of Environmental Quality determined that the State Water Quality Certification issued for the original NFL project described in the FEIS is still valid for the proposed action. On January 7, 2016, LDEQ issued an updated permit number, WQC 110520-01/AI 101235/CER20160001.

**Coastal Zone Consistency:** The CEMVN received coastal zone consistency determination (CZD C20100384) from the Louisiana Department of Natural Resources (“LADNR”) for the FEIS on January 4, 2011. The CZD C20100384 would be modified for the proposed action as described in SEA #537. Coordination with LADNR for modification to CZD was initiated in a letter dated December 30, 2015 and is on-going.

**Endangered Species Act:** On December 16, 2015, the CEMVN submitted an updated threatened and endangered species concurrence to the U.S. Fish and Wildlife Service (“FWS”) with a determination of “not likely to adversely affect” any federally listed threatened or endangered species for the proposed action in SEA #537. The FWS concurred with the determination on January 6, 2016.

**Fish and Wildlife Coordination Act:** The FWS reviewed the proposed action in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 USC 661 et seq.) and provided a draft Fish and Wildlife Consolidation Act Report (FWCAR) on January 7, 2016. This office has concurred with, or resolved, all recommendations contained in the draft FWCAR, and project-specific recommendations have been addressed in SEA #537 and are incorporated into this FONSI.

**Hazardous, Toxic and Radioactive Waste (HTRW):** An ASTM Phase I Environmental Site Assessment (ESA) was completed for the project area, to include NFLS Sections 1 – 5, in July 2009 as part of the FEIS. An ASTM E 1527-05 Phase 1

Environmental Site Assessment (ESA), HTRW 15-11 dated October 6, 2015, has been completed for the NFL project, Section 3, and a Phase I ESA, HTRW 15-12 dated October 13, 2015, has been completed for NFL Section 5. A copy of the Phase 1 ESAs will be maintained on file at the U.S. Army Corps of Engineers, New Orleans District Headquarters. The probability of encountering HTRW for the proposed action is low based on the initial site assessments. If a recognized environmental condition is identified in relation to the project site, the U.S. Army Corps of Engineers, New Orleans District would take the necessary measures to avoid the recognized environmental condition so that the probability of encountering or disturbing HTRW would continue to be low.

**Migratory Bird Treaty Act:** The bald eagle was removed from the List of Endangered and Threatened Species in August 2007 but continues to be protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act of 1918, as amended (MBTA). Three active bald eagle nests exist in close proximity to the project area.

**National Historic Preservation Act:** Section 106 consultation was conducted with the Louisiana State Historic Preservation Officer (“SHPO”) and federally recognized Indian Tribes for the FEIS with a finding of no adverse effect in April 2010. The SHPO concurred with the finding of no adverse effect for the FEIS in a letter dated May 11, 2010. The Alabama-Coushatta Tribe of Texas concurred in their letter dated May 4, 2010, and the Choctaw Nation of Oklahoma concurred in their letter dated June 15, 2010. Consultation with the SHPO and federally recognized Indian Tribes for the proposed action as described in SEA #537 was initiated on January 19, 2016 and is ongoing. Consultation will be completed prior to the final SEA #537 and signed FONSI.

**Environmental Design Commitments:** The following commitments are an integral part of the proposed action:

1. The Corps currently holds a Federal Fish and Wildlife Permit for eagle take associated with, but not the purpose of, the activities discussed in the previously approved EIS. The permit includes avoidance, minimization and mitigation measures that the Corps must comply with which include:
  - a. Bi-weekly monitoring of all nests during nesting season.
  - b. Maintaining a specified distance between the activity and the nest (buffer area).
  - c. Maintaining natural areas (preferably forested) between the activity and nest trees (landscape buffers).
  - d. Avoiding certain activities during the breeding season.

- e. Construction activity is prohibited within 660 feet of an active nest during the nesting season (October 1 – May 15), work cannot damage any part of a nesting tree, and no tree clearing should occur within 330 feet of a nest tree.

**Public Involvement:** The proposed action has been coordinated with appropriate Federal, state, and local agencies and businesses, organizations, and individuals through distribution of SEA #537 for 30-day review and comment period.

**Conclusion:** CEMVN has assessed the environmental impacts of the proposed action relevant resources in SEA #537. The proposed project would have only temporary short term impacts on air quality from heavy equipment operations during construction; short term temporary impacts to adjacent areas from construction noise; temporary transportation impacts from transporting of construction equipment and hauling of borrow materials and scrap materials to/from the construction site.

The proposed action would directly impact 495.9-acres (241.5 AAHUs) of bottomland hardwoods and wetlands. Impacts to wet pasture resulting from the relocation of the drainage canal in Sections 2 and 4 would result in temporary impacts to 59.7-acres (20.8 AAHUs), that would be expected to re-establish within one year following completion of construction. Details of these impacts and mitigation will be described in a separate Environmental Assessment and will include the wetland impacts of the New Orleans to Venice Supplemental Environmental Impact Statement as a large scale mitigation project.

The expansion of the levee footprint would cause moderate permanent impacts to the Essential Fish Habitat (“EFH”) in the project area. Anticipated adverse, long-term impacts on marsh and open water EFH resulting from the implementation of the proposed action includes approximately 0.6 acre of intermediate marsh, 18.7 acres of freshwater marsh, 18.7 acres of brackish marsh, and 15.3 acres of open water. Approximately 53.3 acres of existing EFH marsh and open water bodies would be permanently impacted. As a result of these actions, the CEMVN believes that adverse impacts on some types of EFH may occur, but marsh creation would compensate for these impacts, and the overall productivity of federally managed species would be benefitted. Therefore, the implementation of the proposed action would have a moderate impact on EFH in the region.

Implementation of the proposed action would result in the direct loss of 182.25-acres of prime farmland soils as a result of levee and floodwall construction and related activities. The construction of the new drainage canal, lateral ditches, and associated activities would result in the direct loss of 749.20-acres of prime farmland soils. The loss of soils resulting from levee and floodwall construction would not be significant to

agricultural production locally or regionally, as those soils are not currently under cultivation.

Based on this assessment conducted in SEA #537 which is attached hereto and made a part hereof, and the implementation of the environmental design commitments listed above, a determination has been made that the proposed action would have no significant impact on the human environment. Therefore, an Environmental Impact Statement will not be prepared.

\_\_\_\_\_  
Date

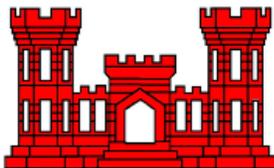
\_\_\_\_\_  
Richard L. Hansen  
Colonel, U.S. Army  
District Commander

DRAFT

# **DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT #537**

**NEW ORLEANS TO VENICE HURRICANE RISK REDUCTION  
PROJECT: CHANGES TO THE NON-FEDERAL LEVEES  
PROJECT, OAKVILLE TO ST. JUDE, PLAQUEMINES  
PARISH, LOUISIANA**

1/19/2016



**U.S. Army Corps of Engineers  
Mississippi Valley Division  
New Orleans District  
Regional Planning and Environment Division South**

# Table of Contents

1.0 INTRODUCTION.....	1
1.1 Project Name and Location .....	3
1.2 Purpose and Need for the Proposed Action .....	5
1.3 Project Authority .....	5
1.4 Prior Reports .....	7
1.5 NEPA Scoping .....	9
2.0 ALTERNATIVES (including the proposed action) .....	9
2.2 No-Action Alternative (Alternative C in the FEIS) Error! Bookmark not defined.	
3.0 AFFECTED ENVIRONMENT.....	23
3.1 Environmental Setting .....	23
3.2 Description of the Watershed.....	23
3.3 Climate .....	24
3.4 Geology.....	24
3.5 Relevant Resources .....	28
3.5.1 Wetlands.....	28
3.5.2 Essential Fish Habitat.....	36
3.5.3 Prime and Unique Farmlands.....	38
3.5.4 Wildlife.....	39
3.5.5 Threatened, Endangered and Protected Species.....	39
3.5.6 Cultural Resources.....	41
3.5.7 Recreation Resources.....	43
3.5.8 Aesthetics.....	43
3.5.9 Socio-Economics.....	44
3.5.10 Environmental Justice.....	53
3.5.11 Noise.....	54
3.5.12 Air Quality.....	54
3.5.13 Hydrology and Water Quality.....	55
4.0 ENVIRONMENTAL CONSEQUENCES.....	55
4.1 Wetlands .....	55
4.2 Essential Fish Habitat .....	61
4.3 Prime and Unique Farmlands.....	62
4.4 Wildlife .....	62

<b>4.5 Threatened, Endangered and Protected Species</b> .....	<b>63</b>
<b>4.6 Cultural Resources</b> .....	<b>63</b>
<b>4.7 Recreation Resources</b> .....	<b>64</b>
<b>4.8 Aesthetics</b> .....	<b>65</b>
<b>4.9 Socio-Economics</b> .....	<b>66</b>
<b>4.10 Environmental Justice</b> .....	<b>69</b>
<b>4.11 Noise</b> .....	<b>70</b>
<b>4.12 Air Quality</b> .....	<b>71</b>
<b>4.13 Hydrology and Water Quality</b> .....	<b>71</b>
<b>5.0 Hazardous, Toxic, and Radioactive Waste (HTRW)</b> .....	<b>72</b>
<b>6.0 MITIGATION</b> .....	<b>72</b>
<b>7.0 CUMULATIVE IMPACTS</b> .....	<b>73</b>
<b>8.0 COORDINATION and public involvement</b> .....	<b>74</b>
<b>9.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS</b> .....	<b>78</b>
<b>10.0 CONCLUSION</b> .....	<b>80</b>
<b>11.0 PREPARED BY</b> .....	<b>81</b>
<b>12.0 REFERENCES</b> .....	<b>81</b>

**List of Tables**

Table 1. Levels of Risk Reduction .....	9
Table 2. Description of Relevant Resources.....	25
Table 3: Natural Habitats (acres) in the Project Area .....	33
Table 4. Designated Essential Fish Habitat.....	38
Table 5. T&E Species in Plaquemines Parish.....	39
Table 6-1 – 6-3. Economic Activity Summaries.....	48
Table 7-1 and 7-2. Environmental Justice Summary Tables.....	54
Table 8. Construction Equipment Noise Levels.....	55
Table 9. Comparative Impacts to Habitat Types by Acreage.....	60
Table 10. List of Preparers.....	81

**List of Figures**

Figure 1. Project Location.....	4
Figure 2. Drainage Canal Relocation.....	18
Figure 3. Jefferson Lake Canal Marina Location.....	22
Figure 4. Habitat Types in Reach NF-04.....	30
Figure 5. Habitat Types in Reach NF-05... ..	31
Figure 6. Habitat Types in Reach NF-06.....	32

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**SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT #537**

**NEW ORLEANS TO VENICE  
HURRICANE RISK REDUCTION PROJECT:  
CHANGES TO THE NON-FEDERAL LEVEES PROJECT,  
OAKVILLE TO ST. JUDE,  
PLAQUEMINES PARISH, LOUISIANA**

**1.0 INTRODUCTION**

The U.S. Army Corps of Engineers (USACE), Regional Planning and Environment Division South (RPEDS), New Orleans District (MVN), has prepared this Supplemental Environmental Assessment (SEA #537) to evaluate the potential impacts associated with proposed modifications to the New Orleans to Venice Non-Federal Levees (“NFL”). The proposed project includes additional work areas identified outside of the original project right-of-way consisting of proposed changes to the levee and floodwall alignments; additional access corridors, ramps, staging areas, and other temporary work easements; changes to the level of risk reduction (“LORR”) from the 50-year (2%) to the 25-year (4%) in several portions of the NFL; improvements to and enlargement of an existing drainage canal; and the construction of an earthen levee across the Jefferson Lake Canal Marina.

The NFL project was documented and assessed in the Final Environmental Impact Statement (“FEIS”) titled “*Final Environmental Impact Statement New Orleans to Venice, Louisiana Hurricane Risk Reduction Project: Incorporation of Non-Federal Levees from Oakville to St. Jude, Plaquemines Parish, Louisiana*” with a Record of Decision (“ROD”) signed October 31, 2011. The original design features, environmental impacts, and mitigation requirements as defined in the FEIS are supplemented by this SEA #537. The FEIS and ROD are hereby incorporated into this document by reference.

The NFL project consists of approximately 32 miles of levees along the west bank of the Mississippi River. Currently, the levee heights vary throughout the NFL alignment. Authorization was granted for incorporation of replacements and modifications into the New Orleans to Venice Federal project after the NFL received extensive damage from Hurricanes Katrina and Rita.

The NFL system is operated and maintained by private landowners and the Plaquemines Parish Government (“PPG”), as the governing authority of the Plaquemines Parish West Bank Levee District (“PPWBLD”). The PPWBLD is also responsible for some of the pump stations, floodgates, control structures, canals, and a

number of freshwater siphons within the Plaquemines Parish protected area. The NFL project is divided into five distinct levee sections, for planning purposes, and a detailed description of each section is provided below.

NFL Section 1 – Oakville to La Reussite. This section begins at Oakville and extends south to La Reussite. The beginning point is south of the Hero Canal west of Highway (LA-23). The section runs 8 miles south to the end point near the outfall canal of the Mississippi siphon pipes at La Reussite.

NFL Section 2 – La Reussite to Myrtle Grove. This section begins where Section 1 ends near the outfall canal of the Mississippi River siphon pipes at La Reussite and runs south 11.8 miles ending to the south of Marina Road at Myrtle Grove.

NFL Section 3 – Myrtle Grove to Citrus Lands. This section begins where Section 2 ends near Marina Road in Myrtle Grove and runs 3.1 miles south ending south of Lake Hermitage Road referred to as Citrus Lands.

NFL Section 4 – Citrus Lands to Pointe Celeste. This section begins at the end of Section 3 near Lake Hermitage Road at Citrus Lands and runs south 9.0 miles ending south of Pointe Celeste approximately 1,500 feet north and west of the West Pointe a la Hache pump station and siphon. This endpoint is where the existing NFL approaches LA-23 from the south and makes a right turn to parallel the highway.

NFL Section 5 – Pointe Celeste to St. Jude. The section begins at the end of Section 4 and runs 3.1 miles south ending at St. Jude Road where the north end of the existing St. Jude to City Price Federal back levee begins. There are 1.1 miles of existing NFL in the upper or northern portion of this section. In the lower portion of Section 5, there is no existing non-Federal back levee along the gulf side of LA-23 for a distance of approximately 2 miles.

The FEIS and ROD for the project included an analysis of several alternatives for the construction of the NFL levee. Among the action alternatives, Alternative B was developed to replace or modify 32 miles of the west bank NFL and construct from ground level 2 miles of earthen back levees where no NFL levees previously existed (South Section 5 - West Pointe a la Hache to St. Jude). In Alternative B, Sections 1-5 of the levees would be raised to an authorized 2 percent design elevation, or approximately a 50-year level of risk reduction elevation using current design criteria. Alternative C included Sections 1-3 of the NFL levee as proposed in Alternative B, but included a “cut-through” to the Mississippi River Levee at the end of Section 3. This would have resulted in Sections 4 and 5 of the NFL being designed only, and not constructed due to insufficient funding.

The draft EIS was released for public comment in May 2011. At the time of public review, the Tentatively Selected Plan was Alternative B, In August of 2011, an internal

re-evaluation of funding by the USACE for the NFL project determined that the then-current funding levels would most likely not be sufficient to complete the NFL project as proposed in Alternative B. Therefore, the signed ROD approved Alternative C as the Recommended Plan.

A risk analysis performed for the New Orleans to Venice/Non-Federal Levees project by the U.S. Army Corps of Engineers Risk Management Center in August 2015 determined that changing the level of risk reduction elevation from 50-year to approximately 25-year for NFL Sections 2 and 3 would make construction of levees possible for Sections 4 and 5 despite funding constraints. The resulting proposed action reverts back to Alternative B - which had been the preferred alternative in the 2011 FEIS due to the increased level of protection that it could provide – but modifies it to lower the levels of risk reduction in certain areas, as explained above, and to include additional right-of-way.

This EA is prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality's Regulations (40 CFR §1500-1508), as reflected in USACE Engineer Regulation (ER) 200-2-2. In accordance with the Procedures for Implementing NEPA, 40 CFR Part 1502.20, this EA provides sufficient information on the potential adverse and beneficial environmental effects of the proposed action to allow the District Commander to make an informed decision on the appropriateness of a Supplemental Environmental Impact Statement (SEIS) or Finding of No Significant Impact (FONSI).

## **1.1 Project Name and Location**

Project Name: New Orleans to Venice Hurricane Risk Reduction Project: Changes to the Non-Federal Levees Project, Oakville to St. Jude, Plaquemines Parish, Louisiana.

Project Location: The project is located on the west bank of the Mississippi River in Plaquemines Parish between Oakville and St. Jude (Figure 1). This area lies in the delta of the Mississippi River approximately 15 miles south of downtown New Orleans. Barataria Bay, an estuary of the Gulf of Mexico, lies on the west side of the Mississippi River delta. The project area consists of a narrow strip of land enclosed by the NFL to the west and by the Federal Mississippi River Levee to the east along the Mississippi River's west bank. The northern and southern bounds of the project area are the communities of Oakville and St. Jude, respectively. The project area extends on the flood-side of the NFL into the coastal marshes along the northeastern perimeter of Barataria Bay. On the Mississippi River, the northern and southern project area limits correspond approximately to River Miles 70 and 46, respectively. Louisiana State Highway LA-23 parallels the Mississippi River along the west bank and traverses the levee-protected area.

NFL Plaquemines Parish - Figure 1

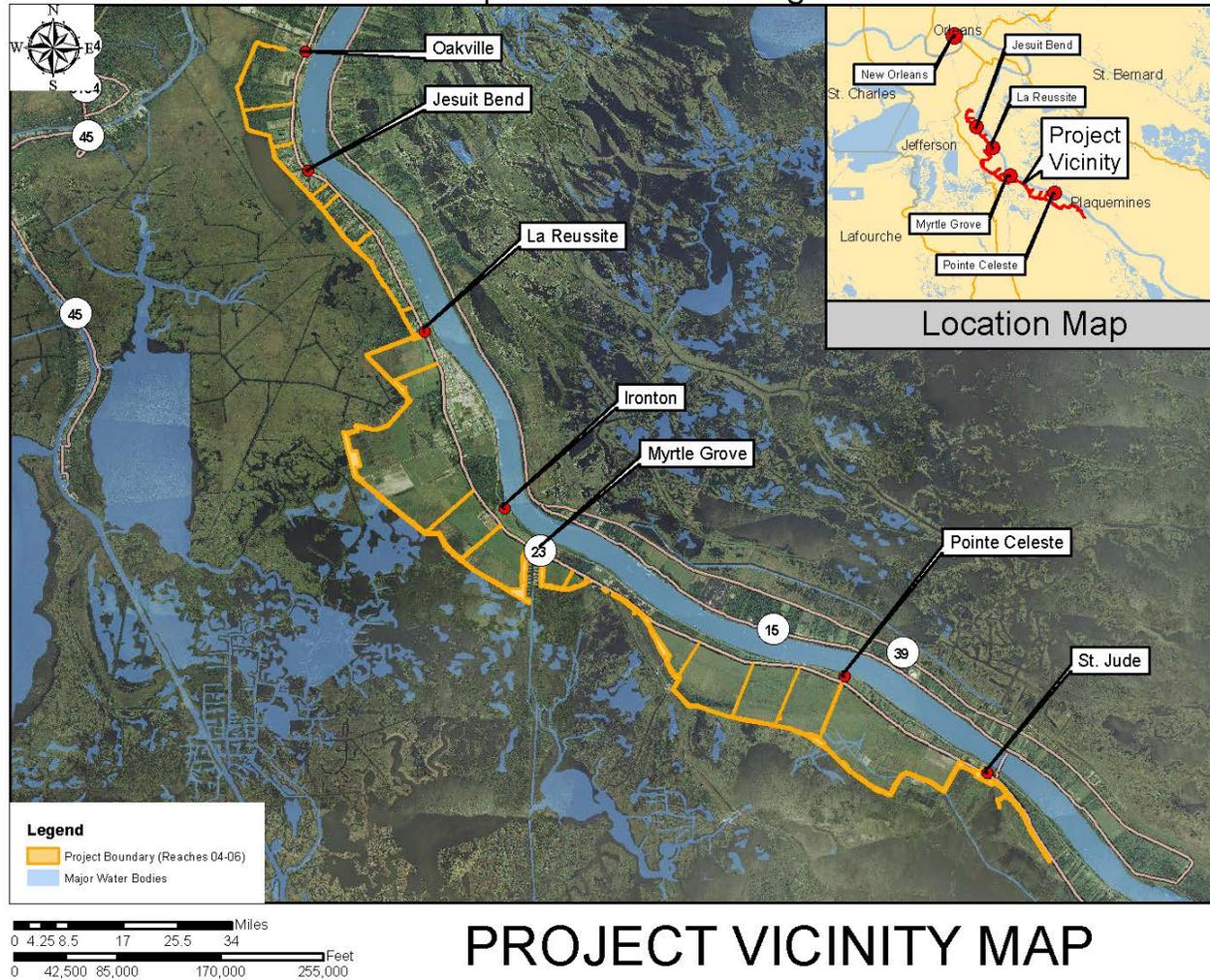


Figure 1. Plaquemines NFL project area.

## **1.2 Purpose and Need for the Proposed Action**

On 29 August 2005, Hurricane Katrina caused major damage to the Federal and non-Federal flood control projects in southeast Louisiana. Hurricane Rita followed this storm on 24 September 2005, made landfall on the Louisiana-Texas state border, and also caused damage to Federal and non-Federal flood control projects in southern Louisiana. Subsequent to the storms, the Corps, working with state and local officials, undertook emergency repairs to Federal and non-Federal flood control projects and related works in the affected area.

The existing back levee was constructed with non-Federal funds on the west side of the Mississippi River to provide hurricane flood risk reduction to the communities from Oakville to St. Jude. The levee has settled and degraded to various degrees, with the northern portion in better condition and at higher elevations than the southern portion. The average grade elevation of the existing levee varies from approximately 8 feet on the northern end to approximately 3 feet in some NFL Sections on the southern end. Because the grade elevation varies by as much as 5 feet and recent hurricanes have further degraded certain Sections, the current level of risk reduction is of low reliability.

The NFL, as previously noted, has received only emergency repairs from hurricane-related damages. This condition exposes residents and businesses in several west bank communities and the hurricane evacuation route (Louisiana Highway 23 (LA 23)), to a higher potential for flooding in the event of a storm or hurricane. The majority of the existing NFL is below the authorized 50-year level of risk reduction (2% LORR). This deficiency creates a 64 percent chance that homes would be inundated during a hurricane event that produces a 50-year flood level.

## **1.3 Project Authority**

Congress approved a series of supplemental appropriations acts following Hurricanes Katrina and Rita to repair or improve Federal and non-Federal flood control projects and related works in the affected area. The USACE, New Orleans and Vicksburg Districts, conducted the study described in this document under the authorities described below.

Under these authorities, a total of \$671,000,000 was allocated for construction at full Federal expense to replace or modify the NFL on the west bank in Plaquemines Parish from Oakville to St. Jude, and to incorporate the levees into the Federal levee system for the purpose of providing enhanced storm surge risk reduction and protection of the evacuation route.

The Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery of 2006 (4th Supplemental - Public Law 109-234, Title II, Chapter 3, Flood Control and Coastal Emergencies [120 STAT. 454-455]) provides: "For an additional amount for 'Flood Control and Coastal Emergencies,' as authorized

by section 5 of the Act of August 18, 1941 (33 U.S.C. 701n), for necessary expenses relating to the consequences of Hurricane Katrina and other hurricanes, \$3,145,024,000, to remain available until expended: Provided, that the Secretary of the Army is directed to use the funds appropriated under this heading to modify, at full Federal expense, authorized projects in southeast Louisiana to provide hurricane and storm damage reduction and flood damage reduction in the greater New Orleans and surrounding areas; . . . \$215,000,000 shall be used to replace or modify certain non-Federal levees in Plaquemines Parish to incorporate the levees into the existing New Orleans to Venice hurricane protection project; . . .” The Flood Control and Coastal Emergencies Section of Title II, Chapter 3, of the Joint Explanatory Statement of the Committee of Conference, page 115, states: “Funds totaling \$3,145,024,000 are recommended to continue repairs to flood and storm damage reduction projects . . . These projects are to be funded at full Federal expense . . . Additionally, the Conferees include: . . . \$215,000,000 for incorporation of non-Federal levees on the west bank of the Mississippi River in Plaquemines Parish in order to provide improved storm surge protection and to protect evacuations routes; . . . .”

The U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007 (5th Supplemental - Public Law 110-28, Title IV, Chapter 3, Flood Control and Coastal Emergencies [121 STAT. 153-154]) provides: “For an additional amount for ‘Flood Control and Coastal Emergencies,’ as authorized by section 5 of the Act of August 18, 1941 (33 U.S.C. 701n), for necessary expenses relating to the consequences of Hurricanes Katrina and Rita and for other purposes, \$1,407,700,000, to remain available until expended:

*Provided, . . . The Secretary of the Army is . . . to prosecute these projects in a manner which promotes the goal of continuing work at an optimal pace, while maximizing, to the greatest extent practicable, levels of protection to reduce the risk of storm damage to people and property . . . .”*

The Supplemental Appropriations Act, 2008 (6th Supplemental – Public Law 110-252, Title III, Chapter 3, Flood Control and Coastal Emergencies [122 STAT. 2349-2350]) provides: “For an additional amount for ‘Flood Control and Coastal Emergencies,’ as authorized by section 5 of the Act of August 18, 1941 (33 U.S.C. 701n), for necessary expenses relating to the consequences of Hurricane Katrina and other hurricanes of the 2005 season, \$2,926,000,000, to become available on October 1, 2008, and to remain available until expended: *Provided*, That funds provided herein shall be used to reduce the risk of hurricane and storm damages to the greater New Orleans metropolitan area, at full Federal expense, for the following: . . . \$456,000,000 shall be used to replace or modify certain non-Federal levees in Plaquemines Parish to incorporate the levees into the existing New Orleans to Venice hurricane protection project; . . . .”

## 1.4 Prior Reports

Information and data on previous and existing floodwall and levee conditions associated with the proposed action were derived from the following reports and are incorporated herein by reference:

SEA #537 builds upon the 2011 FEIS and other earlier documents prepared by CEMVN for the NOV Hurricane Protection Project. These documents are described below and are incorporated herein by reference:

1974, *Final EIS, New Orleans to Venice, Louisiana, Hurricane Protection, U.S. Army Engineer District, New Orleans*. This document discussed the enlargement of the west bank back levee from City Price to Venice (Reaches A, B1, and B2) and construction of a new levee from Phoenix to Bohemia on the east bank of the Mississippi River (Reach C). Barrier levees from Bohemia to 10 miles Above Head of Passes (AHP) on the east bank and Fort Jackson to Venice on the west bank were also discussed in the EIS. The ROD was signed on December 9, 1974.

1985, *Final Supplement I to the EIS, New Orleans to Venice Hurricane Protection Project*. This document discussed the deficiencies of the 1974 Final EIS and also the enlargement of the locally constructed west bank back levee from City Price to Venice, Reaches A (City Price to Tropical Bend), B1 (Tropical Bend to Fort Jackson), and B2 (Fort Jackson to Venice). The ROD was signed on June 27, 1985.

1985, *Mitigation Report, New Orleans to Venice Hurricane Protection Project*. This document discussed the mitigation for the levees from Tropical Bend to Venice – Reaches B1 and B2. This mitigation was accomplished with the creation of 300 acres of marsh in the Delta National Wildlife Refuge (NWR) by breaching the existing Main Pass bank resulting in accretion of marsh by natural deposition of sediments.

1987, *Final Supplement II to the EIS, New Orleans to Venice Hurricane Protection Project*. This document discussed additional impacts for the east bank (Reach C) and west bank Mississippi River Levee (MRL). The east bank barrier levee (1974 EIS, from Bohemia to 10 miles AHP) was dropped from further consideration. The ROD was signed on January 25, 1988.

2010, *Final SEIS, New Orleans to Venice (NOV), Federal Hurricane Protection Levee, Plaquemines Parish, Louisiana*. This document discussed restoring, armoring, and accelerating completion of the NOV Federal levee system in Plaquemines Parish that would provide enhanced storm risk reduction. The ROD was signed on October 31, 2011.

2011, *Final EIS, New Orleans to Venice (NOV), Hurricane Risk Reduction Project: Incorporation of Non-Federal Levees from Oakville to St. Jude, Plaquemines Parish*,

*Louisiana.* This document discussed the replacement or modification of the NFL system for incorporation into the NOV Federal project in Plaquemines Parish. The Recommended Plan, Alternative C, included replacement or modification of 21 miles of existing non-federal back levees on the west bank of the Mississippi River in Plaquemines Parish from Oakville to Citrus Lands (Sections 1-3) for incorporation into the existing NOV federal levee system. The southern terminus of Section 3, at Myrtle Grove, was designed to turn 90 degrees to the east and tie into the existing Mississippi River Levee (MRL). Enhancement of Sections 1-3 of the NFL system included raising the levee to an authorized 2 percent design elevation, or approximately a 50-year level of risk reduction (LORR) based on hurricane modeling techniques current at the time. The ROD was signed on October 31, 2011.

2012, *Environmental Assessment #508, New Orleans to Venice Hurricane Protection Project, West Bank River Levee, Staging Areas and Rights-of-Way (ROW) Additions, Contracts p-14A and P-17A, Plaquemines Parish, Louisiana.* This document was prepared to evaluate the potential impacts associated with additional acreages for construction rights-of-way and staging areas for Contracts P-14A and P-17A reaches located between the communities of Empire and Buras in Plaquemines Parish, Louisiana. The Finding of No Significant Impact (FONSI) was signed on July 3, 2012.

2012, *Environmental Assessment #513, New Orleans to Venice Hurricane Protection Project, Federal Hurricane Protection Levee, Fronting Protection for Diamond and Ollie, Louisiana, Pump Stations Plaquemines Parish, Louisiana.* This document discussed the potential impacts of the expansion of construction right-of-way beyond the scope addressed in the NOV SEIS and NFL EIS that are necessary to complete the fronting protection features at the Diamond and Ollie pump stations. The FONSI was signed on September 6, 2012.

2014, *Environmental Assessment #528, New Orleans to Venice Hurricane Protection Project, Federal Hurricane Protection Levee, Utilization of the Woodland North Borrow Area for Use at the Wilkinson Pump Station (Contract NF-05b), Plaquemines Parish, Louisiana.* This document discussed the utilization of the Woodlands North Borrow Area as a source of clay borrow material for use in construction of a new pump station, the levee tie-in features, and fronting protection features. The FONSI was signed on June 16, 2014.

2014, *Environmental Assessment #529, New Orleans to Venice Hurricane Protection Project, Federal Hurricane Protection Levee, Utilization of the Woodland North Borrow Area for Use on the Oakville to La Reussitte Levees, USACE Contract NF-04a (W912P8-13-C-0024), Plaquemines Parish, Louisiana.* This document discussed the utilization of the Woodlands North Borrow Area as a source of clay borrow material for modification of 8.2 miles of non-federal levees between Oakville and La Reussite in Plaquemines Parish. The FONSI was signed on July 9, 2014.

## 1.5 NEPA Scoping

The FEIS documents two public scoping meetings held in March 2007. Approximately 20 members of the public and representatives from organizations submitted written and oral comments. Six interagency meetings were held between May and December 2008 to receive suggestions and ensure that all identified levee alignments were adequately defined and described and determined the criteria that would be used to evaluate and rank alignments for the replacement or modification of the NFL system.

A public workshop was conducted in September 2009 in Belle Chase. The draft EIS was made available for public review on June 1, 2011. During the 45-day public comment period for the draft, USACE held three separate public meetings to solicit public input.

A full range of alternatives was established, and a preliminary screening was conducted to identify alternatives which would proceed through further analysis. Alternatives were evaluated against criteria such as engineering effectiveness, economic efficiency, and environmental and social acceptability before determining the most feasible (per engineering), least environmentally damaging alternative to accomplish the risk reduction system modifications. The main objective was to maximize system reliability and minimize impacts to the human population and highly valued environmental resources such as various wetlands and dry bottom-land forest, while also keeping in mind schedule and cost. As a result of scoping for the EIS, Alternative B (the proposed action for this EA) was the selected proposed action alternative.

This EA will be mailed to the public for 30 day public review and comment starting January 19, 2016 and available for download on [www.nolaenvironmental.gov](http://www.nolaenvironmental.gov).

## 2.0 ALTERNATIVES (INCLUDING THE PROPOSED ACTION)

The proposed action for SEA #537 is to revert the project design back to Alternative B; however, with certain modifications explained herein and which were not addressed in the FEIS. These modifications would include a reduction of the LORR to the 25-year/4 percent in several of the levee reaches in NFL Sections 2 - 5. The decrease in the LORR to the 25-year/4 percent in those reaches would allow for the construction and incorporation of NFL Sections 1-5 into the Federal hurricane and storm risk reduction system, as recommended in the risk analysis. Other modifications to Alternative B as described in the FEIS would include additional areas outside of the original project right-of-way; the construction of an earthen levee across the Jefferson Lake Canal Marina; and the relocation of an existing drainage canal and lateral ditches by the PPG. The relocation of the existing drainage canal would be carried out by the PPG, and though the need to relocate the drainage canal is a result of the levee construction associated with the proposed action (Alternative B), it is not part of the USACE project activities. The PPG would be responsible for obtaining any necessary environmental permits for the relocation of the drainage canal and associated lateral ditches.

**Areas Outside of Right-Of-Way and Changes to the Level of Risk Reduction:**

The proposed change from Alternative C to a modified Alternative B would require changes to the project’s design resulting in realignments of the levees and floodwalls, as well as the need for additional access roads, staging areas, ramps, and other temporary work easements that were identified during design and not accounted for in the FEIS. As previously discussed, the risk analysis that was prepared recommended changing the LORR elevation from 50-yr (2%) to approximately 25-yr (4%) for contract reaches in NFL Sections 2 and 3. Reducing the LORR in Sections 2 and 3 would make it possible to expand the LORR in Sections 4 and 5 - certain portions of which currently have limited or no flood risk reduction - despite funding restraints. Table 1 identifies the levels of risk reduction that are proposed in each of the NFL Sections and associated contract reaches.

**TABLE 1. LEVELS OF RISK REDUCTION BY NFL SECTION AND CONTRACT REACH.**

Section		Location	Structure Type	Contract Reach	Level of Risk Reduction
1		Oakville to La Reussite	Levee	NOV-NF-W-04a	50-year/2%
1		Oakville to La Reussite	T-Wall	NOV-NF-W-04a.1	50-year/2%
1		Ollie Pump Station Fronting Protection	Floodwall	NOV-NF-W-04b	50-year/2%
2		La Reussite to Wilkinson Pump Station	Levee	NOV-NF-W-05a.1	25-year/4%
3		Wilkinson Pump Station to Woodpark	Levee	NOV-NF-W-05a.2	25-year/4%
3		Woodpark	T-Wall	NOV-NF-W-06b.1	50-year/2%
4		Woodpark to Pointe Celeste	Levee	NOV-NF-W-06a.1	25-year/4%
4		Pointe Celeste Pump State (Fronting Protection)	Floodwall and embankment earthwork	NOV-NF-W-06b.2	50-year/2%
4		Pointe Celeste to West Point a la Hache	Levee	NOV-NF-W-06a.2	25-year/4%
5		Gulf South Pipeline <sup>1</sup>	T-Wall	NOV-NF-W-06b.3	50-year/2%
5		West Point a la Hache to St. Jude	Levee	NOV-NF-W-06a.3	25-year/4%
5		Magnolia Pump Station	Floodwall	NOV-NF-W-06b.5	50-year/2%

<sup>1</sup>Work for the Gulf South Pipeline will be performed at two separate locations; near the existing West Point a la Hache Pump Station and Jefferson Lake Canal.

### **Section 1 - Oakville to La Reussite Levee (NOV-NF-W-04a)**

This levee contract reach is from STA 1000+00.87 to STA 1437+67.36 on the west bank NFL back levee between Oakville and La Reussite. Construction consists of a 546 linear feet (LF) of floodwall at 11.5 foot NAVD 88 (2004.65) that ties in at the WBV-09a pump station in Oakville. Levee improvements are constructed to a design height ranging from 7.5 feet North American Vertical Datum ("NAVD") 88 (2004.65) in the north to 9.0 feet NAVD 88 (2004.65) in the south at La Reussite. The levee and floodwall are constructed to provide a 50-year LORR elevation.

This reach would require the excavation of 350,600 cubic yards of existing levee, the placement of 1,087,042 cubic yards of fill, and approximately 2,000,000 cubic yards of borrow would be required. Access roads would be a minimum of 24 feet wide with 8 inches of crushed stone, and a 12 foot x 30 foot wash down rack would be placed 30 feet from edge of pavement on Highway 23. There are two staging areas totaling 6.18 acres. The total project area is approximately 186.61 acres. All other access roads and project features fall within the original right-of-way as evaluated in the FEIS.

### **Section 1 - Oakville to La Reussite T-Wall (NOV-NF-W-04a.1)**

This floodwall contract reach is from STA 1308+10 to STA 1310+70 on the west bank NFL back levee. Construction consists of a 504 LF of floodwall for three American Midstream and Embridge gas line crossings. The existing gas lines would be temporarily relocated within the project right-of-way during construction of the proposed T-Wall. Finished top elevation of the floodwall is 13 feet NAVD 88 (2004.65) at La Reussite. This floodwall is constructed to provide a 50-year LORR elevation.

This reach would require the excavation of 6,250 cubic yards, the placement of 15,000 cubic yards of fill, and 30,000 cubic yards of borrow would be required. There is one staging area totaling 0.52 acres. All other access roads and project features fall within the original right-of-way as evaluated in the FEIS.

### **Section 1 - Ollie Pump Station Fronting Protection (NOV-NF-W-04b)**

This contract reach is from ~STA 14.73 to STA 1251+66.93 at the existing Ollie Pump Station. Access to the site is via Ollie Drive. Construction consists of building fronting protection for the pump station and extending the six pump discharge pipes through the new floodwall. Finished top elevation of the floodwall at La Reussite is 13.50 feet NAVD 88 (2004.65). The fronting protection is constructed to provide a 50-year LORR elevation.

This reach would require the placement of 16,648 cubic yards of fill, 33,296 cubic yards of borrow would be required, and no additional excavation would be needed. One access road would be a minimum of 24 feet wide with 8 inches of crushed stone, and a 12 foot x 30 foot wash down rack would be placed 30 feet from edge of pavement on LA 23. There is one staging area totaling 0.11 acres. The total project area is

approximately 3.25 acres. All other access roads and project features fall within the original right-of-way as evaluated in the FEIS.

### **Section 2 – La Reussite to Wilkinson Pump Station Levee (NOV-NF-W-05a.1)**

This levee contract reach is from STA 0+00 to STA 473+00 on the west bank NFL back levee between La Reussite and Myrtle Grove. Construction consists of three floodwalls at pipeline crossing locations. Levee improvements are constructed to a design grade of 7.5' at the northern end and 10.0' at the southern end. The Phase 1 construction grade varies from elevation 8.0 at the northern end to 13.0 at the southern end. The Phase 2 construction grade varies from elevation 10.5' at the northern end to 13.5' at the southern end. This levee is constructed to provide a 25-yr LORR elevation.

This reach would require the placement of 2,898,059 cubic yards of fill, approximately 5,796,200 cubic yards of borrow would be required, and approximately 104,000 cubic yards of existing levee would be excavated. Access roads would be a minimum of 30 feet wide with 10 inches of crushed stone. A 12 foot x 30 foot wash rack would be placed 30 feet from the edge of LA 23. All other access roads and project features fall within the original right-of-way as evaluated in the FEIS.

### **Section 3 - Wilkinson Canal Pump Station (NOV-NF-W-05b)**

This contract reach is the construction of a new pump station to replace the existing Wilkinson Canal pump station. Access to the site is via HWY 23. The pump station has 4 pumps with a total discharge capacity of 1067 CFS. Finished top elevation of the floodwall is 16.0 NAVD 88 (2004.65).

This reach would require the placement of 248,247 cubic yards of fill and 55,314 cubic yards of sand fill, approximately 500,000 cubic yards of borrow would be required, and approximately 49,220 cubic yards of existing levee would be excavated. One access road would be a minimum of 30 feet wide with 10 inches of crushed stone, and a 12 foot x 3 foot wash down rack would be placed 30 feet from edge of pavement on LA 23. The total project area is approximately 50.19 acres. All other access roads and project features fall within the original right-of-way as evaluated in the FEIS.

### **Section 3 - Wilkinson Pump Station to Woodpark Levee (NOV-NF-W-05a.2)**

This levee contract reach is from STA 931+00 to STA 1064+26.11 on the west bank NFL back levee in the vicinity of the Myrtle Grove Marina Estates neighborhood. The 25-yr LORR elevation design grade is 10.0'. The Phase 1 construction grade varies from elevation 15.0 at the northern end to 12.0 at the southern end. The Phase 2 construction grade varies from elevation 16.0' at the northern end to 13.5' at the southern end. Two gated box culverts would be constructed to allow for the continued existing drainage flow from Myrtle Grove. This levee is constructed to provide a 25-yr LORR elevation.

This reach would require the placement of 1,061,800 cubic yards of fill and 20,700 cubic yards of sand fill, approximately 2,123,600 cubic yards of borrow would be required, and approximately 71,600 cubic yards of existing levee would be excavated. One access road would be a minimum of 30 feet wide with 10 inches of crushed stone, and a 12 foot x 30 foot wash down rack would be placed 30 feet from edge of pavement on LA 23. The total project area is approximately 116.3 acres. All other access roads and project features fall within the original right-of-way as evaluated in the FEIS.

### **Section 3 - Woodpark T-Wall (NOV-NF-W-06b.1)**

This floodwall contract reach is from STA 10+00 to STA 132+81 on the west bank NFL back levee. Work consists of the construction of a 2,185 LF concrete floodwall adjacent to LA 23 in the Woodpark Subdivision of Plaquemines Parish. Access to the Woodpark neighborhood would be a road over the adjacent levees at the north and south ends of the project with the access points to LA 23. The LA 23 access points would include asphaltic paved highway crossovers, turn lanes and acceleration lanes constructed within the existing LADOTD right-of-way. The work would consist of constructing reinforced concrete floodwalls, embankment placement for levee tie-ins, sheetpile cutoff, armoring of transition zones, drainage modifications, asphaltic paving for LA 23 improvements and crushed stone access road. As part of this floodwall project, the LORR within these areas would be constructed to the required 2%, 50-yr design elevation of 16.5 feet. Finished top elevation of the floodwall would be 16.5' NAVD 88 (2004.65).

Excavation activities include the removal of the preloads at the tie-ins, to construct the floodwalls, the installation of the drainage pipes, and installation of catch basins. The approximate amount of material to be excavated from existing levees is 2,000 cubic yards. The project would require approximately 50,500 cubic yards of borrow material for the construction of the levee tie-in, preloads, access road and ramps. The project would have two truck wash down racks, one located near the west entrance to LA 23 and the other would be located near the east entrance of LA 23. The project would have one staging area that encompasses 1.78 acres that would be surfaced with crushed stone. It is estimated that 18 acres would have vegetation removed by the clearing and grubbing operations. All other access roads and project features fall within the original right-of-way as evaluated in the FEIS.

### **Section 4 - Woodpark to Pointe Celeste Levee (NOV-NF-W-06a.1)**

This levee contract reach is from STA 1096+00 to STA 1396 +11 on the west bank NFL back levee between Lake Hermitage Road and Point Celeste pump station. Construction consists of 5.7 miles of levee enlargement. The Phase 1 construction grade varies from elevation 12.5' at the northern end to 15.0' at the southern end. The Phase 2 construction grade varies from elevation 12.0' at the northern end to 13.5' at the southern end. This levee is constructed to provide a 25-yr LORR elevation.

This reach would require approximately 1,600,000 cubic yards of borrow material, and approximately 54,000 cubic yards of new drainage ditch would be excavated and approximately 8,000 cubic yards of existing levee would be excavated. There would be 180 acres of existing vegetation cleared and grubbed. Three privately owned roads that are approximately 12-15 feet wide would provide some of the access to the project area. New access roads would be 15 feet wide with 7 inches of crushed stone surfacing. A 12 foot x 15 foot wash down rack would be placed 30 feet from the edge of pavement on LA 23. The reach has one proposed staging area of 0.45 acres that would require no additional clearing or placement of surface material. All other access roads and project features fall within the original right-of-way as evaluated in the FEIS.

A temporary detour road would be placed at the existing Lake Hermitage Road when construction activities causes closure of the existing road. The temporary detour road would be 22 feet wide with separator fabric and 7 inches of crushed stone surfacing. Lake Hermitage Road would be relocated to cross over the levee once levee construction was completed.

#### **Section 4 - Fronting Protection at Point Celeste Pump Station (NOV-NF-W-06b.2)**

This contract reach is from STA 0+00 to STA 12+39.5 on the west bank NFL back levee at Point Celeste pump station. Work consists of constructing approximately 700 LF of floodwall, modifications to the existing pump stations to extend the discharge pipes, relocate the keel cooler and to provide knife gate valves for backflow prevention, supply the pump stations with electrical power and embankment earthwork. Levee Tie-ins would be constructed of grouted riprap where the wall transitions into levee. Levee sections would be constructed to match the existing crown elevations for the levee contracts at either end of the reach. The finished top elevation of the floodwall is 17.5 NAVD 88 (2009.55) which is constructed to provide a 2%, 50-year LORR elevation.

The levee lift would require approximately 24,000 cubic yards of borrow material. New drainage ditches and pipe culverts would be constructed to route water away from the project site. Temporary pumps would be installed during construction to allow one pump station to be taken off line at a time during construction. Excavation activities include the removal of the preloads at the tie-ins, the construction of the floodwalls, the installation of the temporary pumps, drainage pipes, catch basins; as well as dredging operations for the floating plant. The approximate amount of existing material to be excavated is 13,000 cubic yards. The project access would be from LA 23 along Pointe Celeste Pump Station road and from Lake Judge Perez. The contractor would construct four drainage canal crossings with 20 foot wide temporary access roads to access two staging areas that are 0.8 acres each and all would be cleared and surfaced with crushed stone. The project would have two truck wash down racks located in the staging areas. It is estimated that 6.5 acres would have vegetation removed by the clearing and grubbing operations. All other access roads and project features fall within the original right-of-way as evaluated in the FEIS.

#### **Section 4 - Pointe Celeste to West Point a la Hache Levee (NOV-NF-W-06a.2)**

This levee contract reach is from STA 1410+00 to STA 1674+40 on the west bank NFL back levee between Point Celeste pump station and West Point a la Hache.

Construction consists of 4.2 miles of levee enlargement between Point Celeste Pump Station and West Pointe a la Hache. Phase 1 varies between 14.5 feet and 12.5 feet; and Phase 2 varies between 14.0 feet and 12 feet. This levee is constructed to provide a 25-yr LORR elevation.

This reach would require approximately 1,619,000 cubic yards of borrow material, approximately 4,000 cubic yards of new drainage ditch to be excavated, and 18,000 cubic yards of existing levee to be excavated. There would be 140 acres of existing vegetation cleared and grubbed. Access roads would be 24 feet wide with 7 inches of crushed stone surfacing. A 12 foot x 15 foot wash down rack would be placed 30 feet from edge of pavement on LA 23. The reach has one proposed staging area of 0.34 acres that would require no additional clearing or placement of surface material. All other access roads and project features fall within the original right-of-way as evaluated in the FEIS.

#### **Section 5 - Gulf South Pipeline and Siphon T-Walls (NOV-NF-W-06b.3)**

This floodwall contract reach for the Gulf South Pipeline is from STA 202+27 to STA 204+87, and STA 9+75 to STA 15+24 for the Siphon T-Walls on the west bank NFL back levee. Work consists of approximately 580 LF of floodwall and embankment earthwork. The utility floodwalls and fronting protection are located at the Gulf South Gas Pipelines (20" & 8" diameter), & the 72" Diameter Siphons. The work for this project would be performed at two separate locations just off LA 23 (southbound lane), near the existing West Point a La Hache Pump Station & Jefferson Lake Canal. Finished top elevation of the floodwall is 17.5 NAVD 88 (2009.55). This floodwall is constructed to provide a 50-year LORR elevation.

The estimated amount of excavation of existing levee required for this reach is 13,500 cubic yards. The majority of the excavation would be performed within the Temporary Retaining Structure (TRS) for the Siphon Monoliths M-8 & M-9. The remainder of the T-Walls would be constructed along the existing levee which requires minimal excavation. The estimated amount of vegetation to be clear and grubbed is 5 acres including the Contractor Staging Area located along LA 23. A total of three Contractor Staging Areas (150 feet x 100 feet in area) would be required: one near the Gulf South Pipeline and two near the Siphon Area (placement of all three would be at the discretion of the Contractor). Surfacing & bedding material would be required up to and at each staging area. The estimated amount of borrow material required is 15,000 cubic yards (including the levee preloads) at both project locations. Borrow material would be obtained from an USACE approved borrow site.

Access via the existing levee access roads and existing driveways would be paved with asphalt (only at the highway entrances) at the request of Louisiana Department of

Transportation and Development (LADOTD). The existing access roads are approximately 15-20 feet in width, which would provide adequate clearance for ingress/egress to heavy vehicles. No new access roads would be required as part of this reach. Truck wash down racks (400 square feet in area) would be installed only at the Siphon project site. Truck wash down racks from an existing levee preload project would be left in near the gulf south project site for the NOV-6b.3 contractor. All other access roads and project features fall within the original right-of-way as evaluated in the FEIS.

### **Section 5 - West Point a la Hache to St. Jude (NOV-NF-W-06a.3)**

This levee contract reach is from STA 1674+40 to STA 1780+30.46. Construction consists of 2 miles of levee enlargement from West Point a la Hache to St. Jude. Phase 1 design grade is 14.0. Phase 2 design grade is 13.0. This levee is constructed to provide a 25-yr LORR elevation.

This reach would require approximately 415,000 cubic yards of borrow material, and approximately 64,200 cubic yards of new drainage ditch would be excavated. There would be 65.1 acres of existing vegetation cleared and grubbed. Three privately owned roads that are approximately 12-15 feet wide would provide some of the to the project area. New access roads would be 25 feet wide with 7 inches of crushed stone surfacing. A 12 foot x 15 foot wash down rack would be placed 30 feet from edge of pavement on LA 23. The reach has one proposed staging area of 0.16 acres that would require no additional clearing or placement of surface material. All other access roads and project features fall within the original right-of-way as evaluated in the FEIS.

### **Section 5 - Magnolia Pump Station (NOV-NF-W-06b.5)**

This contract reach is the construction of a new pump station from STA 33+80 to STA 42+00 – The pump station has 3 pumps with a total discharge capacity of 275 cubic feet/second (cfs). The project consists of approximately 800 linear feet of floodwall and levee tie in, a 275 cfs pump station, safe room, drainage ditch modifications, and access roads. Other project features include a new permanent crushed stone access road from LA 23, and intake and discharge ditches for the pump station. Finished top elevation of the floodwall is 17.5 NAVD 88 (2004.65). This floodwall is constructed to provide a 50-year LORR elevation. The project would also close a gap of approximately 200 foot to close the levee system at station 120+00.

The area of possible vegetation removal is approximately 24 acres, and would include approximately 10 acres that would be removed during the NOV-NF-W-06a3 project.

Excavation for the project would include removing the preload material at the floodwall and pump station site and excavating the intake and discharge channels for the pump station. The amount of preload material to be removed is approximately 35,000 cubic yards including the pump station excavation. Because of this volume of preload to be removed there is no anticipated borrow material needed. The intake canal excavation is

approximately 20,000 cubic yards/second (cys). The discharge canal excavation is approximately 35,000 cys. Excavated materials would be disposed of at a permitted disposal facility.

The permanent access road would be on the North side of the proposed project. It would be 18 feet wide and surfaced with crushed stone. On the south side of the project there would be a temporary 12 feet wide access road made of crushed stone. Both access roads would have 20 foot x 20 foot truck wash down racks near LA 23.

The project contains two staging areas that are 5,000 and 10,000 square feet in size and surfaced with aggregate material. All other access roads and project features fall within the original right-of-way as evaluated in the FEIS.

### **Construction Staging Areas and Access Roads:**

Staging areas for the temporary storage of construction materials and access roads would be needed at various locations throughout the project area. The two main criteria for selecting staging and access route location were (1) the locations must not impact wetlands, and (2) the selected sites must be located within areas investigated for cultural resources and avoid impacts to documented historic properties. Temporary staging areas would be located in previously converted non-wetland areas in close proximity to construction, and access roads would be located on existing parish transportation routes. If during construction it is determined that staging areas and access or haul roads would be situated outside the areas of analysis then additional environmental documentation would be necessary. During levee and floodwall construction, maintenance of the access roads would include the grading of ruts and adding additional crushed stone as necessary.

### **Borrow Material Requirements:**

Approximately 14,206,596 cubic yards of non-compacted clay will be required for the entire Plaquemines NFL levee project. Earthen levee construction requires a specific type of clay material which compacts well and prevents seepage. This material has specific requirements related to the amounts of sand, organic material, etc. Before borrow material can be used for levee construction, soil borings, testing, and environmental clearance of potential borrow sites needs to be completed. Several sources of suitable borrow material exist, and are available for use by the NFL project. Potential sources for suitable borrow material includes the use of Government-furnished and Contractor-furnished borrow areas.

### **Drainage Canal Relocation:**

As a consequence of expanding the levee base in portions of NFL Sections 2 and 4, the Plaquemines Parish Government ("PPG") drainage canal located on the protected side of the existing NFL would be filled. The filling of the PPG canal at the toe of the NFL was

approved in the FEIS and ROD. In order to maintain the existing PPG drainage system capacity, the service provided by the filled drainage canal must be re-established, and would be done so as a compensable relocation by the PPG. The relocation of the drainage canal as proposed by the PPG would improve and enlarge existing interior drainage canals in Sections 2 and 4 (**Figure 2**) to provide the same level of service as that of the existing drainage canal at the protected-side toe of the NFL levee. The drainage service area in Section 2 extends for approximately 5 miles from La Reussite to Myrtle Grove. Waters collected in this system drain to the Wilkinson Canal Pump Station, which is being relocated as part of the NFL project. The drainage service area in Section 4 extends for approximately 7 miles from Lake Hermitage Road to West Pointe a la Hache. Waters in this system drain to the Point Celeste Pump Station.

Excavation activities would also include four areas in Section 2 and four areas in Section 4 (**Figure 2**) where drainage between the central canal and existing lateral ditches would be improved. Surface water flow in the lateral ditches located between the central drainage canal segments and the NFL currently drains in a southwesterly direction into the existing drainage canal. The existing ditches would be deepened to create gravity flow in the opposite direction and the connections to the improved canal segments would be established utilizing polyvinyl chloride (PVC) pipes, installed or replaced as needed.

Excavation activities in the drainage canal segments and lateral ditches are estimated to produce approximately 1.05 million cubic yards of excavated canal sediments and vegetation material. The excavated material would be transported to fill the inactive Conoco Phillips borrow pit area of approximately 42.1 acres on the Conoco Phillips property located in Section 2. The material would also be temporarily stockpiled in one area located in Section 2 (approximately 66.88 acres) and two areas located in Section 4 (approximately 50.44 acres and 45.10 acres). The stockpiled material would be used by the respective landowners. The fill and stockpile areas do not contain any wetlands and would not be used to fill wetlands. A 0.09 mile segment of existing interior drainage canal at the southeastern end of Section 2 would also be filled with the excavated material.

The proposed action includes improving the existing road networks to provide access for construction and maintenance of the project. The project areas contain parish roads and several other existing access roads. The road network is not complete and the condition of the existing access roads varies. Therefore, in order to facilitate access to the NFL and the drainage canal improvement areas, the construction of six new access roads and one temporary access road, and the improvement of two existing roads would be necessary. The proposed activities in Section 2 include a temporary road between the improved canal and the former Conoco Phillips borrow pit that is proposed to be filled with excavated material. Four new roads are proposed to be constructed in Section 4. These roads would provide access to the work areas for the proposed project. New construction and road improvements involve surfacing approximately 5.95 miles of new roads, 0.80 mile of temporary road, and resurfacing approximately 3.03 miles of existing roads. After

construction, all the access roads, except the temporary road, would be maintained by the parish for access to the NFL and the drainage canals.

A 20-foot maintenance road along the widened canal would be part of the construction easement. The width of the canal bottom would vary from 20 to 60 feet and the depth from top of bank to canal bottom would vary from 4 to 9 feet. The canal segments increase to the greatest width and depth where they enter the intake basins for the pump stations. The total construction easement width for improved canal segments would not exceed 200 feet. Approximately 10.52 miles of canal would be excavated and the same length of maintenance roads would be surfaced with aggregate.

Three new canal segments would be excavated, and would include a 20-foot maintenance road. The construction easement for these new segments is approximately 100 to 125 feet wide, with a canal bottom width of 20 to 40 feet. The length for both the new canal segments and maintenance roads is approximately 2.78 miles.

All access roads including the maintenance roads within the canal segments total approximately 20.08 miles. All of these roads would be surfaced with geotextile fabric overlaid with approximately 55,400 tons of aggregate.

Some existing culverts would be replaced and some new culverts would be installed in order to maintain water flow under the access and maintenance roads. Depending upon the width of the canal and length of the road crossing, 1 to 4 barrels of 24, 36, or 48 inches would be installed. Approximately 50 feet of 12-inch PVC pipe would be used for the lateral ditch connections.

Four temporary staging areas along the project route comprising approximately 43.2 acres would be cleared and surfaced with stone or gravel (**Figure 2**).

Work performed for the drainage canal excavations and modifications and other project features would be accomplished using ground-based excavation equipment including track-hoes, bulldozers, dump trucks, and other standard earth moving equipment.

NFL Plaquemines Parish - Figure 2

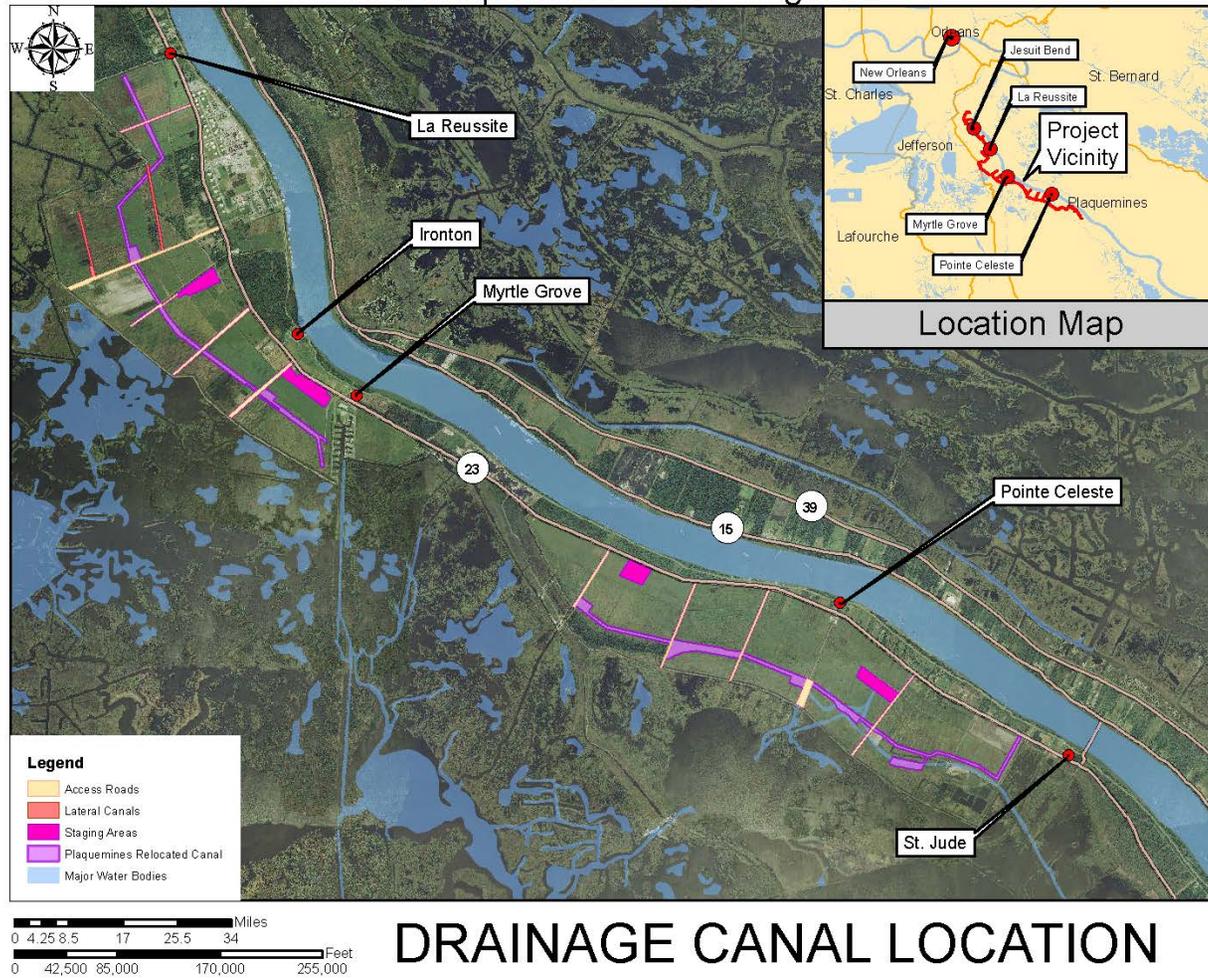


Figure 2. Location of Plaquemines Parish drainage canal and associated features.

### **Jefferson Lake Canal Marina Earthen Levee:**

A levee would be constructed across the Jefferson Lake Canal Marina property. Construction of the levee segment may be divided into land- and marine-based activities (**Figure 3**).

***Land-Based Activities:*** Tracked vehicles (including excavators, backhoes, and bulldozers) would clear and grub grounds within the levee footprint. Clearing and grubbing would include the removal of vegetation, excavation of the top 3 feet of soil and debris, and leveling of the excavated area. A 3-foot thick base layer of sand would be placed on top of all excavated grounds before construction of the levee. All excavated materials would be disposed of at a permitted disposal facility.

***Marine-Based Activities:*** Docks within the levee footprint would be demolished, and piles would be cut at the mud-line. Dock and pile debris would be hauled to a permitted disposal facility.

Approximately 30,000 cubic yards of sand would be placed within the marina to form a stable base for the levee, with fill placement beginning near LA 23 at the project's protected-side levee toe and progressing south-southwest towards the Jefferson Lake Canal and the project's flood-side levee toe. The sand would completely fill the marina to the water's surface. The sand base would cover approximate 90,000 square-feet, and would have a maximum thickness of about 8-feet. Equipment including front-end loaders, bulldozers, and long-reach excavators would be used to place the fill.

It is anticipated that a portion of the existing marina sediments would be displaced during construction of the levee base (in addition to sediments that are buried and compacted under the sand). The marina sediments have a moisture content generally above 60%, and may be displaced as a mud-wave propagating towards the Jefferson Lake Canal. To accommodate the sand base, a long-reach excavator with an approximate boom reach of 80-feet would be used to "push" the mud-wave towards the canal. A maximum of 9,000 cubic yards of marina sediment could be displaced during construction of the sand base. Displaced material that is not buried by the sand would migrate down the canal beyond the flood-side levee toe thru propagation of the mudwave aided by mechanical degradation.

NFL Plaquemines Parish - Figure 3

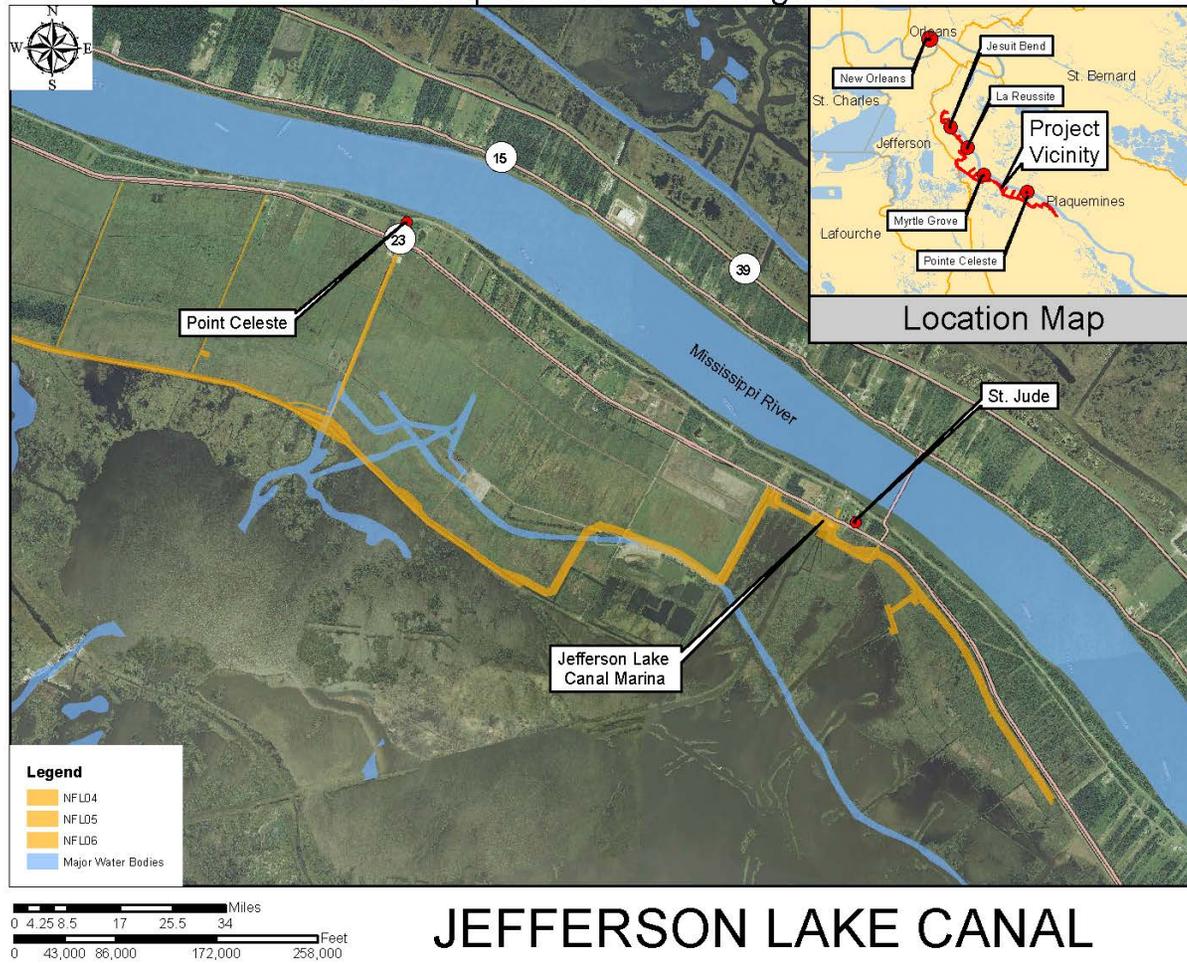


Figure 3. Jefferson Lake Canal Marina project location.

## **2.2 NO-ACTION ALTERNATIVE (ALTERNATIVE C IN THE FEIS)**

The No-Action Alternative for SEA #537 would be Alternative C as described in the FEIS and selected in the ROD as signed on October 31, 2011. Alternative C would modify the existing levee sections to the designed height of 50-year/2 percent LORR and incorporate Sections 1 through 3 of the NFL into the Federal hurricane and storm risk reduction system by employing alignment alternatives which closely follow the existing levee alignment. At the end of Section 3, the levee would be designed to turn 90 degrees to the east and tie in to the existing Mississippi River Levees. Sections 4 and 5 would not be raised to the 50-year/2 percent LORR due to insufficient funds. In the event additional funding was appropriated to complete the project, Sections 4 and 5 would later be incorporated into the Federal hurricane and storm risk reduction system utilizing the same alignment as Alternatives B and C as discussed in the FEIS.

## **3.0 AFFECTED ENVIRONMENT**

This section describes the natural and human environment as well as the relevant resources of the project area. A description of the affected environment of the complete NFL project area is presented in the FEIS and is incorporated herein by reference.

### **3.1 Environmental Setting**

The proposed project is located on the west bank of the Mississippi River in Plaquemines Parish approximately 15 miles south of downtown New Orleans, between Oakville and St. Jude. The project area lies within the Barataria Basin of the Mississippi River Deltaic Plain of the Lower Mississippi River Ecosystem in a region of extremely low relief. Dominant physiography includes the Mississippi River, its natural levees and abandoned distributaries, and the marshlands and bodies of water that lie outside the NFL-NOV levee-area.

Louisiana State Highway 23 ("LA 23") is the main roadway, connecting the towns of Belle Chasse and Venice, LA. This corridor is sparsely developed with small residential subdivisions, undeveloped marshlands, borrow areas, and agricultural fields interspersed with a petrochemical plants and other industrial uses on the Mississippi River side of the highway.

### **3.2 Description of the Watershed**

The proposed project is located within the East Central Coastal Watershed (Hydrologic Unit Code [HUC] 08090301) within the Barataria Basin. A chain of barrier islands separates the basin from the Gulf of Mexico. The southern half of the basin consists of tidally influenced marshes connected to a large bay system behind the barrier islands.

Comprised primarily of agricultural pastures completely surrounded by levees with little topographic relief, the project area receives water inputs only from rainfall, flow wells, and groundwater inflow. Area soils are alluvial and generally level. Storm-water runoff is collected in the drainage network that consists of man-made canals and lateral ditches connected to pump stations. The area is hydrologically disconnected from the basin by the NFL-NOV levee system and water exchange between protected and floodside habitat is by freshwater discharged into the basin at the pump outfalls.

### **3.3 Climate**

The proposed project area and the entirety of Plaquemines Parish fall within the gulf coast regional climate which is characterized as hot, humid, and subtropical. Summers are long and hot with high temperatures and humidity. The area receives approximately 65 inches of precipitation annually. The summer average daily temperature is 81 degrees F, with the average daily high temperature around 90 degrees F. During winter, cold, dry, polar air masses often come in from Canada influencing the project area. Winter average daily temperature is 54 degrees F, and the average daily minimum is 44 degrees F.

### **3.4 Geology**

The project area falls within the Central Gulf Coastal Plain. More specifically, the area is situated on the Deltaic Plain of the Mississippi River in a region of extremely low relief. Dominant physiographic features in the vicinity of the project area include the Gulf of Mexico, the Mississippi River and its natural levees and abandoned distributaries, and the marshlands and bodies of water that lie between the natural levees. The predominant soil types within the Woodland North borrow area consist of fat clays (CH) and lean clays (CL) with some interbedded strata of organic clays (OH), silts (ML) and sands. None of the soil types within the proposed excavation area are listed as Prime and Unique Farmland.

**TABLE 2. RELEVANT RESOURCES LOCATED IN THE PROJECT AREA.**

<b>Resource</b>	<b>Institutionally Important</b>	<b>Technically Important</b>	<b>Publicly Important</b>
<b>Wetlands</b>	Clean Water Act of 1977, as amended; Executive Order 11990 of 1977, Protection of Wetlands; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968., EO 11988, and Fish and Wildlife Coordination Act.	They provide necessary habitat for various species of plants, fish, and wildlife; they serve as ground water recharge areas; they provide storage areas for storm and flood waters; they serve as natural water filtration areas; they provide protection from wave action, erosion, and storm damage; and they provide various consumptive and non-consumptive recreational opportunities.	The high value the public places on the functions and values that wetlands provide. Environmental organizations and the public support the preservation of marshes.
<b>Bottomland Hardwood Forest</b>	Section 906 of the Water resources Development Act of 1986 and the Fish and Wildlife Coordination Act of 1958, as amended.	Provides necessary habitat for a variety of plant, fish, and wildlife species; it often provides a variety of wetland functions and values; it is an important source of lumber and other commercial forest products; and it provides various consumptive and non-consumptive recreational opportunities.	The high priority that the public places on its esthetic, recreational, and commercial value.
<b>Terrestrial Resources</b>	Food Security Act of 1985, as amended; the Farmland Protection Policy Act of 1981; the Fish and Wildlife Coordination act of 1958, as amended.	The habitat provided for both open and forest-dwelling wildlife, and the provision or potential provision of forest products and human and livestock food products.	The present economic value or potential for future economic value.
<b>Essential Fish Habitat (EFH)</b>	Magnuson-Stevens Fishery Conservation and Management Act of 1996, Public Law 104-297	Federal and state agencies recognize the value of EFH. The Act states, EFH is "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity."	Public places a high value on seafood and the recreational and commercial opportunities EFH provides.
<b>Wildlife</b>	Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918	They are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.

**TABLE 2. RELEVANT RESOURCES LOCATED IN THE PROJECT AREA.**

Resource	Institutionally Important	Technically Important	Publicly Important
<b>Threatened and Endangered Species</b>	The Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940.	USACE, USFWS, NMFS, NRCS, USEPA, <b>LDWF, and LADNR</b> cooperate to protect these species. The status of such species provides an indication of the overall health of an ecosystem.	The public supports the preservation of rare or declining species and their habitats.
<b>Estuarine Water Bodies</b>	Clean Water Act of 1977, Fish and Wildlife Coordination Act, Coastal Zone Mgt Act of 1972, La State & Local Coastal Resources Act of 1978	USACE, USFWS, NMFS, NRCS, USEPA, LDWF, and LADNR recognize value of fisheries and good water quality.	Environmental organizations and the public support the preservation of water quality and fishery resources.
<b>Cultural Resources</b>	National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979	Cultural resources are finite and non-renewable resources that include, but are not limited to both prehistoric and historic archaeological sites, historic standing structures, landscapes, and other culturally valued aspects of the environment, as well as sociocultural attributes, such as social cohesion, social institutions, lifeways, religious practices, and other cultural institutions. Historic properties include districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places, and federal agencies are required to consider the effects of their actions on such properties.	Humans relate to their environment through their culture, and historic and cultural resources provide insights into ways of life, both past and present. The protection and enhancement of historic and cultural resources is in the best interest of the public, and federal agencies also have trust and treaty responsibilities to Tribes, which are partially fulfilled through the preservation and protection of trust resources and the consideration of potential effects on natural and cultural resources.
<b>Recreation Resources</b>	Federal Water Project Recreation Act of 1965 as amended and Land and Water Conservation Fund Act of 1965 as amended	Provide high economic value to local, state, and national economies.	Public makes high demands on recreational areas. There is a high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Louisiana; and the large per-capita number of recreational boat registrations in Louisiana.

**TABLE 2. RELEVANT RESOURCES LOCATED IN THE PROJECT AREA.**

<b>Resource</b>	<b>Institutionally Important</b>	<b>Technically Important</b>	<b>Publicly Important</b>
<b>Aesthetics</b>	USACE ER 1105-2-100, and National Environmental Policy Act of 1969, the Coastal Barrier Resources Act of 1990, Louisiana’s National and Scenic River’s Act of 1988, and the National and Local Scenic Byway Program.	Visual accessibility to unique combinations of geological, botanical, and cultural features that may be an asset to a study area. State and Federal agencies recognize the value of beaches and shore dunes.	Environmental organizations and the public support the preservation of natural pleasing vistas.
<b>Socio-Economic Resources</b>	River and Harbor Flood Control Act of 1970 (PL 91-611).	N/A	Social concerns and items affecting area economy are of significant interest to community.
<b>Environmental Justice</b>	Executive Order 12898 and the Department of Defense’s Strategy on Environmental Justice of 1995,	The social and economic welfare of minority and low-income populations may be positively or disproportionately impacted by the tentatively selected plans.	Public concerns about the fair and equitable treatment (fair treatment and meaningful involvement) of all people with respect to environmental and human health consequences of federal laws, regulations, policies, and actions.
<b>Air Quality</b>	Clean Air Act of 1963, Louisiana Environmental Quality Act of 1983.	State and Federal agencies recognize the status of ambient air quality in relation to the NAAQS.	Virtually all citizens express a desire for clean air.
<b>Hydrology and Water Quality</b>	Clean Water Act of 1977, Fish and Wildlife Coordination Act, Coastal Zone Mgt Act of 1972, and La State & Local Coastal Resources Act of 1978.	USACE, USFWS, NMFS, NRCS, USEPA, and State DNR and wildlife/fishery offices recognize value of fisheries and good water quality. the national and state standards established to assess water quality	Environmental organizations and the public support the preservation of water quality and fishery resources and the desire for clean drinking water.

## 3.5 Relevant Resources

### 3.5.1 Wetlands

A majority of the wetland habitat in the project area is considered wet pasture. Wetlands are semi-aquatic lands flooded or saturated with water for varying periods of time. For an area to be delineated as a wetland, it must exhibit appropriate hydrology, contain hydric soils, and support hydrophytic vegetation (USACE, 1987). Palustrine habitats consist of freshwater wetlands that support natural vegetation that is either primarily woody or herbaceous. Palustrine wetlands dominated by woody vegetation include wet bottomland hardwoods (BLH), cypress-tupelo swamp, wet subsiding ridge, wet scrub-shrub, and batture forest. Wet pasture and freshwater marsh are palustrine wetlands dominated by herbaceous or non-woody vegetation. Among estuarine habitats, intermediate marsh, brackish marsh, and submerged aquatic vegetation (SAV)/open water habitat are found within the project area. Saline marsh is not present.

### Lateral Ditches and Drainage Canals

Within the project area are manmade interior drainage canals and lateral ditches that connect to the pump stations and run parallel and perpendicular to the NFL levee. These ditches and canals provide some habitat for hearty aquatic species such as mosquito fish and invertebrates, however, they do not contain sufficient oxygen levels for aquatic species during warm summer months. These drainage canals are maintained by Plaquemines Parish to remove the vegetation and debris. The water levels in the drainage canals fluctuate when the pump stations are operated for rainfall and storm events. The banks of these drainage canals and lateral ditches support wetland plants such as roseau cane (*Phragmites australis*), sedges (*Cyrex* sp.), grasses (*Eleocharis* sp.), alligator weed (*Alternatha philoxeroides*), wild taro (*Colocasia esculenta*), lizard tail (*Saururus cernuus*), and pennywort (*hydrocotyle* sp.) depending on weather, maintenance and water levels. Also within these canals depending on the presence of water, frequency of maintenance and temperature, floating aquatic vegetation may be present such as duck weed (*Lemna* sp.), water fern (*Salvinia* sp.), and water hyacinth (*Eichhornia crassipes*), see photographs 1 and 2 below.

Immediately adjacent and within the banks of the drainage canals and lateral ditches exists a small amount of wet bottomland hardwoods, wet pasture, and scrub shrub habitat.

**Figures 4 through 6** show the natural habitats, including wetlands, within the project area as well as the lateral ditches and drainage canals that would be widened and deepened to allow for the drainage flow from the existing drainage canal that runs parallel to the NFL levee. Habitats that occur within the levee-protected area (as far east as LA 23) are quantified in Table 3. The open water estuarine habitats found on the flood side of the NFL are discussed in detail in the Essential Fish Habitat Section of this EA.



**Photograph 1 facing south of drainage canal that connects to Wilkinson Pump station clogged with floating vegetation.**



**Photograph 2 facing north of drainage canal that connects to Wilkinson Pump Station clogged with floating vegetation.**

NFL Plaquemines Parish - Figure 4

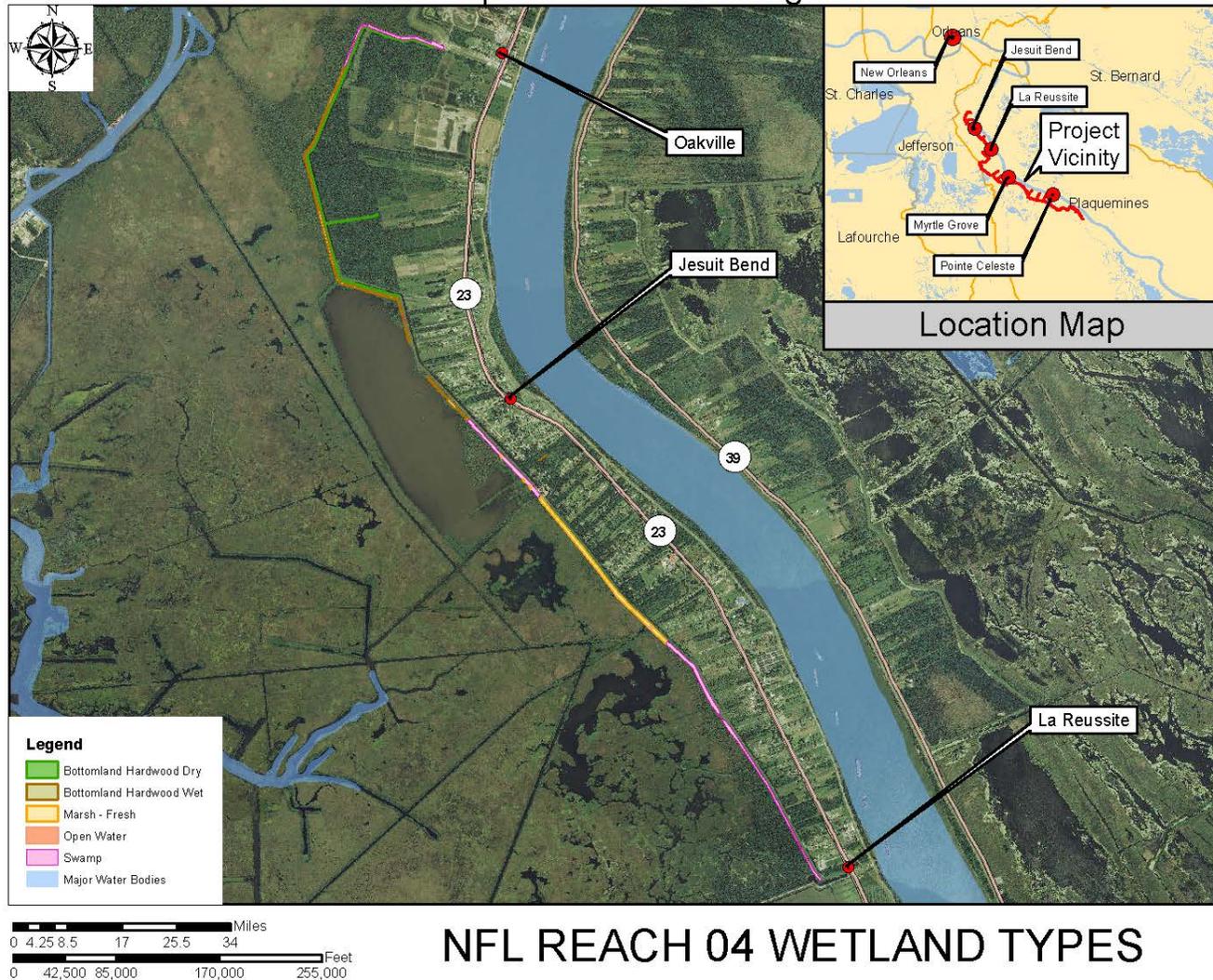


Figure 4. Habitat types in Reach NF-04.

NFL Plaquemines Parish - Figure 5

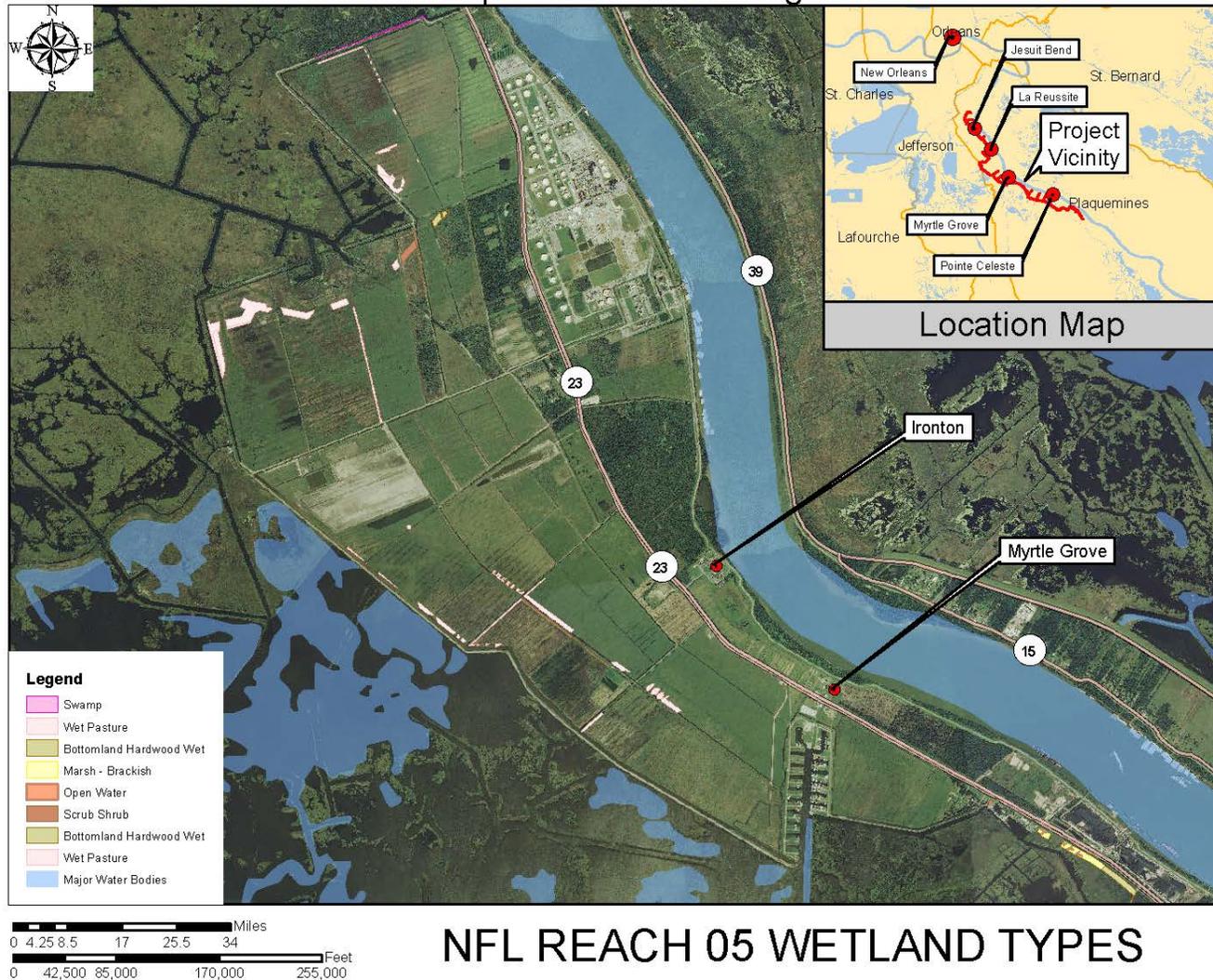


Figure 5. Habitat types in Reach NF-05.

NFL Plaquemines Parish - Figure 6

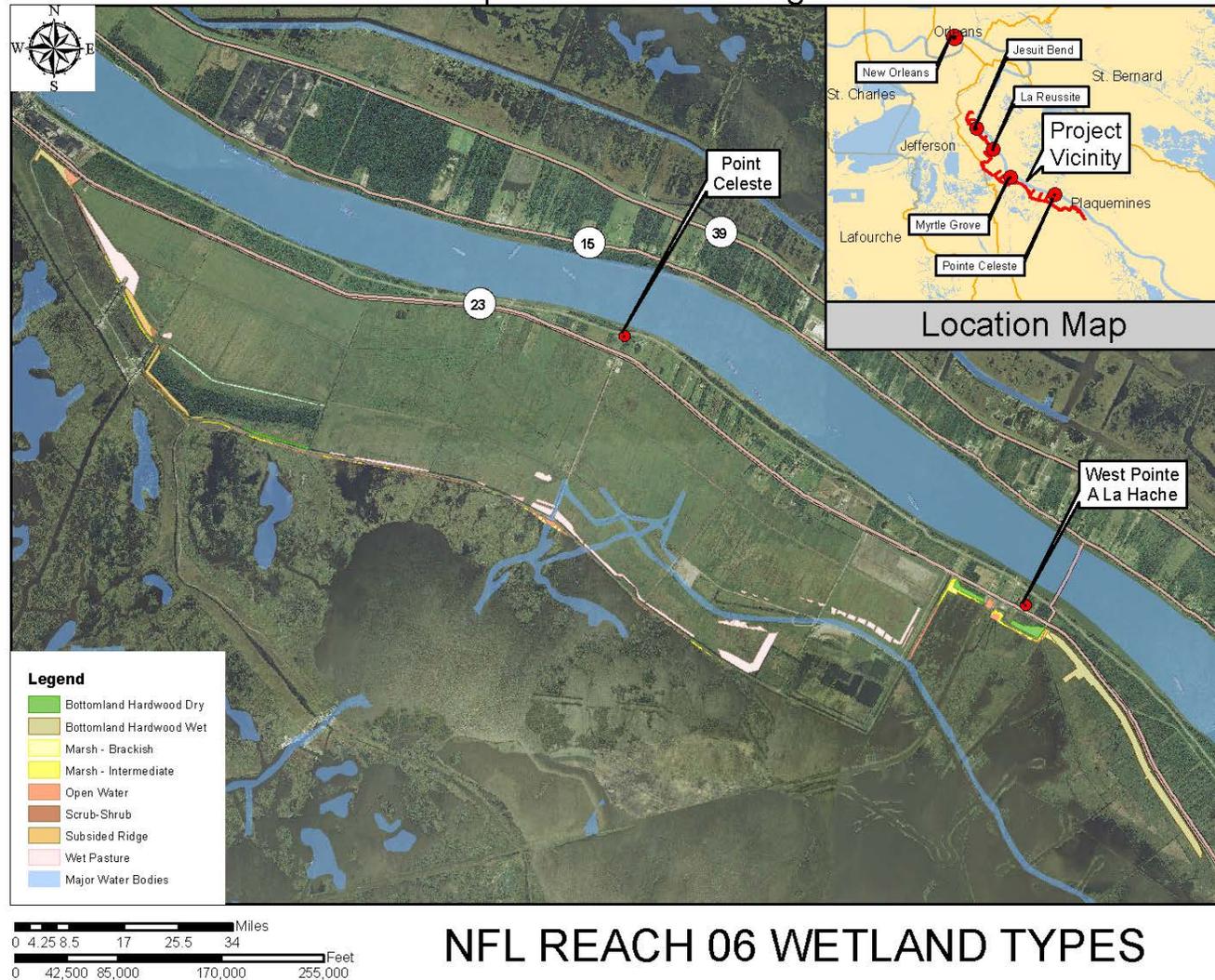


Figure 6. Habitat types in Reach NF-06.

**TABLE 3. NATURAL HABITATS (ACRES) ENCLOSED BY EXISTING NFL.**

Habitat Type	Bottom-land Hardwoods Wet	Bottom-land Hardwoods Dry	Wet Pasture	Swamp	Scrub Shrub
Acres	213.8	672.1	1,212.1	34.9	76.9

The loss of wetlands has been an issue of major concern in coastal Louisiana, including the Barataria estuary. Contributing factors responsible for that wetland loss include subsidence, saltwater intrusion, sea-level rise, canal and levee construction, urban expansion, and navigation and flood risk reduction projects. Although the causes vary, all have resulted in the conversion of wetland habitats to areas of open water. A total of 312 square miles of land in the Barataria Basin has converted to open water since 1956 (Barras, 2006).

### **Wet Bottomland Hardwoods (BLH)**

In general, wet BLH are forested, alluvial wetlands occupying broad flood plain areas that flank large river systems. Wet BLH are characterized and maintained by a natural hydrologic regime of alternating wet and dry periods generally following seasonal flooding events. These forests support distinct assemblages of plants and animals associated with particular landforms, hydric soils, and hydrologic regimes. They are important natural communities for maintenance of water quality, providing a very productive habitat for a variety of fish and wildlife species, and are important in regulating flooding and stream recharge.

Relatively small areas of wet BLH are enclosed by or on the protected side of the NFL in Sections 1, 2, 3, 4, and 5 (**see Table 3 for acreages**). In addition, some wet BLH habitat occurs on the flood side of the NFL along portions of Sections 1, 3, and 5. Dominant woody species consist of red maple (*Acer rubrum*), boxelder (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), sweetgum (*Liquidambar styraciflua*), black willow (*Salix nigra*), and hackberry (*Celtis laevigata*), with the occasional American elm (*Ulmus americana*), bald cypress (*Taxodium distichum*), pecan (*Carya illinoensis*), water oak (*Quercus nigra*), and nuttall oak (*Quercus texana*).

### **Cypress-Tupelo Swamp**

Cypress-tupelo swamps are forested, alluvial habitats on intermittently exposed soils most commonly found along rivers and streams, but also occurring in back swamp depressions and swales. The soils are inundated or saturated by surface water or ground water on a nearly permanent basis throughout the growing season except during periods of extreme drought. Cypress-tupelo swamps have relatively low plant diversity. Undergrowth is often sparse because of low light intensity and long hydroperiods. They are important natural communities for maintenance of water quality, providing a very productive habitat for a variety of fish and wildlife species, and are

important in regulating flooding and stream recharge.

Cypress-tupelo swamp occurs on the protected side of the NFL in the north end of Section 1 in several relatively small patches. Dominant overstory plant species include bald cypress (*Taxodium distichum*) and a few tupelo gum (*Nyssa aquatica*). Midstory includes red maple (*Acer rubrum*), box elder (*Acer negundo*), hackberry (*Celtis laevigata*), and on the edge black willow (*Salix nigra*). Openings in canopy reveal an understory seed bank of red maple, dwarf palmetto (*Sabal minor*), wax myrtle (*Myrica cerifera*), and Chinese tallow (*Triadica sebiferum*).

This wetland swamp type of habitat is anticipated to eventually convert to bottomland hardwoods due to its location on the protected side of the NFL and its connection to the existing pump stations that drain surface water and stormwater within the area. Swamp habitat also occurs on the flood side of the NFL in the northern and southern portions of Section 1. The dominant vegetation observed within these areas includes bald cypress (*Taxodium distichum*), black willow (*Salix nigra*), button bush (*Cephalanthus occidentalis*), cattail (*Typha sp.*), arrowhead (*Sagittaria sp.*), water hyacinth (*Eichhornia crassipes*), switchgrass (*Panicum virgatum*), common rush (*Juncus effusus*), goldenrod (*Solidago sp.*), and eastern baccharis (*Baccharis halimifolia*).

### **Wet Pasture**

Some of the levee-protected project area that is used as cattle pasture occurs on topographical depressions that are often wet. Areas of wet pasture that are jurisdictional wetlands occur in Sections 2 and 4 in numerous patches. Dominant herbaceous species include Bermuda grass (*Cynodon sp.*) and scattered smartweed (*Polygonum sp.*). However, this area also has an old seed bed of relict fresh marsh species such as arrowhead or bull tongue (*Sagittaria sp.*), cordgrass (*Spartina sp.*), and rushes (*Juncus sp.*). Woody vegetation often encroaches into these wet areas to form a scrub-shrub layer of eastern baccharis (*Baccharis halimifolia*) and rattlebox (*Sesbania drummondii*). The low plant species diversity of these wet pasture areas limits their value to wildlife.

### **Freshwater Marsh**

Freshwater marsh occurs on the flood side of the NFL along a portion of Section 1. Salinities in freshwater marshes are usually less than 2 parts per thousand (ppt) and normally average approximately 0.5 to 1 ppt. Freshwater marsh has the greatest plant diversity and highest soil organic matter content of any coastal marsh type. It is frequently dominated by maidencane (*Panicum hemitomon*). Other characteristic plant species include sedges (*Carex spp.*), alligator weed (*Alternanthera philoxeroides*), marshhay cordgrass (*Spartina patens*), roseau cane (*Phragmites australis*), coontail (*Ceratophyllum demersum*), water hyacinth (*Eichhornia crassipes*), pickerelweed (*Pontederia cordata*), pennyworts (*Hydrocotyle sp.*), common duckweed (*Lemna minor*), and cattails (*Typha sp.*). This marsh type is very important to many species of birds and supports large numbers of wintering waterfowl. It is also important nursery habitat for

larval organisms.

### **Intermediate Marsh**

Intermediate marsh is found within the project area on the flood side of the NFL along portions of Section 3. Salinities in intermediate marsh are usually 3 ppt to 10 ppt and is dominated by narrow-leaved, persistent plant species. This marsh is characterized by a diversity of species, many of which are found in freshwater marsh and some of which are found in brackish marsh. It is often dominated by marshhay cordgrass (*Spartina patens*). Other characteristic species include roseau cane (*Phragmites australis*), bulltongue (*Sagittaria lancifolia*), spikesedge (*Eleocharis* sp.), three-cornered grass (*Schoenoplectus olneyi*), and Gulf cordgrass (*S. spartineae*). This marsh type is very important to many species of birds and supports large numbers of wintering waterfowl. It is also important nursery habitat for larval organisms.

### **Brackish Marsh**

In the project area, brackish marsh is found on the flood side of the NFL along a portions of Section 3, 4 and 5. Brackish marsh has an average salinity of approximately 8 ppt. This community is irregularly tidally flooded and dominated by salt-tolerant grasses. Plant diversity and soil organic matter content are lower in brackish marsh than in intermediate marsh. Brackish marsh is typically dominated by marshhay cordgrass (*Spartina patens*). Other significant associated species include saltgrass (*Distichlis spicata*), three-cornered grass (*Schoenoplectus* spp.), saltmarsh bulrush (*Scirpus robustus*), dwarf spikerush (*Eleocharis parvula*), black needlerush (*Juncus roemerianus*), and smooth cordgrass (*Spartina alterniflora*). Brackish marsh is of very high value to estuarine larval forms of marine organisms such as shrimp, crabs, menhaden, etc.

### **Upland Habitats**

Upland resources are those portions of the project area that are not wetland or open water habitat. Upland habitats consist of three major types—dry BLH, agricultural lands, and residential or other developed lands.

### **Dry Bottom-land Hardwoods**

Areas of dry bottom-land hardwoods are present within the levee protected area in Sections 1, 2, 4, and 5. In Section 1, this habitat consists of a relatively large tract that envelops areas of wet bottom-land hardwoods. This dry type of forest is considered an upland terrestrial habitat because it does not meet the definition of a wetland since it occurs on somewhat higher ground that is better drained. Characteristic plant species include water oak (*Quercus nigra*), live oak (*Quercus virginiana*), roughleaf dogwood (*Cornus drummondii*), hackberry (*Celtis laevigata*), sweetgum (*Liquidambar styraciflua*), Chinese tallow tree (*Triadica sebifera*), saw palmetto (*Serenoa repens*), eastern baccharis (*Baccharis halimifolia*), and peppervine (*Ampelopsis arborea*). This habitat is

important because of the production of hard mast on relatively high ground which benefits a number of wildlife species.

### **Agricultural**

Dry pasture, agricultural areas such as citrus groves, and residential and industrial areas with grassy lawns and scattered trees serve as upland habitat for a variety of wildlife species that are typical of agricultural and suburban areas.

### **Invasive Plants**

There are a number of nonnative invasive plant species in the project area. The most visible is the Chinese tallow tree (*Triadica sebifera*) which has become established in forested swamps and wet scrub-shrub habitats. It can affect plant community structure by becoming the most abundant woody species at many locations. While providing very little wildlife habitat value other than occasional utilization as resting and escape cover, Chinese tallow can limit or eliminate native species that are much more frequently utilized by native wildlife species. It has the potential to invade surrounding marshes and convert them from herbaceous to woody plant communities (Neyland and Meyer, 1997).

Other kinds of invasive aquatic plant species are likely to be present within the NFL project area including the drainage canals include water hyacinth (*Eichhornia crassipes*), parrot feather (*Myriophyllum aquaticum*), hydrilla (*Hydrilla verticillata*), Brazilian waterweed (*Egeria densa*), Eurasian watermilfoil (*Myriophyllum spicatum*), water lettuce (*Pistia stratiotes*), and common salvinia (*Salvinia minima*). These plants are known to occur in the coastal marshes and drainage canals, as well as canals within the Barataria estuary. They have the ability to form dense mats that cover entire bodies of water with a thick layer that blocks sunlight, thereby reducing photosynthesis, reducing dissolved oxygen (DO), and causing fishkills.

### **3.5.2 Essential Fish Habitat**

The estuarine and marine waters of Plaquemines Parish are included in the Essential Fish Habitat (EFH) managed area. Categories of EFH that are designated within the proposed project area include estuarine wetlands (intertidal vegetation), estuarine water column, substrates (mud, sand, shell, rock, and associated biological communities), a limited presence of sub-tidal vegetation (submerged aquatic vegetation (SAV), sea grasses, and algae), and shallow open water with non-vegetated bottoms.

The proposed NFL project corridor is located in an area identified as EFH for larval, postlarval, juvenile, sub-adult, and adult life stages of brown shrimp (*Farfantepenaeus aztecus*), white shrimp (*Litopenaeus setiferus*), red drum (*Sciaenops ocellatus*), Gulf stone crab (*Menippe adina*). Table 5-6 presents the species-specific EFH requirements during the various life stages of the federally managed fish.

Three marsh types are represented along the project corridor according to USGS Biological Resources Division, National Gap Analysis Program (GAP), Louisiana GAP Analysis Project conducted post-Hurricane Katrina in 2007 (Louisiana Atlas 2007). The marsh types are intermediate, brackish, and saline which are further discussed in the wetland section. These marshes serve as nursery habitat for many aquatic species throughout their life stages (e.g., egg, larval, and juvenile).

**Shrimp species.** Shrimp species include the brown shrimp (*Farfantepenaeus aztecus*), white shrimp (*Litopenaeus setiferus*), and pink shrimp (*Farfantepenaeus duorarum*). Adult penaeids generally occupy offshore areas of higher salinity where spawning occurs. After hatching, larvae enter estuaries and remain there throughout the juvenile stage. Estuarine habitat serves as a nursery area offering a suitable substrate, an abundant food supply, and protection from predators. Subadult shrimp consume organic matter, including marsh grasses and microorganisms found in estuarine sediments. Adult shrimp are omnivorous. The EFH includes shallow inshore waters, marsh edge, SAV, tidal creeks, inner marsh, mud bottoms, and sand/shell substrate. The Habitat Areas of Particular Concern (HAPC) includes tidal inlets and state nursery and overwintering habitats. These areas contain a high abundance of juvenile specimens and are critical for early growth and development. No designated HAPC for the assemblage occurs within the project area.

**Gulf stone crab.** Gulf stone crabs (*Menippe adina*) occur throughout the Gulf of Mexico, although the majority of fishing occurs along the gulf coast of Florida. Stone crabs are benthic and can be found from the shoreline out to depths of 200 feet. Juveniles can be found on shell bottom, sponges, and *Sargassum* mats, as well as in channels and deep grass flats. Stone crab larvae are planktonic and require warm water 30 degrees Celsius and high salinity (30 to 35 ppt) for most rapid growth. The stone crab is a high trophic predator and primarily carnivorous at all life stages. Juveniles feed on small molluscs, polychaetes, and crustaceans. The EFH for the Gulf stone crab includes inshore waters of less than 59 feet, estuarine hard bottoms, estuarine sand/shell, estuarine SAV, near-shore hard bottoms, and near-shore sand/shell. No designated HAPC for the assemblage occurs within the project area.

**Red drum.** Red drum (*Sciaenops ocellatus*) is an important recreational gamefish found in coastal waters throughout the Gulf of Mexico. Adults inhabit near-shore waters, particularly areas within the surf zone or in the vicinity of inlets. Spawning occurs in near-shore areas, and eggs and larvae are transported by tides and wind currents into estuaries. Larvae and juveniles occupy estuarine environments until maturation. Red drum are predatory in all stages of life; however, the type of prey consumed varies with life stage. Subadult red drum primarily consume small marine invertebrates including mysids and copepods, while adult specimens feed on large marine invertebrates, including shrimp and crabs, and small fishes. The EFH for red drum includes tidal inlets, mud bottoms, SAV, the marsh-water interface, mangrove communities, oyster reefs, and near-shore waters with depths of less than 164 feet. The HAPC for red drum includes tidal inlets, state nursery areas, spawning sites, and SAV. No designated HAPC for the assemblage occurs within the project area.

**TABLE 4. DESIGNATED ESSENTIAL FISH HABITAT FOR FEDERALLY MANAGED SPECIES THAT OCCUR IN THE NFL PROJECT AREA.**

Species	Life Stage	Designated EFH
Brown shrimp ( <i>Penaeus aztecus</i> )	Eggs/larvae	Nearshore and offshore gulf waters (< 110 m, demersal)
	Postlarval/juvenile	Marsh edge, SAV, tidal creeks, inner marsh
	Sub-adult	Mud bottoms, marsh edge
	Adult	Neritic gulf waters, silt muddy sand, and sandy substrates
White shrimp ( <i>Penaeus setiferus</i> )	Eggs/larvae	Nearshore gulf waters < 40 m from shoreline
	Postlarval/juvenile	Marsh edge and ponds, SAV, inner marsh, oyster reefs
	Sub-adult	Same as post larval/juvenile
	Adult	Nearshore gulf waters to 30 m from shoreline
Red drum ( <i>Sciaenops ocellatus</i> )	Eggs/larvae	Nearshore and offshore gulf waters
	Postlarval/juvenile	SAV, estuarine mud bottoms, marsh/water interface
	Sub-adult	Estuarine and marine mud and sand bottoms, oyster reefs, estuarine water column
	Adult	Estuarine water column (Gulf shoreline to 50 m in depth), shell substrate; estuarine and marine mud bottoms
Gulf Stone Crag (Menippe adina)	Eggs	18 m sand shell and soft bottom
	Larvae, Post larval, Juvenile	18 m, oyster reefs, sand, shell, and soft bottoms

### **3.5.3 Prime and Unique Farmlands**

Farmland classification data provided by NRCS in September 2014 and updated in July 2015 determined that no unique farmland is located within the project areas of Section 2 or Section 4. Approximately 30.0 percent of the total project area acres in Section 2

and approximately 32.4 percent of Section 4 acres are rated as prime farmland. Prime farmland within the project area consists of the following soil associations: Cancienne silt loam, Cancienne silty clay loam, and Schriever clay.

Cancienne soils are somewhat poorly drained; runoff is medium to slow and permeability is moderately slow. A saturated zone is perched above the clayey lenses or layers and is at 1.5 to 4 feet below the surface during December through April. Most areas are protected from flooding by levees. Areas of Cancienne soils are used mainly for cropland; sugarcane, soybeans, corn, and wheat are the principal crops. Some acreage is in pasture and hay crops. A significant acreage has been developed for urban, industrial or residential uses.

Schriever soils are poorly drained. Surface runoff is high on slopes less than 1 percent and very high on slopes up to 3 percent. Permeability is very slow. Schriever soils are saturated in the layers between 0 and 0.5 feet during the months of December through April in normal years, and moist in the subsoil layers below that. Areas of Schriever soils are used mostly for cropland; sugarcane, rice, soybeans, wheat, grain sorghum, and oats are the principal crops. Some areas are used for pasture, and hay crops. Frequently flooded areas are mainly in bottomland hardwoods stands (NRCS 2015).

The prime farmland in the project areas is dedicated to pasture and hay crops. No other agricultural activities are currently taking place.

#### **3.5.4 Wildlife**

Wildlife that typically inhabits the wetland forest, wet scrub/shrub, upland forest, fresh marsh, intermediate marsh, brackish marsh, and open water habitats in and around the project area includes a diverse assemblage of amphibians, reptiles, birds, and mammals such as; frogs, turtles, alligators, snakes, colonial nesting wading birds, raptors, songbirds, ducks, nutria, deer, feral hogs, swamp rabbits, squirrels, raccoons, coyote and more. Because the majority of the project area is in agriculture or urban land cover, such areas provide relatively little quality habitat compared to the areas that are forested, scrub/shrub, or aquatic habitats.

#### **3.5.5 Threatened, Endangered and Protected Species**

Within the State of Louisiana there are 24 animal and three plant species (some with critical habitat) under the jurisdiction of the USFWS and/or the NMFS, presently classified as endangered or threatened. Of those 27 species, Table 4 identifies those that are known to occur in Plaquemines Parish. Other species that were listed on the Endangered Species List but have since been de-listed because population levels have improved are the Peregrine falcon, bald eagle and the brown pelican. Currently, American alligators and shovelnose sturgeon are listed as threatened under the Similarity of Appearance clause in the Endangered Species Act (ESA) of 1973, as amended but are not subject to ESA Section 7 consultation.

The Louisiana Natural Heritage Program (LNHP) of LDWF has developed lists and monitors the status of rare, threatened and endangered species, and natural communities for each parish of the state. The information includes state and global rank and state and Federal status for species and state and global rank for rare habitats. The species and habitats listed by the State of Louisiana may be found at <http://www.wlf.louisiana.gov/wildlife/species-parish-list>.

Of the Federally listed species in Plaquemines Parish, only the American alligator and delisted bald eagle are known to inhabit the immediate project area. The immediate project area does not provide the appropriate habitat type for the remaining listed species.

**TABLE 5. FEDERALLY THREATENED (T) AND ENDANGERED (E) SPECIES IN PLAQUEMINES PARISH.**

Common Name	Scientific name	Federal Status
American Alligator*	<i>Alligator mississippiensis</i>	T (S/A)
Bald eagle*	<i>Haliaeetus leucocephalus</i>	Delisted
Brown Pelican	<i>Pelecanus occidentalis</i>	Delisted
Pallid sturgeon	<i>Scaphirynchus albus</i>	E
Atlantic Sturgeon	<i>Acipenser oxyrhynchus oxyrhynchus</i>	T
American Peregrine falcon	<i>Falco peregrinus anatum</i>	Delisted
Piping plover	<i>Charadrius melodus</i>	T/E
West Indian Manatee	<i>Trichechus manatus</i>	E
Sprague’s Pipit	<i>Anthus spragueii</i>	Candidate
Rufa Red Knot	<i>Calidris canutus rufa</i>	T
Sea turtles: green, hawksbill, Kemp’s, leatherback, loggerhead	<i>Chelonia mydas</i> , <i>Eretomchelys imbricate</i> , <i>Lepidochelys kempii</i> , <i>Dermochelys coriacea</i> , <i>caretta caretta</i>	T, E, E, E, T

\* Known to inhabit the immediate project area

**American alligator**

The American alligator is a secure species and not subject to Section 7 consultation. However, the Fish and Wildlife Service continues to protect the alligator under the ESA classification as “threatened due to similarity of appearance” to several listed species of crocodiles and caimans. The alligator is common in the project area.

**Bald eagle**

The bald eagle was removed from the List of Endangered and Threatened Species in August 2007 but continues to be protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act of 1918, as amended (MBTA). Three bald eagle nests exist in close proximity to the project area; all three were active in 2008 (FWS, 2009). The Corps currently holds a Federal Fish and Wildlife Permit for eagle

take associated with, but not the purpose of, the activities discussed in the previously approved EIS. The permit includes avoidance, minimization and mitigation measures that the Corps must comply with which include but are not limited to (a) bi-weekly monitoring of all nests during nesting season (b) maintaining a specified distance between the activity and the nest (buffer area), (c) maintaining natural areas (preferably forested) between the activity and nest trees (landscape buffers), and (d) avoiding certain activities during the breeding season. Specifically, construction activity is prohibited within 660 feet of an active nest during the nesting season (October 1 – May 15), work cannot damage any part of a nesting tree, and no tree clearing should occur within 330 feet of a nest tree.

These measures have proven successful in the past two nesting seasons. Of the two visible nests, one produced two fledglings in April 2015 and the other had a pair of eagles that did not produce eggs but have returned this season. The third nest is not visible from our ROW and is therefore undetermined.

### **3.5.6 Cultural Resources**

Section 106 of the National Historic Preservation Act of 1966, as amended and codified in Title 54 of the United States Code; NEPA of 1969 (Public Law 91-190), as amended; and other applicable laws and regulations require Federal agencies to take into account the effects of their undertaking on the environment and any significant cultural resources within the project area of the proposed undertaking, as well as its area of potential effect (APE). Typically, these studies require archival searches and field surveys to identify any cultural resources. When significant sites are recorded, efforts are made to minimize adverse effects and preserve the site(s) in place. If any significant sites cannot be avoided and would be adversely impacted, an appropriate mitigation plan would be implemented to recover data that would be otherwise lost due to the undertaking.

Cultural resource investigations were conducted for the FEIS by New South Associates and URS from August, 2008 through September, 2009. These investigations involved a Phase I Archaeological Survey of proposed alignments and Phase II evaluative testing at several sites identified in the Phase I study. One significant site for which Phase II testing was performed was the Becnel-Perez Mound site (Site 16PL186), a prehistoric earthen mound complex. Topographic mapping was also performed for this site.

The cultural resources survey identified 19 new archeological sites, eight artifact occurrences, and two historic standing structures in the APE. Two previously recorded sites were also revisited. Of these sites and occurrences, the majority were easily defined as non-significant resources that do not require further study for National Register of Historic Places (NRHP) consideration. However, the Becnel-Perez Mound is considered to be eligible for the NRHP. The site is an expansive prehistoric multi-mound site occupied from the Late Marksville through to the Mississippian/Plaquemine Period (100 B.C. - A.D. 1540), but was most active during the Coles Creek Period (A.D. 700 - 1200). The site was comprised of 14 mounds organized into three mound groups.

The site appears to display integrity of location, design, setting, and association and seems to embody the typical techniques and spatial patterning associated with the construction of Coles Creek Period mound complexes. As the largest Coles Creek mound site currently known in Plaquemines and Jefferson Parishes, the Becnel-Perez Mound is likely to yield information that would enlighten our understanding of adaptation, subsistence, and sociopolitical organization during the Coles Creek Period in coastal southeastern Louisiana.

The Louisiana State Historical Protection Office (SHPO) and consulting federally recognized Tribes were informed of the USACE finding of no adverse effect, as a result of the 2009 study, in a letter dated April 13, 2010. The SHPO concurred with USACE eligibility determinations and finding of no adverse effect in a letter dated May 11, 2010, provided the USACE avoids impacts to the Becnel-Perez Mound site (Site 16PL186) and Sites 16PL188, 16PL189, and 16PL190. Nine federally recognized Tribes were contacted during the consultation process, including the Alabama Coushatta Tribe of Texas, the Caddo Nation of Oklahoma, the Chitimacha Tribe of Louisiana, Choctaw Nation of Oklahoma, the Coushatta Tribe of Louisiana, Mississippi Band of Choctaw Indians, Quapaw Tribe of Oklahoma, the Seminole Tribe of Florida, the Seminole Tribe of Oklahoma, and the Tunica-Biloxi Tribe of Louisiana. The Alabama-Coushatta responded by letter dated May 4, 2010, concurring with the USACE finding of no adverse effect, and the Choctaw Nation of Oklahoma by letter dated June 15, 2010, concurring with the USACE finding of no adverse effect.

In November and December 2014, and June 2015, additional cultural resources studies specifically for the PPG drainage canal relocation were conducted. The records review for the 2014 and 2015 studies consisted of a file search using information provided by the Louisiana Office of Cultural Development Division of Archaeology to identify cultural resources or cultural resource investigations documented in the area. The records review indicated that 24 previous surveys and 21 previously recorded sites have been documented within a .8 km (.5 mi) radius of the project area. Two of the sites previously recorded by the 2009 investigation were mapped within the current surveys, and one additional previously recorded site that would be potentially affected by the proposed project was identified.

Field investigation consisted of an intensive pedestrian survey supplemented with screened shovel tests. Shovel tests were in intervals of 30 m and 50 m in areas of high and low site probability, respectively. No previously undocumented cultural resources were identified within the project area during the current investigation, and no evidence of Sites 16PL157, 16PL165, or 16PL185, which would potentially be affected by the proposed project, was encountered during the current survey. A report detailing the findings of the cultural resources studies was submitted to the SHPO in January 2015 with an addendum to the report provided in May 2015.

The findings of the 2009 and 2015 cultural resources surveys indicate that no historic properties will be affected by the proposed project. Consultation pursuant to Section 106 of the National Historic Preservation Act with the SHPO and federally recognized

Tribes is on-going. Letters were mailed to the SHPO and federally recognized Tribes on January XX, 2016, to update Section 106 consultation requirements based upon the 2014 and 2015 studies, as well as any recent additions to the proposed action.

### **3.5.7 Recreation Resources**

Most developed recreational facilities available to the public in the project area are boat launches and marinas. Private camps are also found in the vicinity of the project area.

Local recreational activities are oriented toward hunting, fishing, and use of private camps. In the project area, recreational activities include fishing, birdwatching, and other passive recreational pursuits. Throughout all of the sections, fishing and hunting are fairly common recreational activities, most of which take place outside the risk reduction system.

#### **Section 1**

Most recreational use in Section 1 includes fishing in the Ollie Canal by some who live in the nearby neighborhoods. There are no public boat launch facilities in this area.

There is a park (Ollie Drive/LA 23) located approximately 50 feet west of the project area (access route). The park includes a walking path and pond.

#### **Section 2**

Recreational fishing takes place in the area south of the proposed alignments. Access to any of these areas is by boat.

#### **Section 3**

On the border of Sections 2 and 3 is Wilkinson Canal which is the location of the Myrtle Grove Marina. Camps on stilts with boat hangers line this canal. The marina is located on the unprotected side of the project alternatives.

#### **Section 4**

Lake Hermitage Marina is located several miles off LA 23. It too is located outside the proposed levee system. Camps were once abundant along this drive, but many were destroyed by Hurricane Katrina.

#### **Section 5**

There is a boat launch at the Jefferson Lake Canal Marina located along Grand Bayou is located within the project area. Historically, the boat launch was used for commercial, not recreational use. Currently, it is closed.

### **3.5.8 Aesthetics**

The primary thoroughfare is LA 23. This thoroughfare runs the length of and parallel to the Mississippi River within the project area. View sheds to the river, along this thoroughfare, are already limited due to the existing levees and other flood risk

reduction systems. View sheds into the marshlands and swamps are also equally limited due to the existing levees and other flood risk reduction systems. These thoroughfares are the primary means of public visual appreciation throughout the project area.

Outside of the hurricane risk reduction system, the landscape is dominated by marshland, swamps and wetlands with a mixture of water tolerant vegetation and some forestation. Inside the hurricane risk reduction system, the landscape is more urban in nature with heavy industrial, agricultural, low density residential and some highway commercial spread throughout the project area especially in the communities between Oakville and La Reussite, Myrtle Grove and in the vicinity of Point Celeste.

**Section 1** - The local residents, between Oakville and La Reussite already have minimal view sheds into the marshlands and flood lands to the east.

**Section 2** - The La Reussite to Myrtle Grove area features residential development on both sides of the levee. However, view sheds have also been limited here due to the existing levee systems.

**Section 3** - Myrtle Grove to Citrus Lands has similar features to those listed in Section 2, above. The main exception is the Myrtle Grove Marina which does provide a positive visual attraction to the area.

**Section 4** - Citrus Lands to Point Celeste features more open view sheds across vast agricultural fields and continued minimal view sheds towards the river. The introduction of borrow ponds on the Citrus Lands agricultural fields has not necessarily added a visually appealing landscape feature to the area.

**Section 5** - Pointe Celeste to St. Jude has similar features to those listed above but site lines are even more restricted by existing hurricane risk reduction systems.

Overall, there are only a few features that could be considered institutionally or publically significant and those include local parks and playgrounds, and recreation centers. The area lacks any real technically significant features that show excellent design techniques for form, line, repetition, color or contrast.

There are no scenic streams in the vicinity of the project area. There are no state or federally recognized scenic byways in the area.

### **3.5.9 Socio-Economics**

Although considered part of the New Orleans-Metairie-Kenner Metropolitan Statistical Area, this relatively narrow strip of protected land is largely rural. Its most important economic activities are associated with its agricultural and industrial land uses. As previously mentioned, major commercial operations are conducted through waterborne commerce along the Mississippi River and Port of Plaquemines, as well as LA 23, all of

which provide thoroughfares for industries producing, refining, and transporting important natural resources and related activities in the region, such as crude petroleum, natural gas, and coal. It also provides supporting infrastructure for industries, commercial fisheries, other public/business operations, and the human population.

An almost direct correlation exists between the number of persons living in an area and the economic opportunities available in that area, especially economic and industrial activity. Therefore, economic and industrial activity is used as an indicator of labor requirements and local demands for community facilities and public services.

## **Population and Housing**

The latest detailed statistics of population and housing (i.e., by census tract) within the five levee sections were conducted by the U.S. Census Bureau in 2000. The 2000 Census was the last complete census before Katrina. These statistics estimated the total population for all NFL Sections to be more than 2,500 people and the number of total housing units to be more than 900 housing units (including vacant units and camps).

More recently, however, due to the aftermath of Hurricanes Katrina and Rita that passed through the region in 2005, the total population in the project area decreased to nearly 2,353 people with approximately 850 housing units. In 2000, the population of the five NFL Sections accounted for approximately 9.3 percent of the Plaquemines Parish total while housing units represented approximately 8.6 percent. A preliminary review of the housing units within the existing back levees of the project area indicates the vast majority of the units are located in Section 1.

Most of the residential development in Sections 2 through 5 is located between LA 23 and the Mississippi River. Since the outline of zip code 70083 follows the project area closely, this area will be used to show the current population and housing in the area. The total population of the zip code in 2013 was 2,352, and the number of housing units was 1,111. Of the total housing units in the area, 260 were vacant, including units used as second homes, camps, or for other occasional use purposes. Many of these are located along docking facilities for recreational or commercial boats beyond existing back levees, but survived the effects of the recent hurricanes. Two of the docking facilities immediately adjacent to the existing back levee are located along Wilkinson Canal at Myrtle Grove and along Lake Hermitage Road which provide access to Hermitage Bayou and Lake Judge Perez.

Following the hurricanes Katrina and Rita, approximately 16,000 residents were estimated to be living south of Belle Chase in 2000. This included 2,100 people on the east bank of the Mississippi River and 13,900 on the west bank. The total number declined to 8,000 in 2006, then increased to 11,600 in 2007, and increased to 12,700 in 2010. According to Census Bureau estimates, the population of Plaquemines Parish increased from 26,757 to 28,903 from April 2000 to July 2005, respectively, and had

increased to 23,400 in July 2014. This reflects the detrimental effects of Hurricanes Katrina and Rita on the residents and communities located in the NFL project area.

Table 5-1 compares the 2000 population and housing of NFL Sections 1 through 5 in the project area by their location east and west of LA 23 from Oakville to St. Jude. As shown, most of the residential development was located in Section 1 in 2000 prior to the recent hurricanes. More than 87 percent of the population and more than 83 percent of the housing units in the project area both east and west of LA 23 were located in Section 1. In addition, a recent study conducted by Louisiana Speaks (i.e., an organizational planning partnership of the State’s Louisiana Recovery Authority, Federal agency technical staffs, local and regional planning groups, and citizens) indicated that Reach 1 includes an estimated 1,110 acres of residential land while most of the residential development in Sections 2 through 5 was rural or small communities between LA 23 and the Mississippi River levee (MRL) system.

**TABLE 6-1. 2000 POPULATION AND HOUSING, SECTIONS 1 THROUGH 5 OF CENSUS TRACT 504, PLAQUEMINES PARISH.**

East of LA-23				West of LA-23				Total	
Census Block		Population (No.)	HUs a/ (No.)	Census Block		Population (No.)	HUs a/ (No.)	Population (No.)	HUs a/ (No.)
<b>SECTION 1</b>									
No. 2001	Group 2	63	23	No. 2003	Group 2	123	41	--	--
No. 2002	Group 2	1	1	No. 2004	Group 2	91	29	--	--
No. 2005	Group 2	40	14	No. 2010	Group 2	48	19	--	--
No. 2006	Group 2	27	12	No. 2016	Group 2	409	128	--	--
No. 2008	Group 2	47	20	No. 2018	Group 2	111	44	--	--
No. 2009	Group 2	223	86	No. 2020	Group 2	399	131	--	--
No. 2013	Group 2	98	35	No. 2034	Group 2	54	12	--	--
No. 2015	Group 2	137	48	No. 2038	Group 2	85	29	--	--
No. 2027	Group 2	21	8	No. 2041	Group 2	89	33	--	--
No. 2029	Group 2	43	14	No. 2042	Group 2	32	13	--	--
No. 2030	Group 2	19	6	N/A	N/A	0	0	--	--
No. 2033	Group 2	55	17	N/A	N/A	0	0	--	--
No. 2035	Group 2	6	4	N/A	N/A	0	0	--	--
No. 2036	Group 2	6	2	N/A	N/A	0	0	--	--

No. 2039	Group 2	3	2	N/A	N/A	0	0	--	--
No. 2040	Group 2	16	5	N/A	N/A	0	0	--	--
TOTAL		805	297	TOTAL		1,441	479	2,246	776
SECTION 2									
No. 1005	Group 1 (20%)	2	3	No. 1008	Group 1	19	7	--	--
No. 1032	Group 1	7	2	No. 1040	Group 1	5	1	--	--
No. 1034	Group 1	45	15	N/A	N/A	0	0	--	--
No. 1071	Group 1	54	17	N/A	N/A	0	0	--	--
No. 1072	Group 1	40	14	N/A	N/A	0	0	--	--
1073	Group 1	39	13	N/A	N/A	0	0	--	--
TOTAL		187	64	TOTAL		24	8	211	72
SECTION 3									
No. 1005	Group 1 (40%)	5	6	No. 1078	Group 1	2	7	--	--
TOTAL		5	6	TOTAL		2	7	7	13
SECTION 4									
No. 1005	Group 1 (40%)	4	6	No. 1092	Group 1	3	30	--	--
No. 1108	Group 1	23	7	No. 1107	Group 1	2	2	--	--
No. 1109	Group 1	68	31	N/A	N/A			--	--
TOTAL		95	44	TOTAL		5	32	100	76
SECTION 5									
No. 1001	Group 1	0	1	N/A		0	0	--	--
No. 1009	Group 1	0	1	N/A		0	0	--	--
No. 1115	Group 1	6	1	N/A		0	0	--	--
TOTAL		6	3	TOTAL		0	0	6	3
TOTAL AREA		1,098	414	TOTAL AREA		1,472	526	2,570	940

SOURCE: U.S. Census Bureau, American Fact Finder, File 1, 2000 report.

Percentages based on USACE, New Orleans District, estimates 2000 census data.

N/A - Not applicable since units are vacant or beyond census block boundaries.

a/ HUs = Housing Units

### **Economic Activity**

**Business and Industry Facilities.** Businesses, industries, and agricultural developments generate employment through port facilities along the Mississippi River

(see the Port of Plaquemines), an oil refinery (Conoco-Phillips), a grain elevator, coal deliveries, pasture and livestock production, and scattered citrus groves south of the oil refinery. The Union Pacific Railroad operates a freight line that parallels LA 23 to a point near the oil refinery and connected with trucking lines. Several small marinas are immediately adjacent to the existing back levees used by commercial fishermen. Expansion of economic development has been limited in part due to the narrow strip of protected land available and periodically threatened by hurricanes. Repopulation activity following Hurricanes Katrina and Rita may still be in transition influencing businesses and industry that were operational prior to Katrina. This potentially includes both new and a renewal of the economic development of port activities and commercial and recreational fisheries; the production, processing, and transport of oil and gas resources; and the availability of water.

**Manufacturing Refineries.** Recent studies indicate that of the 132 refineries in the Nation, the Conoco-Phillips Alliance refinery ranks as the 18th largest. The Conoco-Phillips refinery, located in Alliance (Section 2 of the project area), carries a processing capacity of approximately 250,000 barrels a day, accounting for approximately 1.5 percent of the total U.S. refining capacity. Its major products are gasoline, diesel fuel, jet fuel, and home heating oil. Much of the output from this plant is delivered to the eastern seaboard states via pipeline. Due to Hurricanes Katrina and Rita damage, it is estimated that the Alliance refinery lost approximately 58 percent of its annual production. An estimate of the value of Alliance’s annual output based upon its capacity and using a typical barrel yield of refined product, without taxes, is approximately \$8.5 billion in 2006 prices. According to the Louisiana Manufacturers Register in 2006, total employment at this refinery alone was approximately 370, accounting for over 30 percent of the parish employment.

**Income and Employment**

Tables 5-2 and 5-3 summarize selected economic activity in the region associated with income and employment based on Bureau of Census and Department of Labor statistics reported for the year 2013. These estimates were obtained from the U.S. Census Bureau’s 2009-2013 5-year American Community Survey.

**TABLE 6-2. INCOME AND POVERTY STATISTICS, 2000 CENSUS.**

Item	Zip Code 70083		Plaquemines Parish		New Orleans, City	
	(No. or \$)	(%)	(No. or \$)	(%)	(No. or \$)	(%)
<b>HOUSEHOLDS BY INCOME LEVELS (No.)</b>						
Households (No.)	851	100.0	8,615	100.0	148,398	100.0
Less than \$10,000 (No.)	49	5.8	629	7.3	22,853	15.4
\$10,000 to \$14,999 (No.)	61	7.2	439	5.1	11,723	7.9
\$15,000 to \$24,999 (No.)	160	18.8	913	10.6	20,479	13.8
\$25,000 to \$34,999 (No.)	134	15.7	706	8.2	16,175	10.9
\$35,000 to \$49,999 (No.)	120	14.1	1,163	13.5	18,847	12.7
\$50,000 to \$74,999 (No.)	240	28.2	1,611	18.7	21,666	14.6
\$75,000 to \$99,999 (No.)	6	0.7	1,163	13.5	12,762	8.6
\$100,000 to \$149,999 (No.)	58	6.8	1,335	15.5	12,465	8.4
\$150,000 to \$199,999 (No.)	15	1.8	414	4.8	5,194	3.5

\$200,000 or more (No.)	8	0.9	250	2.9	6,381	4.3
<b>INCOME IN (current 1999 dollars)</b>						
Per Capita Income (\$)	16,833	(X)	25,748	(X)	26,500	(X)
Median household income (\$)	40,194	(X)	66,800	(X)	37,146	(X)
Mean household income (\$)	45,967	(X)	80,427	(X)	61,211	(X)
Families (No.)	628	100.0	6,401	100.0	78,318	100.0
Less than \$10,000 (No.)	6	1.0	205	3.2	8,458	10.8
\$10,000 to \$14,999 (No.)	15	2.4	122	1.9	4,856	6.2
\$15,000 to \$24,999 (No.)	145	23.1	486	7.6	9,946	12.7
\$25,000 to \$34,999 (No.)	124	19.7	544	8.5	8,615	11.0
\$35,000 to \$49,999 (No.)	109	17.4	909	14.2	9,320	11.9
\$50,000 to \$74,999 (No.)	180	28.7	1,280	20.0	11,983	15.3
\$75,000 to \$99,999 (No.)	22	3.5	1,018	15.9	7,988	10.2
\$100,000 to \$149,999 (No.)	4	0.6	1,191	18.6	8,615	11.0
\$150,000 to \$199,999 (No.)	15	2.4	410	6.4	3,759	4.8
\$200,000 or more (No.)	8	1.3	230	3.5	4,856	6.2
<b>POVERTY STATUS (No. Below Poverty Level)</b>						
Families (No.)	(X)	12.9	(X)	8.5	(X)	22.4
Individuals (No.)	(X)	15.7	(X)	12.7	(X)	27.3

SOURCE: U.S. Census Bureau, American Fact Finder, 2013 American Community Survey.

a/ Entries marked (X) are not available or not applicable.

**TABLE 6-3.OAKVILLE TO ST. JUDE, HURRICANE RISK REDUCTION SYSTEM  
CIVILIAN LABOR FORCE AND EMPLOYMENT STATISTICS, 2000 (CENSUS).**

Item	Census Tract 504		Plaquemines		New Orleans MSA a/	
	(No.)	(%)	(No.)	(%)	(No.)	(%)
<b>CIVILIAN LABOR FORCE (CLF)</b>						
Total CLF	1,391	55.8	10,679	54.0	620,909	60.8
Total Employment	1,294	51.9	9,960	50.3	578,676	56.6
Total Unemployment	97	3.9	719	3.6	42,233	4.1
Unemployment Rate (% of CLF)	7.0	-	6.7	-	6.8	-
<b>EMPLOYMENT BY OCCUPATION</b>						
Civilian employed population 16 years and over	861	100.0	9,894	100.0	555,495	555,495
Management, business, science, and arts occupations	123	14.0	2,875	29.1	192,176	34.6
Service occupations	170	20.0	1,493	15.1	106,510	19.2
Sales and office occupations	193	22.0	2,182	22.1	134,911	24.3
Natural resources, construction, and maintenance occupations	221	26.0	1,766	17.8	64,668	11.6
Production, transportation, and material moving occupations	154	18.0	1,578	15.9	57,230	10.3
<b>EMPLOYMENT BY INDUSTRY</b>						
Civilian employed population 16 years and over	861	100.0	9,894	100.0	555,495	100.0

Agriculture, forestry, fishing and hunting, and mining	117	13.6	973	9.8	10,634	1.9
Construction	25	2.9	700	7.1	47,983	8.6
Manufacturing	10	1.2	765	7.7	37,686	6.8
Wholesale trade	62	7.2	362	3.7	16,833	3.0
Retail trade	98	11.4	1,142	11.5	60,887	11.0
Transportation and warehousing, and utilities	63	7.3	876	8.9	31,640	5.7
Information	-	0.0	78	0.8	8,510	1.5
Finance and insurance, and real estate and rental and leasing	30	3.5	554	5.6	31,304	5.6
Professional, scientific, and management, and administrative and waste management services	106	12.3	719	7.3	59,999	10.8
Educational services, and health care and social assistance	214	24.9	1,483	15.0	122,964	22.1
Arts, entertainment, and recreation, and accommodation and food services	13	1.5	727	7.3	68,223	12.3
Other services, except public administration	62	7.2	378	3.8	28,576	5.1
Public administration	61	7.1	1,137	11.5	30,256	5.4

SOURCE: U.S. Census Bureau, American Fact Finder, 2013 American Community Survey.

**Income.** Income and poverty statistics are displayed in Table 5-2 for individuals, households, and families (in current 2013 dollars) for zip code 70083, Plaquemines Parish, and for comparison purposes, the larger New Orleans area in 2013. Zip code 70083 was used to represent the NFL project area. According to these statistics, per capita income (PCI) was estimated to be \$25,748 for Plaquemines Parish as compared to PCIs of \$26,500 and \$24,442 for the New Orleans and State of Louisiana, respectively, for the year 2013. The PCI for zip code 70083 was \$16,833. In the comparison of household and family incomes, zip code 70083 values parallel the parish and New Orleans. There were 851 households (i.e., occupied housing units) estimated in the zip code with a median household income of \$40,194 and a median family income of \$45,967 in 2013. This compares to a median household income of \$66,800 and \$37,146 for Plaquemines Parish and New Orleans, respectively, and a median family income of \$66,800 and \$40,944 for Plaquemines Parish and New Orleans, respectively, for the same year.

**Poverty.** Poverty statistics for zip code 70083, Plaquemines Parish, and New Orleans are also presented in Table 5-2 for the year 2013. Based on the available statistics for zip code 70083, there were 15.7 percent of individuals and 12.9 percent of families estimated to be below poverty level. Statistics for Plaquemines Parish indicated 12.7 percent of its individuals were below poverty level versus 8.5 percent of its families. Results for New Orleans were 27.3 percent of individuals and 22.4 percent of families were below the poverty level.

**Employment.** Employment statistics, which are displayed in Table 5-3, show the civilian labor force, total employment and unemployment numbers, employment by occupation, and employment by industry for zip code 70083, Plaquemines Parish, and,

for comparison purposes, the larger New Orleans in 2013. Zip code 70083 was used to represent the NFL project area. According to these statistics, total employment for the zip code was estimated at 861 in 2013 with an unemployment rate of 8.2 percent, while the parish had an unemployment rate of 5.1 percent and New Orleans had an unemployment rate of 12 percent for the same year. The employment estimates for the year 2000 are resident-based (i.e., employment of people living in the census tract, parish, or MSA).

**2013 Employment by Industry.** In a comparison of employment by industry, four sectors comprised the majority of zip code 70083 employment in the year 2013. These included educational, health, and social services with 24.9 percent; agriculture, forestry, fishing, hunting, and mining with 13.6 percent; professional, scientific, and management, and administrative and waste management services with 12.3 percent; and retail trade with 11.4 percent. This compares to Plaquemines Parish for the same year, with 15 percent in educational, health, and social services; public administration with 11.5 percent; 11.4 percent in retail trade; and 9.8 percent in agriculture, forestry, fishing, hunting, and mining.

### **Availability of Public Facilities and Services**

The relatively low population density of the project area tends to limit the demand for certain public facilities such as public schools and hospitals, or services such as police and fire protection. Other services include water and sewerage treatment services; telecommunication operations; and power supplies for industrial, commercial, and residential purposes. In the past, local and state authorities and private developers have provided protection to the back levees of the area against floods and hurricanes. Since Hurricanes Katrina and Rita, more Federal assistance has been authorized for risk reduction against such storm damages.

Two public facilities that are located immediately within the project area include the Louisiana State University AgCenter Coastal Area Research Station near Point Celeste (Section 4) and the Plaquemines Parish Sheriff's Office Shooting Range in the Myrtle Grove area (Section 3). Other important public facilities providing services immediately adjacent to the project area are the MRL system extending from Cape Girardeau, Missouri, to the Head of Passes in Plaquemines Parish and the Mississippi River Waterway, extending from Minneapolis, Minnesota, to the mouth of the river, including more than a 230-mile deep-draft channel from the Port of Baton Rouge to Head of Passes.

The planning organization "Louisiana Speaks," which was developed after Hurricanes Katrina and Rita, estimated the cost of damages to the levees in Plaquemines Parish to be approximately \$158 million and damages to the pump stations were \$17.5 million. Further south of the project area, damages to the flood gates located at Empire and Triumph were estimated to total \$20 million. While most of these damages were direct impacts beyond the immediate transportation facilities in the project area, indirect impacts resulting from the destruction of the back levee previously maintained by non-

Federal interests were also significant.

### **Transportation**

Transportation within the area includes the deep-draft channel of the Mississippi River and ferry service between Pointe a la Hache (on the east bank) to West Pointe a la Hache (on the west bank), as well as several canals located along the project back levees leading to canals, lakes, and bays approaching the Gulf of Mexico. Many canals have been created for the exploration, production, and transport of oil and gas resources important for regional, national, and international economic development. Surrounding waterways have also been used in the commercial and recreational harvest of fish and shellfish. The west bank of the Mississippi River parallels LA 23 which connects New Orleans to the NFL project area communities and the communities of Port Sulphur, Empire, Buras, and the Venice south of the project area. Additionally, the highway is critically important in the transport of residents for hurricane evacuation, as well as the transport of goods and services. The Union-Pacific Rail Company which operates a short spur as far south as the Conoco-Philips refinery, also provides important rail access to area industries.

### **Community and Regional Growth**

The construction of the proposed project is desirable for community and regional growth. The project would reduce the risk of damage to hurricane storm surge, which would protect communities and local businesses. The proposed hurricane risk reduction project is considered progress that responds to the needs of the local communities and region, and is consistent with National Economic Development guidelines.

### **Property Values and Tax Revenues**

Property values and tax revenues within the project area and much of Plaquemines Parish have somewhat unique characteristics. The parish has the limited availability of protected land along one of the world's most important waterways with large quantities of oil and gas nearby, as well as large quantities of commercial fisheries, contributing to property values. On the other hand, the area is susceptible to severe weather conditions and high river stages, threatening property damages and limiting the tax base required for urban expansion. Such factors as increasing subsidence rates over the past century can influence property values and subsequently tax revenues.

### **Community Cohesion**

Community cohesion may be considered as the unifying force of a group due to one or more characteristics that provide commonality. These characteristics may include such commonality as race, education, income, ethnicity, religion, language, and mutual economic and social benefits. Community cohesion may be the force that keeps groups together long enough to establish meaningful interactions, common institutions, and

agreed ways of behavior. It is a dynamic process, changing as the physical and human environment changes. For example, changing a right-of-way may divide a community, it may cause the dislocation of a significant number of residents, or it may require the relocation of an important local institution such as a church or community center. On the other hand, a Civil Works project for flood and hurricane risk reduction may create common bonds and enhance community cohesion.

### **3.5.10 Environmental Justice**

Demographic data was collected from the 2013 American Community Survey (ACS) for Census Tract (CT) 504 and, more specifically, Census Tract 504, Block Group 1 (CT 504, BG 1). CT 504 extends geographically along the west bank of the Mississippi River from Belle Chasse to the Grand Terre Islands. BG 1 within CT 504 does not include the populated areas of Belle Chasse. CT 504, BG 1 does include Myrtle Grove and several smaller neighborhoods between the two project areas. Table 6-1 compares the racial and ethnic characteristics of the populations in the vicinity of the project with the parish and state.

**TABLE 7-1. COMPARISON OF RACIAL AND ETHNIC CHARACTERISTICS.**

			Louisiana	Plaquemine s Parish	Census Tract 504	Block Group 1, Census Tract 504
<b>Total Population</b>			4,567,968	23,385	3,943	896
<b>Hispanic or Latino</b>	<b>Total</b>		202,145	1,239	14	-
	<b>Percent</b>		4.4%	5.3%	0.4%	0.0%
<b>Not Hispanic or Latino</b>	<b>White alone</b>	<b>Total</b>	2,742,184	15,744	2,067	173
		<b>Percent</b>	60.0%	67.3%	52.4%	19.3%
	<b>Black or African American alone</b>	<b>Total</b>	1,454,343	4,923	1,649	723
		<b>Percent</b>	31.8%	21.1%	41.8%	80.7%
	<b>American Indian and Alaska Native alone</b>	<b>Total</b>	25,018	303	58	-
		<b>Percent</b>	0.5%	1.3%	1.5%	0.0%
	<b>Asian alone</b>	<b>Total</b>	72,834	767	155	-
		<b>Percent</b>	1.6%	3.3%	3.9%	0.0%
	<b>Native Hawaiian and Other Pacific Islander alone</b>	<b>Total</b>	1,939	-	-	-
		<b>Percent</b>	0.0%	0.0%	0.0%	0.0%
	<b>Some other race alone</b>	<b>Total</b>	6,891	20	-	-
		<b>Percent</b>	0.2%	0.1%	0.0%	0.0%
	<b>Two or more races</b>	<b>Total</b>	62,614	389	-	-
		<b>Percent</b>	1.4%	1.7%	0.0%	0.0%

Source: American Community Survey 5-Year Estimates (2009-2013), Table B02001.

The populations within CT 504, BG 1 are estimated to be 80 percent minority, twice the rate of the entire CT, and four times greater than the entire parish. As shown on Table 6-2, rates of poverty in Plaquemines Parish, CT 504, and CT 504, BG1 are much lower than the rate of poverty for the entire state.

**TABLE 7-2. RATES OF POVERTY COMPARED.**

	Louisiana	Plaquemines Parish	Census Tract 504	Block Group 1, Census Tract 504
<b>Total Households</b>	1,717,852	8,615	1,363	240
<b>Income in the past 12 months below the poverty level</b>	313,990	1,243	135	12
<b>Percent Below the poverty level</b>	18.3%	14.4%	9.9%	5.0%

Source: American Community Survey 5-Year Estimates (2009-2013), Tables B17001, B17017.

### **3.5.11 Noise**

Sources of noise and vibration that have the potential to affect wildlife include human voices, aircraft, motorboats, automobile traffic, and heavy machinery and equipment. The study of animal response to noise is a function of many variables, including characteristics of the noise and duration, life history characteristics of the species, habitat type, season and current activity of the animal, sex and age, previous exposure, and whether there are other physical stressors. Responses vary among species of animals and birds and among individuals of a particular species.

Loud noise sources common to the project area are all-terrain vehicles, people’s voices, recreational boating noise from outboard motors, and traffic on local streets and state highways. Because of the close proximity to the Mississippi River, commercial ship noises, tug boats and fleeting operations could also be sources of noise as well. The noise from streets is limited due to the distance from the highways and the limited speed and number of vehicles on the local streets. Table 7 provides noise emission levels for equipment commonly associated with construction type activities. Construction of the West Bank and Vicinity-Mississippi River Levees, New Orleans to Venice levee construction, and other construction and development projects that have contributed to noise levels in the project area have been occurring over the last several years and would continue.

**TABLE 8. POSSIBLE CONSTRUCTION EQUIPMENT NOISE EMISSIONS.**

Noise Source	Typical Noise Level (dBA) 50 feet from Source
Backhoe	80 dBA
Dozer	85 dBA
Dump Truck	84 dBA
Excavator	85 dBA
Truck	88 dBA

Source: FHWA 2006. “Highway Construction Noise Handbook”

### **3.5.12 Air Quality**

The EPA is required by the Clean Air Act to set National Ambient Air Quality Standards (NAAQS) (40 CFR, Part 50), which establishes air quality standards for six principle pollutants (ozone, particulate matter, carbon monoxide, sulfur dioxide, nitrogen oxides, and lead). As of June 15, 2005, the 1-hour ozone standard for Louisiana was revoked

and replaced by an 8-hour standard (<http://www.epa.gov/ozonedesignations/index.htm>).

The Clean Air Act General Conformity Rule requires a conformity review be performed when a Federal action generates air pollutants in a region that has been designated a nonattainment or maintenance area for NAAQS. The conformity rule was established to ensure Federal actions do not hamper local pollution control. Because Plaquemine Parish is designated as an attainment area (EPA 2007) for the designated priority pollutants, no detailed conformity review for the proposed action is required. The air quality within the study area is considered good due to the rural nature of the area.

Air quality is generally good due to the rural nature of the area. On-going construction and development projects, excavation activities at numerous borrow sites in the Parish, and emissions from equipment and dump trucks associated with those activities have contributed to the overall air quality of the project area. While small to moderate emission sources are in evidence, none constitute a major air emissions source. Industry or emission sources are located along the Mississippi River deep draft waterway at a number of anchorage facilities within the Port of Plaquemines. The Phillips 66 Alliance Refinery in Section 2 is an industrial emission source. LA 23 and the Union Pacific Railroad spur are linear transportation facilities that traverse part or all of the project area and carry substantial vehicular or train traffic with resultant emissions. There are also several pump stations that contribute minor emissions when in use.

### **3.5.13 Hydrology and Water Quality**

None of the water bodies in the project area are currently listed on the Section 303(d) list of impaired water bodies by the State of Louisiana.

Under provisions of the Clean Water Act (33 U.S.C. §1251) of 1972, any project that involves the placement of dredge or fill material in waters of the United States or wetlands or mechanized clearing of wetlands would require water quality certification from the Louisiana Department of Environmental Quality (LDEQ), Office of Environmental Services. A water quality certification (WQC 110520-01/AI 101235/CER 20110002) was received from LDEQ on July 6, 2011 for the original NFL project as described in the FEIS. In an email dated January 7, 2016, LADEQ staff stated that the existing water quality certification for the NFL project is still valid for the proposed action and provided updated permit number WQC 110520-01/AI 101235/CER20160001.

## **4.0 ENVIRONMENTAL CONSEQUENCES**

### **4.1 Wetlands**

The habitat value of the wetlands were assessed utilizing a quantitative assessment for existing conditions and proposed project-related wetland impacts utilizing the Wetland Value Assessment (WVA) Methodology for Coastal Marsh Community Models (Roy, 2007). The WVA model is a quantitative, habitat-based assessment developed to

estimate anticipated environmental impacts and benefits to wetlands.

The WVA models operate under the assumption that optimal conditions for fish and wildlife habitat within a given coastal wetland type can be characterized, and that existing or predicted conditions can be compared to that optimum to provide an index of habitat quality. Habitat quality is estimated and expressed through the use of a mathematical model developed specifically for each wetland type. Each model consists of (1) a list of variables that are considered important in characterizing community-level fish and wildlife habitat values; (2) a Suitability Index graph for each variable which defines the assumed relationship between habitat quality (Suitability Index) and different variable values; and (3) a mathematical formula that combines the Suitability Indices for each variable into a single value for wetland habitat quality, termed the Habitat Suitability Index (HSI). The product of an HSI value and the acreage of available habitat for a given target year is known as the Habitat Unit (HU) and is the basic unit for measuring project effects on fish and wildlife habitat. The HUs are annualized over the project life to determine the Average Annual Habitat Units (AAHU) available for each habitat type. The change (increase or decrease) in AAHUs for the future with-project alternative, compared to future without-project conditions or in this case the No Action Alternative (proposed action Alternative C described in the NFL EIS), provides a measure of anticipated impacts. A net gain in AAHUs indicates that the project is beneficial to the fish and wildlife community within that habitat type; a net loss of AAHUs indicates that the project would adversely impact fish and wildlife resources.

The WVA has become a standard tool for assessing wetlands values in Louisiana by Federal and state agencies, including not only coastal restoration projects, but also regulatory actions. The WVA model utilized with the NFL EIS was used in this study to maintain consistency. The WVAs were prepared in a collaborative effort by the USACE and the USFWS for all project sites. Details on the WVA assessments, including assumptions and methodology, are on file at the MVN office. Table 8 displays the comparative impacts of each alternative and the resulting AAHUs.

**No Action Alternative.** Enlarging the NFL 1-3 levees would only impact the drainage canal that runs parallel and adjacent to the NFL 1-3 levee. This drainage canal would be relocated or shifted over to allow for the enlarged levee footprint but the canal dimensions would be approximately the same. Wetland plants and floating vegetation within the adjacent canals would be temporarily impacted by the construction activities but reestablish to the new canal banks with the relocation and continue to fluctuate dependent on water levels in the canal and maintenance activities.

**Proposed Action Alternative.** Enlarging and constructing Sections 1-5 of the NFL would result in the direct loss of the adjacent drainage canal to Sections 1-5 of the NFL, however, the existing interior drainage canals and lateral ditches would also be widened and deepened to account for the relocation of this drainage feature. Approximately 59.7 acres (20.8 AAHUs) of wet pasture as well as wetland plants and floating vegetation in these canals and lateral ditches would be temporarily impacted during construction. The vegetation is anticipated to reestablish within a year following completion of

construction. Based on that no additional compensatory mitigation would be required. The acreage of wetland plants and floating vegetation would be expected to continue to fluctuate during the year dependent on water level fluctuation in the canals and lateral ditches and maintenance activities.

Construction to enlarge and improve the interior drainage canals and lateral ditches would result in a permanent direct loss of 2.5 acres (0.9 AAHUs) of wet BLH and 9 acres (5.7 AAHUs) of scrub shrub because they would be removed and replaced with water for the drainage canal. These permanent impacts to wet BLH and scrub shrub would be mitigated because they are not going to be allowed to regenerate within a year. The compensatory mitigation for these unavoidable impacts are currently being addressed in EA #543 titled "Environmental Assessment for the New Orleans to Venice Hurricane Risk Reduction Project Incorporation of Non-Federal Levees from Oakville to St. Jude and New Orleans to Venice Federal Hurricane Protection Levee, Plaquemines Parish, Louisiana." This document will assess and incorporate all impacts to be mitigated for the NFL and NOV levee and floodwall construction and is currently in the planning stages with an anticipated public release of summer 2016.

### **Bottomland Hardwoods (Wet and Dry)**

**No Action Alternative.** Enlarging the Section 1-3 of the NFL would result in the direct loss of 27.3 acres (19.3 AAHUs) of wet BLH hardwoods and 9.0 acres (5.7 AAHUs) of dry BLH. There would be no direct impacts to BLH habitat as a result of maintaining Section 4 and 5 of the NFL. Wildlife species that utilize BLH habitat would be indirectly impacted by the loss of that habitat. Maintaining Section 4 and 5 of the NFL at the present level of risk reduction, could result in an increase in saltwater intrusion from storms indirectly impacting BLH in the area.

**Proposed Action Alternative.** Enlarging and constructing Sections 1-5 of the NFL 1-5 would result in the direct loss of 102.8 acres (71.5 AAHUs) of wet BLH and 43.3 acres (28.5 AAHUs) of dry BLH. Wildlife species that utilize this resource would be indirectly impacted by the loss of BLH habitat. Increasing the levee could reduce saltwater intrusion from smaller storms and indirectly benefit the habitat.

### **Cypress-Tupelo Swamp**

**No Action Alternative.** Implementation of the construction of Section 1-3 of the NFL would result in the direct loss of approximately 24.9 acres (21.1 AAHUs). Maintaining Sections 4 and 5 of the NFL would not directly impact swamp habitat in the area. Wildlife species associated with the habitat type would be indirectly impacted by the loss of the habitat. It is anticipated that they would relocate to adjacent similar habitat

**Proposed Action Alternative.** Implementation of construction in Sections 1-5 of the NFL would result in the direct loss of approximately 39.4 acres (33.4 AAHUs) of swamp habitat. Wildlife species associated with this habitat would be indirectly adversely

impacted. It is anticipated that they would relocate to adjacent similar habitat

### **Marsh (Freshwater, Intermediate, and Brackish)**

**No Action Alternative.** Enlarging the Section 1, 2 and 3 of the NFL would result in the direct loss of 10.4 acres (6.8 AAHUs) of freshwater marsh and 9 acres (5.3 AAHUs) of brackish Marsh. Maintaining the Sections 4 and 5 of the NFL would have no direct impacts to the remaining marsh habitat in this area. Wildlife species associated with this habitat would be indirectly impacted by the loss of this habitat. It is anticipated that they would relocate to adjacent similar habitat.

**Proposed Action Alternative.** Enlarging the Sections 1-5 of the NFL would result in the direct loss of 0.6 acre of intermediate marsh, 18.7 acres of freshwater marsh (12.4 AAHUs for intermediate and freshwater marsh combined) , and 18.7 acres (10.5 AAHUs) of brackish marsh). Wildlife species associated with this habitat type would be indirectly impacted by the loss of the habitat. It is anticipated that they would relocate to adjacent similar habitat.

### **Wet Pasture**

**No Action Alternative.** Enlarging the Section 1-3 of the NFL would result in the direct loss of 73.6 acres (25.7 AAHUs) of wet pasture. Maintaining the Sections 4 and 5 of the NFL would not impact the remaining wet pasture habitat in the area.

**Proposed Action Alternative.** Enlarging the Section 1-5 of the NFL would result in the direct loss of 113.3 acres (39.6 AAHUs) of wet pasture. Indirectly, species associated with this habitat would be adversely impacted for the loss of this habitat. It is anticipated that wildlife species would relocate to adjacent similar habitat.

### **Scrub-Shrub**

**No Action Alternative.** Enlarging the Section 1-3 of the NFL would not directly or indirectly impact this habitat.

**Proposed Action Alternative.** Scrub-shrub areas are limited along Sections 1-5 of the NFL alignment and typically consist of early succession willow and invasive Chinese tallow. Implementation of this alternative would result in the loss of approximately 10.5 acres (6.7 AAHUs) of scrub-shrub habitat.

### **Upland Habitat**

**No Action Alternative.** Enlarging the NFL 1-3 levees would result in the direct loss of 9.0 acres (5.7 AAHUs). Indirect impacts would be similar but less than the proposed action alternative. Maintaining Sections 4 and 5 of the NFL would not directly impact BLH dry habitat in the area.

**Proposed Action Alternative.** Enlarging the Sections 1-5 of the NFL would result in the direct loss of 43.3 acres (28.5 AAHUs) of this habitat. Wildlife species associated with this habitat type would be indirectly impacted by the loss of the habitat. It is anticipated that wildlife species would relocate to similar adjacent habitat.

**TABLE 9. COMPARATIVE IMPACTS OF ALTERNATIVES.**

No Action (EIS ROD Action)	BLH Wet		BLH Dry (includes Subsidied Ridge)		Wet Pasture (includes Relict Fresh Marsh)		Swamp		Scrub Shrub		Intermediate Marsh		Freshwater Marsh		Brackish Marsh		Open Water		Total All Habitats	
	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs
NFL Section 1	14.6	10.3	9.0	5.7	0.0	0.0	24.9	21.1	0.0	0.0	0.0	0.0	10.4	6.8	0.0	0.0	0.0		58.9	43.9
NFL Section 2	0.1	0.1	0.0	0.0	73.6	25.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	73.7	25.8
NFL Section 3	12.6	8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	5.3	0.0		21.6	14.2
<b>Total</b>	<b>27.3</b>	<b>19.3</b>	<b>9.0</b>	<b>5.7</b>	<b>73.6</b>	<b>25.7</b>	<b>24.9</b>	<b>21.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>10.4</b>	<b>6.8</b>	<b>9.0</b>	<b>5.3</b>	<b>0.0</b>		<b>154.2</b>	<b>83.9</b>
All Impacts canal + levee	BLH Wet		BLH Dry (includes Subsidied Ridge)		Wet Pasture (includes Relict Fresh Marsh)		Swamp		Scrub Shrub		Intermediate Marsh		Freshwater Marsh		Brackish Marsh		Open Water		Total All Habitats	
USFWS CAR	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs	Acres	AAHUs
NFL Section 1	19.3	13.6	12.0	7.6	0.0	0.0	39.1	33.2	0.0	0.0	0.0	0.0	18.7	12.4	0.0	0.0	0.2		89.2	66.8
NFL Section 2	0.0	0.0	0.0	0.0	43.3	15.1	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.6	15.4
NFL Section 3	5.7	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	4.2	0.4		13.7	8.2
NFL Section 4	9.4	6.6	20.0	12.7	70.0	24.5	0.0	0.0	1.5	1.0	0.6	0.2	0.0	0.0	5.1	2.8	10.4		117.0	47.8
Section 2+ 4 Canals	2.5	0.9	0.0	0.0	59.7	20.8	0.0	0.0	9.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	71.2	27.4
NFL Section 5	66.0	46.4	11.3	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	3.3	4.3		87.5	56.9
<b>Total</b>	<b>102.8</b>	<b>71.5</b>	<b>43.3</b>	<b>28.5</b>	<b>113.3</b>	<b>39.6</b>	<b>39.4</b>	<b>33.4</b>	<b>10.5 *</b>		<b>0.6 **</b>		<b>18.7</b>	<b>12.4</b>	<b>18.7</b>	<b>10.5</b>	<b>15.3 ***</b>		<b>422.1</b>	<b>222.4</b>

\*Bottomland Hardwood Dry impacts include Scrub-Shrub AAHUs.

\*\*Brackish Marsh impacts include Intermediate Marsh AAHUs.

\*\*\*Open Water impacts are captured in Freshwater Marsh AAHUS.

Wet pasture impacts associated with Section 2 and 4 Canals are considered temporary and would re-establish or self-mitigate within one year.

## 4.2 Essential Fish Habitat

**No Action Alternative.** The impacts of implementing the no action alternative are similar to those of the proposed action, but less in terms of the quantity of habitat impacted. Construction of the MRL Citrus Lands tie-in would occur across agricultural land and would not impact aquatic species. Anticipated adverse, long-term impacts on marsh and open water EFH resulting from the implementation of the no-action alternative includes approximately 10.4 acres of freshwater marsh, and 9.0 acres of brackish marsh. Approximately 19.4 acres of existing EFH marsh and open water bodies would be permanently impacted. As a result of these actions, the Corps believes that adverse impacts on some types of EFH may occur, but marsh creation would compensate for these impacts and the overall productivity of federally managed species would be benefitted (FEIS, pg. 128). Therefore, the implementation of the no-action alternative would have a moderate impact on EFH in the region.

**Proposed Action.** There are three activities within the proposed action that would result in impacts to EFH. First, the expansion of the levee footprint into EFH areas would have permanent direct impacts on existing fresh, intermediate, and brackish marsh; submerged aquatic vegetation (SAV); mud, sand, and shell substrate; water bottoms; and estuarine water column. Deposition of fill material would displace or bury EFH areas or managed species; however, larger motile species could escape by avoiding disturbances. Additionally, temporary indirect construction impacts from storm water runoff could potentially occur in various EFH within the construction access corridors or roads and at discharge pipes.

Temporary and moderate adverse impacts from turbidity could potentially occur during construction. The greatest effects would be to benthic and fishery species or life stages with low or passive transport mobility. Often, construction-induced turbidity is no higher than that observed during frontal conditions (weather events) in estuaries (Ray and Clarke, 2001).

Temporary and moderate adverse impacts to the estuarine and marine water column would result from disposal activities. It is possible that some federally managed species in post-larval or juvenile stages may be displaced or buried in the immediate vicinity during material placement; however, larger motile species could escape by avoidance reactions to mechanical disturbances.

The expansion of the levee footprint would cause moderate permanent impacts to the EFH adjacent to a number of NFL sections. Anticipated adverse, long-term impacts on marsh and open water EFH resulting from the implementation of the proposed action includes approximately 0.6 acre of intermediate marsh, 18.7 acres of freshwater marsh, 18.7 acres of brackish marsh, and 15.3 acres of open water. Approximately 53.3 acres of existing EFH marsh and open water bodies would be permanently impacted. As a result of these actions, the Corps believes that adverse impacts on some types of EFH may occur, but marsh creation would compensate for these impacts, and the overall productivity of federally managed species would be benefitted. Therefore, the

implementation of the proposed action would have a moderate impact on EFH in the region.

### **4.3 Prime and Unique Farmlands**

**No Action Alternative.** Implementation of the no action alternative (Alternative C as described in the FEIS) would result in the direct loss of approximately 36.5-acres of prime farmland soils. Direct impacts to prime farmland soils would be similar to those as described for the proposed action. Impacts to soils resulting from the construction of the drainage canal and lateral ditches would not occur.

**Proposed Action.** Implementation of the proposed action would result in the direct loss of 182.25-acres of prime farmland soils as a result of levee and floodwall construction and related activities. The construction of the new drainage canal, lateral ditches, and associated activities would result in the direct loss of 749.20-acres of prime farmland soils. The loss of soils resulting from levee and floodwall construction would not be significant to agricultural production locally or regionally, as those soils are not currently under cultivation. The majority of the area that would be impacted by construction of the drainage canal and lateral ditches is currently dedicated to open pasture and hay crops, and those areas would remain available for those uses.

### **4.4 Wildlife**

**No Action Alternative.** A detailed impacts analysis can be found in section 6.100 of the incorporated EIS. There would be minimal impacts on wildlife in the area as a result of implementing the no action alternative. The mammals, birds, reptiles and amphibians that utilize the area have ample opportunity to relocate to adjacent habitat.

**Proposed Action.** Any mammals or reptiles that inhabit the area are likely to react to disturbances by relocating to adjacent areas temporarily or permanently. Birds, including migratory birds that might use adjacent marsh for resting, foraging, or loafing, would have ample alternative locations available for use. Through careful design of project features, timing of construction and the implementation of best management practices, adverse impacts to wading bird nesting colonies could be avoided. No known colonies exist within 1,000 feet of the proposed project activities. However, a qualified biologist would inspect the proposed worksite for the presence of undocumented wading bird nesting colonies during the nesting seasons (i.e., February 15 through Sept 1). To minimize disturbance to colonies containing nesting wading birds all activity occurring within 1,000 feet of a rookery would be restricted to the non-nesting period (i.e., September 1 through February 15, exact dates may vary within this window depending on species present).

## **4.5 Threatened, Endangered and Protected Species**

### **No Action Alternative**

#### **American alligator**

Under the no action alternative impacts to the American alligator are expected to be minimal and temporary. The impacts would be disturbance due to noise, human presence and habitat loss (canal relocation). The adjacent area provides ample foraging, basking and nesting habitat and any alligators present could easily relocate to an area nearby.

#### **Bald eagle**

Impacts to the three eagle nests are expected to be negligible as implementation of the measures set forth in the permit (see section 3.5.5) have proven successful last nesting season. Observations concluded that during construction the eagles behave rather normally. On the two visible nests, the eagles were observed foraging, perching, calling and “housekeeping” with the occasional curious look. On the productive nest, one eagle always remained on the nest once eggs were present. Once the hatchlings were present, the adults proceeded to care for them with no disruption. Two fledglings left the nest successfully in April of 2015. The unproductive nest has two eagles present again this season.

### **Proposed Action**

#### **American alligator**

Impacts would be similar to those discussed in the no action alternative.

#### **Bald eagle**

Impacts would be similar to those discussed in the no action alternative as all of the avoidance, minimization and mitigation measures set forth in the permit would continue to be implemented.

## **4.6 Cultural Resources**

**No Action Alternative.** Direct and indirect impacts to cultural resources resulting from implementation of the no action alternative would be similar to the impacts of the proposed action.

**Proposed Action.** A cultural resources survey was completed for the APE that included the proposed action. The construction of proposed action will completely avoid any impacts to identified historic properties. The USACE has concluded that some of

the project activities will have “no adverse effect” to historic properties. The SHPO and consulting federally recognized Tribes were informed of the USACE finding of no adverse effect in a letter dated April 13, 2010 (Appendix A). The SHPO concurred with USACE eligibility determinations and a finding of no adverse effect in a letter dated May 11, 2010, provided that the proposed action avoids impacts to the Becnel-Perez Mound site (Site 16PL186) and Sites 16PL188, 16PL189, and 16PL190. Nine of the federally recognized Tribes were contacted during the consultation process, including the Alabama Coushatta Tribe of Texas, the Caddo Nation of Oklahoma, the Chitimacha Tribe of Louisiana, Choctaw Nation of Oklahoma, the Coushatta Tribe of Louisiana, Mississippi Band of Choctaw Indians, Quapaw Tribe of Oklahoma, the Seminole Tribe of Florida, the Seminole Tribe of Oklahoma, and the Tunica-Biloxi Tribe of Louisiana. The Alabama-Coushatta responded by letter dated May 4, 2010 (Appendix A), concurring with the USACE finding of no adverse effect, and the Choctaw Nation of Oklahoma by letter dated June 15, 2010 (Appendix A), concurring with the USACE finding of no adverse effect.

Additional consultation will be completed for the proposed action in support of the development of SEA #537 that includes a description of the proposed PPG drainage canal and the results of the cultural resources surveys conducted for the drainage canal relocation. Letters will be mailed to the SHPO and federally recognized Tribes on January XX, 2016, with a finding of no adverse effect based on the previous consultation.

#### **4.7 Recreation Resources**

**No Action Alternative.** Since the no action alternative includes construction of sections 1-3 which include the same developed recreation features in the project area, the no action is the same as the proposed action below.

**Proposed Action.** Recreational activities, such as fishing, may be impacted directly by project construction in the vicinity of the activity. Construction of above ground T-walls and floodwalls may restrict recreational access; however no developed recreation sites would be impacted. During construction, the recreational environment in and around the project area would experience limited short-term disruption by the physical size and working activities of the construction equipment. Indirectly, commercial entities which support the activities would be impacted. The impacts would be temporary and minor since persons desiring to participate in a particular activity could relocate to another area not under construction while still purchasing needed supplies.

Visitors to the park located at Ollie Drive/LA 23 may be temporarily impacted by increased traffic and noise from trucks utilizing Ollie Drive. These impacts are expected to be temporary, occurring for approximately two years during construction.

Myrtle Grove Marina would remain open during construction. Visitors to the Marina may be temporarily impacted by increased traffic, dust, and noise during construction. One access road may be closed to the marina; however access would remain available..

Cumulatively, recreation infrastructure would benefit from the reduced risk of storm and flood damage to facilities.

## **4.8 Aesthetics**

**No Action Alternative.** The no action alternative would bring little to no impacts to Visual Resources. The proposed alignments would be similar to the existing levees with only minimal height differences from existing conditions for Sections 1 through 3. Sections 4 and 5 would evolve according to maintenance practices and natural conditions if not rebuilt according to the standards listed in the proposed action.

### **Proposed Action.**

#### **Section 1 – Oakville to La Reussite**

Overall, the addition or inclusion of upgraded flood risk reduction measures would have minimal impacts to Visual Resources. This area has had earthen levees for some time. The concrete T-walls would add a man-made element to an area where a more natural looking earthen levee has resided. The addition of concrete T-walls would add a visually inferior element to the landscape; however, these structures are necessary for the future storm risk reduction of the area.

#### **Section 2 – La Reussite to Wilkinson Pump Station Levee**

Overall, the addition or inclusion of upgraded flood risk reduction measures would have minimal impacts to Visual Resources in this reach as well. The proposed earthen levees would most likely blend into the background.

#### **Section 3 – Wilkinson Pump Station to Woodpark**

The addition or inclusion of upgraded flood risk reduction measures would have similar impacts to those listed under NFL 1 – Oakville to La Reussite.

#### **Section 4 – Woodpark to Pointe Celeste**

The addition or inclusion of upgraded flood risk reduction measures would have similar impacts to those listed under NFL 1 – Oakville to La Reussite for those areas receiving T-Wall construction and NFL 2 – La Reussite to Wilkinson Pump Station Levee where the earthen levees would be built and/ or upgraded.

#### **Section 5 – West Point a la Hache to St. Jude**

The addition or inclusion of upgraded flood risk reduction measures would have similar impacts to those listed under NFL 4 – Woodpark to Pointe Celeste.

#### **Relocation of Drainage Canal**

Impacts to Visual Resources along the areas where the drainage canals would be enlarged or deepened would be minimal in the long term. Short term impacts could emerge from the stockpiling of material and staging areas, but once the material is spent elsewhere and the staging areas removed, conditions should return to a pre-construction state. Improvements and additions to the roadway network, including any temporary roadways would also have negligible impacts to Visual Resources.

### Jefferson Lake Canal Marina Earthen Levee

The existing marina has no features that give it any technical significance and it has not been used for recreational purposes. The Parish had in the past proposed reuse of the property as a public dock to support the local fishing industry, ecotourism excursions, and fishing expeditions. Such reuse was complicated by prior mishandling of petroleum products and wastes during operation of the site as a transfer station for commercial supply vessels beginning in the early 1950s. As such, the marina is not currently used for recreational purposes. The area is industrial in nature and site lines are limited from LA 23. Impacts to Visual Resources in the area would be negligible. In addition, given the polluted nature of the marina, this project could work to clean the area up and provide a better use in the future if the Parish chooses to do so.

## **4.9 Socio-Economics**

The benefits of improving surge and flood risk may include inundation reduction benefits, evacuation benefits; reduction in the emergency costs of state and local governments (such as sandbagging and police overtime), repairs to public property (such as roads and bridges), overtime for sanitation department employees, reductions in the cost of providing subsistence and lodging for residents whose homes are potentially uninhabitable due to storm damages, reductions in reoccupation costs required by homeowners in order to move back into their homes, reductions to costs to business and industrial cleanup and restoration costs required by business owners in order to make their businesses operational.

Although considered part of the New Orleans-Metairie-Kenner Metropolitan Statistical Area (MSA), this relatively narrow strip of protected land is largely rural, used for agricultural production such as pasture, raising cattle, and citrus groves. However, other important natural resources within the immediate vicinity include waterborne commerce along the Mississippi River and Port of Plaquemines; a section of the Mississippi River and Tributaries (MR&T) levee system that extends as far north as Missouri and as far south as the Gulf of Mexico; the production, refining, and/or transport of crude petroleum, natural gas, coal, and other important natural resources, and commercial fisheries.

## **Population and Housing**

**No-Action Alternative.** The construction of No-Action Alternative would provide additional risk reduction against the floods and hurricanes that periodically threaten the region, including the close proximity of the New Orleans urbanized area and adjacent coastal areas. Rather than displacement, the proposed risk reduction may encourage development as it has occurred in other areas of the larger metropolitan area. However, the plan for this project originated from Hurricanes Katrina and Rita and the need for emergency protection rather than Federal endorsement of future development within areas unusually sensitive to flood and hurricane conditions. All the proposed replacements or modifications could encourage housing development and population

growth in more protected areas within the project area. Based on historical trends, housing demand generally develops along a major transportation artery (e.g., LA 23, also used as a primary evacuation route). However, a variety of other factors may also influence the demand for future housing, including population density, access to recreation facilities, and other considerations. Because of the control maintained by local governments relative to zoning and the speculative nature of development, “induced development” of the area is not considered an indirect impact of project construction.

**Proposed Action.** The conditions resulting from construction of this alternative would be similar to the No-Action Alternative but greater with the exception of the Lowering of Risk Reduction (LORR) being unaltered along the levee segments south of the Mississippi River Levee tie-in. Sections to the south may increase very slowly as the national population increases; however, they also may decline or fluctuate as subsidence continues and periodic hurricanes pass through the area.

### **Impacts to Employment, Businesses, and Industrial Activity**

Businesses, industries, and agricultural developments located within the project area generate employment through port facilities along the Mississippi River (see the Port of Plaquemines). Industry in the area includes oil refinery (Conoco-Phillips), grain elevator, coal deliveries, pasture and livestock production, and scattered citrus groves. The Union-Pacific Railroad operates a freight line that parallels LA 23 to a point near the oil refinery and connects with trucking lines. Several small marinas are immediately adjacent to the existing back levees used by commercial fishermen. Expansion of economic development has been limited in part due to the narrow strip of protected land available and periodically threatened by hurricanes. Repopulation activity following Hurricanes Katrina and Rita may still be in transition influencing businesses and industry that were operational prior to Katrina, including the economic development of port activities; commercial and recreational fisheries; the production, processing, and transport of oil and gas resources, and the availability of water.

**No-Action Alternative.** Construction of the No-Action would provide additional risk reduction from hurricane storm surge that currently threatens businesses, industries, agricultural development, and related employment. Much of the waterborne commerce that would otherwise pass through the project area would move to ports of refuge prior to severe hurricanes as in the past. While the damage from severe winds may continue, structurally sound back levees would help to reduce the effects of tidal surges created by hurricanes.

Emergency planning and funding considerations in this study have not included quantitative benefit-cost analyses and related impacts on future development; however, it recognizes that a substantial enhancement to flood and hurricane risk reduction provided by a 12-foot levee or seawall could influence economic development within the area protected. Since sections 2 through 5 would have greater protection from storm surge, it would tend to encourage greater economic stability and potential for business and industrial growth as well as residential expansion. With increased hurricane and

flood risk reduction, the potential for businesses, industrial activity, and related employment conditions may increase.

**Proposed Action.** The conditions resulting from construction of Proposed Action would be similar to No-Action.

### **Availability of Public Facilities and Services**

The relatively low population density of the project area tends to limit the demand for certain public facilities such as public schools and hospitals or services such as police and fire protection. Other services include water and sewerage treatment services; telecommunication operations; and power supplies for industrial, commercial, and residential purposes. In the past, local and state authorities and private developers have provided protection to the back levees of the area against floods and hurricanes. Since Hurricanes Katrina and Rita, more Federal assistance has been authorized for risk reduction against such storm damages.

**No-Action Alternative.** Construction of the No-Action Alternative from Oakville to St. Jude would represent an extension of public facilities and services to maintain flood control and hurricane risk reduction within the local community. If construction of the project led to greater economic development within the area, the demand for public facilities and service may increase as well.

**Proposed Action.** The consequences of implementing this alternative would be similar to those of the No-Action Alternative, with the exception of the tie-in portion to the MRL which would leave the southern sections in present condition.

### **Disruption of Desirable Community and Regional Growth**

Desirable community and regional growth with respect to the hurricane risk reduction project is considered growth that responds to the needs of the local communities and region and is consistent with National Economic Development (NED) guidelines.

**No-Action Alternative.** This alternative may produce a temporary disruption, and in some cases may require mitigation to restore desirable community and regional growth as in the case of many other Civil Works projects. This alternative would generally extend well beyond currently occupied housing units. The completion of the project would add flood and hurricane risk reduction generally needed for community and regional growth.

**Proposed Action.** The impacts to growth with the proposed action would be similar to the no action alternative. This alternative does not extend as far south leaving those areas with less potential for growth.

### **Impacts to Property Values and Tax Revenues**

Property values and tax revenues within the project area and much of Plaquemines Parish have somewhat unique characteristics. The Parish has limited availability of protected land along one of the world's most important waterways with large quantities of oil and gas nearby as well as large quantities of commercial fisheries, contributing to property values. On the other hand, the area is susceptible to severe weather conditions and high river stages, threatening property damages and limiting the tax base required for urban expansion. Increasing subsidence rates over the past century can influence property values and subsequently tax revenues.

**No-Action Alternative.** The increased risk reduction would help maintain property values and consequently help sustain the existing tax base of communities within the project area and regions influenced by economic developments beyond the immediate project area. Much of the New Orleans metropolitan area economic development occurred through a system of levees and seawalls similar to the proposed alternatives considered.

In general, property currently used for urban and industrial purposes has a higher value than agricultural land. Alternatives that extend significantly beyond LA 23 include larger tracts of wetland and may have less potential for future urban purposes and therefore may be of less economic value. Sections 1 and 2 are in close proximity to the New Orleans urbanized area, increasing the potential for conversion from undeveloped land to a higher usage and values. The threat of land loss and subsidence over time may require additional maintenance to sustain property values due to the nature of hurricanes that periodically pass through the area. If economic development and property values increase from a project alternative, reductions in storm damages could also add stability to the local tax base.

**Proposed Action.** The Impacts to Property Values and Tax Revenues with the proposed action would be similar to the no action alternative.

#### **4.10 Environmental Justice**

##### **No Action Alternative**

Direct and indirect impacts for the no action alternative would be the same as described in the FEIS for environmental justice. Under the no action alternative Sections 4 and 5 would not be constructed and flood risk reduction would not be improved for the communities located in those sections. Direct adverse impacts from construction activities such as air quality, noise, traffic, etc., would also be exerted equally on minority and low income populations as well as non-minority and non-low income populations of the Oakville through St. Jude areas. Indirect impacts from this action may include residential and commercial growth within the protected area. This indirect impact is not anticipated to exert disproportionately high indirect, adverse human health, and environmental impacts on minority and/or low-income communities

**Proposed Action.** Title VI of the Civil Rights Act (42 United States Code [USC] 2000) and Executive Order 12898 *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* mandate that Federal agencies

identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. Socioeconomic and demographic data for the project vicinity were reviewed to determine whether the proposed action would have a disproportionately high and adverse impact on minority or low-income people.

Implementation of the proposed action in the project area would enhance Federal hurricane risk reduction in an area with existing lower level risk reduction. Thus, implementation would benefit all residents of these areas alike. Direct adverse impacts from construction activities such as air quality, noise, traffic, etc., would also be exerted equally on minority and low income populations as well as non-minority and non-low income populations of the Oakville through St. Jude areas. Indirect impacts from this action may include residential and commercial growth within the protected area. This indirect impact is not anticipated to exert disproportionately high indirect, adverse human health, and environmental impacts on minority and/or low-income communities.

#### **4.11 Noise**

**No Action Alternative.** Noise impacts from the no action alternative would be similar to those of the proposed action, but less in magnitude due to the smaller footprint of the project area (Section 1-3 constructed under the no action alternative).

The direct noise impacts to the project area would be localized and temporary and would likely be below the 115 dBA threshold established as the upper limit for unprotected hearing by the OSHA. Noise from construction equipment and other construction related activities would have a temporary impact on the residents of local communities. Noise from activities associated with the no action alternative would likely be below upper limit thresholds as established by OSHA, and would be consistent with noise from other construction projects that are occurring in the area. While tolerance of unnatural disturbance varies among wildlife, the increase in noise levels during construction would likely result in various wildlife and fishery resources temporarily leaving or avoiding project area during construction activities. Any indirect impacts due to noise are expected to be localized, temporary, and minor in nature. There would be no cumulative effects from noise.

No adverse impacts related to potential project replacements or modifications have been identified with respect to noise. During construction, noise levels would be similar to other construction related projects and industrial uses occurring in the project area.

**Proposed Action.** The direct noise impacts to the project area would be localized and temporary and would likely be below the 115 dBA threshold established as the upper limit for unprotected hearing by the OSHA. Noise from construction equipment and other construction related activities would have a temporary impact on the residents of local communities. Noise from activities associated with the proposed action would likely be below upper limit thresholds as established by OSHA, and would be consistent with noise from other construction projects that are occurring in the area. While

tolerance of unnatural disturbance varies among wildlife, the increase in noise levels during construction would likely result in various wildlife and fishery resources temporarily leaving or avoiding project area during construction activities. Any indirect impacts due to noise are expected to be localized, temporary, and minor in nature. There would be no cumulative effects from noise.

No adverse impacts related to potential project replacements or modifications have been identified with respect to noise. During construction, noise levels would be similar to other construction related projects and industrial uses occurring in the project area.

#### **4.12 Air Quality**

**No Action Alternative.** Impacts to air quality from the no action alternative would be similar to those of the proposed action.

**Proposed Action.** Plaquemines Parish is classified as attainment for all of the National Ambient Air Quality Standards (NAAQS) (EPA, 2009). The attainment status for the parish is the result of area-wide air quality modeling studies. Thus, no Conformity Determination or other effort is required of the proposed action.

Therefore, there would be no overall adverse effects of the project on regional air quality that would result in nonattainment status. Direct impacts would occur from stockpiling and moving borrow material would have a potential for wind erosion and would create dust, especially as it is manipulated with heavy equipment. Wind erosion would be minimized by revegetation of construction sites and other control measures. Best management practices would be implemented to minimize impact of air pollutants. Also, construction and waste disposal activities would be conducted in accordance with applicable local, state, and Federal statutes and regulations.

Indirect impacts to air quality would relate to the operation of heavy equipment in the reconstruction of the NFL producing localized and short-term engine emissions and dust. As presented in Table 6-5, completing the project would result in over 136 million miles of road traveled to deliver over 2 million truckloads of borrow material, however impacts on regional air quality would be negligible.

#### **4.13 Hydrology and Water Quality**

**No Action Alternative.** Impacts to hydrology and water quality from the no action alternative would be similar to those of the proposed action but to a lesser extent.

**Proposed Action.** Construction of the NFL and associated features may have some localized short-term direct impacts on water quality. Construction activities may result in direct impacts to water quality of increased suspended solids in the vicinity of the construction due to site disturbance. The State of Louisiana allows a 10 percent increase to the 50 NTU criteria for turbidity in estuaries from discharges. It is not

expected that the proposed action would exceed this limit. The increased suspended solids may result in decreased primary productivity due to shading of phytoplankton. The decreased primary productivity may then indirectly lower dissolved oxygen levels. These impacts would be short term and localized to construction site and immediate area.

## **5.0 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW)**

The USACE is obligated under Engineer Regulation (ER) 1165-2-132 to assume responsibility for the reasonable identification and evaluation of all Hazardous, Toxic, and Radioactive Waste (HTRW) contamination within the vicinity of proposed actions. ER 1165-2-132 identifies that HTRW policy is to avoid the use of project funds for HTRW removal and remediation activities. An American Society for Testing and Materials (ASTM) Phase I Environmental Site Assessment (ESA) was completed for the project area, to include NFLS Sections 1 – 5, in July 2009 as part of the FEIS. An ASTM E 1527-05 Phase 1 Environmental Site Assessment (ESA), HTRW 15-11 dated October 6, 2015, has been completed for modifications to the NFL project in NFL Section 3, and a Phase I ESA, HTRW 15-12 dated October 13, 2015, has been completed for modifications to the project in NFL Section 5. A copy of the Phase 1 ESAs would be maintained on file at the U.S. Army Corps of Engineers, New Orleans District Headquarters. The probability of encountering HTRW for the proposed actions is low based on the initial site assessments.

The Plaquemines Parish Government contracted ELOS Environmental, LLC, to conduct a Phase I ESA of a proposed drainage canal located between Belle Chasse and West Pointe a La Hache. The areas of study in the ELOS ESA, dated July 2015, corresponded with NFL Section 2 and Section 4. USACE personnel reviewed the ELOS Phase I ESA as part of this EA. The probability of encountering HTRW in NFL Sections 2 and 4 is also low based on the initial site assessment.

If a recognized environmental condition is identified in relation to the project site, the U.S. Army Corps of Engineers, New Orleans District would take the necessary measures to avoid the recognized environmental condition so that the probability of encountering or disturbing HTRW would continue to be low.

## **6.0 MITIGATION**

The appropriate application of mitigation is to formulate an alternative that first avoids adverse impacts, then to minimize adverse impacts that could not be avoided, and lastly, to compensate for impacts remaining that cannot be avoided. Where possible adverse wetland impacts were avoided or minimized to the extent possible, however, unavoidable impacts would occur to some habitats as shown in Table 6-7 : Compensatory mitigation is required for the following habitat types: BLH Wet, BLH Dry, Wet Pasture (to be mitigated as Fresh Marsh), Swamp, Scrub Shrub, Intermediate Marsh, Freshwater Marsh, and Brackish Marsh. Temporary impacts to wet pasture associated with improving the lateral ditches and canals are considered self-mitigating

and would not be included in the total compensatory mitigation acres. Details of this mitigation would be described in a separate Environmental Assessment and would include the wetland impacts of the New Orleans to Venice Supplemental Environmental Impact Statement as a large scale mitigation project. The planning for the compensatory mitigation plan is being coordinated with an interagency team comprised of representatives from the CPRA, LDNR, Plaquemines Parish Government, USACE, USEPA, USFWS, and NMFS.

## **7.0 CUMULATIVE IMPACTS**

The Council on Environmental Quality regulations (40 CFR §1500-1508) implementing the procedural provisions of NEPA of 1969, as amended (42 U.S.C. 4321, et seq.), define cumulative effects as “the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR §1508.7).” Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

Other levee projects currently underway in Plaquemines Parish include the New Orleans to Venice and the West Bank and Vicinity – Mississippi River Levee. Future work associated with these levee projects would include planned lifts, armoring, and other required repairs and maintenance to the levee systems. These future actions would contribute to short term temporary transportation, air quality and noise quality impacts, and combined would contribute cumulatively to the overall impact on the environment.

Borrow material has been utilized by CEMVN for the construction of the HSDRRS and other projects in southeastern Louisiana. Over 17,319,700 cubic yards of borrow material is estimated to have been obtained for the HSDRRS construction effort. Approximately 1.5 million truck trips are estimated to have been necessary to deliver the quantity of material presented in the table 5. In addition, an estimated 814 barge trips delivered some of the material, mainly rock. These borrow sites previously approved by numerous IER’s would likely be the source of borrow material needed to perform levee lifts and maintenance for at least 50 years into the future. Levee improvements throughout the LPV and WBV projects would require substantial amounts of borrow material.

Other projects of the CEMVN, such as Morganza to the Gulf, Larose to Golden Meadows, Westshore Lake Pontchartrain Flood Damage Risk Reduction Study, Plaquemines NOV/NFL, maintenance of the Mississippi River levees and other civil works investigations would require suitable borrow material. State and local levee and floodwall construction efforts would require borrow material as well. The Mississippi River and Tributaries Projects would utilize borrow material for levee repairs, replacements, lifts, and berms. The construction and operation of the borrow areas has resulted in and would continue to add to the short-term cumulative effects on

transportation. It is anticipated that over 100,000,000 cubic yards of material will be necessary to raise levee elevations regionally to meet the needs of the HSDRRS.

The extent of land directly and indirectly affected by previous development activities, in combination with the excavation and use of the proposed borrow material for NFL construction, would contribute cumulatively to land alteration and loss in southeastern Louisiana/southwestern Mississippi. After borrow area excavation, the land may be converted to ponds and small lakes if not backfilled, which may be required per local ordinances. If not backfilled, the land would be considered unsuitable for farming, forestry, or urban development in the reasonably foreseeable future. Habitat would be changed to favor aquatic and semi-aquatic species over the terrestrial ones that now occupy the areas. Borrow areas that do not retain water would be colonized by vegetation and woody plants, which would favor terrestrial species. This would attract the same species that are currently found in the areas. Based on historical human activities and land use trends in southeastern Louisiana/southwestern Mississippi, it is reasonable to anticipate that future activities would further contribute to cumulative degradation of land resources.

## **8.0 COORDINATION AND PUBLIC INVOLVEMENT**

A Public Notice for this action was published in the Baton Rouge and New Orleans Advocate for 30 days beginning January XX, 2016 through February XX, 2016. ....comments were received. The public notice is located in Appendix ().

Preparation of this draft EA and FONSI is being coordinated with appropriate congressional, Federal, state, and local interests, as well as environmental groups, Native American Indian tribes, and other interested parties.

United States Fish and Wildlife Service  
Environmental Protection Agency, Region VI  
Natural Resources Conservation Service  
Advisory Council on Historic Preservation  
Louisiana Department of Wildlife and Fisheries  
Louisiana Department of Natural Resources  
Louisiana Department of Environmental Quality  
Louisiana State Historic Preservation Office  
National Marine Fisheries Service

MVN received recommendations from USFWS dated 30 Dec 2015. These recommendations and MVN's responses are as follows:

1. To the greatest extent possible, design (e.g., implementation of "T"-walls, sheet-pile, and/or cement floodwall in levees designs) and position flood protection features so that destruction of forested and emergent wetlands and non-wet bottomland hardwoods are avoided or minimized.

MVN Response: The project will utilize the authorized and funded level of risk reduction footprint and minimize impacts on wetlands.

2. Minimize enclosure of wetlands with new levee alignments. When enclosing wetlands is unavoidable, acquire non-development easements on those wetlands, or maintain hydrologic connections with adjacent, un-enclosed wetlands to minimize secondary impacts from development and hydrologic alteration.

MVN Response: Enclosure of wetlands will be avoided to the greatest extent practicable, unless the wetlands are currently isolated. In some instances where wetlands are currently isolated (i.e. they do not have hydrologic connections with adjacent wetlands), and the wetlands are small and of low quality, they may be enclosed and hydrologic connections lost.

3. The Corps shall fully compensate for any unavoidable losses to wet and non-wet bottomland hardwood habitat (-100 AAHUs), swamp habitat (-33.4 AAHUs), fresh marsh (-12.4 AAHUs), brackish marsh (-10.5 AAHUs), and wetland pasture (-39.6 AAHUs) caused by project features. All aspects of mitigation planning should be coordinated with the Service, NMFS, the Environmental Protection Agency (EPA), the Louisiana Department of Natural Resources (LDNR), Coastal Protection and Restoration Authority (CPRA) and LDWF.

MVN Response: Concur. Details of this mitigation would be described in a separate Environmental Assessment and would include the wetland impacts of the New Orleans to Venice Supplemental Environmental Impact Statement as a large scale mitigation project. The planning for the compensatory mitigation plan is being coordinated with an interagency team comprised of representatives from the CPRA, LDNR, Plaquemines Parish Government, USACE, USEPA, USFWS, and NMFS.

4. Funds for full compensatory mitigation for the entire project should be set aside upfront to ensure that the Federal and local sponsors will have the capability of offsetting unavoidable losses to the wetland habitats as listed in item #3 above, regardless of whether construction funding is procured by each levee reach.

MVN Response: Concur. Adequate funding for this effort has been budgeted.

5. Full compensation for marsh should be defined to be no less than 0.27 AAHUs per mitigation acre; however, that replacement rate may require redefining based on design of a specific proposed mitigation project to ensure full functional replacement.

MVN Response: Concur

6. The Service recommends that mitigation alternatives include locating the mitigation within the basin where impacts occurred.

MVN Response: Concur

7. If a proposed project feature is changed significantly or is not implemented within one year of our latest, Endangered Species Act consultation letter, we recommend that the Corps reinstate coordination with the Service to ensure that the proposed project would not adversely affect any federally listed threatened or endangered species or their critical habitat.

MVN Response: Concur

8. Avoid adverse impacts to wading bird nesting colonies and bald eagle nesting locations through careful design of project features and timing of construction. A qualified biologist should inspect the proposed work site for the presence of undocumented wading bird nesting colonies and bald eagle nests during the nesting seasons (i.e., February 16 through October 31 for wading bird colonies, and October through mid-May for bald eagles).

MVN Response: Concur

9. To minimize disturbance to colonies containing nesting wading birds (i.e., herons, egrets, night-herons, ibis, and roseate spoonbills), anhingas, and/or cormorants, all activity occurring within 1,000 feet of a rookery should be restricted to the non-nesting period (i.e., September 1 through February 15, exact dates may vary within this window depending on species present). In addition, we recommend that on-site contract personnel be informed of the need to identify colonial nesting birds and their nests, and should avoid affecting them during the breeding season.

MVN Response: Concur

10. If a bald eagle nest is discovered within or adjacent to the proposed project area, then an evaluation must be performed to determine whether the project is likely to disturb nesting bald eagles. That evaluation may be conducted on-line at: [Blockedhttp://www.fws.gov/southeast/es/baldeagle](http://www.fws.gov/southeast/es/baldeagle). Following completion of the evaluation, that website will provide a determination of whether additional consultation is necessary and those results should be forwarded to this office.

MVN Response: Concur. Currently three bald eagle nests are known to exist within 660 feet of the levee footprint. MVN holds an eagle take permit which includes avoidance measures and monitoring during nesting season.

11. Forest clearing associated with project features should be conducted during the fall or winter to minimize impacts to nesting migratory birds to the maximum extent practicable.

MVN Response: To the extent practicable, CEMVN would try to schedule forest clearing outside of the migratory bird nesting season. However there may be situations

in which some clearing may need to take place during the season to maintain construction schedules.

12. Acquisition, habitat development, maintenance and management of mitigation lands should be allocated as first-cost expenses of the project, and the local project-sponsor should be responsible for operational costs. If the local project-sponsor is unable to fulfill the financial mitigation requirements for operation, then the Corps should provide the necessary funding to ensure mitigation obligations are met on behalf of the public interest. All costs (i.e., performance compliance and monitoring) until year five success criteria are attained shall be at the sole expense of the Federal sponsor.

MVN Response: Concur. First cost and maintenance will be the responsibility of the Corps until success criteria is achieved. Management of the lands will be site-specific based on coordination with state and Federal agencies, in addition to the local sponsor.

13. Construction of or purchasing credit from an approved mitigation bank for all compensatory mitigation should be conducted concurrent with construction of the NFL project (and concurrent with the NOV federal levees project if mitigation is combined), to ensure that mitigation obligations are met on behalf of the public interest.

MVN Response: Enclosure of wetlands will be avoided to the greatest extent practicable, unless the wetlands are currently isolated. In some instances where wetlands are currently isolated (i.e. they do not have hydrologic connections with adjacent wetlands), and the wetlands are small and of low quality, they may be enclosed and hydrologic connections lost.

14. If mitigation lands are purchased for inclusion within Federal or State managed lands, those lands must meet certain requirements; therefore, the land manager of that management area should be contacted early in the planning phase regarding such requirements.

MVN Response: Concur

15. Further detailed planning of project features (e.g., Design Documentation Report, Engineering Documentation Report, Plans and Specifications, or other similar documents) should be coordinated with the Service, NMFS, EPA, LDNR, and LDWF, and the Corps shall provide them with an opportunity to review and submit recommendations on all work addressed in those reports.

MVN Response: Concur

16. If applicable, a General Plan should be developed by the Corps, the Service, and the managing natural resource agency in accordance with Section 3(b) of the FWCA for mitigation lands.

MVN Response: Concur

17. A report documenting the status of mitigation implementation and maintenance should be prepared by the managing agency and provided to the Corps, the Service, NMFS, EPA, LDNR, and LDWF. That report should also describe future management activities and identify any proposed changes to the existing management plan.

MVN Response: Concur

18. The Service encourages the Corps to finalize mitigation plans and proceed to mitigation construction so that it will be concurrent with project construction. If construction is not concurrent with mitigation implementation then revising the impact and mitigation period-of-analysis to reflect additional temporal losses will be required.

MVN Response: The USACE shares the goal of implementing mitigation as quickly as possible. If delays are experienced such that mitigation project implementation takes longer than what was previously estimated, the USACE will work with the resource agencies to determine whether such delays could necessitate extending the current period of analysis associated with the habitat impacts and whether additional temporal loss to the habitats in question would result in a larger mitigation requirement.

19. Impacts to Essential Fish Habitat (EFH) should be avoided and minimized to the greatest extent possible. Because impacts to designated EFH habitat may need to be mitigated the Corps should coordinate with the NMFS regarding this need and maintain an account of all EFH habitats (e.g., openwater, marsh) impacted and mitigated.

MVN Response: Concur

## **9.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS**

There are many Federal and state laws pertaining to the enhancement, management and protection of the environment. Federal projects must comply with environmental laws, regulations, policies, rules and guidance. A 30 day public review and comment period for the draft EA began on January 19, 2016. Environmental compliance was achieved upon conclusion of the 30-day public review and comment period and approval of the associated Finding of No Significant Impact signed on March XX, 2016.

### **Executive Order (E.O.) 11988 Floodplain Management**

Executive Order 11988 directs Federal agencies to reduce flood loss risk; minimize flood impacts on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by flood plains. Agencies must consider alternatives to avoid adverse and incompatible development in the flood plain. If the only practical alternative requires action in the flood plain, agencies must design or modify their action to minimize adverse impacts. The proposed action represents the least environmentally damaging alternative to accomplish the needed risk reduction system modifications.

### **Clean Air Act of 1972**

The Clean Air Act (“CAA”) sets goals and standards for the quality and purity of air. It requires the Environmental Protection Agency to set National Ambient Air Quality Standards (“NAAQS”) for pollutants considered harmful to public health and the environment. The Project area is in Plaquemines Parish, which is currently in attainment of NAAQS. The proposed borrow sites used for this project would be located in parishes which are also in attainment of NAAQS. The Louisiana Department of Environmental Quality is not required by the CAA and Louisiana Administrative Code, Title 33 to grant a general conformity determination.

### **Clean Water Act of 1972 – Section 401 and Section 404**

The Clean Water Act (“CWA”) sets and maintains goals and standards for water quality and purity. Section 401 requires a Water Quality Certification from the Louisiana Department of Environmental Quality (LDEQ). The LDEQ issued water quality certification WQC 110520-01/AI 101235/CER 20110002 in their letter dated July 6, 2011. The state water quality permit would be updated for the proposed action and coordination with the LDEQ is on-going.

As required by Section 404(b)(1) of the Clean Water Act (CWA), an evaluation to assess the short- and long-term impacts associated with the discharge of dredged and fill materials into waters of the United States resulting from this project has been completed. Section 404(b)(1) public notice was mailed out for public review on January 25, 2016.

### **Coastal Zone Management Act of 1972**

The Coastal Zone Management Act (“CZMA”) requires that "each federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with approved state management programs." The CEMVN received a consistency determination (C20100384) for the FEIS on January 4, 2011. The consistency determination (C20100384) would be modified for the proposed action as described in SEA #537.

### **Endangered Species Act of 1973**

The Endangered Species Act (“ESA”) is designed to protect and recover threatened and endangered (“T&E”) species of fish, wildlife and plants. The CEMVN has re-initiated coordination with USFWS for the modification to the NFL project as identified in the proposed action as described in SEA #537. A letter dated January XX, 2016 from the USFWS stated that they do not object to the activity as proposed (Appendix X).

### **Hazardous, Toxic and Radioactive Waste (HTRW)**

The USACE is obligated under Engineer Regulation (ER) 1165-2-132 to assume responsibility for the reasonable identification and evaluation of all hazardous, toxic, and radioactive waste (“HTRW”) contamination within the vicinity of proposed actions. ER

1165-2-132 identifies that HTRW policy is to avoid the use of project funds for HTRW removal and remediation activities.

An ASTM Phase I Environmental Site Assessment (ESA) was completed for the project area, to include NFLS Sections 1 – 5, in July 2009 as part of the FEIS. An ASTM E 1527-05 Phase 1 Environmental Site Assessment (ESA), HTRW 15-11 dated October 6, 2015, has been completed for the NFL project, Section 3, and a Phase I ESA, HTRW 15-12 dated October 13, 2015, has been completed for NFL Section 5. A copy of the Phase 1 ESAs will be maintained on file at the U.S. Army Corps of Engineers, New Orleans District Headquarters. The probability of encountering HTRW for the proposed action is low based on the initial site assessments. If a recognized environmental condition is identified in relation to the project site, the U.S. Army Corps of Engineers, New Orleans District would take the necessary measures to avoid the recognized environmental condition so that the probability of encountering or disturbing HTRW would continue to be low.

### **National Historic Preservation Act of 1966**

Congress established the most comprehensive national policy on historic preservation with the passage of the National Historic Preservation Act of 1966 (NHPA). In this act historic preservation was defined to include "the protection, rehabilitation, restoration and reconstruction of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, or culture." The act led to the creation of the National Register of Historic Places, a file of cultural resources of national, regional, state, and local significance. The act also established the Advisory Council on Historic Preservation (the Council), an independent Federal agency responsible for administering the protective provisions of the act.

Section 106 consultation will be completed for the proposed action in support of the development of SEA #537 that includes a description of the proposed PPG drainage canal and the results of the cultural resources surveys conducted for the drainage canal relocation. Letters will be mailed to the SHPO and federally recognized Tribes on January XX, 2016, with a finding of no adverse effect based on the previous consultation.

## **10.0 CONCLUSION**

CEMVN has assessed the environmental impacts of the proposed action on relevant resources. The project as proposed would have temporary short term impacts on air quality from heavy equipment operations during construction; short term temporary impacts to adjacent areas from construction noise; temporary transportation impacts from transporting of construction equipment and hauling of borrow materials and scrap materials to/from the construction site.

The proposed action would directly impact 495.9-acres (241.5 AAHUs) of bottomland hardwoods and wetlands. Impacts to wet pasture resulting from the relocation of the drainage canal in Sections 2 and 4 would result in temporary impacts to 59.7-acres

(20.8 AAHUs), that would be expected to re-establish within one year following completion of construction. Details of these impacts and mitigation would be described in a separate Environmental Assessment and would include the wetland impacts of the New Orleans to Venice Supplemental Environmental Impact Statement as a large scale mitigation project. See Section 7 (Mitigation) of this EA for additional information.

## 11.0 PREPARED BY

SEA #537 and the associated draft FONSI were prepared by Eric Williams with relevant sections and review conducted by the following:

**TABLE 10. LIST OF PREPARERS.**

<b>Title/Topic</b>	<b>Team Member</b>
Environmental Team Lead	Sandra Stiles, CEMVN-PDN-CEP
Environmental Manager	Eric Williams, CEMVN-PDN-NCR
Wildlife and T&E sections	Tammy Gilmore, CEMVN-PDN-CEP
Wetlands and bottomland hardwoods section	Laura Lee Wilkinson, CEMVN-PDN-UDP
Tribal Consultation	Rebecca Hill, CEMVN-PDN-NCR
Cultural Resources	Paul Hughbanks, CEMVN-PDN-UDP
Aesthetics	Kelly McCaffery, CEMVN-PDN-NCR
Recreation	Debra Wright, CEMVN-PDN-NCR
Socioeconomics	Terry Baldrige, CEMVN-PDN-UDP
HTRW	Joe Musso, CEMVN-PDC-CEC

## 12.0 REFERENCES

Barras, John A. 2006. "Land Area Change In Coastal Louisiana After The 2005 Hurricanes - A Series of Three Maps: U.S. Geological Survey Open-File Report 06-1274". Accessed February 2009 from <http://pubs.usgs.gov/of/2006/1274/>.

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Ray, G. and D. Clarke. 2001. "The New York District's Biological Monitoring Program for the Atlantic Coast of New Jersey, Asbury Park to Manasquan Section Beach Erosion Control Project; Final Report." U.S. Army Engineer Research and Development Center, Waterways Experiment Station, Vicksburg, MS.

USACE. 1987. Online version of "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, Environmental Laboratory, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. Accessed February 2009 from <http://www.mvn.usace.army.mil/ops/regulatory/wlman87.pdf>.

USACE. 2011. Final Environmental Impact Statement and Record of Decision, New Orleans to Venice, Louisiana, Hurricane Risk Reduction Project: Incorporation of Non-Federal Levees from Oakville to St. Jude, Plaquemines Parish, Louisiana. Incorporated by reference. FEIS and ROD on file at USACE, New Orleans District.

# APPENDIX A

## Agency Letters

Mr. David Walther USFWS  
646 Cajundome Blvd., Suite 400  
Lafayette, LA 70506

Tammy Gilmore  
Biologist/Environmental Resource Specialist  
USACE, Regional Planning and Environment Division South

16 December 2015

Subject: Threatened and Endangered Species concurrence for EA #537 New Orleans to Venice Hurricane Risk Reduction Project: Changes to the Non-Federal Levees Project, Oakville to St. Jude, Plaquemines Parish, Louisiana.

Mr. Walther,

Reference is made to *Final Supplemental Environmental Impact Statement (SEIS), New Orleans to Venice (NOV), Federal Hurricane Protection Levee, Plaquemines Parish, Louisiana* and *Final Environmental Impact Statement (EIS), New Orleans to Venice, Louisiana, Hurricane Risk Reduction Project: Incorporation of Non-Federal Levees (NFL) From Oakville to St. Jude, Plaquemines Parish, Louisiana*. The Record of Decision (ROD) for each of these projects was signed on 31 October, 2011. On March 2013, the USFWS concurred with the Corps' determination of "not likely to adversely affect" any federally listed threatened or endangered species.

The U.S. Army Corps of Engineers (USACE), New Orleans District (MVN), is preparing to perform the work described in Environmental Assessment (EA) #537, *New Orleans to Venice Hurricane Risk Reduction Project: Changes to the Non-Federal Levees Project, Oakville to St. Jude, Plaquemines Parish, Louisiana*. The EA is being prepared to address modifications to the actions described in the aforementioned EIS. The project modifications consist of additional work areas that have been identified outside of the original project right-of-way as documented by the EIS, and would include changes to levee and floodwall alignments, additional access corridors, ramps, staging areas, and other temporary work easements; consideration of changes to the level of risk reduction from the 50-year (2%) to the 25-year (4%) in several locations throughout the NFL reaches; improvements to and enlargement of an existing drainage canal and associated lateral drainage ditches to replace an existing drainage canal that will be filled in by the NFL levee work; and the construction of an earthen levee across the Jefferson Lake Canal Marina. We are requesting concurrence with our determination of "not likely to adversely affect" any federally listed threatened or endangered species for the proposed work in EA #537.

See attached the previous T&E coordination and CAR for the project area and supporting information. If you have any questions about the project or need additional information, please contact me at (504) 862-1002.

Sincerely,  
Tammy Gilmore

This project has been reviewed for effects to Federal trust resources under our jurisdiction and currently protected by the Endangered Species Act of 1973 (Act). The project, as proposed,  
 Will have no effect on those resources  
 Is not likely to adversely affect those resources.  
This finding fulfills the requirements under Section 7(a)(2) of the Act.



Acting Supervisor  
Louisiana Field Office  
U.S. Fish and Wildlife Service

6 Jan 2016

Date



MITCHELL J. LANDRIEU  
LIEUTENANT GOVERNOR

**State of Louisiana**  
OFFICE OF THE LIEUTENANT GOVERNOR  
DEPARTMENT OF CULTURE, RECREATION & TOURISM  
OFFICE OF THE SECRETARY

PAM BREAU  
SECRETARY

May 11, 2010

Ms. Joan Exnicios  
Environmental Planning and Compliance Branch  
New Orleans District, Corps of Engineers  
P.O. Box 60267  
New Orleans, LA 70160-0267

Re: Draft Phase I/Phase II CRM Report  
LA Division of Archaeology Report No. 22-3459  
*Cultural Resource Investigation[s] for the  
Non-Federal Levees Project,  
West Bank of the Mississippi River,  
Plaquemines Parish, Louisiana*  
URS-Baton Rouge

Dear Ms. Exnicios:

We are in receipt of your letter dated April 13, 2010 transmitting two copies of the above-cited report. We have completed our review and have the following comments to offer.

The report is well written and meets the current field and report guidelines for archaeological investigations in Louisiana as required by the Louisiana Division of Archaeology. Also, we concur with the report's recommendations regarding the eligibility of 19 newly reported and two previously reported archaeological sites for the National Register of Historic Places (NRHP) after Phase I and some Phase II investigations.

These recommendations are as follows: newly reported sites 16PL173 through 16PL185, and 16PL187 through 16PL191 are not eligible for the NRHP, while 16PL186 is recommended as eligible for the NRHP. Previously reported archaeological sites 16PL153 and 16PL165 are recommended for Phase II testing to determine their NRHP eligibility should they be impacted in the future. We concur with those recommendations as well. We are especially gratified that the newly reported prehistoric Becnel/Perez multi-mound site (16PL186) is recommended as eligible for the NRHP and that the CEMVN "will not select an alignment that would intersect that site's defined boundaries."

Ms. Joan Exnicios  
May 11, 2010  
Page 2

Technical comments concerning several items are included with this letter. Please address these as appropriate in the preparation of the final report for this project and transmit two copies for our files. Also, please include a compact disk containing a pdf copy of the final report for the Division's electronic files. Finally, reports cannot be finalized until all site forms and site update forms have been accepted by the Division of Archaeology. Should you have any questions concerning our current comments, do not hesitate to contact Dennis Jones in the Division of Archaeology at (225) 342-6932 or by email at [djones@crt.state.la.us](mailto:djones@crt.state.la.us)

Sincerely,

A handwritten signature in black ink, appearing to read "Phil Boggan", with a stylized flourish at the end.

Phil Boggan  
Assistant State Historic Preservation Officer  
PB:DJ:s

C: Mr. Martin Handly, URS Corporation (w/enclosures).



# ALABAMA-COUSHATTA TRIBE OF TEXAS

571 State Park Rd 56 • Livingston, Texas 77351 • (936) 563-1100

May 4, 2010

Paul Hughbanks  
New Orleans District, Corps of Engineers  
Attn: CEMVN-PM-R  
P.O. Box 60267  
New Orleans, LA 70160-0267

Dear Dr. Hughbanks:

On behalf of Mikko Oscola Clayton Sylestine and the Alabama-Coushatta Tribe, our appreciation is expressed on your efforts to consult us regarding the Non-Federal Levees Project, West Bank of the Mississippi River in Plaquemines Parish.

Our Tribe maintains ancestral associations within Louisiana despite the absence of written records to completely identify Tribal activities, villages, trails, or grave sites. However, it is our objective to ensure significances of Native American ancestry, especially of the Alabama-Coushatta Tribe, are administered with the utmost attention.

Upon review of your April 13, 2010 submission, no impacts to religious, cultural, or historical assets of the Alabama-Coushatta Tribe of Texas should occur in conjunction with this proposal. Therefore, we concur with your "no adverse effect" recommendation.

In the event of inadvertent discovery of human remains, activity in proximity to the location must cease and appropriate authorities, including our office, notified without delay. Should you require additional assistance, please do not hesitate to contact us.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "B. Celestine", is written over a horizontal line.

Bryant J. Celestine  
Historic Preservation Officer



# Choctaw Nation of Oklahoma

P.O. Box 1210 • Durant, OK 74702-1210 • (580) 924-8280

Gregory E. Pyle  
Chief

Gary Batton  
Assistant Chief

April 7, 2011

Joan M. Exnicios  
Department of the Army  
New Orleans District, Corps of Engineers  
P.O. Box 60267  
New Orleans, Louisiana 70160-0267

Dear Joan M. Exnicios:

We have reviewed the following proposed project (s) as to its effect regarding religious and/or cultural significance to historic properties that may be affected by an undertaking of the projects area of potential effect.

**RE: New Orleans to Venice (NOV) Federal Levee, Plaquemines Parish, Louisiana**

**Comments:** The Choctaw Nation of Oklahoma has reviewed project (s) and ask that we be contacted if Native American sites or human remains are encountered. Contact information 1-800-522-6170 ext. 2216.

Sincerely,

Ian Thompson PhD RPA  
Tribal Archeologist/Assistant Director/NAGPRA Specialist  
Choctaw Nation of Oklahoma

By:   
Caren A. Johnson  
Administrative Assistant